# Predatory behavior of pressure groups in democracies

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**Abstract**

This paper constructs a dynamic model of democracy under the influence of pressure groups, and uses it to study conditions for the emergence of Pareto inefficient political equilibria. Political parties trade off electoral support from informed voters for financial support from organized interest groups. These funds are used to finance parties' campaigns and maximize the support of uninformed voters. The model focuses on intertemporal strategic considerations of political parties and pressure groups. Policies that promote economic development are also likely to facilitate political participation and formation of new interest groups. As entrenched pressure groups realize, this can lead to erosion of their monopoly on political influence, which makes them resist efficient policies.

A number of contributions in political economy literature argued that political liberalizations may be economically undesirable as heightened political competition leads to excessive resource waste. My model provides a unified framework for assessing the resource cost of rent-seeking. It identifies a range of political and economic conditions where reform would be beneficial despite rent-seeking, but is successfully resisted by entrenched interests.

## 1 Introduction

Evidence on cross-country economic performance presents examples of both miracles and dramatic failures. Sometimes bad government policies are obvious culprits behind the failures, posing a challenge to the literature that calls for state intervention as a last resort. This call is less appealing if the benevolent social planner abstraction is in question.

While the theoretical political science/social choice literature is quite sizable, it is rather abstract and deals mostly with static frameworks. There is only a limited number of studies that consider dynamic inefficiencies such as failures to liberalize, or invest in public good crucial for modern development. These studies can be roughly grouped along two themes: studies of policy-making in autocracies ([Acemoglu and Robinson, 2000], [Robinson, 1997]) and those of efficiency of social choice ([Besley and Coate, 1998], [Fernandez and Rodrik, 1991]). Some arbitrariness of the autocracy assumptions is a disadvantage of the former literature which makes using it to describe failures in countries with democratic rule impractical. The latter studies on the other hand are rather too abstract to serve as models of actual democracies. In contrast, this paper attempts to provide a dynamic model of a democracy with some degree of capture by organized interests (lobbies) to study positive questions of policy implementation. The model has more realism in describing details of the political process and on the other hand it avoids the arbitrariness inherent in models of autocracy by identifying specific channels of capture of influence. It builds on the recent contributions in political economy modelling political equilibrium with interest groups ([Grossman and Helpman, 1994], [Grossman and Helpman, 1996]).

Why would an efficient reform be blocked? Robinson [1997] answers this question for autocracies. He coins a term “predatory” to describe an elite that impedes economic development for fears of losing control. In his model a ruling elite can promote development by supplying public goods such as infrastructure, education, communications, etc., but this policy simultaneously reduces the costs of collective action against that elite. Anticipating this, it has an incentive to undersupply public goods. Citizens cannot precommit not to overthrow the elite, when an opportunity arises. Thus a Pareto efficient policy is not implemented because there is no way to keep the elite as well off.

Acemoglu and Robinson [2000] discuss why some countries fail to adopt new superior technologies. They advance a “political losers hypothesis”, whereby politically powerful interest groups have an incentive to block progress to prevent the loss of their influence. Although

Acemoglu and Robinson [2000] characterize situations when an incumbent monopolist blocks introduction of new technologies, their model is essentially a model of autocracy, because there is no popular participation in policy-making. Their result also crucially depends on the assumption that interest groups incur *direct economic* loss from the innovation. In my framework, development is Pareto-improving if political status quo is preserved. The mentioned disadvantage of these studies is that the mechanisms of power are left unexplained – the elite faces no costs of implementing policies and has complete leverage over their choice. This does not allow to readily extend the findings and implications to democratic regimes.

Nevertheless, Robinson's [1997] thinking can still provide help in explaining why democracies may be inefficient. The fundamental reason behind the adoption of inefficient policies in his model is conceptually similar to that in the model of Besley and Coate [1998]. They describe a political equilibrium in which representation is direct: government is run by one of the agents who pursues policies optimal for herself. Majority voting establishes who will be this governing agent. Besley and Coate identify several reasons why public investments that are feasible and Pareto improving may not be undertaken in political equilibrium. All these reasons stem from the impossibility of a commitment to future policy choices. One reason is non-payment of future compensation. If public investment is costly to implement and requires taxation of all groups, a group that does not gain directly from the policy must be compensated after future gains are realized. However, compensation will not be paid if future policy makers will have different preferences toward redistribution than today's incumbent. This leads to abandonment of an efficient investment.

An inefficient outcome also arises when public investment, if implemented, changes the identity of the future policymaker. This happens when an investment alters productivities and, consequently, the aggregate preference for redistribution.

Common to all these papers is the assumption that while economic gains of reform accrue to everyone, there will be *political* losers at the same time.

Fernandez and Rodrik [1991] suggest a different mechanism, that is, uncertainty regarding the distribution of gains and losses from reform. They argue that there is a bias toward the status quo whenever gainers and losers cannot be identified beforehand. Although the majority would vote for the reform *ex post*, since the median voter is on average expected to lose (aggregate gains accrue mostly to non-pivotal voters), the reform will be blocked *ex ante.* Fernandez and Rodrik use trade liberalizations in South Korea, Chile, and Turkey as illustrations; in all three cases reforms were imposed by authoritarian regimes and against the wishes of businesses, however ex post they turned out a considerable success. The difficulty with their argument is the rudimentary structure of political equilibrium and rather special assumptions on the distribution of gains from the reform, crucial for their result.

The innovation of this paper is an explicit modeling of the interest groups in a dynamic setting that no doubt play huge role in realistic democratic processes. I explain the status quo bias and reform blockage solely by political reasons. The question that I ask is when in a democracy a pressure group can steer the government to adopt a policy that allows the group to retain monopoly on influence but hurts the rest of the society. Note, that in Besley and Coate's [1998] framework, dynamically inefficient policies are still willfully endorsed by a majority of population, whereas I am going to model a situation in which a small subgroup can block an efficient reform overriding the majority. Also, Besley and Coate's story is not robust to a possibility of institutional amendments: citizen-candidates who in equilibrium end up blocking a reform might devise a legislation explicitly compensating their group through some kind of social security system whereas in my story a minority group that influences policy may not be able to get the same kind of protection.

As a vehicle for my story I adopt the framework of Grossman and Helpman [1996] who model the electorate as consisting of two parts: informed and uninformed, or "impressionable" voters. Uninformed voters are confused about the effects of policies adopted by legislature on their own well-being. Consequently, they can be swayed by political advertising. Financial contributions allow parties to win ballots of the uninformed voters by campaigning. Organized interest groups promise parties to contribute to their campaigns conditionally on their platforms. Parties running for office then maximize their representation by trading some social welfare for contributions. As a result, in equilibrium, parties do not necessarily choose a policy vector that maximizes voters' welfare.

Consider a polity with a limited number or interest groups, which is on the verge of an economic reform (I will also call it *developmental policy*). This reform is straightforwardly welfare improving. All agents would gain as a direct effect of this reform. However, suppose that the reform also leads to a parallel rise in organized interests (more pressure groups are created in the aftermath). There is some evidence that economic development brings about more organized interest groups. To take an extreme example, Goldberg and Maggi [1997] estimate the percentage of the U.S. industries represented by lobbies. They find that all 3-digit industries are represented by political action committees, and contribute positive amounts to political campaigns. They further estimate a calibration of the model by Grossman and Helpman [1994] and find that the proportion of population represented by lobbies in the US is between 0.94 and 0.98.

It is exactly this concurrent rise in political participation that might prevent the developmental policy to be implemented: interest groups that have a monopoly on influence may want to oppose efficient reform because that can bring about more organized interests and entail loss of influence in subsequent periods. Thus, the crucial element of the model is the strategic conditioning of the political contributions on the policies that can be very bad for society but allow the lobby to retain the monopoly.

Embedding of the political economy model of Grossman and Helpman [1996] in a dynamic setting constitutes one of the contributions of the paper. Another contribution is a unified framework for assessing the resource cost of rent-seeking. Hillman [1998] argued that democracies with many organized interests are less efficient than societies with uncontested elite, because the former suffer more rent-seeking waste. In contrast to Hillman's [1998] ad hoc assumptions on rent-seeking, my model allows to compare the economic benefits of reform with increased costs of political competition in a structured way. Lastly, the paper identifies a range of political and economic conditions where reform would be beneficial despite rent-seeking, but is successfully resisted by entrenched interests.

This paper takes a realistic approach to democracy in contrast to an idealistic view that proclaims equal opportunity of all members of a community to participate in its governance, regardless of their status and income. In reality, this complete equality is unattainable because wealthier and higher positioned individuals can affect political decision-making outside of the voting booth through contributions and private deals. Individuals in the lower strata may lack financial resources, understanding of political and economic mechanisms, and organization to stand up for their own interests. I believe this view is more coherent with the actual democratic experiences in most developing countries. The paper has no normative implications and takes a purely positive stance toward democratic policy-making.

Section 2 presents the model of political competition and studies the conditions under which a socially efficient reform will not be implemented. Section 3 generalizes the model to an arbitrary number of equally-sized groups to study coordination issues in lobbying against development. Section 4 discusses an extension to the main mechanism identified in the paper. Section 5 concludes.

# 2 Basic model

## 2.1 Political framework

In this subsection I summarize the notation and assumptions of Grossman and Helpman [1996]. In the next subsection I make specific assumptions about policy vectors and make the model dynamic.

The political universe consists of two parties[1] $A$ and $B$, competing for ballots. If elected, parties have total discretion regarding a set of policies labelled "pliable" for this very reason. Parties also carry fixed characteristics they cannot change. For example, it might be reasonable to expect that Christian democrats may never institute abolition of churches. The role of this assumption will become clear later: it will introduce a potential bias in favor of one of the parties, that may exacerbate the inefficiency.

The two parties $A$, $B$ maximize their respective shares of votes $s$, $1-s$. However, a majority share does not imply that party get a winning hand in all of its policy proposals. Which policies will be implemented is still uncertain. The probability that party $A$'s platform $p_A$ is enacted, is $\phi(s)$, and $1-\phi(s)$ for party $B$. Function $\phi$ is assumed to be monotone

[1] The results generalize to the case of more than two parties.

increasing in $s$, $\phi(1/2) = 1/2$, $0 \leq \phi(s) \leq 1$. This assumption removes an undesirable discontinuity in parties' objective functions. I call $\phi(s)$ the *effective share*.

The population of voters, consists of two parts: proportion $\alpha$ of them are "uninformed" and the rest are "informed". Both subgroups of the voters have the same welfare functions, but the uninformed do not fully understand the link between pliable policies and their own well-being. Hence, only informed voters can be said to have preferences over the policy choices. Preferences over policies induce preferences over policymakers. These preferences are additively separable with respect to two components of a policymaker: fixed party characteristics that cannot be changed (e.g. ideology), and its stance on the pliable policies $\mathbf{p} \in P$. The utility function of a generic informed voter $i \in I$ is $u_i(\mathbf{p}_A) + v_{iA}$ when party $A$'s policy is implemented and similarly, $u_i(\mathbf{p}_B) + v_{iB}$ for party $B$. Here $u(\cdot)$ denotes utility derived from pliable policies, and $v_{iX}$ is the component of utility determined by the fixed characteristics of the party in office. Voter $i$ compares utility obtained under the two scenarios when either party $A$ or party $B$ has an upper hand in policy-making. She votes for party $A$ whenever $u_i(\mathbf{p}_A) + v_{iA} \geq u_i(\mathbf{p}_B) + v_{iB}$, or $u_i(\mathbf{p}_A) - u_i(\mathbf{p}_B) \geq v_{iB} - v_{iA}$. This way, the voter's choice depends on $\beta_i \equiv v_{iB} - v_{iA}$. $\beta_i$ measures relative superiority (if positive) of party $B$ over party $A$ from the viewpoint of that agent in terms of fixed characteristics. Term $\beta_i$ is assumed to be a random variable, distributed uniformly on $\left(-\frac{1}{2} - b, \frac{1}{2} - b\right)$. Since the probability that a randomly drawn informed agent $i$ votes for party $A$ is $\Pr\{\beta_i \leq u_i(\mathbf{p}_A) - u_i(\mathbf{p}_B)\} = u_i(\mathbf{p}_A) - u_i(\mathbf{p}_B)$, the share of informed ballots in favor of party $A$ is given by[2]

$$\int_{i \in I} \left[\frac{1}{2} + b + u_i(\mathbf{p}_A) - u_i(\mathbf{p}_B)\right] di,$$

where $i$ indexes informed agents (their number is normalized to 1).

There are $J$ groups in the society, denoted by $L_j$. Membership in lobbies is mutually exclusive. Direct welfare effect of policy $\mathbf{p}$ on group $j$ is simply the sum of individual welfares of members of the group: $W_j(\mathbf{p}) = \int_{i \in L_j} u_i(\mathbf{p})$.

A group can become organized; in this case it forms a lobby that can offer campaign con-

[2]This expression ignores the possibility that $u_i(\mathbf{p}_A) - u_i(\mathbf{p}_B) \notin \left(-\frac{1}{2} - b, \frac{1}{2} - b\right)$.

tributions to both parties, $C_{Aj}(\mathbf{p})$ and $C_{Bj}(\mathbf{p})$, contingent on policy $\mathbf{p}$. Group $j$'s expected welfare, if $\mathbf{p}_A$ and $\mathbf{p}_B$ are respective policies adopted by the two parties, is given by

$$\phi(s) W_j(\mathbf{p}_A) + (1 - \phi(s)) W_j(\mathbf{p}_B) - C_{Aj}(\mathbf{p}_A) - C_{Bj}(\mathbf{p}_B). \tag{1}$$

The model takes the configuration of existing lobbies as given.

Aggregate welfare of the informed agents offers an exact welfare measure for the whole society, since they are representative of the whole population. However, uninformed agents do not understand the impact of pliable policies on their welfare. Correspondingly, it is assumed that they are susceptible to parties' campaigning. Specifically, assume that the proportion of uninformed agents voting for $A$ is given by $\frac{1}{2} + b + h \cdot (C_A - C_B)$, and $C_A = \sum_j C_{Aj}, C_B = \sum_j C_{Bj}$ are total campaign outlays by each party[3,4], equal to the sum of contributions received from all *organized* groups.

Under proportional representation, the share of seats in legislature won by $A$ is given by

$$s(\mathbf{p}_A, \mathbf{p}_B, C_A, C_B) = (1 - \alpha) \int_{i \in I} \left[ \frac{1}{2} + b + u_i(\mathbf{p}_A) - u_i(\mathbf{p}_B) \right] di + \alpha \left[ \frac{1}{2} + b + h(C_A - C_B) \right] \tag{2}$$

## 2.2 Equilibrium concept

The strategy space of party $K \in \{A, B\}$ is given by the set of pliable policy vectors, $P$. The strategy space of lobby $j$ is given by everywhere non-negative, differentiable when positive, contribution functions $C_{Aj}, C_{Bj} : P \to \mathbb{R}^+$.

The timing is as follows (see Fig. 1): in the first stage, lobbies announce their contribution schedules independently and simultaneously.

In the second stage, parties choose their policy platforms. After that, contributions are paid, campaigns are conducted, and elections take place, upon which parties implement their platforms.

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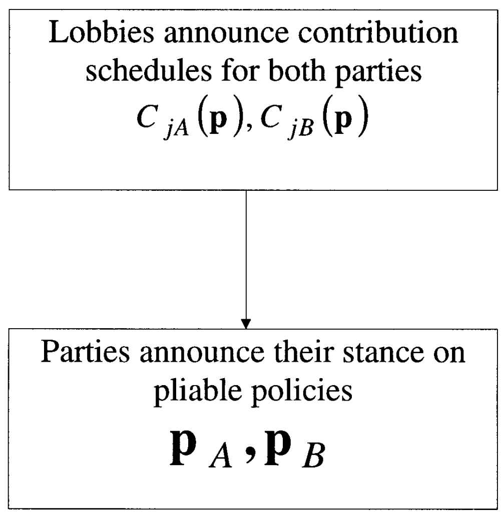
[3] Grossman and Helpman [1996] discuss the assumptions under which the reduced form function, $\frac{1}{2} + b + h(C_A - C_B)$, is obtained from a micro model based on optimization.

[4] I omit the discussion of border cases when $\frac{1}{2} + b + h(C_A - C_B)$ hits 0 or 1. The natural constraint on the proportion of uninformed voters, $\frac{1}{2} + b + h(C_A - C_B) \in [0, 1]$ should be checked in every equlibrium.




After the binding announcements of the policies by parties, contributions are paid, elections take place, legislature meets to implement policies

Figure 1: Timeline in the static model

Thus a subgame-prefect equilibrium of this game consists of a pair of feasible policy vectors $(\mathbf{p}_A^*, \mathbf{p}_B^*)$ and a set of contribution schedules $\left\{C_{Aj}^*(\mathbf{p}_A), C_{Bj}^*(\mathbf{p}_B)\right\}_{j\in J}$, such that

i) for party $A$, $\mathbf{p}_A^*$ maximizes $s$ given $\mathbf{p}_B^*$, $\left\{C_{Aj}^*(\mathbf{p}_A), C_{Bj}^*(\mathbf{p}_B)\right\}_{j\in J}$;

ii) for party $B$, $\mathbf{p}_B^*$ maximizes $1-s$ given $\mathbf{p}_A^*$, $\left\{C_{Aj}^*(\mathbf{p}_A), C_{Bj}^*(\mathbf{p}_B)\right\}_{j\in J}$;

iii) $C_{Kj}^*$ is continuous and differentiable when positive, and $\forall j$, for any deviation from equilibrium contribution schedules $\tilde{C}_{Aj}(\cdot) \neq C_{Aj}^*(\cdot)$ and/or $\tilde{C}_{Bj}(\cdot) \neq C_{Bj}^*(\cdot)$,

$$\begin{aligned}&\phi(s^*)\,W_j(\mathbf{p}_A^*) + (1-\phi(s^*))\,W_j(\mathbf{p}_B^*) - C_{Aj}^*(\mathbf{p}_A^*) - C_{Bj}^*(\mathbf{p}_B^*) \geq \\ &\qquad \geq \phi(\tilde{s})\,W_j(\tilde{\mathbf{p}}_A) + (1-\phi(\tilde{s}))\,W_j(\tilde{\mathbf{p}}_B) - \tilde{C}_{Aj}(\tilde{\mathbf{p}}_A) - \tilde{C}_{Bj}(\tilde{\mathbf{p}}_B),\end{aligned}$$

where $\tilde{\mathbf{p}}_A$ and $\tilde{\mathbf{p}}_B$ maximize each party's welfare under the alternative contribution schedules $\tilde{C}_{Kj}(\cdot)$:

$$\begin{aligned}
\tilde{\mathbf{p}}_A &= \arg\max_{\mathbf{p}_A\in P} s\left(\mathbf{p}_A, \tilde{\mathbf{p}}_B, \sum_{k\neq j} C_{Ak}^*(\mathbf{p}_A) + \tilde{C}_{Aj}(\mathbf{p}_A), \sum_{k\neq j} C_{Bk}^*(\tilde{\mathbf{p}}_B) + \tilde{C}_{Bj}(\tilde{\mathbf{p}}_B)\right) \\
\tilde{\mathbf{p}}_B &= \arg\max_{\mathbf{p}_B\in P} \left[1 - s\left(\tilde{\mathbf{p}}_A, \mathbf{p}_B, \sum_{k\neq j} C_{Ak}^*(\tilde{\mathbf{p}}_A) + \tilde{C}_{Aj}(\tilde{\mathbf{p}}_A), \sum_{k\neq j} C_{Bk}^*(\mathbf{p}_B) + \tilde{C}_{Bj}(\mathbf{p}_B)\right)\right] \\
\tilde{s} &= s\left(\tilde{\mathbf{p}}_A, \tilde{\mathbf{p}}_B, \sum_{k\neq j} C_{Ak}^* + \tilde{C}_{Aj}, \sum_{k\neq j} C_{Bk}^* + \tilde{C}_{Bj}\right) \\
&= (1-\alpha)\int_{i\in I}\left[\frac{1}{2} + b + u_i(\tilde{\mathbf{p}}_A) - u_i(\tilde{\mathbf{p}}_B)\right] di \\
&\quad +\alpha\left[\frac{1}{2} + b + h\left(\sum_{k\neq j} C_{Ak}^* + \tilde{C}_{Aj} - \sum_{k\neq j} C_{Bk}^* + \tilde{C}_{Bj}\right)\right]
\end{aligned}$$

Conditions (i) and (ii) establish Nash equilibrium in the second-stage subgame between the parties. Condition (iii) requires that there be no profitable deviation for the lobbies under expectation that Nash equilibrium strategies will be played by parties $A, B$ in the second stage.

## 2.3 Summary of results

Grossman and Helpman [1996] have shown that the political equilibrium has the following properties:

1. There are two motives for political contributions: influence and electoral motive. Under the influence motive, lobbies pay parties to steer their platforms toward their preferred outcomes. Under the electoral motive, lobbies pay on top of that to boost chances of one of the parties.

2. Each party's equilibrium platform maximizes a weighted sum of the aggregate welfare of all interest group members and the average welfare of informed voters. The necessary conditions on the policy vectors $\mathbf{p}_A$, $\mathbf{p}_B$ are:

$$\begin{aligned} \phi\left(s^0\right) \sum_{j \in L} \nabla W_j\left(\mathbf{p}_A\right) + \frac{(1-\alpha)}{\alpha h} \nabla W\left(\mathbf{p}_A\right) &= 0 \\ \left[1-\phi\left(s^0\right)\right] \sum_{j \in L} \nabla W_j\left(\mathbf{p}_B\right) + \frac{(1-\alpha)}{\alpha h} \nabla W\left(\mathbf{p}_B\right) &= 0 \end{aligned}$$

3. If *all* groups are organized, both parties adopt policies that maximize social welfare. The contribution amounts to parties are strictly positive (there is resource waste).

4. Unless *all* or *none* of the groups in the informed population are organized as lobbies, the policy vectors of both parties are biased away from the social optimum.

5. The *less popular* party adopts policy vector closer to social optimum.

6. When only influence motive is operative, the equilibrium share of party $A$ is $s^0 = 1/2 + b$, the intrinsic "bias" toward $A$.

7. If electoral motive is operative, at most one lobby pays more than required to induce the stipulated policy vector. The extra contribution increases the electoral support of the party with a more distorted (relative to the social optimum) platform.

## 2.4 Dynamic dimension of the policy vector

### 2.4.1 Definitions

In this section, I extend Grossman and Helpman's [1996] framework to a two-period model. In each period, contribution schedules are announced, platforms are chosen, and elections take place (see Fig. 2).

Variables pertinent to the $t$-th period are marked with *superscript* $t$: $\mathbf{p}_A^t$ refers to the vector of pliable policies of party $A$ in the $t$-th period.

I reduce the heterogeneity of informed voters to just two distinct groups. These are groups defined either by the ownership of specific factors of production, claims on the social security system, or ethnic/religious affiliation. Each informed agent belongs to a unique group. The size of group $j$ is $n_j$, $n_1 + n_2 = 1$.

In the first period only group 1 is organized as a lobby. Lobby 1 is also occasionally referred to as *entrenched*. In the second period, the number of organized groups, either 1 or 2, depends on the policies adopted in the first period.

I assume that in period 1 policy vector is $\mathbf{p}^1 = (d, \boldsymbol{\tau}^1)$, in period 2, $\mathbf{p}^2 = \boldsymbol{\tau}^2$. Binary variable $d \in \{0, 1\}$ indicates whether a developmental policy is adopted in the first period. $\boldsymbol{\tau}$ is a distribution vector, $\boldsymbol{\tau} = (\tau_1, \tau_2) : \tau_1 + \tau_2 = 1$. The interpretation of these components will become clear when I specify preferences of the agents and lobbies.

### 2.4.2 Preferences

Variable $\boldsymbol{\tau}$ is assumed to capture extent of redistribution among the 2 groups. Thus, it is assumed that an agent belonging to group $j$ gets utility from the policy vector $\boldsymbol{\tau}$ equal to $u^t(\boldsymbol{\tau}) = u^t(\tau_j / n_j)$. When there is no redistribution, $\tau_1 = n_1$, $\tau_2 = n_2$, and all groups get the share of the pie proportional to their demographic weight. If group $j$ gets upper hand in political fighting, it may obtain share $\tau_j > n_j$ above its weight.

Functions $u^t$, common for all agents, are differentiable and concave. Concavity of preferences is motivated by deadweight losses usually associated with redistribution. It also ensures that maximum aggregate welfare $\max_{\boldsymbol{\tau}} \left\{ \int u_i(\boldsymbol{\tau})\, di \right\} = \max_{\boldsymbol{\tau}} \{ n_1 u(\tau_1 / n_1) + n_2 u(\tau_2 / n_2) \}$ is

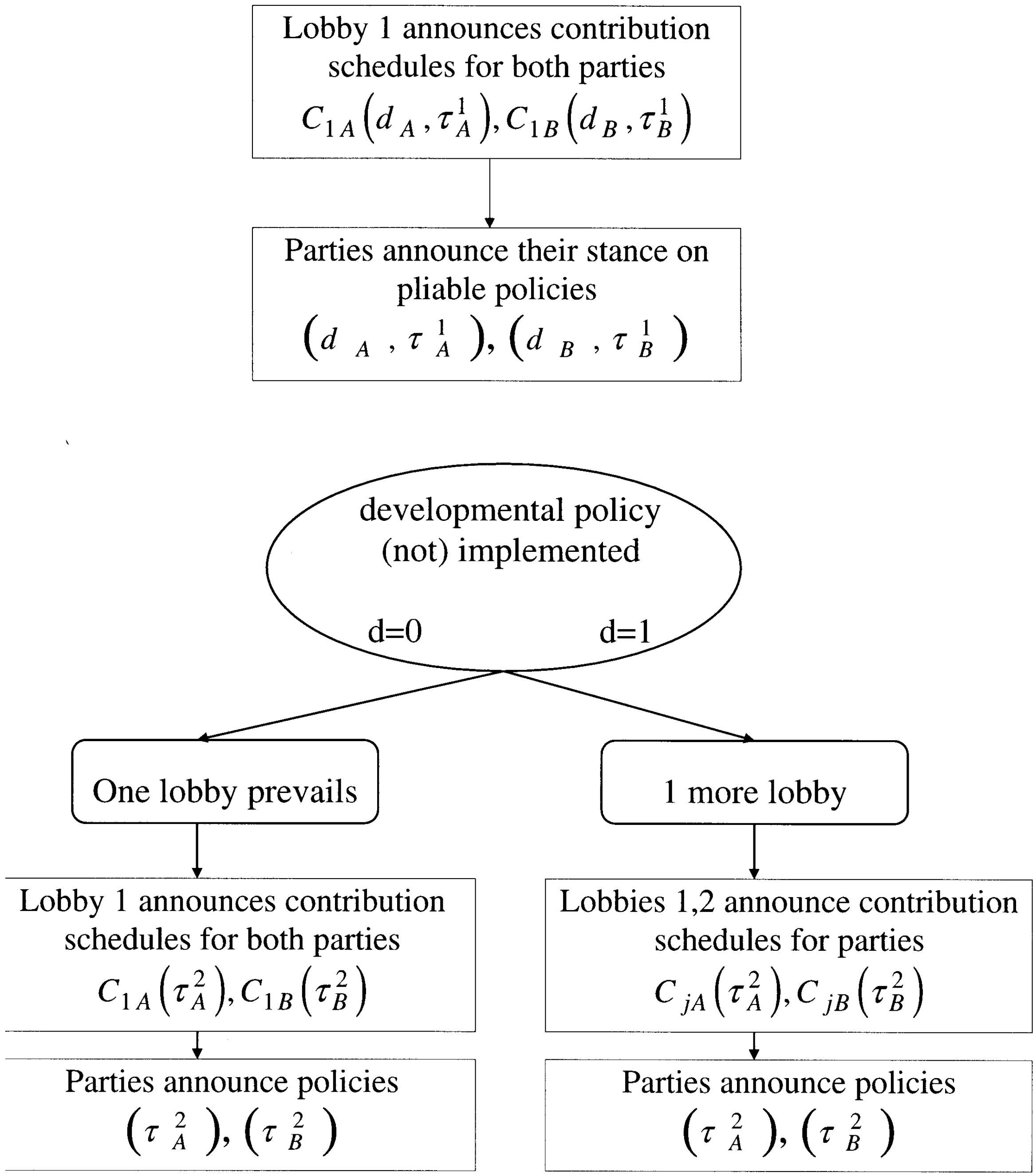



Figure 2: Timeline in the dynamic model

achieved at $\tau_j^* = n_j$. Here, as below, the maximum is computed among all $\boldsymbol{\tau}$ on the 2-dimensional simplex $\mathbb{S}^2$, $\tau_1 + \tau_2 = 1$.

Why do informed agents have interest in supporting the lobby? Because variable $\tau_j$ is a public good[5] for group $j$.

Intertemporal expected utility of a voter belonging to group $j$ is computed by adding welfare today, and welfare tomorrow, discounted by factor $\delta < 1$.

$$Eu^1\left(\frac{\tau_j^1}{n_j}\right) + \delta E u^2\left(d, \frac{\tau_j^2}{n_j}\right).$$

Here instantaneous utility in the second period $u^2\left(d, \tau_j^2/n_j\right)$ depends directly on the choice of developmental policy $d$ made in the first period. Expectation operators indicate that which party's platform will be finally enacted is uncertain even when vote shares are known (due to $\phi(s)$ term).

I will use the notation $W_j\left(\boldsymbol{\tau}_K^2\right) = n_j u^2\left(\boldsymbol{\tau}_K^2\right)$ for gross welfare of group $j$ in period 2, and $V_j\left(\boldsymbol{\tau}_K^1\right) = n_j u^1\left(\boldsymbol{\tau}_K^1\right)$ for gross welfare of group $j$ in period 1 in order to deal with fewer tensors. I will discuss how the developmental policy choice $d$ affects $W_j$, shortly. Gross social welfare functions in the first and second periods are $V\left(\boldsymbol{\tau}_K\right) = V_1\left(\boldsymbol{\tau}_K\right) + V_2\left(\boldsymbol{\tau}_K\right)$ and $W\left(\boldsymbol{\tau}_K\right) = W_1\left(\boldsymbol{\tau}_K\right) + W_2\left(\boldsymbol{\tau}_K\right)$ (summing across groups).

Expected net welfare of group $j$ in period 2 is given by:

$$NW_j = \phi(s)\, W_j\left(\boldsymbol{\tau}_A^2\right) + \left(1 - \phi(s)\right) W_j\left(\boldsymbol{\tau}_B^2\right) - C_{Aj}^2\left(\boldsymbol{\tau}_A^2\right) - C_{Bj}^2\left(\boldsymbol{\tau}_B^2\right),$$

and similarly for period 1.

At the moment I simply assume that parties are myopic, so their objective functions in each period $t$ remain the same, to maximize $s^t$ for party $A$, and $(1 - s^t)$ for party $B$. I do not consider any dynamic links for the parties, that is, in the first period they care only about that period's share of votes.

[5] While it might seem more natural to model utility as $u(\tau_j)$, not $u(\tau_j/n_j)$, I choose the latter formulation for simplicity. It can be conceptualized as a transfer to the group that can only be distributed equally among members, e.g., pensions. Obviously, whether groups lobby over $\tau_j$ or $\tau_j/n_j$ is irrelevant for the public good effect.

### 2.4.3 Developmental policy

Developmental policy, $(d = 1)$, if enacted, is straightforwardly Pareto improving in the sense that $u^2(1,x) > u^2(0,x)\ \forall x$. Lobby 1, as a group, benefits directly from the developmental policy:

$$W_1(1,x) = n_1 u^2(1,x) \geq n_1 u^2(0,x) = W_1(0,x)\ \forall x.$$

In the remainder of the paper I assume particular functional forms $u^1(x) = \ln x$, $u^2(0,x) = \ln x$, and if developmental policy is adopted, $u^2(1,x) = \ln(\rho x)$, $\rho \geq 1$.

Economic development also facilitates political participation. If developmental policy is enacted $(d = 1)$, group 2 will become organized in the second period.

## 2.5 Political equilibrium in the second period under alternative scenarios

I compute the intertemporal equilibrium by backward induction, studying equilibrium in the second period first. For economy, I will omit time superscripts in this section. All variables except for $d$ refer to the second period.

### 2.5.1 Case $d = 0$

If the developmental policy has not been enacted in the first period, the entrenched lobby retains a monopoly on influence. Party $A$ maximizes

$$s = \frac{1}{2} + b + (1-\alpha)\left[W(\boldsymbol{\tau}_A) - W(\boldsymbol{\tau}_B)\right] + \alpha h\left(C_{A1} - C_{B1}\right)$$

Party $B$ maximizes the complement of that, $1 - s$.

If either party decides to refuse contributions from lobby 1, it will clearly adopt the socially optimal policy

$$\boldsymbol{\tau}^* = \arg\max_{\tau_1+\tau_2=1}\{W(\boldsymbol{\tau})\} = (n_1, n_2).$$

In order to induce party $K$ to adopt an alternative policy $\hat{\boldsymbol{\tau}}_K$, lobby 1 must offer enough in contributions to offset the negative effect of deviating from the social optimum.

There is thus a participation constraint for party $A$ given by

$$\begin{aligned} (1-\alpha)\left[W(\hat{\boldsymbol{\tau}}_A) - W(\hat{\boldsymbol{\tau}}_B)\right] + \alpha h\,(C_{A1} - C_{B1}) &\geq (1-\alpha)\left[W(\boldsymbol{\tau}^*) - W(\hat{\boldsymbol{\tau}}_B)\right] + \alpha h\,(0 - C_{B1}) \\ \Leftrightarrow C_{A1}\quad(\hat{\boldsymbol{\tau}}_A) \geq & \frac{(1-\alpha)}{\alpha h}\left[W(\boldsymbol{\tau}^*) - W(\hat{\boldsymbol{\tau}}_A)\right] \qquad (3) \end{aligned}$$

Likewise, for party $B$ the constraint is

$$C_{B1}(\hat{\boldsymbol{\tau}}_B) \geq \frac{(1-\alpha)}{\alpha h}\left[W(\boldsymbol{\tau}^*) - W(\hat{\boldsymbol{\tau}}_B)\right] \qquad (4)$$

These constraints stipulate the minimum size of campaign contributions. In this section I will restrict attention to such minimal contributions, i.e. focus on the influence motive only. As I show later in section 2.7, the presence of electoral motive only strengthens the results.

To simplify notation, I denote $\frac{(1-\alpha)}{\alpha h}$ by $\xi$ (I will call $\xi$ the *index of enlightenment*. The larger the proportion of uninformed voters, or the *higher* the effectiveness of campaign spending, the less enlightened is the society). Facing the cost of inducing policy $\hat{\boldsymbol{\tau}}_K$ as in (3,4), lobby 1 maximizes its welfare by choosing best feasible combination $(\hat{\boldsymbol{\tau}}_A, \hat{\boldsymbol{\tau}}_B)$:

$$\begin{aligned} (\hat{\boldsymbol{\tau}}_A, \hat{\boldsymbol{\tau}}_B) = \operatorname{argmax}_{\boldsymbol{\tau}_A, \boldsymbol{\tau}_B} \{ & \phi(s)\, W_1(\boldsymbol{\tau}_A) - \xi\left[W(\boldsymbol{\tau}_A^*) - W(\boldsymbol{\tau}_A)\right] \\ & + (1-\phi(s))\, W_1(\boldsymbol{\tau}_B) - \xi\left[W(\boldsymbol{\tau}_B^*) - W(\boldsymbol{\tau}_B)\right]\} \end{aligned}$$

The maximand is additively separable in $\boldsymbol{\tau}_A$ and $\boldsymbol{\tau}_B$, so we can separate the two problems:

$$\hat{\boldsymbol{\tau}}_A = \operatorname{argmax}_{\boldsymbol{\tau}_A} \{\phi(s)\, W_1(\boldsymbol{\tau}_A) - \xi\left[W(\boldsymbol{\tau}_A^*) - W(\boldsymbol{\tau}_A)\right]\} \qquad (5)$$

$$\hat{\boldsymbol{\tau}}_B = \operatorname{argmax}_{\boldsymbol{\tau}_B} \{(1-\phi(s))\, W_1(\boldsymbol{\tau}_B) - \xi\left[W(\boldsymbol{\tau}_B^*) - W(\boldsymbol{\tau}_B)\right]\} \qquad (6)$$

Notice also that since the participation constraints for parties $A, B$ are satisfied as equalities, in equilibrium their shares of votes are exactly those that would prevail if no lobbying took place: $s = \frac{1}{2} + b$. This will be true for all equilibria in which lobbies will only give minimal necessary contributions. This allows me to drop $s$ in $\phi(s)$ and regard $\phi$ as a constant throughout this section.

Thus, lobby 1 induces both parties to behave as if they maximized weighted sums of the group's welfare and the welfare of informed voters. I summarize the results of this subsection in

**Lemma 1** *Expected social welfare net of campaign waste in the second period if $d = 0$ (*No development*) is $NW^{ND}$ :*

$$NW^{ND} = (\xi+\phi)\left(n_1 \ln \frac{\xi+\phi}{\xi+n_1\phi} + n_2 \ln \frac{\xi}{\xi+n_1\phi}\right) + (\xi+1-\phi)\left(n_1 \ln \frac{\xi+1-\phi}{\xi+n_1(1-\phi)} + n_2 \ln \frac{\xi}{\xi+n_1(1-\phi)}\right) \tag{7}$$

*Expected welfare of lobby 1 is given by:*

$$NW_1^{ND} = (\phi+\xi)\, n_1 \ln\left(\frac{\xi+\phi}{\xi+n_1\phi}\right) + (1-\phi+\xi)\, n_1 \ln\left(\frac{\xi+1-\phi}{\xi+n_1(1-\phi)}\right) + \xi n_2 \ln \frac{\xi}{\xi+n_1\phi} + \xi n_2 \ln \frac{\xi}{\xi+n_1(1-\phi)}$$

***Proof.*** *in the Appendix.* ■

### 2.5.2 Case $d = 1$

Under the development scenario both groups become represented by lobbies. Equilibrium analysis follows much the same steps as above. Equilibrium policy vectors when lobbies pay minimal necessary contributions (electoral motive is absent) satisfy

$$\begin{aligned} \phi\left(\nabla W_1(\boldsymbol{\tau}_A) + \nabla W_2(\boldsymbol{\tau}_A)\right) + \xi \nabla W(\boldsymbol{\tau}_A) &= 0, \\ [1-\phi]\left(\nabla W_1(\boldsymbol{\tau}_B) + \nabla W_2(\boldsymbol{\tau}_B)\right) + \xi \nabla W(\boldsymbol{\tau}_B) &= 0. \end{aligned}$$

Since both groups are represented, the equilibrium policy vector coincides with the socially efficient vector:

$$\phi(s)\left(\nabla W_1(\boldsymbol{\tau}_A) + \nabla W_2(\boldsymbol{\tau}_A)\right) + \xi \nabla W(\boldsymbol{\tau}_A) = (\phi + \xi)\nabla W(\boldsymbol{\tau}_A) = 0$$

implies $\boldsymbol{\tau}_A = \boldsymbol{\tau}^*$, and similarly for $\boldsymbol{\tau}_B$. Note that both parties choose socially optimal policy vector $\boldsymbol{\tau}^*$ in equilibrium. This happens because both groups are organized and exert pressure on parties proportional to their demographic weight. Since both parties adopt the same policies, the uncertainty regarding which platform gets implemented becomes irrelevant.

Every lobby takes the contribution schedules of the other lobbies as given. In equilibrium, the schedules must be mutually consistent. Moreover, from the point of group $j$, parties' participation constraints depend on the contribution schedules of the other lobby. These constraints take the form (notice the occurrence of $\rho$ everywhere, which cancels out eventually):

$$C_{Aj} \geq max_{\tau}\left\{\xi W(\boldsymbol{\tau}) + \ln\rho + C_{Ak}(\boldsymbol{\tau})\right\} - \left[\xi W(\hat{\boldsymbol{\tau}}_A) + \ln\rho + C_{Ak}(\hat{\boldsymbol{\tau}}_A)\right] \tag{8}$$

$$C_{Bj} \geq max_{\tau}\left\{\xi W(\boldsymbol{\tau}) + \ln\rho + C_{Bk}(\boldsymbol{\tau})\right\} - \left[\xi W(\hat{\boldsymbol{\tau}}_B) + \ln\rho + C_{Bk}(\hat{\boldsymbol{\tau}}_B)\right] \tag{9}$$

Notice that (8,9) do not pin down the equilibrium contribution schedules uniquely. It turns out, there exist many Nash equilibria in games like this [Bernheim and Whinston, 1986; Grossman and Helpman, 1994]. All of them involve the same policy vector, but may differ in the contribution amounts paid by lobbies. However, as Bernheim and Whinston [1986] have shown, only one equilibrium profile turns out to be coalition-proof. This is the *truthful* equilibrium in which $C_{Aj}(\boldsymbol{\tau}) = \phi W_j(\boldsymbol{\tau}) - F_{Aj}$, $C_{Bj}(\boldsymbol{\tau}) = (1-\phi) W_j(\boldsymbol{\tau}) - F_{Bj}$, where $F_{Aj}$ and $F_{Bj}$ are constant *anchors*. Intuitively, lobbies make the parties face the problem of maximizing *their* welfare, retaining a flat amount $F_{Aj}$ (w.r.t. party $A$) and $F_{Bj}$ (w.r.t. party $B$). This is similar to the situation in standard moral hazard/adverse selection problems, when principal sells project to an agent for a flat fee.

An equilibrium in truthful strategies exists, and for any strategies of other players each group's best response set always contains a truthful strategy. This makes equilibrium in truthful strategies an attractive solution concept for the political game with many players. Thus we can find $C_{Kj}(\boldsymbol{\tau}^*)$ by setting (8,9) to equality. This is done in

**Lemma 2** *Expected social welfare net of contribution waste in the second period if* $d = 1$ *(*Development*) is* $NW^D$ :

$$\begin{aligned} NW^D &= \ln \rho - \xi n_1 \ln \left( \frac{\xi}{\xi + n_2 \phi} \right) - (\xi + \phi) n_2 \ln \left( \frac{\phi + \xi}{\xi + n_2 \phi} \right) \\ & -\xi n_2 \ln \left( \frac{\xi}{\xi + n_1 \phi} \right) - \xi n_1 \ln \left( \frac{\xi}{\xi + n_2 (1 - \phi)} \right) \\ & - (\xi + 1 - \phi) n_2 \ln \left( \frac{(1 - \phi) + \xi}{\xi + n_2 (1 - \phi)} \right) - (\xi + \phi) n_1 \ln \left( \frac{\phi + \xi}{\xi + n_1 \phi} \right) \\ & - (\xi + 1 - \phi) n_1 \ln \left( \frac{(1 - \phi) + \xi}{\xi + n_1 (1 - \phi)} \right) - \xi n_2 \ln \left( \frac{\xi}{\xi + n_1 (1 - \phi)} \right) \end{aligned} \tag{10}$$

*Welfare of lobby 1 in this equilibrium is*

$$\begin{aligned} NW_1^D &= n_1 \ln \rho - \xi n_1 \ln \left( \frac{\xi}{\xi + n_2 \phi} \right) - (\xi + \phi) n_2 \ln \left( \frac{\phi + \xi}{\xi + n_2 \phi} \right) \\ & -\xi n_1 \ln \left( \frac{\xi}{\xi + n_2 (1 - \phi)} \right) - (\xi + 1 - \phi) n_2 \ln \left( \frac{(1 - \phi) + \xi}{\xi + n_2 (1 - \phi)} \right) \end{aligned}$$

***Proof.*** *in the Appendix.* ■

### 2.5.3 Welfare comparisons

I begin by comparing the two scenarios from the viewpoint of lobby's interest.

**Proposition 1** *In the second period, lobby 1 is strictly worse off under* $d = 1$ *than* $d = 0$*, if* $\rho = 1$. *There exists threshold* $\tilde{\rho} > 1$ *such that for any* $\rho \in (1, \tilde{\rho})$,

$$NW_1^D < NW_1^{ND}$$

**Proof.** Suppose $\rho = 1$. By revealed preference, in the case $d = 0$, lobby 1 could induce policy vector $\boldsymbol{\tau}^*$ by paying zero contributions but chose to pay positive contributions. Therefore, $\phi W_1(\hat{\boldsymbol{\tau}}_A) + (1 - \phi) W_1(\hat{\boldsymbol{\tau}}_B) - C_{A1}(\hat{\boldsymbol{\tau}}_A) - C_{A2}(\hat{\boldsymbol{\tau}}_B) > W_1(\boldsymbol{\tau}^*)$. In the case $d = 1$, lobby 1 must pay positive amounts $C_{A1}(\boldsymbol{\tau}^*), C_{A2}(\boldsymbol{\tau}^*)$ to induce $\boldsymbol{\tau}^*$, because otherwise redistribution will be biased in favor of group 2.

Increasing $\rho$ will, however, improve welfare of the lobby directly. There exists $\tilde{\rho}$ such that welfare loss due to political participation of group 2, and direct welfare gain just balance. For all $\rho < \tilde{\rho}$, by monotonicity, lobby 1 is worse off if developmental policy is implemented. ■

I now compare *social* welfare under the two scenarios. There are two positive influences on welfare when the developmental policy is implemented ($d = 1$): the adoption of socially optimal policy $\boldsymbol{\tau}^*$ and the direct effect of the reform on utility through $\rho$ (*size of the pie* effect). At the same time, more resources might be wasted unproductively due to increased political competition. Hillman [1998] constructs a reduced form model in which democracies are less efficient than societies with uncontested elite, because they have higher resource waste (political contributions are spent without effect on individual utilities). Hillman does not have a model of endogenous determination of campaign spending; he assumes an ad hoc functional form for the resource cost of rent-seeking. Since I do not impose the inefficiency directly, it is interesting to check whether the entire positive effect of development is wasted on political contributions. I will therefore focus on the trade-off between improved efficiency and increased resource waste. Welfare comparisons below reflect this tradeoff.

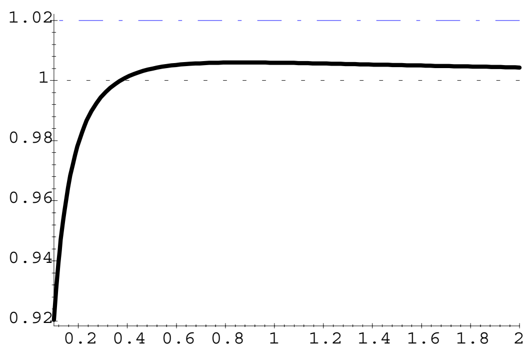
Comparing expressions (7,10), one observes that the difference between levels of social welfare in the two cases is additively separable with respect to $\rho$ :

$$NW^D - NW^{ND} = \ln \rho - f(\xi, n_1, \phi) \tag{11}$$

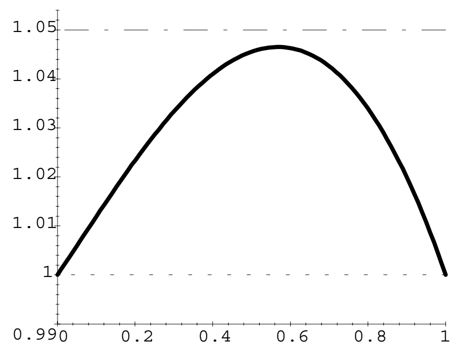
for a well-defined function $f$.

This allows to find the minimal level of $\rho$ that makes society as well off under the developmental policy: $\bar{\rho} = \exp(f(\xi, n_1, \phi)) = \min\left\{\rho | NW^D(\xi, n_1, \phi) \geq NW^{ND}(\xi, n_1, \phi)\right\}$. For all $\rho > \bar{\rho}$, social welfare is larger after the reform. $\bar{\rho}$ is a function of all the parameters $\xi, n_1, \phi$. I computed the global maximum of $\bar{\rho}$ for all possible $\xi, n_1, \phi$. The maximal value $\max_{\xi, n_1, \phi} \bar{\rho}(\xi, n_1, \phi) = 1.0637$ is attained at $\xi = 0.2444, \phi = \frac{1}{2}, n_1 = 0.6959$.

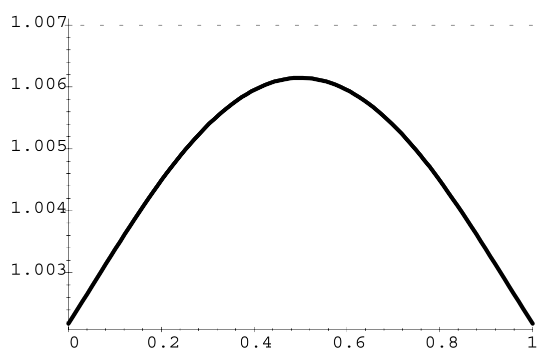
The following series of graphs show this cut-off level $\bar{\rho}$ for a baseline set of parameters: $\xi = 0.8, \phi = 0.6, n_1 = 0.05$. I vary one parameter at a time and graph $\bar{\rho}(\xi)$, $\bar{\rho}(n_1)$, $\bar{\rho}(\phi)$ in turn. They illustrate how minimally sufficient $\bar{\rho}$ is affected by the proportion of informed voters, the size of the initial lobby, and/or the efficiency of campaigning and the bias in favor of party A. All graphs have $\bar{\rho}$ on the vertical axis. In the region above the curves, development scenario is preferred by the society; below the curves, resource waste dominates the direct efficiency gains. Equivalently, high values of $\bar{\rho}$ are associated with higher resource waste so that direct economic gains must be larger to compensate for that.



$\bar{\rho}$ as a function of enlightenment $\xi$



$\bar{\rho}$ as a function of lobby size $n_1$



$\bar{\rho}$ as a function of effective share bias $\phi$

The graphs accord with intuition: for intermediate values of $\xi$ there is larger contribution waste under $d = 1$, so $\rho > 1$ is required to tip the balance in favor of the reform.

As $\xi = \frac{1-\alpha}{\alpha h}$ goes to zero, either proportion of uninformed voters becomes large, or campaign effectiveness high. Resource waste under the development scenario grows, but with $\xi \to 0$, the deviation from the optimum under $d = 0$ grows as well. Since utility is logarithmic, the deadweight losses dominate the resource waste.

If $\xi$ is high enough, there are very few uninformed voters, or campaign effectiveness is low. In this case lobbies make small contributions in both cases $d = 0, 1$. In case $d = 0$, deviation from the social optimum also goes to zero. Consequently, social welfare is very similar under both cases even in the absence of any direct positive effect of the reform $(\rho = 1)$. In the asymptotic case, when contributions are totally ineffective, welfare in two situations is the same even if $\rho = 1$. Thus, informed voters are a safeguard against monopolistic influence-seeking. Policy distortions are minimal to start with, and with competition for influence, campaign expenses are low.

Considering different group proportions, the resource waste is large only if competing interest groups are comparable in size. So, for middle values of $n_1$, the minimal necessary $\bar{\rho}$ is higher (in polar situations, when $n_1 = 0$ or 1, there is obviously no difference between welfare under two scenarios even when $\rho = 1$).

Finally, the largest resource waste under successful reform happens when parties are comparable in size. With logarithmic utility, higher uncertainty about the outcome implies stronger motive for hedging risk (so increasing total spending). Hence, for $\phi = 1/2$, the minimally necessary $\rho$ to make reform welfare-enhancing is the highest.

Summarizing the discussion so far, it is amazing how small the direct welfare effect $\rho$ must be to make efficiency outweigh resource waste in comparing the two scenarios. The upper bound on a minimally necessary level of $\rho$ is only 1.064 for all parameter values!

**Proposition 2** *For all $\rho > 1.064$, society as a whole is better off under the development scenario: $NW^D > NW^{ND}$, and*

1. *$\bar{\rho}$ first increases and after attaining a maximum, decreases as a function of enlightenment $\xi$. Even without the direct development effect ($\rho = 1$), the society is better off as a result of lobby formation when the proportion of informed voters is small ($\xi \to 0$); social welfare is similar under both scenarios when $\xi$ is very large.*

2. *$\bar{\rho}$ is an inverse U-shaped function of the ratio of represented to total population $n_1$ and is equal to 1 at $n_1 = 0$ and $n_1 = 1$.*

3. *$\bar{\rho}$ is an inverse U-shaped function of the bias in favor of one party $\phi$. It attains maximum at $\phi = \frac{1}{2}$.*

It is worth emphasizing that the model generates a range where democracies that have more political participation, are less efficient due to high cost of rent-seeking. I now turn to the main question, whether it is possible that Pareto efficient developmental policy is not implemented because of entrenched lobby's actions.

## 2.6 First period equilibrium

Propositions of the previous section established that there is a scope for a conflict between the entrenched lobby and the society at time 1. To ascertain whether the lobby might ever be successful in stopping the reform, political equilibrium at time 1 must be computed.

**Lemma 3** *The no-development scenario ($d = 0$) is preferred by the lobby whenever.*

$$\phi \left( NW_1^{ND} - NW_1^{D} \right) > \xi \left( NW^{D} - NW^{ND} \right), \tag{12}$$

*Lobby 1 will require party $B$ set $d = 0$ if*

$$(1 - \phi) \left( NW_1^{ND} - NW_1^{D} \right) > \xi \left( NW^{D} - NW^{ND} \right). \tag{13}$$

*Since $\phi > 1/2 > 1 - \phi$, it is possible that the* ex ante more popular *party will oppose developmental policy, while the less popular party, if given a chance, will pursue the reform.*

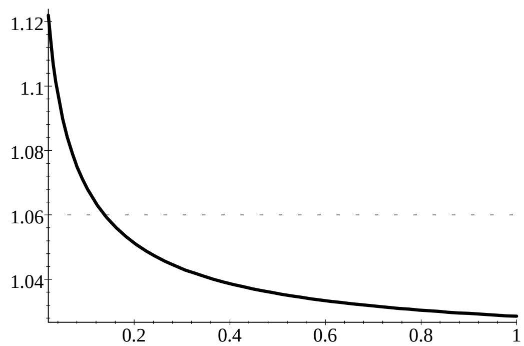
***Proof.*** *in the Appendix.* ■

Similarly to (11), equation 12 can be manipulated to factor out the level $\rho$ corresponding to the border case between implementation and non-implementation:

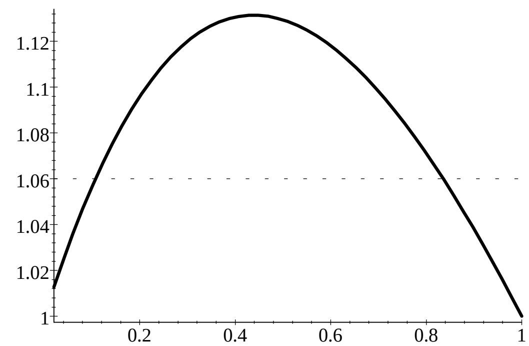
$$\rho = \exp \left( \frac{g(\xi, n_1, \phi)}{n_1 + 1} \right).$$

For a given set of parameter values $\xi, n_1, \phi$, for all $\rho$ above this upper bound the reform is implemented. The graphs below plot this function against all three variables (thick curve).

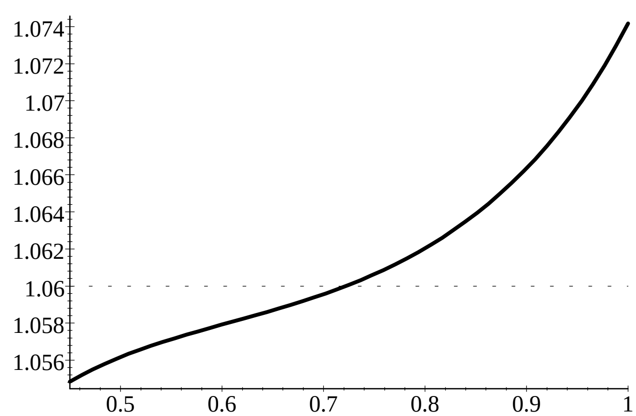
The thin line shows the cut-off level of $\rho = 1.064$, sufficient for social optimality as identified in proposition 2. Thus the region under the thick curve and above the thin line corresponds to values of $\rho$, such that the *reform is not implemented even though socially optimal.* Lobby 1 benefits straightforwardly from this predatory outcome (otherwise the policy would be developmental).




Upper bound on $\rho$ as a function of enlightenment $\xi$




Upper bound on $\rho$ as a function of lobby size $n_1$




Upper bound on $\rho$ as a function of effective share bias $\phi$

An immediate corollary of proposition 2 and any one of the graphs is that there indeed exists a region for $\rho$ in which *socially optimal* reform will not be undertaken.

The graphs also demonstrate how likelihood of the anti-developmental outcome is affected by parameters. For modest $\rho$, the reform will not be implemented when $\xi$ is small, i.e. when either proportion of uninformed voters is large or effectiveness of campaign spending is high.

The entrenched lobby will not oppose development, if its size $n_1$ is either very small or very large. Small lobby finds it too expensive in terms of contributions, while a large lobby considers it not worth doing since gains from development outweigh losses associated with loss of influence.

The more level is playing field for parties ($\phi$ closer to 1/2), the likelier is the reform, because the effective return to contributing money to parties is smaller (the probability of actual implementation of the stipulated policy is lower ).

**Proposition 3** *There exists a range of parameters such that the socially efficient reform is not implemented. The reform is more likely to be blocked when most voters are uninformed, bias in favor of either party is large and the size of the lobby is close to half of the population size.*

### 2.7 Electoral motive

A lobby may sometime contribute to a party more than required by the participation constraint, to boost its electoral prospects. However, this may only happen if parties in equilibrium adopt different platforms. Consequently, in the second period under the development scenario, none of the 2 lobbies will contribute more than just necessary, because they are indifferent between the two parties.

What happens if in either period lobby 1 contributes more? If so, it will contribute to only one party, namely the party that is ex ante more popular. That party in equilibrium will adopt more distortionary policy. This implies that the probability $\phi(s)$ of adopting more distortive policy $\hat{\boldsymbol{\tau}}_A$ increases when the electoral motive is operative. Consequently, the disparity between welfare levels of the lobby under the two scenarios $NW_1^{ND} - NW_1^D$ will increase, only strengthening the case for predatory behavior.

## 3 From $K$ to $M$ : effects of coordination on reform

In this section I focus on effects of the multitude: suppose there are $J$ equal-sized groups in the polity. $K$ of them are organized initially. Can they block the reform that leads to creation of $M-K$ more lobbies? This question is not answered by the preceding sections because new issues of coordination among entrenched interests arise. One lobby alone may not resolve to try to block an efficient reform, however, its willingness to do so increases with the contributions of the others for the same cause. The following chapters provide exact conditions under which the lack of coordination will help the reform and vice versa.

## 3.1 Policy vectors, contribution amounts, welfare functions

There are a total of $J$ groups of equal size. Let $K$ of them be organized in period 2. I begin by characterizing net social welfare under both scenarios: when $d=1$ and $M-K$ additional groups become organized, and when $d=0$ and status quo prevails.

**Lemma 4** *Suppose there are $K$ initial lobbies, and the developmental policy leads to creation of $M-K$ more lobbies. Then under the no-development scenario, social welfare is*

$$NW^{ND}=\frac{J-K}{J}\left[\phi\ln\left(\frac{J\xi}{K\phi+J\xi}\right)+(1-\phi)\ln\left(\frac{J\xi}{K(1-\phi)+J\xi}\right)\right] +K\left(F_j(K,\phi)+F_j(K,1-\phi)\right)$$

*The development scenario has $M>K$ organized groups, but also $\rho>1$ :*

$$NW^{D}=\frac{J-M}{J}\left[\phi\ln\left(\frac{J\xi}{M\phi+J\xi}\right)+(1-\phi)\ln\left(\frac{J\xi}{M(1-\phi)+J\xi}\right)\right] +M\left(F_j(M,\phi)+F_j(M,1-\phi)\right)+\ln\rho$$

*$F_j(N,\phi)$ is the anchor, equal to lobby $j$'s welfare in equilibrium if party $A$ wins. It depends on the number of organized groups $N$, share bias $\phi$ and is independent of policy vector $\tau$.*

***Proof.*** *In the Appendix.* ■

## 3.2 Reform/no reform

Consider the policy choice of the parties w.r.t. the developmental reform in the first period. There are $K$ groups. The question of the reform implementability is harder when there are $K$ groups initially, as now issues of coordination arise.

### 3.2.1 Coordinated equilibrium

Consider a hypothetical symmetric equilibrium in which all groups contribute to stop the reform. Notice that magnitude of redistribution (vector $\boldsymbol{\tau}$) is the same in the first period, regardless of whether the reform is implemented in the 2nd period (this is similar to the first-period equilibrium of section 2.6, see the proof of lemma 3). For party $A$ to be against the reform it requires that the combined votes of informed and uninformed voters be more numerous when the no-development platform is chosen:

$$\xi\left[V(\hat{\boldsymbol{\tau}})+\delta NW^{ND}\right]+KC_{Aj}^{ND}\geq\xi\left[V(\hat{\boldsymbol{\tau}})+\delta NW^{D}\right]+KC_{Aj}^{D}$$

Here $C_{Aj}^{ND}$ denotes the contributions paid by each of $K$ groups conditional on the absence of the reform, and $C_{Aj}^{D}$ are the contributions paid if the reform is adopted. As computed above, $C_{Aj}^{D}=-F_j(K,\phi)+\phi W_j(\boldsymbol{\tau})$. This allows us to compute the amount of contributions necessary to stop the reform when party $A$ has a say:

$$C_{Aj}^{ND}-C_{Aj}^{D}\geq\frac{\xi\delta}{K}\left(NW^{D}-NW^{ND}\right)\tag{14}$$

From a group's point of view, it is only worth to block the reform, if

$$\begin{aligned}F_{Aj}(K)-\left(C_{Aj}^{ND}-C_{Aj}^{D}\right)+\delta F_{Aj}(K) &\geq F_{Aj}(K)+\delta F_{Aj}(M)+\frac{\delta}{J}\ln\rho\\ &\Updownarrow\\ F_{Aj}(K)-F_{Aj}(M) &\geq \frac{\xi}{K}\left(NW^{D}-NW^{ND}\right)+\frac{\ln\rho}{J}\end{aligned}\tag{15}$$

The latter formula is obtained by substituting for $C_{Aj}^{ND}-C_{Aj}^{D}$ from (14), when that condition holds as equality.

Expression (15) allows to see clearly the tradeoff between lobby's loss and social gains from the reform. Its LHS is the expression for the net welfare loss of lobby $j$ if more groups become organized; its RHS is the normalized social welfare gain.

### 3.2.2 Uncoordinated attempt to stop reform

In the previous section groups could coordinate perfectly. Here I explore whether there can be situations when coordination failure helps to adopt the reform:

Consider a hypothetical equilibrium in which none of the groups contribute to stop the reform. Is a group willing to resist reform on its own? For party $A$ to be against the reform it requires that

$$\xi\delta NW^{ND} + C_{Aj}^{ND} + (K-1)\, C_{Aj}^{D} \geq \xi\delta NW^{D} + KC_{Aj}^{D}$$

This simplifies as

$$C_{Aj}^{ND} - C_{Aj}^{D} \geq \xi\delta \left(NW^{D} - NW^{ND}\right)$$

Similarly to the previous section, I find that a single group will find it optimal to resist reform iff

$$F_{Aj}(K) - F_{Aj}(M) \geq \xi \left(NW^{D} - NW^{ND}\right).$$

In this case the uncoordinated equilibrium does *not* exist.

### 3.2.3 Multiple equilibria

The two previous sections have shown that the polity can be in three possible situations:

| | |
|---|---|
| *No reform* | Reform cannot be implemented<br>$F_{Aj}(K) - F_{Aj}(M) \geq \xi \left(NW^{D} - NW^{ND}\right) + \frac{\ln\rho}{J}$ |
| *Fragile reform* | Reform is implemented only if coordination is prevented<br>$\frac{\xi}{K} < \frac{F_{Aj}(K) - F_{Aj}(M) - \frac{1}{J}\ln\rho}{NW^{D} - NW^{ND}} < \xi$ |
| *Robust reform* | Reform is implemented regardless of coordination<br>$F_{Aj}(K) - F_{Aj}(M) < \frac{\xi}{K}\left(NW^{D} - NW^{ND}\right) + \frac{\ln\rho}{J}$ |

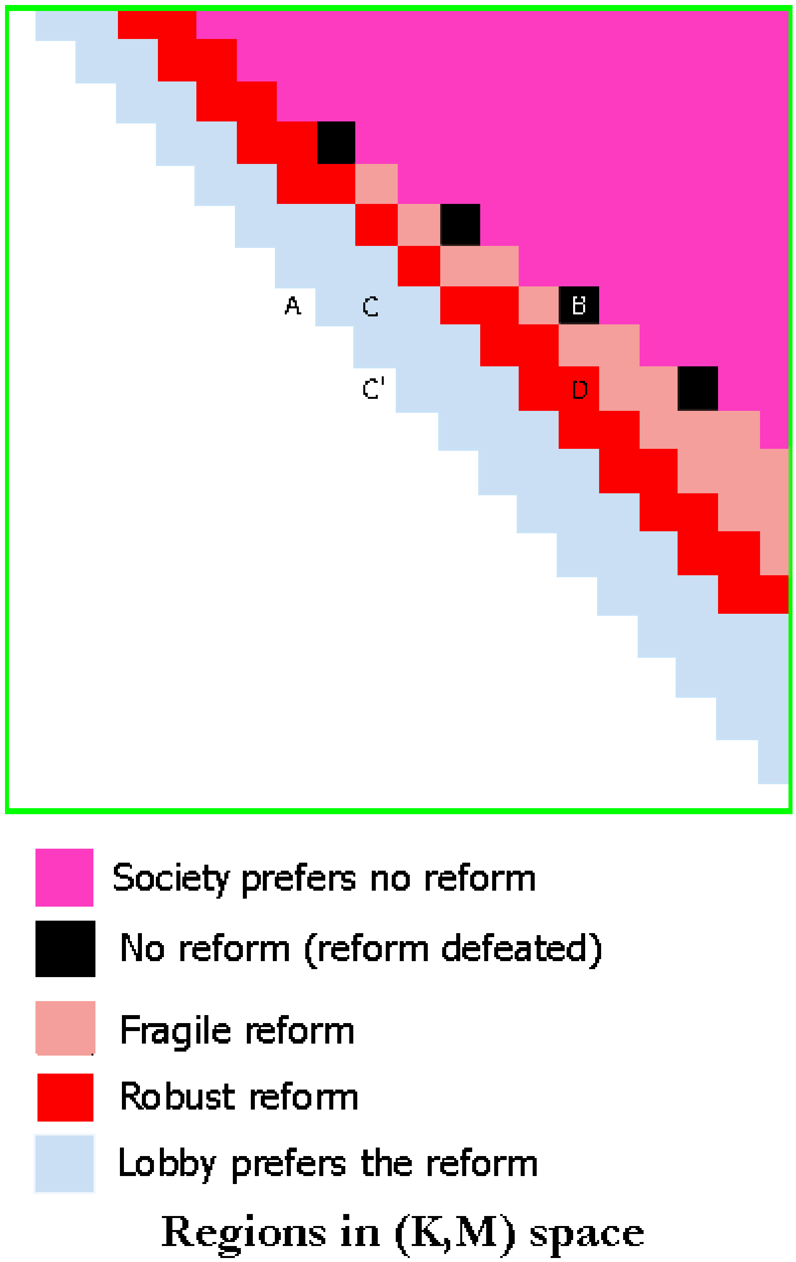

A
C
B
C'
D
Society prefers no reform
No reform (reform defeated)
Fragile reform
Robust reform
Lobby prefers the reform
Regions in (K,M) space

Figure 3:

Figure 3 shows the result of simulation for $J = 20$ groups, for all possible combinations of $K$ and $M > K$ (values of the other parameters are $\xi = 0.9$, $\phi = 0.6$, $\rho = 1.07$). $K$ is on the vertical axis and $M$ is on the horizontal axis. Since $M \geq K$, only the area above the diagonal is meaningful. Squares of different shade represent regions with different equilibria.

For any given $K$, starting from the diagonal $M = K$, proceed to the right. When the number of new groups formed, $M - K$, is small, the entrenched lobbies do not bother to block the reform as the erosion of their power is small. So the reform is trivially implementable.

For a larger number of new groups, entrenched lobbies would like to block the reform but are unable to, even when they coordinate their actions (Robust Reform).

For the intermediate range the reform can only be implemented if coordination is prevented (Fragile Reform). Even further increase in $M$ is so harmful to entrenched lobbies that they succeed in defeating the reform regardless of coordination. Finally, in the region where lobby expansion is extreme, the anticipated rent-seeking waste reaches such magnitudes that the society at large prefers to preserve the status quo.

The figure suggests a conjecture that sometimes a comprehensive reform is infeasible while a gradual reform achieving the same result in a longer time may be feasible. Take point A in the figure. Suppose the full reform would be represented square B. However, this reform is blocked by the entrenched lobbies. Nonetheless, a partial reform that leads to an increase in the number of lobbies as at point C is feasible. The next period status quo will be a larger number of lobbies (C′) and the move described by square D is feasible. This implication is still a conjecture, because extending the model to more than two periods requires rethinking optimality of lobbies' strategies. Yet, if the discount factor is sufficiently large, the two-period model may be a good approximation and the conjecture will be correct.

# 4 Extensions

It can be imagined that instead of new organized lobbies, the developmental policy simply converts some uninformed voters into informed, decreasing the proportion $\alpha$. Since increasing the proportion of informed voters shifts the weights in the parties' objective function toward social welfare, the entrenched lobby will fear to lose its influence and stipulate that the policy not be enacted. Unlike the model in section 2.4, the efficiency gains here are straightforward.

# 5 Conclusion

I have constructed a model in which a welfare-improving policy is not adopted because the existing lobby would not allow it for fear of losing influence. This model gives exact meaning to the term "influence" in the context of a political equilibrium model with contributions. It provides insights about failures of developing countries with democratic regimes, and contrary to previous research, the model has also demonstrated that efficiency-enhancing effect of the increase in the number of pressure groups may well dominate the increased resource waste.

One implication of the model is that educating voters about consequences of policy choices can lead to discrete positive effects because lobbies will drop their instigations. Insofar it gives hope to economists as educators, the paper is reassuring that not everything is lost.

# A Proofs of auxiliary lemmas

**Proof.** [Lemma 1] Solving for policy vectors explicitly,

$$\hat{\tau}_{1A} = n_1 \frac{\xi + \phi}{\xi + n_1 \phi}, \ \hat{\tau}_{2A} = n_2 \frac{\xi}{\xi + n_1 \phi}$$
$$\hat{\tau}_{1B} = n_1 \frac{\xi + 1 - \phi}{\xi + n_1 (1 - \phi)}, \ \hat{\tau}_{2B} = n_2 \frac{\xi}{\xi + n_1 (1 - \phi)}$$

Contributions necessary to induce parties to set these policies are:

$$C_{A1}(\hat{\boldsymbol{\tau}}_A) = \xi \left(W(\boldsymbol{\tau}^*) - W(\hat{\boldsymbol{\tau}}_A)\right) = -\xi \left(n_1 \ln \frac{\xi + \phi}{\xi + n_1 \phi} + n_2 \ln \frac{\xi}{\xi + n_1 \phi}\right)$$
$$C_{B1}(\hat{\boldsymbol{\tau}}_B) = \xi \left(W(\boldsymbol{\tau}^*) - W(\hat{\boldsymbol{\tau}}_B)\right) = -\xi \left(n_1 \ln \frac{\xi + 1 - \phi}{\xi + n_1 (1 - \phi)} + n_2 \ln \frac{\xi}{\xi + n_1 (1 - \phi)}\right)$$

Substitution of these expressions into definitions

$$NW^{ND} = \phi W(\hat{\tau}_A) + (1-\phi) W(\hat{\tau}_B) - C_{A1} - C_{B1}$$
$$NW_1^{ND} = \phi W_1(\hat{\boldsymbol{\tau}}_A) + (1-\phi) W_1(\hat{\boldsymbol{\tau}}_B) - C_{A1} - C_{B1}$$

yields desired expressions. ■

**Proof.** [Lemma 2] Consider the embedded maximization problem within the participation constraint for party $A$ (8):

$$\max_{\tau_1+\tau_2=1}\left\{\xi\left(n_1\ln\left(\rho\frac{\tau_1}{n_1}\right)+n_2\ln\left(\rho\frac{\tau_2}{n_2}\right)\right)+n_2\phi(s)\ln\left(\rho\frac{\tau_2}{n_2}\right)-F_{A2}\right\}$$

Solution to this problem is

$$\tilde{\tau}_1 = \xi\frac{n_1}{\xi+n_2\phi(s)},\ \tilde{\tau}_2 = \frac{n_2(\phi(s)+\xi)}{\xi+n_2\phi(s)}$$

Hence, the minimum contribution to get $\boldsymbol{\tau}^*$ (as we know, with two lobbies, the equilibrium policy is optimal $\boldsymbol{\tau}^*$) :

$$\begin{aligned} C_{A1}(\boldsymbol{\tau}^*) &= \xi\left[n_1\ln\left(\rho\frac{\tilde{\tau}_1}{n_1}\right)+n_2\ln\left(\rho\frac{\tilde{\tau}_2}{n_2}\right)\right]+n_2\phi\ln\left(\rho\frac{\tilde{\tau}_2}{n_2}\right)-F_{A2} \\ &-\xi\left[n_1\ln\left(\rho\frac{\tau_1^*}{n_1}\right)+n_2\ln\left(\rho\frac{\tau_2^*}{n_2}\right)\right]-n_2\phi\ln\left(\rho\frac{\tau_2^*}{n_2}\right)+F_{A2} \\ &= \xi\left(n_1\ln\left(\frac{\tilde{\tau}_1}{n_1}\right)+n_2\ln\left(\frac{\tilde{\tau}_2}{n_2}\right)\right)+n_2\phi\ln\left(\frac{\tilde{\tau}_2}{n_2}\right) \\ &= \xi n_1\ln\left(\frac{\xi}{\xi+n_2\phi}\right)+(\xi+\phi)n_2\ln\left(\frac{\phi+\xi}{\xi+n_2\phi}\right)=\phi W_1(\boldsymbol{\tau}^*)-F_{A1}=-F_{A1}\end{aligned}$$

Similarly,

$$\begin{aligned} C_{B1}(\boldsymbol{\tau}^*) &= \xi n_1\ln\left(\frac{\xi}{\xi+n_2(1-\phi)}\right)+(\xi+1-\phi)n_2\ln\left(\frac{(1-\phi)+\xi}{\xi+n_2(1-\phi)}\right) \\ C_{A2}(\boldsymbol{\tau}^*) &= (\xi+\phi)n_1\ln\left(\frac{\phi+\xi}{\xi+n_1\phi}\right)+\xi n_2\ln\left(\frac{\xi}{\xi+n_1\phi}\right) \\ C_{B2}(\boldsymbol{\tau}^*) &= (\xi+1-\phi)n_1\ln\left(\frac{1-\phi+\xi}{\xi+n_1(1-\phi)}\right)+\xi n_2\ln\left(\frac{\xi}{\xi+n_1(1-\phi)}\right)\end{aligned}$$

$$NW^D = W(\boldsymbol{\tau}^*) - C_{A1} - C_{B1} - C_{A2} - C_{B2}$$

$$NW_1^D = W_1(\boldsymbol{\tau}^*) - C_{A1}(\boldsymbol{\tau}^*) - C_{B1}(\boldsymbol{\tau}^*)$$

■

**Proof.** [Lemma 3] Voters correctly anticipate political equilibrium in the second period, and their net welfare under both scenarios, $NW^{ND}$ and $NW^D$ (notice that when parties choose policy vectors, they are concerned with the net future welfare and gross present-day welfare).

Party $K$'s participation constraint in this dynamic formulation requires that

$$C_{K1}^{ND} \geq \xi\left[V(\boldsymbol{\tau}^*) + \delta NW^D - V(\hat{\boldsymbol{\tau}}_K) - \delta NW^{ND}\right] \text{ if the reform is to be blocked}$$
$$C_{K1}^{D} \geq \xi\left[V(\boldsymbol{\tau}^*) + \delta NW^D - V(\hat{\boldsymbol{\tau}}_K) - \delta NW^{D}\right] \text{ if the reform is to be implemented}$$

Thus, lobby 1 has to contribute more if it insists on the anti-developmental policy in period 1. For party $A$, lobby 1 compares (omitting party subscripts)

$$\max_{\boldsymbol{\tau}}\left\{\phi\left[V_1(\boldsymbol{\tau}) + \delta NW_1^{ND}\right] - \xi\left[V(\boldsymbol{\tau}^*) - V(\boldsymbol{\tau}) + \delta NW^D - \delta NW^{ND}\right]\right\} \text{ with}$$
$$\max_{\boldsymbol{\tau}}\left\{\phi\left[V_1(\boldsymbol{\tau}) + \delta NW_1^{D}\right] - \xi\left[V(\boldsymbol{\tau}^*) - V(\boldsymbol{\tau})\right]\right\},$$

and similarly for party $B$. It is easy to see that the equilibrium policy vectors induced by the lobby are the same as in period 2 under no-development scenario, $\hat{\boldsymbol{\tau}}_A, \hat{\boldsymbol{\tau}}_B$ (5,6). Consequently, the expressions can be rewritten as

$$\phi\left[V_1(\hat{\boldsymbol{\tau}}_A) + \delta NW_1^{ND}\right] - \xi\left[V(\boldsymbol{\tau}^*) - V(\hat{\boldsymbol{\tau}}_A) + \delta NW^D - \delta NW^{ND}\right] \text{ vs.}$$
$$\phi\left[V_1(\hat{\boldsymbol{\tau}}_A) + \delta NW_1^{D}\right] - \xi\left[V(\boldsymbol{\tau}^*) - V(\hat{\boldsymbol{\tau}}_A)\right],$$

Comparing these expressions and rearranging yields the desired result, and similarly for party $B$. ■

**Proof.** [Lemma 4] I begin by computing the equilibrium policy vector, contribution schedules, and welfare:

$$\max \left\{ \phi \sum_{j \le K} \frac{1}{J} \ln \left( J\tau_{Aj} \right) + \xi \sum_{j} \frac{1}{J} \ln \left( J\tau_{Aj} \right) \right\}$$
$$\text{s.t.} \sum_{j} \tau_{Aj} = 1$$

First order conditions imply $\begin{cases} \tau_{Aj} = \frac{\phi+\xi}{K\phi+J\xi},\ j \le K, \\ \tau_{Ai} = \frac{\xi}{K\phi+J\xi},\ i > K. \end{cases}$ Denote this solution by $\hat{\boldsymbol{\tau}}_K(\phi)$.

From party $A$'s indifference condition,

$$\begin{aligned} C_{AK}(\boldsymbol{\tau}) &= \max_{\boldsymbol{\tau}'} \left[ \xi W(\boldsymbol{\tau}') + \sum_{j<K} C_{Aj}(\boldsymbol{\tau}') \right] - \left[ \xi W(\boldsymbol{\tau}) + \sum_{j<K} C_{Aj}(\boldsymbol{\tau}) \right] \\ &= \left[ \xi W(\hat{\boldsymbol{\tau}}_{K-1}(\phi)) + \sum_{j<K} C_{Aj}(\hat{\boldsymbol{\tau}}_{K-1}) \right] - \left[ \xi W(\boldsymbol{\tau}) + \sum_{j<K} C_{Aj}(\boldsymbol{\tau}) \right] \end{aligned}$$

Similarly to subsection 2.5.2 I conjecture that $C_{Aj}(\boldsymbol{\tau}) = \phi W_j(\boldsymbol{\tau}) - F_{Aj}$, $C_{Bj}(\boldsymbol{\tau}) = (1-\phi) W_j(\boldsymbol{\tau}) - F_{Bj}$. Then, substituting for $\hat{\boldsymbol{\tau}}_{K-1}(\phi)$

$$\begin{aligned} C_{AK}(\boldsymbol{\tau}) &= \xi \left[ \frac{K-1}{J} \ln \left( \frac{J(\phi+\xi)}{K\phi+J\xi-\phi} \right) + \frac{J-K+1}{J} \ln \left( \frac{J\xi}{K\phi+J\xi-\phi} \right) \right] \\ &\quad + \phi \frac{K-1}{J} \ln \left( \frac{J(\phi+\xi)}{K\phi+J\xi-\phi} \right) - \sum_{j<K} F_{Aj} \\ &\quad - \xi \left[ \frac{K}{J} \ln (J\tau_{Aj}) + \frac{J-K}{J} \ln (J\tau_{Ai}) \right] - \phi \frac{K-1}{J} \ln (J\tau_{Aj}) + \sum_{j<K} F_{Aj} \\ &= (\xi+\phi) \frac{K-1}{J} \ln \left( \frac{J(\phi+\xi)}{K\phi+J\xi-\phi} \right) + \xi \frac{J-K+1}{J} \ln \left( \frac{J\xi}{K\phi+J\xi-\phi} \right) \\ &\quad - \frac{(\xi+\phi)K-\phi}{J} \ln (J\tau_{Aj}) - \xi \frac{J-K}{J} \ln (J\tau_{Ai}) \end{aligned}$$

More to the point, for the policy vector that is chosen in equilibrium with $K$ lobbies:

$$
\begin{aligned}
C_{AK}\left(\hat{\boldsymbol{\tau}}_K\left(\phi\right)\right) = \left(\xi+\phi\right)\frac{K-1}{J}\ln\left(\frac{J\left(\phi+\xi\right)}{K\phi+J\xi-\phi}\right)+\xi\frac{J-K+1}{J}\ln\left(\frac{J\xi}{K\phi+J\xi-\phi}\right) \\
-\frac{\left(\xi+\phi\right)K}{J}\ln\left(\frac{J\left(\phi+\xi\right)}{K\phi+J\xi}\right)-\xi\frac{J-K}{J}\ln\left(\frac{J\xi}{K\phi+J\xi}\right)+\frac{\phi}{J}\ln\left(\frac{J\left(\phi+\xi\right)}{K\phi+J\xi}\right) \\
= -F_j\left(K,\phi\right)+\frac{\phi}{J}\ln\left(\frac{J\left(\phi+\xi\right)}{K\phi+J\xi}\right) = -F_j\left(K,\phi\right)+\phi W_j\left(\boldsymbol{\tau}\right)
\end{aligned}
$$

Here,

$$
\begin{aligned}
F_j\left(K,\phi\right) = -\left(\xi+\phi\right)\frac{K-1}{J}\ln\left(\frac{J\left(\phi+\xi\right)}{K\phi+J\xi-\phi}\right)-\xi\frac{J-K+1}{J}\ln\left(\frac{J\xi}{K\phi+J\xi-\phi}\right) \\
+\frac{\left(\xi+\phi\right)K}{J}\ln\left(\frac{J\left(\phi+\xi\right)}{K\phi+J\xi}\right)+\xi\frac{J-K}{J}\ln\left(\frac{J\xi}{K\phi+J\xi}\right)
\end{aligned}
$$

In equilibrium, expected welfare of each organized group will be exactly equal to $F_{Aj}+F_{Bj}\equiv F_j\left(K,\phi\right)+F_j\left(K,1-\phi\right).$

In the calculation above, $K$ was arbitrary. To obtain desired results, substitute the expressions for $C_{AK}\left(\cdot\right)$ and $F_j\left(\cdot\right)$ into formulae for social welfare, for $K$ and $M$. ■

# References


Acemoglu, D. and Robinson, J. A. [2000]. Political losers as a barrier to economic development. mimeo.

Bernheim, B. D. and Whinston, M. D. [1986]. Menu auctions, resource allocation, and economic influence, *Quarterly Journal of Economics* **CI**(1): 1–31.

Besley, T. and Coate, S. [1998]. Sources of inefficiency in a representative democracy: A dynamic analysis, *American Economic Review* **88**(1): 139–156.

Fernandez, R. and Rodrik, D. [1991]. Resistance to reform: Status quo bias in the presence of individual-specific uncertainty, *American Economic Rreview* **81**(5): 1146–1155.

Goldberg, P. K. and Maggi, G. [1997]. Protection for sale: An empirical investigation. NBER Working Paper #5942.

Grossman, G. M. and Helpman, E. [1994]. Protection for sale, *American Economic Review* **84**(4).

Grossman, G. M. and Helpman, E. [1996]. Electoral competition and special interest politics, *Review of Economic Studies* **63**: 265–286.

Hillman, A. [1998]. Political culture and appropriative activity as an impediment to transition. Paper presented at the EERC conference "Financial Instability and Longer-Term Prospects of Economic Transformation in Russia".

Robinson, J. A. [1997]. When is a state predatory? University of Southern California, mimeo.