To Be Bribed or Lobbied: Political Control or Regulation

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Abstract

The form of political governance determines the structure of competition among interest groups. A politician choosing direct control of firm entry can be bribed, while regulation based on minimum requirements makes her prone to lobbying. Direct control offers exclusive benefit to the winning group resulting in perfect competition among bribers, so all rents accrue to the politician. Under regulation some agents cannot be excluded from entry, giving their lobby a competitive advantage and allowing them to extract rents at the expense of the politician. If institutional quality is low the politician faces low risk of prosecution and thus prefers being bribed. Unequal distribution of legal power in oligarchic societies may give bargaining power also to bribers, allowing the most powerful individuals to share in political rents.

Keywords: Lobbying, bribing, corruption, competition, inequality

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1 Introduction

Models of political influence by interest groups often treat bribing and lobbying as equivalent (Persson and Tabellini, 2016). While both entail a transfer towards the government in exchange for favors, in practice bribing and lobbying differ across several dimensions. One distinction is that bribing aims at circumventing an existing policy, whereas lobbying seeks to change it (Harstad and Svensson, 2011). Moreover, bribing is illegal (Rose-Ackerman, 1975), while some form of lobbying is allowed in most jurisdictions and considered a legitimate form of advocacy.

This paper explores the implications of these differences for competition among interest groups under bribing and lobbying, which in turn determines the equilibrium policy, the size of political rents and social welfare. We show how the quality of institutions, such as political accountability and strength of the legal system, affect politician's preference for being bribed or lobbied.

The model considers a semi-benevolent politician who decides on the level of firm entry. She can choose to control market access directly or to regulate it by setting a minimum entry requirement based on observable attributes. Households may endogenously associate in interest groups to seek entry. These groups lobby for a favorable entry requirement if the politician opts for regulation or bribe to be granted market access if the politician governs by direct control. Since bribing is illegal, the politician accepting contributions while controlling market access directly faces a risk of costly prosecution.

Under direct control the politician can grant market access to any group, regardless of the observable attributes of its' members. This creates a level-playing field for all interest groups as they compete solely on the size of the bribe. Perfect competition between groups allows the politician to extract all the monopoly rents associated with a limited entry by the winning group of bribers.

If the politician governs using minimum entry requirements, households can form lobbying groups to persuade the politician to set the requirement at a favorable level. Agents endowed with the highest value of the attribute required by regulation satisfy the entry condition more easily. In equilibrium they unite in an interest group, forming a *strong lobby* which wins the lobbying game by outbidding any counteroffer. Since no rule can exclude entry by the strong lobby while allowing entry by agents with the lower value of the attribute, subsequent

lobbying groups have fewer resources to offer to the politician in return for a favorable requirement. This increases the strong lobby's bargaining power against the politician and allows it to extract some of the monopoly rents. The strong lobby can increase its share of rents by admitting more members, thereby weakening the competition and further undermining politician's bargaining power. Such strategic enlargement under lobbying results in higher entry rates and social welfare than under bribing,

Governing via direct control and being bribed promises higher political rents to the politician, but comes with a risk of prosecution. Prosecution of a corrupt politician is more likely in economies with stronger legal systems, thus governance by direct control is less appealing in such environments. We show that political accountability can be a substitute for the strength of the legal system in discouraging socially costly bribing. With higher accountability political contributions are less valuable to the politician, diminishing the benefits of governing through direct control. As a consequence, the politician opts for direct control and makes herself susceptible to bribing only if both the strength of the legal system and political accountability are relatively low. Consistent with evidence of lobbying being more prevalent than bribing in states with stronger democracies and more independent media (Campos and Giovannoni, 2007), the model predicts that the politician chooses to be influenced by lobbyist if the quality of political or legal institutions is high.

An extension of the baseline model allows for an endogenous risk of prosecution after bribing and explores the role of socio-political inequality. We assume that agents who are denied entry (thereafter referred to as consumers) may support the legal inquiry against the politician and thereby increase the probability of prosecution. The effectiveness of these efforts depends on their total legal power, which can reflect their literacy, access to legal advice and representation or connections in the judiciary system. Thus, the probability of prosecution is determined by the interaction of the distribution of legal power and the number of entrants allowed by the politician.

A higher level of entry lowers politician's probability of prosecution, as it diminishes the total power of the coalition of consumers. Thus, the higher the average legal power of households the higher the optimal level of entry set by the politician. When legal power is homogenous across all households, entry maximizes expected rents of the politician, like in the baseline model. In unequal societies with heterogeneous legal power the competitive

structure of the bribing game changes. Agents with the highest legal power form a group of bribers with an advantage over others: the politician allowing entry by another, less powerful, group would face a higher risk of prosecution. This reduces politician's bargaining power over the most powerful group, forcing her to surrender a share of political rents. The result resembles the outcome in case of lobbying. Here the bargaining power derives from agents' ability to influence politician's prosecution risk, while in the case of lobbying it is driven by non-excludability of agents with high observable attributes.

The distribution of legal power plays a key role in determining the equilibrium level of entry. If the inequality is not too large, entry is higher than in the case of homogenous legal power, because the powerful bribing group has an incentive to expand its' size so that to further undermine the outside option of the politician and extract higher share of the political surplus. If power is distributed very unevenly, entry level may be lower than in the homogenous setting. In this case the marginal expansion of the powerful bribing group does not affect the likelihood of prosecution (and thus political rents accruing to the group) sufficiently to justify diluted profits. These results shed a light on how a small group powerful individuals can affect the process of buying influence and shape state capture, insights particularly relevant for oligarchic economies characterized by large inequalities.

2 Related Literature

This paper contributes to the extensive literature on special interest politics, dating back to seminal work of Olson (1965). We study competition between interest groups in a setting in which the goal of regulation is to allow groups to extract rents in the spirit of Stigler (1971) Posner (1974) and Peltzman (1976).

Early contributions explore welfare implications of competition for political favors between exogenously determined interest groups (Krueger, 1974; Becker, 1983; Grossman and Helpman, 1996). Mitra (1999) studies the decision to form an interest group by modeling both the costs of association and the benefits of political influence. Abstracting from these costs Perotti and Volpin (2007) endogenize the size of a single interest group seeking preferential access to production. Our paper builds on this work and explores the differences that emerge between lobbying and bribing when multiple groups compete for market access.

Previous research explores differences between lobbying and bribing and their welfare

implications (Lambsdorff, 2002). Our distinction between the two is most closely related to that used by Harstad and Svensson (2011), who view lobbying as means of changing the shape of a policy and bribing as a way to circumvent the rules. Their work explores the choice of a firm between these two modes of exerting political influence on a politician or a bureaucrat. We abstract from the agency conflict within the government and contribute by studying the incentives of a single policy-maker to control market access in a way that makes her susceptible to either lobbying or bribing. As in Damania et al. (2004) we assume that bribing is illegal. However, while their work investigates the possibility of lobbying that targets the reform of legal institutions, we treat these as sticky and analyze how institutional quality may affect the preference of a politician for regulation using requirements or direct control.

Empirically, misuse of office appears to be constrained by the quality of institutions (Svensson, 2005). Campos and Giovannoni (2008) show that lobbying is more likely than bribing in democracies with independent media. Related evidence links bribing with low political accountability (Kaufmann and Vicente, 2011) and transparency (Bennedsen et al., 2011), in line with the predictions of our model. Pieroni and d'Agostino (2013) show that prevalence of bribing is associated with lower levels of regulation, supporting our assumption that the policy-maker governing through regulation is susceptible to lobbying rather than bribing.

Bribing firms tend to benefit from engaging in corruption (Zeume, 2017), but at a country-level corruption reduces firm growth (Fisman and Svensson, 2007), investment and GDP growth (Mauro, 1995). Similarly, lobbying firms appear to exert negative externalities on their competitors by inducing politicians to pass legislation that favors their narrow interests (Neretina, 2019). In our framework, both bribing and lobbying lead to inefficiently low firm entry, however our analysis points to a clear normative ranking: social welfare is higher under lobbying as strong lobby can weaken politician's bargaining position by expanding in size.

Our work explores the ability of special interest groups to influence politicians in the context of entry policy. In line with evidence that market competition is more limited when citizens have fewer democratic rights (Benmelech and Moskowitz, 2010), in our baseline model political accountability shifts politician's preference towards social welfare, resulting in higher entry in equilibrium. Previous research also points to a relationship between corruption and market competition. Ades and Di Tella (1999) show that ability of firms to earn monopoly

rents may stimulate corruption, though the relationship may be reversed if firms differ in their cost effectiveness (Bliss and Tella, 1997). Emerson (2006) shows that when detection of bribery depends on the number of firms and the size of the bribe, multiple equilibria may emerge: one characterized with a positive and one with a negative corruption-competition relationship. Our extension on endogenous prosecution risk shows that this relationship can also be shaped by the degree of inequality in legal power. Relatedly, Callander et al. (2022) study the dynamics of joint evolution of political and market power when market access is governed by minimum entry requirements.

3 Model Set Up

We study the choice of a politician to govern firm entry through direct control or regulation based on minimum entry requirements. Agents can form interest groups to seek entry into the market under either of the modes of governance. They bribe in case of the former or lobby in case of the latter. The politician can accept a pecuniary contribution from one of the groups in exchange for granting its' members market access.

The model consist of one period, a unit mass of households and a single politician. In this section we first lay out the preferences and production technology of households. Then we introduce the problem of a politician and discuss the formation of special interest groups.

3.1 Households

A unit mass of households indexed by i, derive utility from consuming an intermediate good (numeraire), x_i, and a final good, y_i:

$$U_i = x_i + ay_i - \frac{1}{2}y_i^2 \tag{1}$$

where $a > 1$ scales the utility of consuming the final good relative to the numeraire and ensures positive demand.

Households receive a homogenous endowment of the numeraire equal to ω. They also have access to a production technology that transforms one unit of the numeraire into one unit of the final good. While in principle all agents can access the technology, entry into the product market can be limited by the politician who either grants permission directly to specific agents (direct control) or sets a regulatory requirement that those entering the

market must satisfy (regulation). Households who are allowed to produce and sell the final good become *entrepreneurs* $i = e$, while others remain consumers $i = c$.

The number of entrepreneurs in the economy, n, affects the equilibrium price level, $p(n)$, and entrepreneurs' profits, $\pi_e(n) = p(n) - 1$. We define m as the entry level at which entrepreneurs make zero profits, $\pi_e(m) = 0$, and assume that $m \leq \frac{1}{2}$, so that consumers are always the majority.

Households are heterogeneous with respect to some observable attribute δ_i, with $F(\delta)$ describing its' distribution. The attribute can be used as a criterion if the politician opts for regulation by setting a minimum entry requirement. We assume that δ_i is independent of agent's productivity and preferences (both of which are homogenous across households). This allows us to focus on an environment in which any policy limiting entry or selecting the identity of entrepreneurs is aimed solely at rent extraction and brings no social benefits.

Social Welfare and Laissez-Faire

The utility maximization by households yields an individual demand function for the final good: $y_i^d = a - p$. The total supply of the final good corresponds to the number of active entrepreneurs $y^s = n$. Aggregating the individual demand and equating with the supply gives an expression for the equilibrium price $p = a - n$. Since $n = m$ is the maximum size of the market, entrepreneurs' profits can be expressed as:

$$\pi_e = m - n$$

Using this in indirect utilities of entrepreneurs $V_e(n)$ and consumers $V_c(n)$, gives the social welfare:

$$S(n) \equiv nU_e(n) + (1 - n)U_c(n) = n\left(m - \frac{1}{2}n\right) \tag{2}$$

Under free entry entrepreneurs enter the market until no more profits can be earned, $n = m$. Moreover, the size of the market under free entry maximizes social welfare, $m = argmax_n S(n)$.

3.2 Politician

In a tradition of Grossman and Helpman (1996), we consider a semi-benevolent politician. We study her choice of a form of governance, g, her interaction with interest groups and the resulting level of entry that she permits, n^g.

Form of Governance

The politician can control entry directly or regulate it using a minimum requirement for market access. Under direct control, $g = D$, the politician selects n^D households which are allowed to become entrepreneurs and thus sell the final good in the market. Alternatively, the politician can regulate entry by imposing a minimum entry requirement, $\hat{\delta}$, such that only citizens with a characteristic above the threshold can enter the market, resulting in the level of entry equal to $n^R = 1 - F(\hat{\delta})$. The requirement can represent a regulatory barrier to entry and can be based on personal characteristics such as minimum level of education or age. Alternatively technological standards, safety requirements or accounting and taxation rules can imply an entry limit dependent on agent's access to finance. Critically, regulation implies that those who satisfy the requirement cannot be excluded from the market.

The two forms of governance yield themselves to different types of influence by interest groups. Under direct control, the politician can be bribed by a group of households seeking exclusive access to the market. This type of outright corruption, or quid-pro-quo is generally illegal. If the politician accepts the bribe from any interest group, she faces a risk of prosecution. The prosecution succeeds with probability ϕ, reflecting the strength and independence of legal institutions. After successful prosecution, the politician is forced to give up the contributions and is not allowed to compete for reelection which brings her utility to zero. When the politician chooses to regulate entry through minimum requirements, she can be influenced through lobbying. Under lobbying interest groups offer contributions to the politician if she sets the minimum requirement, $\hat{\delta}$, at a favorable level. We assume that lobbying is legal, hence the politician who accepts an offer from a lobbyist faces no legal consequences.

Politician's Utility

Because of re-election concerns the politician values social welfare $S(n)$. She also derives utility from contributions paid by interest groups, $K(n)$, because these can be consumed in the future or help finance campaign spending. The utility function weighs social welfare and contributions by β and $1 - \beta$ respectively, where $\beta \in [0, 1]$ measures public accountability. Taking into account the risk of successful prosecution in if the politician accepts a bribe, the

expected utility of the politician is:

$$U_p(n^g, K^g, \mathcal{I}^g) = \begin{cases} (1 - \phi\mathcal{I}^g)\left[\beta S(n^g) + (1-\beta)\mathcal{I}^g K(n^g)\right] & \text{if } g = D \\ \beta S(n^g) + (1-\beta)\mathcal{I}^g K(n^g) & \text{if } g = R \end{cases} \tag{3}$$

where $\mathcal{I}^g$ is an indicator function equal to 1 if the politician accepts an offer from one of the interest groups and 0 otherwise.

3.3 Interest groups

There are J political representatives indexed by j. Each representative can form a coalition consisting of q_j households and offer the politician a contribution K_j in return for market entry for the members of the group. The role of the representative is to solve the coordination problem, choose the size of the coalition, formulate the offer and collect the contributions from all of the group's members. Representatives enter sequentially and can offer membership to any household not yet associated with another interest group.

Each group can commit to pay its' promised contributions after its' offer is accepted, the corresponding policy is implemented and the profits are realized. This group can refuse to pay the contributions if the politician does not implement its' preferred policy. This threat ensures that the politician can only accept an offer of one interest group.

When formulating the offer, a representative seeks to maximize the fee earned, which represents an infinitesimal fraction of the coalition's profits:

$$\Pi_j = \begin{cases} q_j(m-n) - K_j & \text{if } j\text{'s offer wins} \\ q_j(m-n) & \text{if } j\text{'s offer looses but } q_j \text{ can access the market} \\ 0 & \text{otherwise} \end{cases} \tag{4}$$

The coalition only earns positive profits if its' members are allowed to enter the market. This happens if the offer made by coalition j is accepted by the politician or if an offer by another coalition $k \neq j$, which permits entry by group j, is accepted. The total profits depend on the size of the coalitions, q_j, the equilibrium price, $p(n) = m + 1 - n$, and any contributions paid, K_j.

Since equilibrium prices decrease in the number of entrants, each coalition j has an incentive to seek a policy that minimizes the market size, conditional on the j's members being

granted entry rights. This implies that if the politician governs via direct control interest group j offers a bribe K_j to the politician in exchange for an exclusive access to the market, $q_j = n^D$. In the case of regulation through minimum entry requirements, group j lobbies for a rule which ensures that all members of the lobby group satisfy it. Let $\underline{\delta_j}$ be the characteristic of the lowest ranked member of coalition j, then group j lobbies for the minimum requirement to be set at $\hat{\delta} = \underline{\delta_j}$.

3.4 Timeline

The timing of actions by different agents in the economy is the following:

1. Households receive their endowments ω.
2. Politician chooses governance structure g.
3. Representatives $j = 1, 2, ..J$ enter sequentially to form interest groups choosing the group's size, q_j, the offer to the politician, (n_j, K_j), consisting of the ultimate market size and contribution.
4. The politician chooses one of the offers or decides on entry independently in which case she forgoes the contributions.
5. Entrepreneurs produce and sell their goods to consumers.
6. Interest group whose offer was accepted pays the contribution K_j.
7. Households consume x_i and y_i.
8. The uncertainty about the success of prosecution is realized.

4 Political Equilibrium

In this section we study how the competition among interest groups under direct control and regulation affects the political offers made and resulting policy. We show how these depend on the institutional quality and ultimately determine politician's preferred form of governance.

4.1 Winning Offer

Under either of the forms of governance the politician accepts the offer by an interest group j if and only if (n_j, K_j) is such that:

- the politician is better off accepting an offer from group j than not accepting any offer,
- the politician is better off accepting an offer from group j than accepting an offer from any other group $k \neq j$.

These conditions can be expressed as:

$$U_p(n_j^g, K_j^g, \mathcal{I}^g = 1) \geq U_p(m, 0, \mathcal{I}^g = 0), \tag{5}$$

$$U_p(n_j^h, K_j^g, \mathcal{I}^g = 1) \geq U_p(n_k^g, K_k^g, \mathcal{I}^g = 1) \ \forall k \neq j, \tag{6}$$

where the right-hand side of (5) uses that if the politician does not accept any contributions she optimally allows free entry and achieves socially maximizing market size, $n = m$.

The following sections use these conditions to study the outcomes of the game between the politician and the interest groups under direct control and minimum requirement regulation respectively.

4.2 Direct Control and Bribing

If market access is determined by direct control, special interest groups can bribe the politician in order to seek exclusive entry, so $q_j = n_j$. This implies that profits of each bribing group j are:

$$\Pi_j^B = \begin{cases} n_j(m - n_j) & \text{if group } j \text{ wins} \\ 0 & \text{otherwise} \end{cases}$$

The level of entry and size of the bribing group that maximizes its' total profit is $n^* = \frac{m}{2}$. Any offer made by the group needs to satisfy its' participation constraint:

$$n_j(m - n_j) - K_j \geq 0 \tag{7}$$

The possibility of forming multiple bribing groups induces competition for influence. Any offer by group j that leaves it's participation constraint slack, thereby allowing the members to earn positive rents, can be outperformed by a counteroffer by a bribing group k. A

counteroffer can provide the politician with higher utility by either increasing the size of the contribution or requesting higher level of entry. Consequently, a bribing group j finds it optimal to offer (n_j, K_j) that maximizes politicians utility while satisfying the group's participation constraint.

Proposition 1. *Under direct control, all bribing groups have an equal size, $q_j = n_j = n^D$ and offer the same contribution to the politician, $K_j = K^D$, with:*

$$n^D = \frac{m}{2-\beta}, \tag{8}$$

$$K^D = n^D(m - n^D). \tag{9}$$

If $\phi \leq \hat{\phi}^D = (1-\beta)^2$ the politician accepts one of the offers at random, otherwise she rejects all offers and allows free entry for all household.

Proof. In Appendix A.1 □

Interest groups bribe the politician for an exclusive market access. However, the competition among bribing groups forces them to forgo all the monopoly profits from the product market as contributions to the politician as they try to maximize politician's rents. Since the politician values social welfare (with weight β), the optimal size of the bribing group and thus the equilibrium entry is higher than the profit maximizing level, $n^D > n^* = \frac{m}{2}$.

The expected utility that the politician can extract by accepting the bribe decrease in the chance of prosecution and increase in the relative importance of contributions in her utility function. Thus, the politician is only willing to accept the bribe if the risk of prosecution is not too high relative to the importance of political contributions in her utility.

Lemma 1. *Under direct control, if the politician accepts a bribe:*

- *the level of entry increases in political accountability, $\frac{dn^D}{d\beta} > 0$,*
- *the size of the political contribution decreases in political accountability, $\frac{dK^D}{d\beta} < 0$.*

Proof. In Appendix A.1 □

With higher political accountability the politician favors social welfare relative to transfers. Consequently, bribing groups seeking to maximize politician's utility make offers that involve more entry and a lower contribution. Conversely, in economies with low accountability the

level of entry is low, increasing the monopoly profits which entrepreneurs transfer to the politician to buy their entry into the market.

4.3 Regulation and Lobbying

If the politician regulates entry by setting a minimum entry requirement $\hat{\delta}$ any household with an attribute high enough to satisfy it, $\delta_i \geq \hat{\delta}$ can sell the product in the market. Thus, when choosing whether to lobby for entry, a group with a given minimum and maximum attribute, $\underline{\delta}_j$ and $\overline{\delta}_j$, needs to consider that if its' members are allowed entry, so is anyone with a higher attribute, $\delta_i > \overline{\delta}_j$. This implies that each consecutive political representative finds it optimal to form a coalition composed of households characterized by highest δ_i among those who are not yet associated in another group.

The offer made by each lobby j can be expressed in terms of the contribution offered and the preferred minimum requirement, $\hat{\delta}_j$, or equivalently the total entry that it permits, $n_j = 1 - F(\hat{\delta}_j)$. Given sequential entry, the size of each lobby is given by $q_j = (n_j - n_{j-1})$, where $n_0 = 0$. Using this notation, the total profits of successive lobbying groups can be expressed as:

$$\Pi_j^L = \begin{cases} (n_j - n_{j-1})(m - n_k) & \text{if lobby } k > j \text{ wins} \\ (n_j - n_{j-1})(m - n_j) - K_j & \text{if lobby } j \text{ wins} \\ 0 & \text{otherwise} \end{cases}$$

The participation constraint of a lobby group j is:

$$(n_j - n_{j-1})(m - n_j) - K_j \geq 0 \tag{10}$$

Under minimum entry requirement regulation only the lobby formed by the first representative, composed of the highest ranked households (thereafter referred to as the *strong lobby*), can enjoy exclusive market access upon winning the lobbying game. Victory by any subsequent lobby would enable entry by its' members as well as entrepreneurs associated in the previously formed lobbies. The non-excludability of the strong lobby gives it an advantage over other groups in the lobbying game. The intuition is that any subsequent lobby shares the oligopoly rents with the strong lobby. The lower profits earned by these subsequent groups imply a tighter participation constraint, limiting the size of contributions that they can offer

to the politician. This weakened competition enables the strong lobby to secure exclusive access to the product market at a relatively lower cost.

Proposition 2. *Under regulation the strong lobby composed of n_1^R households with the highest realizations of δ_i makes a winning offer, given by:*

$$n_1^R = \frac{1+(2-\beta)(1-\beta)}{1+2(1-\beta)(2-\beta)}m \tag{11}$$

$$K_1^R = \frac{\beta}{1-\beta}(S(n_2^R) - S(n^R)) + (n_2^R - n^R)(m - n_2^R) \tag{12}$$

where $n_2^R = \frac{m+(1-\beta)n_1^R}{2-\beta}$, $K_2^R = (n_2^R - n_1^R)(m - n_2^R)$ is the best offer of the counter-lobby. The minimum entry requirement, $\hat{\delta}$, satisfies $1 - F(\hat{\delta}) = n_1^R$.

Proof. In Appendix A.2 □

In order to win the lobbying game the strong lobby needs to outbid its' fiercest competitor. Due to non-excludability of stronger lobbies, the group formed around the second representative (composed of households with a highest realization of the characteristic among those not associated in the strong lobby) can make the most attractive counter-offer to the politician. The highest political contribution that this counter-lobby can make is lower than the maximum contribution that a strong lobby can pay, because if counter-lobby wins the level of entry is higher than under the victory of the strong lobby, resulting in lower monopoly profits. The best offer of the counter-lobby, allocates all of the group's profits as contribution $(n_2^R - n_1^R)(m - n_2^R) = K_2^R$ and chooses its' size and the corresponding entry level to maximize politician's utility.

Given the best counter-offer, the strong lobby can win if its' offer satisfies the politician's participation constraint

$$U_p(n_1^R, K_1^R, \mathcal{I}^R = 1) \geq U_p(n_2^R, K_2^R, \mathcal{I}^R = 1) \tag{6'}$$

As long as this holds, the strong lobby can choose its' size n_1^R so that to maximize own profits. The resulting entry and contributions are given by (11) and (12) in Proposition 2.

Inability of the counter-lobby to offer a sufficiently high contributions to the politician, gives some bargaining power to the strong group in the game against the politician. The strong lobby offers just enough of its' profits to compensate the politician for not choosing

the offer of the counter-lobby and reaps the remainder of the monopoly profits generated by the policy.

An alternative strategy by the strong lobby could be to free-ride on the offer by other lobbies. In that case the level of entry would reflect the offer of the counter-lobby, which would choose it so that to maximize own profits while ensuring that it outbids the subsequent group. However, the counter-lobby does not internalize the impact of its offer on the profits accruing to the strong lobby. As a consequence the total profits earned by all entrepreneurs are lower than in the case of the strong lobby making the winning offer. Therefore free-riding on the offer of the second lobby group is sub-optimal for the strong lobby group.

Lemma 2. *Under the minimum entry requirement regulation the level of entry increases in political accountability,* $\frac{dn^R}{d\beta} > 0$.

Proof. In Appendix A.2 □

As in the case of bribing, an increase in political accountability, β, rises the relative importance of the social welfare in politician's utility, increasing the marginal costs of lobbying for a low level of entry. This results in a higher equilibrium size of the strong lobby and more entry.

4.4 Choice of the Form of Governance

The structure of competition among the interest groups is one of the two key differences between direct control and regulation. It drives the equilibrium entry level and the distribution of political rents under the two governance structures. The other distinction is in terms of the risk of successful prosecution of the politician. The politician chooses the governance that maximizes her expected utility. In this section we compare the equilibrium outcomes under direct control and regulation and show how political accountability and strength of the legal system shape politician's preference for one over the other.

The level of entry into the product market determines social welfare in this framework: higher entry implies higher households' utility. The profits earned by the entrants in the restricted market improve the utility of entrepreneurs at the expense of the consumers. The lemma below compares the level of entry and welfare under direct control and minimum entry requirement regulation .

Lemma 3. *The level of entry and social welfare is lower under direct control than under minimum entry requirement regulation.*

$$n^D < n^R$$
$$S(n^D) < S(n^R)$$

Proof. In Appendix A.3 □

Under direct control competition between interest groups results in each choosing the size and the corresponding level of entry so that to maximize politician's rents. Weighing the social welfare benefits and the political contributions yields n^D as the optimal level of entry. Under regulation, the strong lobby chooses its' offer so that to maximize own profits. Increasing the level of entry (and the size of the lobby) has two effects. On one hand, increasing the number of entrants decreases the profits that can be earned by the entrepreneurs. This mechanism is at play in the context of both bribing and lobbying. On the other hand, increasing the size of the lobby weakens the counter-lobby, thereby undermining the bargaining position of the politician. This lowers the rents accruing to the politician, leaving more available to the strong lobby. The group accounts for these additional benefits, that do not occur in the context of bribing, and therefore chooses a higher entry level (and the corresponding group size).

Corollary 1. *If the politician is not prosecuted, her utility is higher under direct control than under minimum entry requirement regulation.*

$$\beta S(n^D) + (1-\beta)K(n^D) > \beta S(n_1^R) + (1-\beta)K(n_1^R)$$

Under regulation the level of entry is set to maximize profits of the strong lobby, subject to politician's participation, while under direct control it is set to maximize politician's utility. Consequently, absent prosecution the politician could earn higher rents while being bribed than if she was lobbied. However, since direct control makes the politician exposed to the risk of prosecutions, the expected rents may be higher under regulation.

Proposition 3. *There exists a threshold quality of the legal system $\bar{\phi}(\beta)$ at which the politician is indifferent between governing through direct control and regulation. If the quality of the legal system is below the threshold, $\phi < \bar{\phi}(\beta)$, the politician prefers direct control and accepts bribes, if it is above she prefers regulation and is influenced by lobbyists.*

Proof. In Appendix A.3 □

When choosing the governance structure, the politician trades off the size of political rents against the likelihood of costly prosecution. Under direct control competition between bribing groups maximizes the surplus accruing to the politician, however the threat of prosecution implies that she may not be able to benefit from it. The lower the quality of the legal system, the lower the threat of prosecution. This results in a higher expected utility of the politician under bribing.

Lemma 4. *The threshold $\hat{\phi}$ decreases in political accountability:*

$$\frac{d\hat{\phi}}{d\beta} < 0 \tag{13}$$

Proof. In Appendix A.3 □

An increase in β implies that the politician cares more about social welfare and less about the financial gains from contributions. Since under lobbying the politician receives lower contributions and implements a higher entry than under bribing, higher political accountability makes governing via regulation relatively more attractive. In this case, the politician is deterred from governing via direct control and accepting bribes even if the quality of the legal system is relatively low. Political accountability and the strength of legal institutions are thus substitutes in discouraging direct control and bribery.

5 Endogenous Prosecution Risk

So far we assumed that the risk of prosecution is fixed and independent of who is allowed to sell in the product market. In practice, consumers may support the legal inquiry against a bribed politician. In what follows we allow for this possibility, by assuming that each household has some legal power ψ_i, which can be used to increase the likelihood of prosecuting a politician. It can reflect household's legal literacy, access to advice and representation, or connections to the judiciary system. The household can commit to not contribute to the prosecution efforts if he is allowed to enter the product market. Therefore, the probability of prosecution is determined by the total legal power of the consumers and is given by $\phi + \Psi$ (where Ψ is the total legal power of all consumers).

In the current setting the risk of prosecution is no longer exogenous. It is endogenous and depends on the politician's choice of entrants. In this context we consider two cases. First, the legal power is assumed to be homogenous $\psi_i = \psi \leq 1 - \phi$. This allows us to isolate the impact of the prosecution considerations on the level of entry under bribing. Next, we allow for heterogeneous distribution of power, $\psi_i \sim G(\psi)$. This case is particularly relevant in economies with high degrees of socio-political inequality, in which well-connected individuals have substantially more influence than those without strong connections to elites.

5.1 Homogenous Legal Power

When households are homogenous with respect to their legal power, there is no natural ranking of the most preferred members of a bribing group. Thus, as in the baseline setting the representative j forms a group of size n_j composed of any households not yet associated elsewhere. Competition induces these identical bribing groups to maximize politician's utility by offering all of their future profits as contributions.

The difference relative to the no-legal-power-case is that now, tighter entry restrictions come at a cost of higher risk of prosecution for the politician, which is now given by: $\phi + (1 - n^D)\psi$.

Lemma 5. *The level of entry under direct control increases in the legal power of the households.*

Proof. In Appendix A.4 □

Higher legal power of households implies a higher sensitivity of the probability of prosecution to the level of entry. This increases the cost of limiting entry for the politician. As bribing groups competing to win exclusive access maximize politician's utility, they choose their size and propose the level of entry that accounts for this additional effect.

5.2 Heterogenous Legal Power

If legal power is unevenly distributed among households, the identity of entrepreneurs matters for the likelihood of prosecution. Thus, bribing groups composed of households with high legal power are able to make more attractive offers, by ensuring that their power does not contribute to the prosecution efforts.

The first representative finds it optimal to form a group composed of n_1^D households with the highest legal powers, $n_1^D = 1-G(\hat{\psi}_1)$. Each following representative j associates the group of the next most powerful households, with the group size given by $n_j^D = G(\hat{\psi}_j) - G(\hat{\psi}_{j-1})$. If access to product market is granted to a bribing group j, the total legal power of the consumers is $\Psi(n_j^D, n_{j-1}^D) = \int_{-\infty}^{\hat{\psi}_j} \psi g(\psi) d\psi + \int_{\hat{\psi}_{j-1}}^{+\infty} \psi g(\psi) d\psi$, with $n_0 = 0$.

Assumption 1. *The distribution of legal power is such that*

- *The probability of prosecution increases in the size of the group granted entry,* $\Psi'_{n_j^D}(n_j^D, n_{j-1}^D) < 0$*, for all* $n_j^D < \frac{2m}{2-\beta}$*;*
- *The probability of prosecution if group* j *wins increases in the size of the group formed previously,* $\Psi'_{n_{j-1}^D}(n_j^D, n_{j-1}^D) > 0$ *for all* $n_{j-1}^D \in (0, \frac{2m}{2-\beta})$
- *The probability of prosecution is between zero and one,* $\phi + \Psi(n_j^D, n_{j-1}^D) \in (0,1)$ *for all* $n_j^D \in (0, \frac{2m}{2-\beta})$

The sequential group formation is based on a ranking of households. As in the case of lobbying, it emerges because associating highly ranked households in a group earns the group a competitive advantage over the subsequent ones. By committing to not engage in prosecution efforts, the first bribing group (referred to as *the powerful bribing group*) can make an equally attractive offer as the following group while giving up less of the monopoly profits. Thus, the powerful bribing group can maximize own profits as long as it makes an offer that outbids any offer by the competitors.

Lemma 6. *Under direct control of entry when legal power is heterogeneous, if the politician accepts bribes, the monopoly rents are shared by the politician and the powerful bribing group. Politician's utility and profits of the powerful bribing group are respectively:*

$$U_p^{DP}(n_1^D, n_2^D) = (1 - \Psi(n_2^D, n_1^D)) \left[\beta S(n_2^D) + (1-\beta) n_2^D (m - n_2^D)\right] \tag{14}$$

$$\Pi_1^{DP}(n_1^D, n_2^D) = \frac{1}{1-\beta} \left[\beta S(n_1^D) + (1-\beta)(n_1^D)(m - n_1^D) - \frac{U_p^{DP}(n_1^D, n_2^D)}{1 - \Psi(n_1^D, 0)}\right] \tag{15}$$

Where $n_2^D = argmax_{n_2} U_p^{DP}(n_1, n_2)$ *and* $n_1^B = argmax_{n_1} \Pi_1^{DP}(n_1^D, n_2^D)$.

Proof. In Appendix A.4 □

The problem of the powerful bribing group resembles that of the strong lobby. The inequality in terms of legal power ensures a superior bargaining position to the most powerful households. If the powerful group is not allowed to enter it will strengthen the coalition of households who seek to prosecute the politician. Group's superior legal power implies that the outside option of the politician is to accept higher risk of prosecution and lower expected utility. Thus, the politician can only extract as much as would be available to her if the second group was granted entry. All the remaining gains accrue to the bribing group.

Lemma 7. *If households are heterogeneous with respect to legal power, the level of entry under direct control:*

- *is higher than in the case of homogenous legal power if* $-\Psi'_n(n,0)|_{n=\frac{2m}{2-\beta}} \geq \psi$ *and* $\Psi(\frac{2m}{2-\beta},0) \geq \psi(1-\frac{2m}{2-\beta})$
- *is lower than in the case of homogenous legal power if* $-\Psi'_n(n,0)|_{n=\frac{m}{2-\beta}} \ll \psi$, $\Psi(\frac{m}{2-\beta},0) \ll \psi(1-\frac{m}{2-\beta})$ *and* $\Psi_{n_1}(n_2,n_1)$ *is low,*

Proof. In Appendix A.4 □

The entry level in the case of heterogeneous legal power, n_1^D solves:

$$\underbrace{-\Psi'_{n_1^D}(n_1^D,0)\left[\beta S(n_1^D)+(1-\beta)n_1^D(m-n_1^D)\right]}_{PR}+$$
$$\underbrace{(1-\Psi(n_1^D,0))\left[\beta S'(n_1^D)+(1-\beta)(m-2n_1^D)\right]}_{BP}+$$
$$\underbrace{\Psi'_{n_1^D}(n_2^D,n_1^D)n_2^D(\left[\beta S(n_2^D)+(1-\beta)n_2^D(m-n_2^D)\right]}_{OO}=0 \quad (16)$$

Change in the level of entry and the size of the powerful bribing group affects their profits via three channels. First, increasing the level of entry lowers the likelihood of prosecution of the politician and thus increases the available political rents. This is referred to as the political rents channel and is captured by term PR in (16). Second, a higher entry lowers profits earned by the powerful bribing group. This is a briber profits channel and is represented by term BP. Third, larger size of the powerful group weakens the competing bribers. This impairs politician's outside option and thereby drives down her share of the political rents. We call this an outside option channel, captured by term OO. The equilibrium n_1^D, depends on the

relative importance of the three channels and is determined by the shape of the distribution $G(\psi)$.

If inequality in legal power is not too high (ie. $-\Psi'_n(n,0)|_{n=\frac{2m}{2-\beta}}$ and $\Psi(\frac{2m}{2-\beta},0)$ are not too low), the effect of increasing entry on likelihood of prosecution is sufficiently high for the political rents and the outside option channels to dominate. In this case the entry level is higher than with homogenous legal power. Key to this results is that now the powerful bribing group can increase the share of political rents that it earns by increasing its size, thereby weakening the second group and lowering the outside option of the politician. The effect resembles the one that emerges in the case of lobbying, only now the lower utility of politician is achieved by increasing the likelihood of prosecution and not by lowering the profitability of the competing group.

If inequality in legal power is sufficiently high ($-\Psi'_n(n,0)|_{n=\frac{m}{2-\beta}}$ is low) and the total legal power is not too high ($\Psi(\frac{m}{2-\beta},0)$ is low), only a few very powerful households have substantial impact on the likelihood of prosecution. Once their participation in the bribing group is secured, the marginal effect of increasing the size of the group is low. This dampens the political rents and the outside-option channels, so that the briber profits channel dominates. As a result the powerful bribing groups may prefer the entry level lower than in the case of homogenous legal power. Key to this result is the low sensitivity of rents to changes in the level of entry at a higher n^D.

Studying the possibility of endogenous prosecution risk of a bribed politician under heterogeneity in legal power, helps explain why the political rents may end up being shared between the politician and the influence group also under bribing. Facing an unequal society the politician cannot benefit from perfect competition by influence groups that would emerge if due playing field was leveled. In oligarchic societies, in which the influential individuals can threaten the politician, political rents have to be shared between the elite and the politician. In a extreme case in which the legal power is concentrated in the hands of the few while most of the society has zero influence over the likelihood of successful prosecution, the resulting entry can be significantly restricted, leading to a very low level of social welfare..

Remark: Comparison with lobbying With heterogenous legal power the mechanism shaping the political outcome shares some similarities with the mechanisms in play in the context of lobbying. In both cases the competition between interest groups is imperfect, as

some groups have a stronger bargaining power vis-a-vis the politician.

In the case of lobbying the bargaining power emerges because the benefits that come through minimum entry requirements are non-excludable. This lowers the profits of consecutive lobbying groups, limiting their capacity to make an attractive offer to the politician.

In the case of bribing under heterogenous legal power, the identity and number of entrepreneurs affects politician's risk of prosecution. This gives an advantage to households with high legal power, as denying them market access lowers politician's expected political rents. The threat of increasing the probability of prosecution allows them to extract some of the benefits from the restricted market access.

An important difference is that under lobbying the distribution of the characteristic, δ_i, does not play a role. The heterogeneity only affects the equilibrium outcomes by creating a ranking that governs the non-excludability of entry under regulation. Under bribing, distribution of legal power plays a key role in affecting the allocation of rents and the restrictiveness of the entry policy which follows from the political bargain. In particular high concentration of legal power can lead to lower levels of entry and higher profits of the winning interest group.

6 Conclusions

We explore how different modes of political governance and the associated forms of influence give rise to different structures of competition among interest groups. Direct control of entry makes the politician prone to illegal bribery in return for market access. Regulation through minimum requirements lends itself to lobbying for favorable rules.

When the risk of prosecution under direct control is exogenous competition among bribing groups drives down their bargaining power against the politician. The outcome is full appropriation of rents by the politician and a highly restricted level of entry.

Since regulation generates a non-excludable benefit for agents endowed with strong attributes, competition between lobbies is uneven. The strong lobby is able to offer more to the politician than any following group, which enhances its bargaining power in the game with the politician. As a result lobbyists earn some of the rents generated by the policy, eating into the share extracted by the politician.

While being bribed promises higher political rents, these benefits are only realized if the politician manages to avoid prosecution. As higher quality of the legal system increase the

risk of a successful prosecution, the politician prefers direct control only when the quality of institutions is low. We show that strength of the legal system and political accountability are substitutes in discouraging direct control and bribery.

Perfect competition between bribing groups is the key to politician's ability to extract full rents under direct control. When the risk of prosecution is influenced by the identity of entrants, for instance because agents differ in their influence, bribing groups composed of powerful agents gain a competitive advantage over others. In this case rent-sharing may occur also under direct control. Moreover the distribution of legal power among households has important consequences for the resulting level of entry: market access is particularly limited when legal power is distributed very unevenly.

Forms of governance imply different competitive structures in the game for political influence and have critical consequences for the distribution of political rents and the overall social welfare. In a more homogenous economy with low quality of institutions the politician governs by direct control earning full rents. In as far as financial wealth can help in acquiring legal power or improving institutions in the long run, differences in the competition for influence could have important dynamic implications.

References

Alberto Ades and Rafael Di Tella. Rents, competition, and corruption. *American economic review*, 89(4):982–993, 1999.

Gary S Becker. A theory of competition among pressure groups for political influence. *The quarterly journal of economics*, 98(3):371–400, 1983.

Efraim Benmelech and Tobias J Moskowitz. The political economy of financial regulation: Evidence from us state usury laws in the 19th century. *The journal of finance*, 65(3): 1029–1073, 2010.

Morten Bennedsen, Sven E Feldmann, and David Dreyer Lassen. Lobbying and bribes-a survey-based analysis of the demand for influence and corruption. 2011.

Christopher Bliss and Rafael Di Tella. Does competition kill corruption? *Journal of political economy*, 105(5):1001–1023, 1997.

Steven Callander, Dana Foarta, and Takuo Sugaya. Market competition and political influence: An integrated approach. *Econometrica*, 90(6):2723–2753, 2022.

Nauro F Campos and Francesco Giovannoni. Lobbying, corruption and political influence. *Public Choice*, 131(1-2):1–21, 2007.

Nauro F Campos and Francesco Giovannoni. Lobbying, corruption and other banes. 2008.

Richard Damania, Per G Fredriksson, and Muthukumara Mani. The persistence of corruption and regulatory compliance failures: theory and evidence. *Public choice*, 121(3-4):363–390, 2004.

Patrick M Emerson. Corruption, competition and democracy. *Journal of Development Economics*, 81(1):193–212, 2006.

Raymond Fisman and Jakob Svensson. Are corruption and taxation really harmful to growth? firm level evidence. *Journal of development economics*, 83(1):63–75, 2007.

Gene M Grossman and Elhanan Helpman. Electoral competition and special interest politics. *The Review of Economic Studies*, 63(2):265–286, 1996.

Bård Harstad and Jakob Svensson. Bribes, lobbying, and development. *American Political Science Review*, 105(1):46–63, 2011.

Daniel Kaufmann and Pedro C Vicente. Legal corruption. *Economics & Politics*, 23(2): 195–219, 2011.

Anne O Krueger. The political economy of the rent-seeking society. *The American economic review*, 64(3):291–303, 1974.

Johann Graf Lambsdorff. Corruption and rent-seeking. *Public choice*, 113(1-2):97–125, 2002.

Paolo Mauro. Corruption and growth. *The quarterly journal of economics*, 110(3):681–712, 1995.

Devashish Mitra. Endogenous lobby formation and endogenous protection: a long-run model of trade policy determination. *American Economic Review*, 89(5):1116–1134, 1999.

Ekaterina Neretina. Lobbying externalities and competition. *Available at SSRN 3297712*, 2019.

Mancur Olson. *The Logic of Collective Action*. Harvard University Press, 1965.

Sam Peltzman. Toward a more general theory of regulation. *The Journal of Law and Economics*, 19(2):211–240, 1976.

Enrico Perotti and Paolo Volpin. Investor protection and entry. Technical report, Tinbergen Institute discussion paper, 2007.

Torsten Persson and Guido Tabellini. *Political economics*. MIT press Cambridge, MA, 2016.

Luca Pieroni and Giorgio d'Agostino. Corruption and the effects of economic freedom. *European Journal of Political Economy*, 29:54–72, 2013.

Richard A Posner. Theories of economic regulation. Technical report, National Bureau of Economic Research, 1974.

Susan Rose-Ackerman. The economics of corruption. *Journal of public economics*, 4(2): 187–203, 1975.

George J Stigler. The theory of economic regulation. *The Bell journal of economics and management science*, pages 3–21, 1971.

Jakob Svensson. Eight questions about corruption. *Journal of economic perspectives*, 19(3): 19–42, 2005.

Stefan Zeume. Bribes and firm value. *The Review of Financial Studies*, 30(5):1457–1489, 2017.

A Proofs

A.1 Direct control

Proof of Proposition 1

Consider V bribing groups each making an offer characterized by market entry level and contributions (n_j, K_j). Let the offer by group k be the one that currently gives the highest

utility to the politician. Each bribing group $j \neq k$ has an incentive to make an offer that gives the politician a marginally higher utility, so that to ensure victory in the bargaining game. Thus, the optimal offer by each $j \in V$ maximizes politician's utility while satisfying bribing group's participation constraints:

$$\max_{n_j, K_k} \beta S(n_j) + (1-\beta) K_j$$

$$\text{subject to: } K_j \leq n_j(m - n_j)$$

Politician's utility is maximized when bribing group's participation constraint is binding $K_j^* = n_j(m-n_j)$ and the level of entry as well as bribing group's size is set at $n_j^* = \frac{m}{2-\beta}$. All bribing groups find it optimal to make the same offer, so $K_j^* = K^D$ and $n_j^* = n^D$. New bribing groups are formed as long as there are sufficiently many non-associated households to form a group of size $q_j = n^D$, so $V = \lfloor \frac{1}{n^D} \rfloor$.

The politician prefers accepting the bribe K^D and implementing n^D as long as her participation constraint (5) is satisfied:

$$(1-\phi)(\beta S(n^D) + (1-\beta)K^D \geq \beta S(m) \iff \phi \leq (1-\beta)^2$$

Otherwise, the politician allows free entry, allocating it at random.

Proof of Lemma 1

Taking first order derivative of (8) with respect to β yields:

$$\frac{dn^D}{d\beta} = \frac{m}{(2-\beta)^2} > 0$$

Taking first order derivative of (9) with respect to β yields:

$$\frac{dK^D}{d\beta} = (m - 2n^D)\frac{m}{(2-\beta)^2}$$

Since $n^D > \frac{m}{2}$, $\frac{dK^D}{d\beta} < 0$.

A.2 Minimum requirment regulation

Proof of Proposition 2

The best offer that a lobby k can make to a politician is to offer all of its' productive surplus as contributions, $(n_k - n_{k-1})(m-n_k) = K_k^*$ (where n_{k-1} is the size of a lobby formed previously),

and to choose it's size such that to maximize politician's utility:

$$\max_{n_k} U_p(n_k, n_{k-1}) = \beta S(n_k) + (1-\beta)(n_k - n_{k-1})(m - n_k) \tag{17}$$

This yields the optimal size equal to: $n_k^* = \frac{m+(1-\beta)n_{k-1}}{2-\beta}$. Evaluating the politician's utility at this entry and contribution level and taking a derivative with respect to the size of the previous lobby yields

$$\frac{dU_p(n_k^*(n_{k-1}), K_k^*(n_{k-1}), \mathcal{I}^R = 1)}{dn_{k-1}} = -(1-\beta)(m - n_k) < 0$$

where we use that $\frac{\partial U_p(n_k^*, K_k^*, \mathcal{I}^R=1)}{\partial n_k}) \frac{\partial n_k^*}{\partial n_{k-1}} = 0$ by envelope theorem. Note that $\frac{dU_p(n_k^*, n_{k-1})}{dn_{k-1}} < 0$ implies that the best offer of by lobby k is always less attractive than the best offer that a lobby $k-1$ could make. Thus, the first lobby has the potential to make the most attractive offer to the politician. However for $k = 1$ to win, it is sufficient that it outbids the best offer of any other lobby, i.e. the offer by lobby $k = 2$. This implies that if lobby $k = 1$ wants to win its' offer has to satisfy:

$$\beta S(n_1) + (1-\beta)K_1 \geq \beta S(n_2) + (1-\beta)(n_2 - n_1)(m - n_2)$$

where $n_2 = \frac{m+(1-\beta)n_1}{2-\beta}$ is the most attractive offer by lobby $k = 2$ as follows from (17). This expression pins down the minimum contribution by the first lobby, K_1. Given the minimum contribution to outbid another lobby the first lobby can choose n_1 so that to maximize its profits:

$$\max_{n_1} \frac{1}{1-\beta} \left[\beta S(n_1) + (1-\beta)n_1(m - n_1) - (\beta S(n_2) + (1-\beta)(n_2 - n_1)(m - n_2))\right] \tag{18}$$

Solving this yields (11) and (12).

Next, we show that this is an equilibrium because the first lobby prefers making a winning bid rather than free-riding on the offer of another lobby. If the first lobby free-rides on the offer of a second lobby, the problem of lobby $k = 2$ is similar to that of $k = 1$ above: second lobby does not need to sacrifice all of its' profits and can still win the lobbying game. It needs to strategically outbid the fiercest competitor, the third lobby. The offer by the third lobby (n_3, K_3) solves (17), where $k = 3$. The problem of the second lobby would then be:

$$\max_{n_2} \frac{1}{1-\beta} \left[\beta S(n_2) + (1-\beta)(n_2 - n_1)(m - n_2) - (\beta S(n_3) + (1-\beta)(n_3 - n_2)(m - n_3))\right]$$

In this case the strong lobby chooses its size so that to maximize own profits, under the entry lobbied for by the second group:

$$\max_{n_1} n_1(m - n_2)$$

Under free-riding, the total rents available to entrepreneurs are:

$$\max_{n_2} \frac{1}{1-\beta} \left[\beta S(n_2) + (1-\beta)n_2(m-n_2) - (\beta S(n_3) + (1-\beta)(n_3 - n_2)(m - n_3))\right]$$

If the second lobby was choosing n_2 so that to maximize the total surplus, the problem would be equivalent to that of a first lobby trying to win given in (18). However, when first lobby free-rides the second lobby chooses n_2 so that to maximize own surplus. The resulting n_2 differs from the one that would maximize the surplus of both lobbies whenever $n_1 > 0$. When free-riding it is optimal for the strong lobby to choose a positive size of a group. Thus, the surplus available to the two lobbies under free-riding by the first lobby is lower than the surplus available to the first lobby when it lobbies to win.

Proof of Lemma 2

Taking the first order derivative of n^R with respect to β yields:

$$\frac{dn^R}{d\beta} = \frac{(3-2\beta)}{[1+2(1-\beta)(2-\beta)]^2} m > 0$$

A.3 Equilibrium

Proof of Lemma 3

Comparing the levels of entry:

$$n^D < n^R \iff \frac{m}{2-\beta} < \frac{1+(1-\beta)(2-\beta)}{1+2(1-\beta)(2-\beta)} m \iff (1-\beta)(1-(2-\beta))^2 > 0$$

Which hold because $\beta < 1$.

Proof of Proposition 3

If $\phi \geq \hat{\phi}^D$ the politician chooses to not accept bribes under direct control governance. In this case she earns $\beta S(m)$. Under regulation the offer by the winning lobby is such that politician's utility is maximized conditional on second lobby's budget constraint being satisfied. Since

an offer such that $n_2 = m$ and $K_2 = 0$ satisfies second lobby's budget constraint, but is not optimally chosen, it must be that $beta S(n_2) + (1-\beta)K_2 > \beta S(m)$ so the politician can achieve a higher utility by being lobbied then by forgoing bribes and allowing free entry.

Politician's expected utility under regulation is constant in ϕ, $\frac{dU(n^{G*},K^{G*},\mathcal{I}^{G*})}{d\phi} = 0$ if $G = R$, and it decreases in ϕ under direct control, $\frac{dU(n^{G*},K^{G*},\mathcal{I}^{G*})}{d\phi} > 0$ if $G = D$. Thus, there exists a threshold $\bar{\phi} < \hat{\phi}$ such that the politician is indifferent between the two modes of control if $\phi = \bar{\phi}$ and prefers direct control if $\phi < \bar{\phi}$.

Proof of Lemma 4

The threshold $\bar{\phi}$ is defined in:

$$(1-\bar{\phi})\left[\beta S(n^D) + (1-\beta)n^D(m-n^D)\right] = \left[\beta S(n_2^R) + (1-\beta)(n_2^R - n_1^R)(m-n_2^R)\right] \quad (19)$$

By implicit differentiation and using the envelope theorem we get:

$$-\frac{\partial\bar{\phi}}{\partial\beta}\left[\beta S(n^D) + (1-\beta)n^D(m-n^D)\right] =$$
$$S(n_2^R) - (n_2^R - n_1^R)(m-n_2^R) - (1-\beta)(m-n_2^R)\frac{\partial n_1^R}{\partial\beta} - (1-\bar{\phi})[S(n^D) - n^D(m-n^D)]$$

Which simplifies to:

$$-\frac{\partial\bar{\phi}}{\partial\beta}\left[\beta S(n^D) + (1-\beta)n^D(m-n^D)\right] = \frac{(n_2^R)^2}{2} + (m-n_2^R)\left[n_1^R - (1-\beta)\frac{\partial n_1^R}{\partial\beta}\right] - (1-\bar{\phi})\frac{(n^D)^2}{2}$$

since $n_2^R > n^D$ the RHS of the expression above is positive whenver $n_1^R > (1-\beta)\frac{\partial n_1^R}{\partial\beta}$ which is true since:

$$1 + (3 - 1\beta)(1-\beta) + 2(2-\beta)^2(1-\beta)^2 > 0$$

Thus, $\frac{\partial\bar{\phi}}{\partial\beta} < 0$.

A.4 Legal Power

Proof of Lemma 5

Each bribing group j is solving the following problem:

$$\max_{n_j} \left(1 - \phi - \psi(1-n_j)\right)\left[\beta S(n_j) + (1-\beta)n_j(m-n_j)\right] \quad (20)$$

Let $\Omega_P(n_j) = \beta S(n_j) + (1-\beta)n_j(m-n_j)$, then the first order condition reads:

$$\psi\Omega_P(n_j) + (1-\phi-\psi(1-n_j))\Omega'_P(n_j) = 0 \tag{21}$$

Since $\Omega'_P(n_j) = 0$ at $n_j = \frac{m}{2-\beta}$ and given that $\Omega_P(\frac{m}{2-\beta}) > 0$, it must be that $n_j^* > \frac{m}{2-\beta}$. Since $\Omega_P(n_j) = 0$ at $n_j = 0$ and $n_j = \frac{2m}{2-\beta}$ it must be that $n_j^* < \frac{2m}{2-\beta}$.

Implicit differentiation of (21) with respect to ψ yields:

$$\frac{\partial n_j^*}{\partial \psi} = \frac{n(m - \frac{2-\beta}{2}n) - (1-n)(m-(2-\beta)n)}{(1-\psi(1-n_j^*))(2-\beta) - (m-(2-\beta)n)}$$

Since $n_j* \in (\frac{m}{2-\beta}, \frac{2m}{2-\beta})$, we have that $\frac{\partial n_j^*}{\partial \psi} > 0$.

Proof of Lemma 6

The powerful bribing group aims to maximize own profits net of contributions while outbidding the strongest competitor. As the second bribing group can offer the next lowest risk of prosecution to the politician it has the potential to make the most attractive alternative offer. The highest offer of the second bribing group maximizes politician's utility while forgoing all profits as political contribution. The level of entry proposed by that group, n_2^B, solves:

$$\max_{n_2^B} \left(1-\phi-\Psi(n_2^B, n_1^B)\right)\left[\beta S(n_2^B) + (1-\beta)n_2^B(m-n_2^B)\right] \tag{22}$$

To ensure that it wins, the powerful bribery must provide the politician with at least as high utility as what she could get with the second bribing group. Therefore the problem of the powerful bribery can be expressed as:

$$\max_{n_1^B} \frac{1}{1-\beta}\left[\beta S(n_1^B) + (1-\beta)n_1^B(m-n_1^B) - \frac{1-\phi-\Psi(n_2^B, n_1^B)}{1-\phi-\Psi(n_1^B, n_0^B)}\left[\beta S(n_2^B) + (1-\beta)n_2^B(m-n_2^B)\right]\right] \tag{23}$$

Therefore the rents accruing are the solution of problem (22) and those earned by the powerful bribery are given by (23).

Proof of Lemma 7

The level of entry in the case of homogenous legal power, n^B solves:

$$\underbrace{\psi(m - \frac{(2-\beta)}{2}n^B)n^B}_{A} + \underbrace{(1-\phi-\psi(1-n^B))(m-(2-\beta)n^B)}_{B} = 0 \tag{24}$$

Graphically (24) is a sum of two parabolas. Function A takes value of zero at $n^* = 0$ and $n^* = \frac{2m}{2-\beta}$ and achieves its' maximum value of $\psi\frac{m^2}{2(2-\beta)}$ at $n = \frac{m}{2-\beta}$. Function B has two zeros at: $n^* = \frac{\psi-1}{\psi} < 0$ the other one at $n^* = \frac{m}{2-\beta}$. Thus the positive solution of (24) lies in the set $n^B \in (\frac{m}{2-\beta}; \frac{2m}{2-\beta})$.

The level of entry in the case of heterogenous legal power, n_1^B solves:

$$\underbrace{-\Psi'_{n_1^B}(n_1^B, 0)(m - \frac{(2-\beta)}{2}n_1^B)n_1^B}_{PR} + \underbrace{(1 - \phi - \Psi(n_1^B, 0))(m - (2-\beta)n_1^B)}_{BP} + \underbrace{\Psi'_{n_1^B}(n_2^B, n_1^B)n_2^B(m - \frac{2-\beta}{2}n_2^B)}_{OO} = 0 \tag{25}$$

The equation is a sum of three components: PR, BP and OO. First note that n_2^B solves:

$$-\Psi'_{n_2^B}(n_2^B, n_1^B)(m - \frac{(2-\beta)}{2}n_2^B)n_2^B + (1 - \phi - \Psi(n_2^B, n_1^B))(m - (2-\beta)n_2^B) = 0 \tag{26}$$

Since $\Psi'_{n_j}(n_j, n_{j-1}) < 0$ for all $n_j < \frac{2m}{2-\beta}$ and $1 - \Psi(n_j, n_{j-1}) \in (0, 1)$ for all $n_j \in (0, \frac{2m}{2-\beta})$, the positive solution to (26) is $n_2^B \in (\frac{m}{2-\beta}; \frac{2m}{2-\beta})$. Combining this with the fact that $\Psi'_{n_{j-1}}(n_j, n_{j-1}) > 0$ for all $n_{j-1} \in (0, \frac{2m}{2-\beta})$, term OO is strictly positive for all $n_1^B \in (0, \frac{2m}{2-\beta})$.

Term PR and BP correspond to terms A and B in the homogenous case.

Conditions for $n_1^B > n^B$:

The groups are formed sequentially and include households with the highest legal power of those not yet associated. This means that an increase in n_j at low levels of n_j has at least as strong impact on the probability of prosecution as at high levels of n_j, $\Psi''_{n_j}(n_j, n_{j-1}) \geq 0$.

Consequently, if $-\Psi'_n(n, 0)|_{n=\frac{2m}{2-\beta}} \geq \psi$ then $-\Psi'_n(n, 0)|_{n<\frac{2m}{2-\beta}} \geq \psi$. Under this condition, function PR takes weakly higher values than function A for all $n \in (\frac{m}{2-\beta}, \frac{2m}{2-\beta})$. Both are equal to zero at $n = \frac{2m}{2-\beta}$.

Functions BP and B are both equal to zero at $n = \frac{m}{2-\beta}$. The ordering of the values they take for larger n depends on their relative steepness. The derivatives are:

$$\frac{dB}{dn} = \psi(m - (2-\beta)n) - (2-\beta)(1 - \psi + \psi n)$$
$$\frac{dBP}{dn} = -\Psi_n(n, 0)(m - (2-\beta)n) - (2-\beta)(1 - \phi - \Psi(n, 0))$$

The function BP decreases in n less steeply than function B if $\frac{dBP}{dn} > \frac{dB}{dn}$. Since $-\Psi'_n(n, 0)|_{n=\frac{2m}{2-\beta}} \geq \psi$, the sufficient condition is $(1 - \psi + \psi n) > 1 - \Psi(n, 0)$. For the decrease to be less steep for any $n \in (\frac{m}{2-\beta}, \frac{2m}{2-\beta})$ we need $\Psi(\frac{2m}{2-\beta}, 0) \geq \psi(1 - \frac{2m}{2-\beta})$.

Thus, if $-\Psi'_n(n,0)|_{n=\frac{2m}{2-\beta}} \geq \psi$ and $\Psi(\frac{2m}{2-\beta},0) \geq \psi(1-\frac{2m}{2-\beta})$ functions PR and BP take lower values than functions A and B for $n \in (\frac{m}{2-\beta}, \frac{2m}{2-\beta})$

Equation (25) sums term PR, BP and OO. Since for all $n \in (\frac{m}{2-\beta}, \frac{2m}{2-\beta})$ both PR and BP take higher values than A and B respectively and since OO is positive, the positive solution of (25) has to be larger than the positive solution of (24), $n_1^B > n^B$.

Conditions for $n_1^B < n^B$:

Since $\Psi''_{n_j}(n_j, n_{j-1}) \geq 0$, if $-\Psi'_n(n,0)|_{n=\frac{m}{2-\beta}} < \psi$, then $-\Psi'_n(n,0)|_{n>\frac{2m}{2-\beta}} < \psi$. Thus, if $-\Psi'_n(n,0)|_{n=\frac{m}{2-\beta}} < \psi$ function PR takes lower values than function A for all $n \in (\frac{m}{2-\beta}, \frac{2m}{2-\beta})$. Both are equal to zero at $n = \frac{2m}{2-\beta}$.

If $\Psi(\frac{m}{2-\beta},0) < \psi(1-\frac{m}{2-\beta})$, then function BP decreases in n more steeply than function B for all values of $n \in (\frac{m}{2-\beta}, \frac{2m}{2-\beta})$. Thus in this domain function BP takes lower values than function BP.

If $\Psi_{n_1}(n_2, n_1)$ is low, $-\Psi'_n(n,0)|_{n=\frac{m}{2-\beta}} \ll \psi$ and $\Psi(\frac{m}{2-\beta},0) \ll \psi(1-\frac{m}{2-\beta})$, then the entry that solves the heterogenous problem is lower than the one that solves the homogenous case, $n_1^B < n^B$.