

THE ROLE OF JUDICIARY IN
PUBLIC DECISION MAKING PROCESS

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Abstract. In this paper we analyze the role of judicial power in a multi-stage lobbying model, focusing on two dimensions of quality of the judiciary, namely efficiency and integrity. It is assumed that a self-interested group can influence a public decision maker - and possibly the judicial authority itself, which performs an anti-corruption task - with the payment of illegal contributions, and general conditions are provided for the existence of a zero contribution equilibrium. Furthermore, we study how sensitive the main findings are to varying degrees of independence in the choice of the judiciary.

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1. Introduction

A leading concern about democratic political systems is the influence of money on politics, and, more specifically, the leverage special interest groups may claim on actual policies via their ability to contribute money to public decision makers. The theoretical benchmark provided by the seminal contributions of Grossman and Helpman (1994), Dixit, Grossman and Helpman (1997), and especially Grossman and Helpman (2001) describes the public decision maker as an auctioneer who may receive bids from various entities, in the form of bribes, campaign contributions, or other tempting incentives. Central to the political economy literature has accordingly been the issue of investigating the equilibrium outcome of the policy making process in which pressure groups

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participate actively - through the provision of monetary transfers to politicians - in order to influence political decisions.

In some political systems, notably the United States, these transfers may be perfectly legal and considered to be lobbying, whereas in other systems, the same transfers would be regarded as illegal and accordingly identified as corruption. Somewhat surprisingly, while in most of the literature lobbying and corruption can be viewed as the same phenomenon¹, little attention has been paid to the analysis of the influence on the degree to which a government can be captured by special interest groups, of the existence of an independent public agent implementing an endogenously determined anti-corruption activity. More in general, the question whether the interaction between political corruption at different levels of government provides incentives to, alters or removes the lobbying activity, remains largely unanswered.

An important exception is a recent article by Mazza and van Winden (2008), in which the existence of different decision making levels is explicitly considered. An endogenous policy model is presented in which public policies are shaped within a multi-agent hierarchical government, and several issues involved in the strategic interaction between sequential decision making and multi-tier lobbying are accordingly addressed. Similarly, the present paper develops a simple institutional framework that aims at exploring the political interplay of two of the fundamental public institutions of modern democratic states - namely, the political authority and the judicial authority - which are assigned different tasks within the government arrangement, and the effects of their interdependencies on strategic behavior of self interest groups.

In this respect, a major shortcoming emerging from the fairly large political economy literature on corruption and lobbying stands in that it generally neglects the active role of the judicial review, while focusing on a single public decision maker solely - typically a government body (Laffont, 2000). In Maskin and Tirole (2004) two political entities are separately introduced in order to investigate peculiar features of a non-representative authority (the Judge) as an alternative to elective bodies (the Politician), whereas Hanssen (2004) develops further this subject examining the effects of their joint presence; in both the cases special interest groups are not present in the model and only the optimal allocation of power between accountable and nonaccountable branches of government is assessed.

We contribute to this literature by studying how and to what extent corruption and bribery can be curbed when vulnerable to detection from a separate, but possibly not independent, branch of government - namely, the Judiciary - which is given the institu-

¹The differences between lobbying and bribing have not been extensively addressed in the theoretical literature; in the pioneering work of Grossman and Helpman (1994), lobbying takes the form of monetary transfers from lobbies to politicians, which could equally be interpreted as bribes (e.g., Coate and Morris (1999)). Harstad and Svensson (2006) attempt to draw the boundary by tackling the question why firms choose to lobby - aiming at changing existing rules or policies - or bribe - attempting to get around existing rules or policies -, and the consequences of this choice in a growth framework.

tional role of fighting corruption embedded in the effective transfer of the contributions. To this end, we model a simple setting where a political authority has to decide on how to administer the public budget when facing multiple projects of public goods provision, which in turn benefit unequally different groups into which the population aggregates. As in Grossman and Helpman (2001), our model endogenizes special-interest groups contributions in the context of a political model in which the Politician's payoff depends on total contributions and social welfare, and organized groups are allowed to submit a menu of policy-contingent transfers, which take the form of illegal bribes². We study the equilibrium dynamics under complete information of public decision making when accounting for both this form of multiplicity of public actors involved in the process and the possibility that, while being independent of the political authority, the Judiciary itself may be directly pressured by lobbies³.

A political economic framework of judicial power with sequential decision making is then developed in which the Judiciary is modeled as a public agent acting as a constraint on the executive, since its decisions bias the presence (and the magnitude) of the trading process between lobbying transfers and *political patronage*. The judicial authority is therefore regarded as an active subject concurring with the Politician in the determination of public policy. Though we acknowledge the controversial features of this definition, we follow Posner (1994, 1995) in that, such a public decision maker is viewed as a rational agent aiming at optimizing a payoff function where several economic variables (revenues and costs, effort, non-monetary sources of compensation such as popularity and reputation) and the political target of suing illegal activities, are linked together. Also, similarly to Caselli and Morelli (2004) as for the political authority case, we measure the quality of Judiciary according to two substantive dimensions, namely efficiency and integrity. The former is defined in terms of adequate budgetary allocations, sufficient number of staff, adequate training of staff, and it is shown how it directly affects the choice of the level of effort to be exerted for the control activity to take place. The latter is defined as the degree of corruptibility by special interests, which is likely to induce distortions in the effective choice of the judicial authority. We provide a set of conditions under which illegal lobbying does not occur - i.e., it does not emerge as an equilibrium of the underlying game - even when feasible. In particular, we demonstrate how general results on lobbying are not invariant with respect to different judicial

²It would be of interest to consider a more sophisticated taxonomy - for instance, a threefold definition identifying bribery (contributing money to politicians), illegal lobbying (financing parties beyond what devised by legislations on campaigns fundraising) and legal lobbying (influence-buying through advocating particular positions publicly) - and to investigate the actual role played by the Judiciary when faced with such a multiplicity of sources of lobbying. This subject is beyond the scope of the present paper.

³Aiming at influencing the judicial choice to their favour, i.e. toward a less "tightening" anti-corruption activity to set up. The case where interest groups face the decision of whether they should lobby the political bodies to switch policy, or rather challenge existing policy at the judicial authority is developed in Rubin, Curran and Curran (2001).

environments. Our findings are in line with those of Dal Bó *et al.* (2006) who show that well-functioning judicial systems increase the cost of corrupt deals whereas slow and/or ineffective judicial systems raise the incentives for engaging in corrupt behavior.

Moreover, the question of the independence of the Judiciary is also tackled. The existence of a judicial branch of government, which is separate from and, to some degree, independent of the other branches, is a common phenomenon among democratic states. Within the literature on separation of powers and political accountability (e.g. Alesina and Rosenthal, 1996; Persson *et al.*, 1997), politicians are viewed as self interested actors and legislation as a set of contracts between politicians and powerful interest groups; independence of Judiciary is thereby thought of as a mechanism for increasing the costs of rent-seeking activity and reducing the profits of interest groups. The existence of an independent Judiciary is typically regarded as inconsistent with a political system in which public policy emerges from the attempts of interest groups to affect political decisions in their favor⁴. In our simple environment a corruptible but independent Judiciary is shown to be superior - in terms of total welfare - to a dependent Judiciary, in contrast to the “revisionist approach”, as put forward in Landes and Posner (1975), which views an independent judiciary as a mechanism which helps interest groups and the government body to maximize profits from the deals between them.

The paper is organized as follows. The basic model is introduced in Section 2 and Section 3, which carries out the equilibrium analysis. In Section 4 we relax the assumption of non-corruptibility of the judicial authority and address the issue of two-tier lobbying accordingly. Section 5 illustrates the case of a dependent Judiciary, when endowing the political authority with the power to select its level of integrity. Section 6 concludes.

2. The model

We consider an economy with a population of N individuals divided into two groups indexed by k , of size n_1 and n_2 respectively, $\sum_{k=1}^2 n_k = N$. Utility is derived from disposable income and group-specific public goods. With homogeneous preferences within each group, we have:

$$U_k = n_k u_k \tag{1}$$

with the individual utility function characterized as:

⁴A fundamental paradox highlighted in the economic and political debate on independence and political interference is that independence of judiciaries may in fact facilitate corruption in this branch because no other government entity has the authority to oversee them (e.g., Rose-Ackerman, 1978). If the judiciary is to be an effective watchdog over the executive, it must be both independent of it and of high integrity, that is not prone to pressure from politicians or others subjects in the private sector who benefit from a corrupt status quo. If judiciaries are independent, judges may be biased toward those who make payoffs; if dependent, they may be biased in favour of politicians who have power over them.

$$u_k = (1 - t)y_k + G_k(q_k B)$$

where:

- y_k denotes disposable income for each group k ;
- t is the given tax rate on gross income;
- $G_k(q_k B)$ denotes utility derived from the public good specific to group k , where:
 - 1) q_k is the share of public budget - given by $B = t \sum_{k=1}^2 n_k y_k$ - intended to finance public good k , $\sum_k q_k = 1$
 - 2) G_k is a twice continuously differentiable function satisfying $G'_k(q_k) > 0$ and $G''_k(q_k) < 0$.

As in Mazza and van Winden (2008), the effective supply of the public goods results from the interplay of two public agents. While they focus on sequential decision making within a hierarchical government in which a Legislator decides on the magnitude of the tax revenue and a Bureaucrat is in charge of selecting the share of public budget intended to finance the provision of public goods, in our model public policies are univocally determined by the decisions of a Politician (P hereafter) and yet are influenced by the behavior of a Judiciary (J hereafter), which is given the role of tracing illegal lobbying. In a setting *à la* Grossman and Helpman (2001), an organized interest group k may indeed decide to influence the choice of P by submitting a menu of policy-contingents transfers $T_k\{q_k\}$ which maps any possible value of $q_k \in [0, 1]$ into a non-negative contribution to P . As P will choose the vector $\{\hat{q}_k\}$ which maximizes its own objective function, including lobbying contributions $T_k\{\hat{q}_k\}$ in the individual utility function and aggregating over each group members yield a net payoff of:

$$V_k = U_k - T_k \quad (2)$$

We model a reduced form for the Politician's objective function, assuming that fixed weights are exogenously assigned to the welfare levels of the two different groups in the economy⁵. When choosing q_k intended to finance public goods provision, the political authority P is thereby concerned with the utilities of all individuals (lobbying or not) and with the receipts it gets from the groups of interest. For the purpose of the paper,

⁵In Grossman and Helpman (1994) the weights the government places on different groups in the economy are endogenously determined. In our model, θ_k may represent population weights (e.g., when the Politician takes care of social welfare) or electoral weights (when the Politician is concerned with reelection prospects). The weighting factor l the government places on social welfare versus political contributions can be thought of as a measure of the level of corruption in the political system.

we assume that P will benefit from the second source of utility (effective transfer from the lobbying groups) only with probability $f \in [0, 1]$, so that risk neutrality implies:

$$V_P = f \sum_{k=1}^2 T_k(q_k) + l \sum_{k=1}^2 \theta_k V_k$$

where:

- $\sum_{k=1}^2 \theta_k V_k$ is the social welfare function with weights θ_k , where $\forall k, \theta_k \in [0, 1]$ and $\sum_{k=1}^2 \theta_k = 1$;
- $l > 0$ denotes the degree of preference of P for social welfare relative to contributions.

Groups may differ in their ability to lobby. Since the aim of the paper is to investigate the endogenous interaction between lobbying and judicial control under several hypotheses as to the integrity and independence of the Judiciary, for the sake of simplicity we assume that group 2 is unable to lobby because of inadequate political influence-buying⁶, and group 1 only is modelled as a bribe provider. To ease notation burden, we set $q_1 = q$ (and $q_2 = 1 - q$ accordingly), so that $T(q)$ and $\hat{T} \equiv T(\hat{q})$ will denote the menu of transfers submitted and the contribution effectively paid by the lobby group, respectively. The payoff function of P reduces then to:

$$V_P = fT(q) + l \sum_{k=1}^2 \theta_k V_k \quad (3)$$

This setup is similar to Grossman and Helpman (2001), where the monetary transfers from lobbies to politicians can be equally interpreted as bribes. In our simple economy contributions are assumed to be illegal whichever form or submission channel they might take; accordingly we explicitly model the uncertainty in the payment of the contributions as linked to the presence of the control activity undertaken by the Judiciary.

The judicial authority is in charge of an anti-corruption office⁷ incidental to the effective transfer of the contributions \hat{T} . In particular, we assume the existence of one-to-one relations between the control activity carried out by J and both the probability $1 - f$ with which it traces the payment \hat{T} and a cost, determined by a uni-variate function S , in terms of effort to be exerted for the control task to take place. Accordingly, we can

⁶We let then group 2 collect the rest of the population, so that the public good 1 would represent a specific good in which group 1 is interested, whereas the public good 2 would denote a generic basket of other goods.

⁷Corruption has gained in the last decade an important position in the development and political economy debate. The literature on the effects of corruption on economic growth and social welfare is by now a large chapter of public economics, as reviewed in Jain (2001) and Aidt (2003).

consider f as the choice variable for J and denote with $S(f)$ the effort cost associated with any level of control activity. We suppose this function takes the form:

$$S(f) = \frac{(1-f)}{\alpha} \quad (4)$$

so that positively identifying any illegal contribution submitted to P is costly in terms of effort but bounded from above ($S(0) = \frac{1}{\alpha}$), while not identifying it involves no effort at all ($S(1) = 0$)⁸. The positive parameter α is assumed to be a measure of efficiency for J 's control activity; it summarizes the influence of adequate budgetary allocations, sufficient number of staff, adequate training of staff on the judicial work. Although efficiency is only one aspect of the quality of a Judiciary, it nonetheless is measurable⁹, unlike some of the other essential features (Dakolias, 1999).

As to the objective function of J , we assume that it is simply given by the sum (with negative sign) of illegal transfers effectively submitted by the lobbying group and the cost of the anti-corruption task as expressed by equation (4). This leads to the following objective, taken to be maximized over $f \in [0, 1]$ ¹⁰:

$$V_J(f) = -(S + T(\hat{q})) \quad (5)$$

where f denotes the probability with which the contribution \hat{T} is not unveiled and then, broadly speaking, the level of impunity enjoyed by the lobby. In this context lobbying proves observable but not verifiable by the Judiciary unless he discovers the contribution through his control activity. Also, for the sake of exposition, we make a strong assumption in that, whenever identified, the contribution \hat{T} is confiscated but can neither contribute to financing public goods provision nor be of any utility for J .

The timing of the model is as follows:

- (i) J selects the level of control activity, determining f ;
- (ii) the lobbying group 1 formulates the menu $T(q)$;
- (iii) P determines $\{\hat{q}\}$;
- (iv) the lobbying group 1 pays $T(\hat{q})$;

⁸There is no sunk cost associated with the described control activity.

⁹For a survey on the main indicators, testing schemes and empiric findings on the functioning of judicial systems of the Council of Europe's member states, the reader is referred to the report of the European Commission for the Efficiency of Justice (CEPEJ), edition 2008, available at <http://www.coe.int/T/dghl/cooperation/cepej/evaluation/>.

¹⁰Note that V_J can be thought of as the reduced form of $-(|S - S^J| + |T(\hat{q}) - T^J|)$ where S^J and T^J denote the values desired by J ; assuming that both S^J and T^J are equal to zero and observing that $S \geq 0$ and $T \geq 0$, we indeed obtain relation (5). Such preferences are thought of as being based on deeply internalized notions of legality and respect for justice as perceived by judicial authorities themselves.

(v) if not traced, the contribution is received by P .

Implicitly it is assumed that, even if the Politician and the lobby choose not to stipulate any contract, the relationship between the two is ongoing, so that promises are carried out to preserve the possibility of future cooperation. For similar reasons, we assume that the Judiciary commits to carry out the level of control as chosen in stage 1.

3. Equilibrium analysis

We derive here the sub-game perfect equilibrium of the model through backward induction. Some preliminary comments are worth making. As pointed out by Grossman and Helpman (2001), it is sufficient to restrict the analysis to the equilibrium profile insofar as the results obtained are invariant with respect to the form of the contribution schedule off-the equilibrium. It is also easy to verify that the same outcome is obtained in a simpler framework where the lobby doesn't formulate a menu offer but makes instead a take-it-or-leave-it offer to the Politician - in particular, easily satisfied are the *no-externalities* conditions as put forward in Peters (2003), in order to ensure that the payoffs associated with pure strategy equilibria relative to the set of menus can be supported as pure strategy equilibria with take-it-or-leave-it offers. Furthermore, the following results for the optimal policy choice by the Politician don't require the assumption that the bargaining power is fully allocated to the lobby; the same are indeed obtained under different rules of negotiation¹¹.

As to the last stage, using (2) and (3), the objective function for P becomes:

$$V_P = fT(q) + l \sum_{k=1}^2 \theta_k (U_k - T_k) = (f - l\theta_1)T(q) + l \sum_{k=1}^2 \theta_k (U_k)$$

From this formulation, it is straightforward to note that P will give in to the lobbying group (accepting \hat{T}) only if the probability of obtaining the contribution exceeds a given threshold (i.e., $l\theta_1$). Accordingly, a necessary condition for the absence of lobbying can be stated in terms of $l \geq 1/\theta_1$: whenever this condition is not fulfilled, the group of interest will be able to bear down on the public agent P by submitting a menu of policy-contingent contributions only if the level of impunity enjoyed by the lobbying activity is larger than the given threshold. We can distinguish three cases where either no group or one group lobbies according to the following Lemma:

Lemma 1. *1) If $l \geq 1/\theta_1$, no lobbying emerges and P chooses \hat{q}^* by maximizing $V_P = l \sum_k \theta_k U_k$.*

¹¹For example, when the Politician and the lobby share equally the gain or also when the Politician takes it in full. All these remarks also apply for the lobbying game between the interest group and the Judiciary.

- 2) If $l < 1/\theta_1$ but $f \leq l\theta_1$, no lobbying emerges and P chooses \hat{q}^* by maximizing $V_P = l \sum_k \theta_k U_k$.
- 3) If $l < 1/\theta_1$ and $f > l\theta_1$ the group 1 lobbies P and obtain $q^L > q^*$.

In the first two cases, group 1 chooses $T = 0$ and no interaction between the public agent P and the existing groups takes place. Maximizing $V_P = l \sum_k \theta_k U_k$ over the control variable q yields the first-order condition:

$$\sum_k \theta_k \frac{\partial U_k}{\partial q} = 0 \quad \Rightarrow \hat{q}^* \quad (6)$$

Although the two possibilities bring about the same results in terms of optimal choice by the Politician, they have no common source. In the first case, lobbying is not even feasible, because of the the level of welfare-interest of the Politician, that makes too costly for the interest group to pay contributions. We define this as the First Best (FB) equilibrium. In the second case, even if feasible, lobbying doesn't emerge because of the level of judicial control. We denote this with the term Full Deterrence (FD) equilibrium. In the former case therefore, the presence of Judiciary is non influential, whereas in the latter it proves fundamental.

In the third case, according to Grossman and Helpman (2001), \hat{q}^L jointly maximizes the objective functions of P and the lobbying group, the latter acting as a principal¹². The equilibrium is then defined by:

$$(f - l\theta_1) \frac{\partial T(q)}{\partial q} + l\theta_1 \frac{\partial U_1}{\partial q} + l\theta_2 \frac{\partial U_2}{\partial q} = 0$$

subject to:

$$\frac{\partial U_1}{\partial q} - \frac{\partial T(q)}{\partial q} = 0$$

which gives the first-order condition:

$$f \frac{\partial U_1}{\partial q} + l\theta_2 \frac{\partial U_2}{\partial q} = 0 \quad \Rightarrow \hat{q}^L \quad (7)$$

It is straightforward to note that the main effect of the lobbying activity relative to the no lobbying case is to have the weight P grants to its utility increased ($f > l\theta_1$). It will univocally be $q^L > q^*$ so that $U_1(q^L) > U_1(q^*)$ and $U_2(q^L) < U_2(q^*)$. Clearly, for the contribution T^L to be an equilibrium it cannot be lowered further without inducing the public decisor maker to change its optimal choice. Given that:

$$V_P(q^*) = l \sum_{k=1}^2 \theta_k U_k(q^*)$$

¹²For a more formal treatment of this type of equilibria, the reader is referred to Grossman and Helpman (2001), definition 7.2.

and:

$$V_P(q^L) = (f - l\theta_1)T^L + l \sum_{k=1}^2 \theta_k U_k(q^L)$$

setting $V_P(q^*) = V_P(q^L)$ yields:

$$T^L = \frac{1}{f - l\theta_1} \left\{ l\theta_1[U_1(q^*) - U_1(q^L)] + l\theta_2[U_2(q^*) - U_2(q^L)] \right\} \quad (8)$$

It is evident that $\frac{\partial T^L}{\partial q} = -\frac{1}{f-l\theta_1} [l\theta_1 \frac{\partial U_1}{\partial q} + l\theta_2 \frac{\partial U_2}{\partial q}] > 0$ from (7), so that from $q^L > q^*$ it follows $T^L > 0$. It is worth mentioning that the participation constraint of the lobbying group is not binding in equilibrium ($U_1(q^L) - T_1(q^L) > U_1(q^*)$), this meaning that, relative to the no lobbying setup, group 1 experiences an increase in its payoff and group 2 faces a decreased payoff, with P remaining indifferent between the two cases¹³.

Now we turn to the analysis of the first stage of the game. In order to perform its anti-corruption task, the judicial authority chooses the level of effort to be exerted by minimizing $[S(f) + \widehat{T}]$ ¹⁴, where f denotes the probability with which the contribution \widehat{T} is effectively delivered to the public agent P . While the operative cost $S(f)$, in terms of effort required by any control actions, suggests that weakening the anti-corruption activity (by letting the level of impunity enjoyed by the lobbying group be high) involves, at any efficiency level α , a benefit for J , the effect of f on \widehat{T} - which is key to investigating how the agent J attempts to influence the existence and the magnitude of illegal contributions - is ambiguous.

Two different scenarios can thereby emerge. If $l \geq 1/\theta_1$ Lemma 1 ensures that lobbying never occurs; with $T = 0$, every positive level of effort by the Judiciary is of no use, and the optimal choice would result in $f = 1$ ¹⁵.

Conversely, if $l < 1/\theta_1$, the model allows us to derive a pair of functions $(q(f), \widehat{T}(f))$ which map from any value for f in $[0, 1]$ to the corresponding optimal choice of P and the transfer effectively submitted by the lobbying group. Evidently, if $f \in [0, l\theta_1)$ no contribution is paid and $\widehat{T}(f) = 0$. When $f \geq l\theta_1$, we have $\widehat{T}(l\theta_1) = 0$ and $\widehat{T}(f) > 0$ for all f larger than this threshold. The partial derivative of $\widehat{T}(f)$ with respect to f is:

$$\frac{\partial \widehat{T}(f)}{\partial f} = -\frac{l}{(f - l\theta_1)^2} \sum_{k=1}^2 \theta_k \left[U_k(q^*) - U_k(q^L) \right] - \frac{l}{f - l\theta_1} \sum_{k=1}^2 \theta_k \frac{\partial U_k}{\partial f} \quad (9)$$

¹³The original work by Grossman and Helpman (2001) achieves the same conclusion with $f = 1$.

¹⁴It is straightforward to show that this problem is analogous to that in which the lobbying group maximizes its objective, as given by equation (2), under the incentive compatibility constraint of J and the participation constraints of both the lobby and the Judiciary.

¹⁵This justifies our definition of First Best outcome, since no effort by the Judiciary is necessary to achieve the maximum welfare condition.

This relation captures the equilibrium trade-off induced by an higher level of impunity f . While the first term in the right-hand side has negative sign - an higher f grants the lobbying group a strong bargaining power, allowing it to submit the lowest contribution satisfying the participation constraint of P -, the second term turns positive as it reflects the equilibrium responses of the system due to the lobbying activity of the organized group. From $\frac{\partial U_1}{\partial f} \equiv \frac{\partial U_1}{\partial q^L} \frac{\partial q^L}{\partial f} > 0$ and $\frac{\partial U_2}{\partial f} \equiv \frac{\partial U_2}{\partial q^L} \frac{\partial q^L}{\partial f} < 0$, and given condition (7), the higher the value of f the larger the incentive distortion induced in the optimal behaviour of P and accordingly the higher the compensation to credit to the public agent in terms of the contribution $\widehat{T}(f)$.

Given continuity and compactness assumptions, a solution to the optimization problem of J does exist. The following proposition claims that there always exists a lower bound for the efficiency parameter α above which the judicial authority will pursue its control activity at the minimal level $l\theta_1$ such that there is no gain for group 1 in engaging into lobbying:

Proposition 1. *If $l < 1/\theta_1$, there always exists a finite threshold $\bar{\alpha}$ such that J prefers $f^* = l\theta_1$ to any $f \in [0, 1]$ if and only if $\alpha \geq \bar{\alpha}$.*

Proof. See Appendix. □

Therefore, when lobbying is feasible Lemma 1 and Proposition 1 jointly show that in two cases only the same efficiency result can be achieved. The first possibility is that the Politician is sufficiently welfare interested (or, in terms of the model, when $l \geq 1/\theta_1$). If this condition is not fulfilled, the same solution in terms of f^* is obtained provided Proposition 1 holds, that is if and only if the efficiency of the Judiciary is sufficiently high¹⁶.

It is worth noting also that, along the same reasoning (if $l < 1/\theta_1$), $f = 1$ is chosen if and only if α is lower than a given positive threshold, since in that case every level of control is too costly for J . Accordingly, the findings of Grossman and Helpman (2001) obtain in this framework only when J proves highly inefficient. In all the other cases with intermediate values for α , J could indeed prefer any value $f \in (l\theta_1, 1)$.

4. The case of a corruptible Judiciary

In this section we investigate the case where $l < 1/\theta_1$ and remove a restriction that was implicitly imposed before. To this end, let us consider a slightly different expression for $\widehat{T}'(f)$ which allows us to address several interesting issues hidden in the previous

¹⁶This leads to our definition of Full Deterrence equilibrium, given the cost borne by the public agent J for achieving the optimal condition as expressed in Proposition 1.

analysis. With some algebra, it is possible to rewrite the first term in the right-hand side of equation (9) and use equation (7) to obtain:

$$\frac{\partial U_1}{\partial f} - \frac{\partial \widehat{T}}{\partial f} = \frac{1}{(f - l\theta_1)^2} \left\{ l\theta_1[U_1(q^*) - U_1(q^L)] + l\theta_2[U_2(q^*) - U_2(q^L)] \right\}$$

which is always positive as the payoff of the lobbying group is a monotone function of the level of impunity f . This clearly raises the question whether it could be optimal for the self interest group to lobby at this tier of the decision-making process, namely submitting state-contingent contributions to J .

To incorporate this integrity issue into the model, we introduce an alternative objective of the judicial authority:

$$V_J(f) = -(S + T(\widehat{q})) + \sigma C(f) \quad (10)$$

with $\sigma \geq 0$ and $C(f)$ denoting the degree of corruptibility held by the judicial authority (so that $1/\sigma$ denotes his level of integrity) and the contribution schedule formulated by the lobbying group, respectively¹⁷.

The timing of the model includes accordingly a preliminary stage where the lobbying group 1 formulates a contribution schedule $C(f)$; the rest of the game is analogous to that presented in Section 2, with \widehat{f} denoting the level of impunity as determined by the effort choice of J .

The objective function for the agent P is now given as:

$$V_P = fT(q) + l \sum_{k=1}^2 \theta_k (U_k(q) - T_k(q) - C_k) \quad (11)$$

where, according to our assumptions, only $T_1 \equiv T$ and $C_1 \equiv C$ can take on non-zero values. Since P cannot influence the choice made by J on the level of impunity to be granted to the lobbying activity, independently of the ability of the group of interest to corrupt the judicial authority, \widehat{f} and $C(\widehat{f})$ are predetermined at this node of decision making. It follows that the optimal $T(q^L)$ is unaltered and equal to that obtained in the previous section.

As to the problem of P , the optimal choice for f^L maximizes jointly the payoff of J and the lobby, so that it is determined as the solution to¹⁸:

$$\min_{f \in [0,1]} [S(f) + \widehat{T}(f) - \sigma C(f)]$$

¹⁷In line with the expression for V_P , we may write $V_J = C - \lambda(S + T(\widehat{q}))$, according to which J would receive C with certainty and weight his “benevolent” objective function with the scalar $\lambda > 0$, that is his level of integrity. However, it is straightforward to observe that each expression is a linear transformation of the other (with $\sigma = 1/\lambda$). The one we adopt here helps develop brightly the following discussion.

¹⁸Alternatively, the problem at this stage can be equally stated in terms of the special interest group maximizing its objective, as given by $U_1(q) - T(q) - C$, under the incentive compatibility constraint of P and the participation constraints of both the lobby and the Politician.

subject to:

$$\frac{\partial U_1}{\partial f} - \frac{\partial \widehat{T}}{\partial f} - \frac{\partial C}{\partial f} = 0$$

which will be referred to as \hat{f}^L .

From the constraint we have:

$$\frac{\partial C}{\partial f} = \frac{1}{(f - l\theta_1)^2} \left\{ l\theta_1[U_1(q^*) - U_1(q^L)] + l\theta_2[U_2(q^*) - U_2(q^L)] \right\}$$

which is always positive since at any $f \in (l\theta_1, 1]$ the group of interest 1 is willing to lobby the public agent J for this to grant an higher level of impunity to the lobbying activity intended to affect P 's choice over public goods provision. It follows then that $\hat{f}^L \geq \hat{f}^*$.

Next we can compute $C(\hat{f}^L)$ as the contribution which makes J indifferent between choosing \hat{f}^L and keeping the preferred level of control \hat{f}^* :

$$S(\hat{f}^*) + \widehat{T}(\hat{f}^*) = S(\hat{f}^L) + \widehat{T}(\hat{f}^L) - \sigma C(\hat{f}^L)$$

or:

$$C(\hat{f}^L) = \frac{1}{\sigma} \left[-\frac{(\hat{f}^L - \hat{f}^*)}{\alpha} + \widehat{T}(\hat{f}^L) - \widehat{T}(\hat{f}^*) \right] \quad (12)$$

As an equilibrium requirement, the participation constraint of the lobbying group must be satisfied, so we need to impose:

$$U(\widehat{q}(\hat{f}^L)) - \widehat{T}(\hat{f}^L) - C(\hat{f}^L) \geq U(\widehat{q}(\hat{f}^*)) - \widehat{T}(\hat{f}^*) \quad (13)$$

Instead of deriving the closed-form solution to the problem, we look at the conditions under which the economy is able to reach an equilibrium where no illegal transfer to both the public agents occurs. Accordingly, we shall assume hereafter that $\alpha \geq \bar{\alpha}$ is always the case¹⁹, so that from Proposition 1 it follows $\hat{f}^* = l\theta_1$. Corrupting the judicial authority would instead yield \hat{f}^L : since $\bar{\alpha}$ has been proven to be the minimal level of efficiency such that $l\theta_1 \equiv \arg\min[S + T(\widehat{q})]$ in $[0, 1]$, and since $C(f) > 0$ for $f > l\theta_1$, we have $\hat{f}^L > l\theta_1$.

The contribution to be paid to J amounts then to:

$$C(\hat{f}^L) = \frac{1}{\sigma} \left[-\frac{(\hat{f}^L - l\theta_1)}{\alpha} + \widehat{T}(\hat{f}^L) \right]$$

with $C(\hat{f}^L)$ fulfilling equation (13), which is equivalent to requiring:

$$\frac{1}{\sigma} \left[-\frac{(\hat{f}^L - l\theta_1)}{\alpha} + \widehat{T}(\hat{f}^L) \right] \leq U(\widehat{q}(\hat{f}^L)) - U(q^*) - \widehat{T}(\hat{f}^L)$$

¹⁹We have already shown that an equilibrium with zero contribution is not possible if $\alpha < \bar{\alpha}$ even when the Judiciary is not corruptible.

Since this holds for any $\alpha \geq \bar{\alpha}$, we state the following:

Proposition 2. *If $l < 1/\theta_1$, there always exists a finite threshold $\bar{\sigma} > 0$ such that, for a sufficiently high α , J selects $\hat{f}^* = l\theta_1$ if and only if $\sigma < \bar{\sigma}$.*

Proof. See Appendix. □

Proposition 2 ensures that, for sufficiently low corruptibility levels, the problem is analogous to that dealt with in Section 3. It identifies a partition of the parameter space $\sigma \in [0, \infty]$ in accordance with the threshold $\bar{\sigma}$. While for high corruptibility levels no equilibrium without illegal transfers is achievable, even in the presence of maximum efficiency, for $\sigma < \bar{\sigma}$ a free contribution equilibrium is always feasible.

We now characterize the problem in terms of both the efficiency and the integrity of the Judiciary according to the following:

Corollary 1. *If $l < 1/\theta_1$ and provided that $\sigma < \bar{\sigma}$, there always exists $\bar{\alpha}$ such that J prefers $f^* = l\theta_1$ to any $f \in [0, 1]$ if and only if $\alpha > \bar{\alpha}$. In particular, we have $\bar{\alpha} = \alpha(\sigma)$ with $\partial\bar{\alpha}/\partial\sigma > 0$*

Proof. See Appendix. □

The last result shows that there exists a monotone relation between the degree of corruptibility of J and the minimal level of efficiency needed for the first best control activity to take place. According to this, we can draw the space efficiency vs. integrity as in Figure 1, where the region of absence of illegal contributions is identified. It emerges clearly the link between efficiency and integrity; in particular, the lower the efficiency of J the easier for the lobby to corrupt it at the first stage of the decision making.

The following claim summarizes this insight:

Proposition 3. *If $l < 1/\theta_1$, J chooses $f = 1$ only if $\alpha < \underline{\alpha}(\sigma)$ with $\underline{\alpha}(\sigma) > 0$ and $\partial\underline{\alpha}/\partial\sigma > 0$*

Proof. See Appendix. □

Again, the original results as put forward in Grossman and Helpman (2001), relative to the case of $f = 1$, can be replicated only in a highly inefficient and/or highly prone to corruption judicial environment. Otherwise, the presence of a Judiciary, even if corruptible, drives the economy to lower levels of influence on the Politician choice by the lobbying group - and possibly zero influence when Proposition 2 holds.

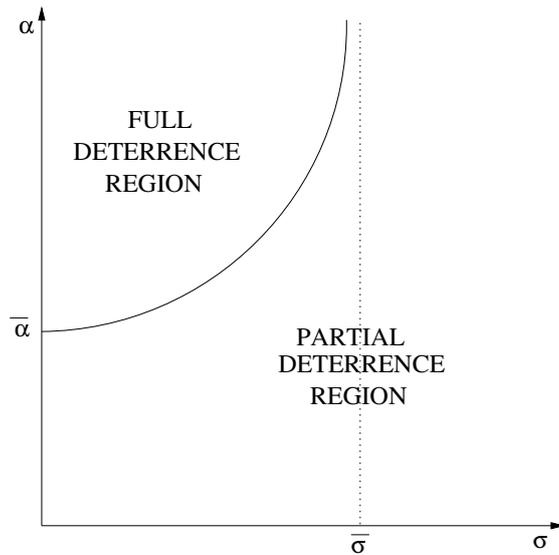


Figure 1: Full vs. Partial Deterrence region.

5. Some facts about the independence of Judiciary

This last section develops a slightly more sophisticated analysis in terms of presence of a dependent or independent Judiciary. A growing number of economic studies have demonstrated the beneficial effects of judicial independence for social welfare. Empirical work has developed several indicators and provided evidence that countries with stronger judicial independence enjoy higher economic performance and political freedom²⁰.

Here, the aim of inquiry is not the reasons of existence of the judicial authority as an institution independent of the political arm of government but rather on the discretion in choice enjoyed by and the nature of the constraints imposed on the Judiciary, as expressed by the mechanisms underpinning the independence of the judicial branch from political interference. Rather than specifying how P and J are appointed, we

²⁰The seminal contribution of Feld and Voigt (2003) introduces a twofold notion of judicial independence - *de jure* independence, as described in the constitutional establishment of the supreme court, and *de facto* independence, that is judicial independence as it is actually implemented in practice; exploiting a cross-sectional sample they present evidence that only *de facto* judicial independence is conducive to growth. In a related work, Feld and Voigt (2004) also control for interaction effects conjecturing that other constitutional arrangements such as the degree of checks and balances (Persson and Tabellini, 2003) might - jointly with judicial independence - also have an impact on economic growth. La Porta *et al.* (2004) use an international database assembling measures of judicial checks and balances for 71 countries to show that effective judicial independence and constitutional review account for greater economic freedom.

thereby formalize this feature by postulating that Nature always select the level of l (i.e. the level of welfare interest of the Politician), while it chooses the level of σ (i.e. the degree of corruptibility of the Judiciary) only in the case of independence of J , as the Politician is given the power to select it²¹.

The case of an independent Judiciary corresponds exactly to our previous section. In that situation, l and σ are independently given, so that the regions of presence or absence of illegal contributions are obtained provided Lemma 1 and Proposition 2 jointly hold. This scenario is depicted in Figure 2, which shows three possible regions according to the thresholds $\bar{\sigma}$ and $\bar{l} = 1/\theta_1$. Given Lemma 1, if $l \geq \bar{l}$ we always achieve the First Best solution thanks to the welfare interest of the Politician. If $l < \bar{l}$ but $\sigma < \bar{\sigma}$ Proposition 2 applies so that we achieve the Full Deterrence solution if the efficiency of the Judiciary is sufficiently high. Only if the welfare interest of P and the integrity of J are both low (that is, $l < \bar{l}$ and $\sigma > \bar{\sigma}$), q^* is unfeasible.

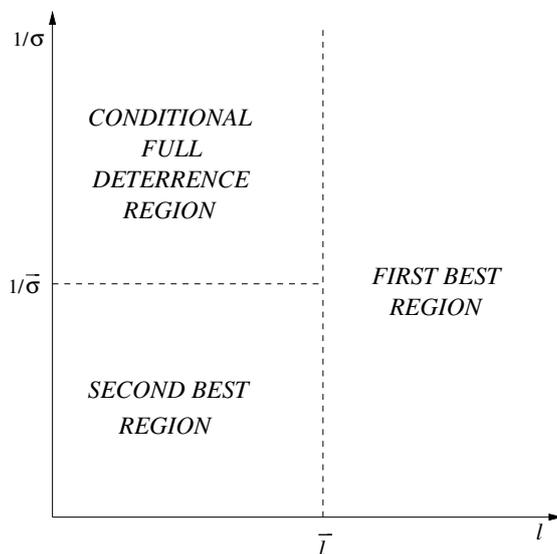


Figure 2: CFD vs. FB and SB region.

Let us now consider the case of a dependent Judiciary. In particular we allow Nature to initially choose l and σ , and give P the power to select J , that is to change σ . We have thereby to consider the possibility that the lobby contributes P also at this stage of the game. The timing is as follows:

- (i) Nature chooses l and σ independently;
- (ii) the lobbying group 1 formulates the menu $T^I(\sigma)$;

²¹Note that the model remains a game of complete and perfect information in that J and P observe the outcomes of both the extractions.

- (iii) P chooses either to keep σ or to change it into $\hat{\sigma}$;
- (iv) the lobbying group 1 formulates the contribution $C(f)$;
- (v) J selects the level of control activity, determining \hat{f} ;
- (vi) the lobbying group 1 pays $T^I(\hat{\sigma})$ and $C(\hat{f})$;
- (vii) if not traced, $T^I(\hat{\sigma})$ is received by P ;
- (viii) the lobbying group 1 formulates the menu $T^{II}(q)$;
- (ix) P determines $\{\hat{q}\}$;
- (x) the lobbying group 1 pays $T^{II}(\hat{q})$;
- (xi) if not traced, $T^{II}(\hat{q})$ is received by P .

Note that in V_P it results $T \equiv T^I + T^{II}$. In the last stage of the game Lemma 1 still applies and lobbying never occurs if $l \geq 1/\sigma_1$. As to the solution of the game when $l < 1/\sigma_1$, we prove the following:

Proposition 4. *If $l < 1/\sigma_1$, in the SPNE of the game P chooses the pair $(\hat{\sigma} = \infty, q^L(\hat{f} = 1))$, J chooses $\hat{f} = 1$ and the lobby pays $\hat{C} = 0$. Also, $\hat{T}^I = 0$ and $\hat{T}^{II} = \frac{1}{1-l\theta_1} \{l\theta_1[U_1(q^*) - U_1(q^L(\hat{f} = 1))] + l\theta_2[U_2(q^*) - U_2(q^L(\hat{f} = 1))]\}$*

Proof. See Appendix. □

The solution of the game is straightforward. As previously noted, the lobby prefers $f = 1$ to every other $f \in [0, 1)$, since $\forall f \leq l\theta_1$ $V_1 = U(q^*)$, while for $f > l\theta_1$ it holds $\frac{\partial V_1}{\partial f} > 0$. For this scenario to obtain, it needs a sufficiently low level of integrity of the Judiciary and thus there exists an incentive for the special interest group to lobby P at the first stage: since both the payoff functions of the lobby and of P are decreasing in C , i.e. the contribution paid by the lobby to J , it proves optimal for them to jointly set it to zero, which turns possible in the case of a corruptible Judiciary only if his integrity is exactly zero. With an incorruptible Judiciary, it is easy to show that the lobby and P share a common interest in changing J and setting $\sigma = \infty$; this result follows directly from observing that $\frac{\partial V_P}{\partial f}$ is positive if $T > 0$ in correspondence of the optimal choice for q ²².

This scenario is presented in Figure 3. In particular, here the equilibrium outcome under a dependent Judiciary is equivalent to that resulting from a society where no such an institutional entity exists; in both the cases indeed, the original finding of Grossman and Helpman (2001) obtains, here defined as Third Best equilibrium, since the weight of the lobby within the choice of q^L is always as higher as possible, i.e. $f = 1$.

²²Trivially, P prefers having T for sure than obtaining it with probability less than one.

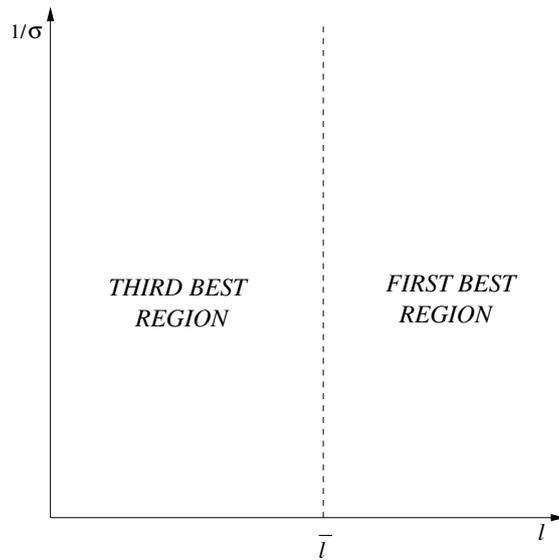


Figure 3: FB vs. TB region.

Finally, we may observe that from Proposition 3 it follows that the same conclusion results if P can determine the level of efficiency of the Judiciary instead of its level of integrity. In particular, it is easy to show that there exists a level of efficiency (possibly zero) for every level of integrity of J , such that whenever P implements it J chooses $f = 1$ and never claims a form of compensation to the lobby. Both the forms of dependence (organizational as much as hierarchical) appear thereby to be detrimental to the social welfare in the political equilibrium.

Our model outlines some important facts about the role of the Judiciary. If the Judiciary and the Politician are independently appointed, the probability of achieving the First Best solution never decreases. In fact, the presence of the Judiciary is redundant only when P is sufficiently welfare-interested - thereby entrusting P with the power to change J is not relevant, as a dependent or independent Judiciary will generate the same result. Conversely, when P is concerned with the contributions offered by the lobby, entrusting the political authority with the power to settle J might only decrease the possibility of achieving the First Best solution since this prevents the lobby from bargaining with two different subjects to obtain its favourite outcome.

6. Conclusion

This paper points out several issues concerning the influence of a judicial authority on the presence (and the magnitude) of illegal contributions that groups of interest may

choose to submit to a political authority with the aim of influencing the decision making upon the provision of public projects. To this end, it provides a dynamic model where the ability of lobbying group(s) to affect the public decision making process arises endogenously. In contrast to most of the related literature, here the pledged contributions do not systematically reach the political authority once this has solved its decision problem. Instead, the stage of lobby formation is endogeneized in a framework where the amount of promised contributions (or bribes) depend on the judicial authority's control activity, whose level is unambiguously related to the probability of revealing corruption. The political authority will accept the contribution only if it is effectively secured with a given probability threshold. As a result, the set of feasible alternatives against the status-quo may differ significantly in comparison to a setting where no judicial authority is present. Whenever the level of control is not sufficiently high, an increasing probability of reaching the political authority through the illegal contributions translates into an increasing lobbying power of the group of interest, with severe implications on the effective provision of public goods.

Moreover, the paper investigates some relevant features which are commonly presumed to exert some degree of influence on the decision making process at the judicial level. In particular, two substantive dimensions are highlighted: the efficiency of Judiciary - which directly affects the choice of the level of effort to be exerted for the control activity to take place - and his integrity - which is likely to induce distortions in the effective choice of policies. It is shown that efficiency and integrity both entail several implications for the effectiveness of lobbying; in particular, we prove that, even when allowing for a corruptible Judiciary, the control activity may prevent the group of interest from lobbying, whenever the judicial authority acts in a sufficiently efficient environment. Still, for low levels of integrity a corrupt judiciary represents an insurmountable impediment to the functioning of the institutional mechanism designed to curb corruption, however well-targeted and efficient, and no equilibrium with zero contribution is achievable. Finally, the main findings are tested against different assumptions as to the independence of the judicial authority.

The main argument of this paper shows that the original results of Grossman and Helpman (2001) obtain only in particular judicial environments, in which one of the following features is present: (i) absence of Judiciary; (ii) highly inefficient and/or highly corruptible Judiciary, and (iii) (perfectly) dependent Judiciary. In all the other cases, the control activity of the Judiciary implies lower levels of influence on the economic policy making of special interest group(s) or, in the extreme case of sufficiently integer and efficient Judiciary, the absence of illegal contributions.

Appendix

Proof of Proposition 1: - First note that from $\widehat{T}(f) = 0$ when $f < l\theta_1$, it follows that J optimizes over $f \in [l\theta_1, 1]$. The proposition is proven in three steps:

1. Consider α_I such that, for $f \rightarrow l\theta_1^+$, $V_J(f) > V_J(l\theta_1)$, that is $S(f) + \widehat{T}(f) > S(l\theta_1)$. The point $l\theta_1$ doesn't pose any discontinuity problem as the one-side limits from above and below are finite and equal to $\widehat{T}(l\theta_1) = 0$. Moreover, from $\widehat{T} \in C^2$, it follows that \widehat{T} is $O(f - l\theta_1)$ in a neighborhood of $l\theta_1$. The threshold value α_I is accordingly identified through the following second-order Taylor expansion of $\widehat{T}(f)$ around $(l\theta_1)$:

$$\frac{(1-f)}{\alpha} + \left[\widehat{T}(l\theta_1) + (f - l\theta_1) \frac{\partial \widehat{T}}{\partial f} + \frac{(f - l\theta_1)^2}{2} \frac{\partial^2 \widehat{T}}{\partial f^2} + R_{\widehat{T}} \right] > \frac{(1-l\theta_1)}{\alpha}$$

which is equivalent to:

$$(f - l\theta_1) \widehat{T}'(l\theta_1) + \frac{(f - l\theta_1)^2}{2} \widehat{T}''(l\theta_1) + R_{\widehat{T}} > \frac{(f - l\theta_1)}{\alpha}$$

which in turn holds for:

$$\alpha > \frac{1}{\widehat{T}'(l\theta_1) + \frac{(f-l\theta_1)}{2} \widehat{T}''(l\theta_1) + R_{\widehat{T}}} = \alpha_I$$

2. Let $\hat{f} = \operatorname{argmin} \{V_J\}$ when $\alpha = \alpha_I$; if $\hat{f} > l\theta_1$, consider α_{II} such that $S(l\theta_1) < S(\hat{f}) + \widehat{T}(\hat{f})$. The previous expression translates into:

$$\frac{(1-l\theta_1)}{\alpha} < \frac{(1-\hat{f})}{\alpha} + \frac{1}{\hat{f} - l\theta_1} \left\{ l \sum_{k=1}^2 \theta_k [U_k(q^*) - U_k(q^L)] \right\}$$

which holds for:

$$\alpha > \frac{(\hat{f} - l\theta_1)^2}{\left\{ l \sum_{k=1}^2 \theta_k [U_k(q^*) - U_k(q^L)] \right\}} = \alpha_{II}$$

3. Follow this iterative procedure until $\alpha_N \rightarrow \hat{f} = l\theta_1$. A finite α_N will exist as \widehat{T} is bounded from below (i.e., $\widehat{T} \geq C$ on $[l\theta_1, 1]$, C is a constant). We will then have $\bar{\alpha} = \alpha_N$.

The first step ensures V_J has a local minimum at $f = l\theta_1$. The second and third steps ensure this is also the global minimizer in $[l\theta_1, 1]$.

Proof of Proposition 2: - Assume $\alpha \rightarrow \infty$. Consider the upper bound of the contribution paid by group 1 against \hat{f}^L in this case. We can obtain it by making equation (13) hold with equality (and reminding that $\hat{T}(\hat{f}^*) = 0$ from Proposition 1):

$$\bar{C}(\hat{f}^L) = U(\hat{q}(\hat{f}^L)) - U(\hat{q}(\hat{f}^*)) - \hat{T}(\hat{f}^L) = \Delta U(\hat{q}(\hat{f}^L)) - \hat{T}(\hat{f}^L)$$

We can now substitute it in the objective function of J to obtain:

$$\bar{V}_J = T(f) - \sigma[\Delta U(\hat{q}(f)) - \hat{T}(f)]$$

where \bar{V}_J represents the maximum value J could obtain by choosing f . Now we show that there exists $\bar{\sigma}$ such that for $\sigma < \bar{\sigma}$ the lobby could never ensure J gains a payoff equal to $V_J(l\theta_1)$. From now on we consider (without loss of generality, following the discussion in Proposition 1) only $f \in [l\theta_1, 1]$ and use the three steps as applied in Proposition 1:

1. Consider σ_I such that, for $f \rightarrow l\theta_1^+$, $\bar{V}_J(f) > \bar{V}_J(l\theta_1)$, that is $T(f) - \sigma[\Delta U(\hat{q}(f)) - \hat{T}(f)] > 0$. We can rewrite this condition by adopting second-order Taylor expansions of $\hat{T}(f)$ and $U(\hat{q}(f))$ around $(l\theta_1)$:

$$(1 + \sigma) \left[\hat{T}(l\theta_1) + (f_i - l\theta_1) \frac{\partial \hat{T}}{\partial f} + \frac{(f - l\theta_1)^2}{2} \frac{\partial^2 \hat{T}}{\partial f^2} + R_{\hat{T}} \right] - \sigma \left[U(q(l\theta_1)) + (f_i - l\theta_1) \frac{\partial U(\hat{q})}{\partial f} + \frac{(f - l\theta_1)^2}{2} \frac{\partial^2 U(\hat{q})}{\partial f^2} + R_U - U(q(l\theta_1)) \right] > 0$$

which is equivalent to:

$$(1 + \sigma) \left[(f_i - l\theta_1) \frac{\partial \hat{T}}{\partial f} + \frac{(f - l\theta_1)^2}{2} \frac{\partial^2 \hat{T}}{\partial f^2} + R_{\hat{T}} \right] - \sigma \left[(f_i - l\theta_1) \frac{\partial U(\hat{q})}{\partial f} + \frac{(f - l\theta_1)^2}{2} \frac{\partial^2 U(\hat{q})}{\partial f^2} + R_U \right] > 0$$

which in turn holds for:

$$\sigma < \frac{(f_i - l\theta_1) \frac{\partial \hat{T}}{\partial f} + \frac{(f - l\theta_1)^2}{2} \frac{\partial^2 \hat{T}}{\partial f^2} + R_{\hat{T}}}{(f_i - l\theta_1) \left(\frac{\partial U(\hat{q})}{\partial f} - \frac{\partial \hat{T}}{\partial f} \right) + \frac{(f - l\theta_1)^2}{2} \left(\frac{\partial^2 U(\hat{q})}{\partial f^2} - \frac{\partial^2 \hat{T}}{\partial f^2} \right) + (R_U - R_{\hat{T}})} = \sigma_I$$

2. Let $\hat{f} = \operatorname{argmin} \{V_J\}$ when $\sigma = \sigma_I$; if $\hat{f} > l\theta_1$, consider σ_{II} such that $T(\hat{f}) - \sigma[\Delta U(\hat{q}(\hat{f})) - \hat{T}(\hat{f})] > 0$ which holds for:

$$\sigma < \frac{T(\hat{f})}{\Delta U(\hat{q}(\hat{f})) - \hat{T}(\hat{f})} = \sigma_{II}$$

3. Follow this iterative procedure until $\sigma_N \rightarrow \hat{f} = l\theta_1$. A finite σ_N will exist since, for $\sigma = 0$, J chooses $\hat{f}^L = l\theta_1$ since $T(l\theta_1) = 0$ and $T(f) > 0 \forall f > l\theta_1$, while, for $\sigma \rightarrow \infty$, J chooses $\hat{f}^L > l\theta_1$ since $\Delta U(\hat{q}(f)) - \hat{T}(f) > 0$ and $T(f)$ is bounded. We will then have $\bar{\sigma} = \sigma_N$.

The first step ensures \bar{V}_J has a local minimum at $f = l\theta_1$. The second and third steps ensure this is also the global minimizer in $[l\theta_1, 1]$.

Proof of Corollary 1: - It follows directly by Proposition 1 and Proposition 2. Note that if α is finite and positive, it is easier for the lobby to respect the (IC) of Judiciary; in particular we can now rewrite the condition $\bar{V}_J(f) - \bar{V}_J(l\theta_1) = 0$ for $f > l\theta_1$ as:

$$T(f) - \sigma[\Delta U(\hat{q}(f)) - \hat{T}(f)] + \Delta S(f) = 0$$

where $\Delta S(f)$ is negative and decreasing in α ; so we can obtain the mapping from α to σ of the values that respect this expression.

Proof of Proposition 3: - The proof for $\sigma = 0$ is similar to the proof of Proposition 1. However in this case we have to show that $f = 1$ maximizes V_J in $[0, 1]$. Define $\alpha_I = 1/T'(f = 1)$. If $\alpha < \alpha_I$, $T(1)$ is a local maximum for V_J . Now, consider $\hat{f} \equiv \operatorname{argmin} V_J \in [0, 1]$; if $\hat{f} < 1$ define $\alpha_{II} = \frac{1-\hat{f}}{T(\hat{f})-T(1)} < \alpha_I$. Iterating, we can find $\alpha_N = \underline{\alpha}(0)$ such that $f = 1 \equiv \operatorname{argmax} V_J \in [0, 1]$. Lastly, if for $\alpha = \underline{\alpha}(0)$ $f = 1 \equiv \operatorname{argmax} V_J$, this is true $\forall \alpha < \underline{\alpha}(0)$ since V_J is decreasing in $\alpha \in [0, 1]$.

Now suppose a generic $\sigma > 0$. We can find $\underline{\alpha}(\sigma)$ with the same procedure as before; however, denoting with $V_J^C = V_J^{NC} + \sigma C$ the payoffs of a corruptible and non-corruptible J respectively, we note that now it is easy to respect all the sequence of conditions since $\frac{\partial C}{\partial f}$ is positive (and the amount that the lobby is willing to pay to lobby J is maximum for $f = 1$). Starting from $\alpha_I = 1/(T'(f = 1) - \sigma C'(f = 1))$, we can obtain another sequence that converges to $\underline{\alpha}(\sigma)$. Since every term of the sequence is increasing in σ (note that every α_n after α_I looks like $\frac{1-\hat{f}}{T(\hat{f})-T(1)-\sigma(C(1)-C(\hat{f}))}$), it follows that $\underline{\alpha}(\sigma)$ is increasing in σ .

Proof of Proposition 4: - We solve again the game by backward induction:

1. In the third stage, given \hat{f} (the level of control chosen in the second stage), we obtain $q(\hat{f})$ and $T^{II}(q(\hat{f}))$ as before;

2. In the second stage, given $\hat{\sigma}$, \hat{f} and $C(\hat{f})$ are determined;
3. As to the first stage, we begin determining the optimal solution for the lobbying. We previously showed that $\forall f \leq l\theta_1$ $V_1 = U(q^*)$ while, if $f > l\theta_1$, from $\frac{\partial q}{\partial f} > 0$ and $\frac{\partial V_1}{\partial q} > 0$, it follows that $\frac{\partial V_1}{\partial f} > 0$ so that lobby strictly prefers $f = 1$ to $\forall f \in [0, 1)$. Also, we note that both V_1 and V_P are decreasing in C at the optimum. In particular, $V_P^L = l \sum_i \theta_i U_i(q^*) - l\theta_2 C(\hat{f})$ and $V_1^L = U(\hat{q}) - T(\hat{q}) - C(\hat{f})$. From this it follows directly that in the NE of the subgame it's jointly optimal for P and the lobby to set $f = 1$ and $C = 0$. In particular, P chooses $\sigma \rightarrow \infty$ since this equals to choose $f = 1$ with certainty and determine also $\hat{C} = 0$. To show this, we have to consider the optimal solution for the problem of J . From section 4, \hat{f} maximizes $-(S + T) + \sigma C$ subject to the constraint $\frac{\partial U}{\partial f} - \frac{\partial T}{\partial f} - \frac{\partial C}{\partial f} = 0$. Then \hat{f} satisfies:

$$-\frac{\partial S}{\partial f} - \frac{\partial T}{\partial f} + \sigma \left[\frac{\partial U}{\partial f} - \frac{\partial T}{\partial f} \right] = 0$$

or:

$$-\frac{1}{\sigma} \left[\frac{\partial S}{\partial f} - \frac{\partial T}{\partial f} \right] + \frac{\partial U}{\partial f} - \frac{\partial T}{\partial f} = 0$$

so that for $\sigma \rightarrow \infty$ the solution to this problem coincides with the optimal choice for the lobby, that we showed being equal to $f = 1$. Lastly, from (14), it's easy to observe that for $\sigma \rightarrow \infty$ $C \rightarrow 0$ (since the term in brackets is bounded from above).

Accordingly, the whole game reduces to a single stage game where P chooses the pair (∞, q) and the lobby pays $T^I + T^{II}$, so that in equilibrium it must be:

$$\hat{T}^I + \hat{T}^{II} = \frac{1}{1 - l\theta_1} \left\{ l \sum_i \theta_i [U_i(q^*) - U_i(q^L(\hat{f} = 1))] \right\}$$

However, the only time-consistent pair of T^I and T^{II} is $T^I = 0$ and $T^{II} = \frac{1}{1 - l\theta_1} \left\{ l \sum_i \theta_i [U_i(q^*) - U_i(q^L(\hat{f} = 1))] \right\}$, since the lobby pays T^I before P chooses q^L .

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