



UNIVERSITAT  
ROVIRA I VIRGILI

DEPARTAMENT D'ECONOMIA



## WORKING PAPERS

Col·lecció “DOCUMENTS DE TREBALL DEL  
DEPARTAMENT D'ECONOMIA - CREIP”

Lobbying as a Guard against Extremism

Galina Zudenkova

Document de treball n.8 - 2012

**DEPARTAMENT D'ECONOMIA – CREIP**  
**Facultat d'Economia i Empresa**



UNIVERSITAT  
ROVIRA I VIRGILI  
DEPARTAMENT D'ECONOMIA



*Edita:*

Departament d'Economia  
[www.fcee.urv.es/departaments/economia/public\\_html/index.html](http://www.fcee.urv.es/departaments/economia/public_html/index.html)  
Universitat Rovira i Virgili  
Facultat d'Economia i Empresa  
Avgda. de la Universitat, 1  
43204 Reus  
Tel.: +34 977 759 811  
Fax: +34 977 300 661  
Email: [sde@urv.cat](mailto:sde@urv.cat)

CREIP  
[www.urv.cat/creip](http://www.urv.cat/creip)  
Universitat Rovira i Virgili  
Departament d'Economia  
Avgda. de la Universitat, 1  
43204 Reus  
Tel.: +34 977 558 936  
Email: [creip@urv.cat](mailto:creip@urv.cat)

*Adreçar comentaris al Departament d'Economia / CREIP*

Dipòsit Legal: T - 599 - 2012

ISSN 1988 - 0812

**DEPARTAMENT D'ECONOMIA – CREIP**  
**Facultat d'Economia i Empresa**

# Lobbying as a Guard against Extremism\*

Galina Zudenkova<sup>†</sup>

*Department of Economics and CREIP, Universitat Rovira i Virgili*

## Abstract

This paper analyzes endogenous lobbying over a unidimensional policy issue. Individuals differ in policy preferences and decide either to join one of two opposite interest lobbies or not to take part in lobbying activities. Once formed, lobbies make contributions to the incumbent government in exchange for a policy favor as in a common-agency model. An equilibrium occurs only if no lobby member would prefer his lobby to cease to exist. I show the existence of an equilibrium with two organized lobbies. Individuals with more extreme preferences are more likely to join lobbying activities. Therefore, the lobbyists are rather extremists than moderates. However, the competition between those extreme lobbies results in a more moderate policy outcome relative to that initially preferred by the pro- or anti-policy government. Lobbies therefore guard against extremism, while acting as moderators of the government's preferences.

*JEL classification:* D72.

*Keywords:* common agency; endogenous lobbying; extremism.

---

\*The author is grateful to Luis Corchón and Ignacio Ortuño Ortín for helpful comments, suggestions and encouragement. The author also thanks Daron Acemoglu, Toke S. Aidt, Anna Bogomolnaia, Antonio Cabrales, Filipe Campante, Jacques Crémer, M.A. de Frutos, Avinash Dixit, Raquel Fernández, Arye L. Hillman, Sebastian Miller, Rebecca Morton, Albert Solé-Ollé, Heinrich W. Ursprung, Allard Van Der Made, Shlomo Weber, Bengt-Arne Wickström, and seminar and conference participants at several institutions for helpful comments and suggestions. Project grant ECO2011-25203 from the Spanish Ministry of Science and Innovation and grant 2011LINE-01 from Universitat Rovira i Virgili and Banco Santander are gratefully acknowledged. The usual disclaimer applies.

<sup>†</sup>Department of Economics and CREIP, Universitat Rovira i Virgili, Av. de la Universitat 1, Reus 43204, Spain. *E-mail address:* galina.zudenkova@gmail.com.

## 1. Introduction

Lobbying is a highly controversial phenomenon, often seen in a negative light by the public at large. The concern is that some lobby groups can exert more influence than others by virtue of having more money.<sup>1</sup> Indeed, the literature claims that wealthy citizens influence policy disproportionately because the willingness of the rich to make higher campaign contributions than the poor causes policymakers to adopt positions the rich prefer (see Domhoff 1983, Mills 1956, and Glazer and Gradstein 2005). There has been, however, an argument put forward in support of lobbying. According to this view, lobbying permits opposing interests to battle preventing extremism (see DeKieffer 2007). In other words, the Madisonian view of politics—in which factions compete with each other precluding tyranny—works for lobbies too. The only difference is that disputes are settled by interests groups fighting each other in the post-election stage rather than by elections. The present paper aims to contribute to this line of thinking.

I analyze a model of endogenous lobbying over a unidimensional policy issue. Individuals differ in policy preferences and decide either to join one of two opposite interest lobbies (a pro-policy lobby and an anti-policy lobby) or not to take part in lobbying activities. The incumbent government cares about policy outcomes and lobbies' contribution payments. Once formed, lobbies make contributions to the government in exchange for a policy favor as in a common-agency model of Bernheim and Whinston (1986), adapted to lobbying by Grossman and Helpman (1994). I introduce a simple form of coordination by imposing a high cost on free riders as a result of punishment adopted by the lobbies to penalize freeloaders. Then an equilibrium occurs only if no lobby member would prefer his lobby to stop existing.

I show the existence of an equilibrium with two organized lobbies. Individuals with more extreme preferences are more likely to be involved in lobbying activities. In equilibrium, each lobby is characterized by a threshold level of preferences such that all individuals with more pro-policy views (for the pro-policy lobby) or more anti-policy views (for the anti-policy lobby) participate in lobbying activities. This is in line with the results of Glazer and Gradstein (2005) and McCarty et al. (2006) that extremists want to contribute the most.

While the lobby members are rather extremists than moderates, the competition between the lobbies moderates the government's preferences and shifts the final policy outcome in favor of individuals who are initially disadvantaged by the government's pro- or anti-policy preferred position. Intuitively, consider the case of a pro-policy government. Individuals

---

<sup>1</sup>See Evangeline Marzec, Demand Media "What Is Corporate Lobbying?" <http://smallbusiness.chron.com/corporate-lobbying-11729.html>. Retrieved 23.01.2012.

with preferences similar to the government's have less stake in the policy, since they are initially favored by the government's preferred policy. Anti-policy individuals, however, are disadvantaged by the government's preferences. Owing to the concavity of preferences, anti-policy individuals gain more than pro-policy individuals from the same (in absolute value) policy change. Therefore, they are willing to contribute more to the government for a policy change. As a result, under a pro-policy government, the anti-policy lobby is more numerous and contributes more than the pro-policy lobby. The equilibrium policy level is more moderate than the one preferred by the pro-policy government prior to lobbying, and thus favors anti-policy individuals. A similar argument, in reverse, applies to the case of an anti-policy government, under which the equilibrium policy level favors pro-policy individuals. I show therefore that lobbying favors individuals who are initially disadvantaged by the government's pro- or anti-policy preferred position. In other words, lobbies act as moderators of the government's preferences preventing extremism.

Under a utilitarian government, lobbying does not affect the policy outcome. In this case the lobbies "neutralize" one another, so that the pro-policy lobby's bids are matched in the equilibrium by the anti-policy lobby's bids, and political competition results in a socially optimal outcome. However, each lobby makes a positive contribution to the government to avoid an undesired policy promoted by a competitor.

This paper follows the most prevalent approach in the formal literature, based on the assumption that lobbies influence political decisions through contributions (Baron 1989, Becker 1983, 1985, Snyder 1990). Reviews of this and alternative approaches can be found in Austen-Smith (1997), Grossman and Helpman (2001), and Persson and Tabellini (2002). I use the common-agency model of Bernheim and Whinston (1986) applied to lobbying by Grossman and Helpman (1994). Lobbying is modeled as a "menu auction", where lobbies confront government with contribution schedules that map any possible policy into a contribution payment. Several authors have applied the common-agency model of lobbying to study trade policy, commodity taxation, the provision of local public goods, and other policies (Dixit et al. 1997, Grossman and Helpman 1996, Helpman and Persson 2001, Persson 1998).

This paper complements the literature on collective action and lobby organization, which dates back to the seminal work of Olson (1965). Recent contributions have addressed the question of lobby formation in several different contexts. Some authors have focused mainly on the formation of lobbies from exogenously given special interest groups with a fixed cost (Drazen et al. 2007, Felli and Merlo 2006, 2007, Laussel 2006, Leaver and Makris 2006, Mitra 1999, Redoano 2010). Others have in some way addressed the problem of individuals' decisions to lobby. For example, Damania and Fredriksson (2000, 2003) and Magee (2002)

analyzed incentives for two firms and for  $n$  identical firms, respectively, to organize into a single industry lobby to affect policy outcomes. In turn, Bombardini (2008) proposed an "optimal lobby criterion" that reads as follows: it is optimal for a firm to "join the lobby" if the joint surplus of a prospective member firm and the lobby is higher under participation of the firm. Anesi (2009) analyzed the impact of moral hazard in teams on collective action. Furusawa and Konishi (2011) suggested a "free-riding-proof core" solution concept for the problem of the provision of public goods, which determines the formation of a contribution group, the level of provision of public goods, and the allocation of payoffs within the group. There is, however, an important difference between the present work and the papers just cited. In this paper, I model not only endogenous lobby formation but also a post-formation stage in which the organized lobbies compete for the government's favors.

The rest of the paper is organized as follows. Section 2 lays out a model. Section 3 describes the common-agency model of lobbying. Section 4 develops the concept of lobby formation. Section 5 establishes the existence of an equilibrium with two organized lobbies. Finally, Section 6 concludes the paper.

## 2. Model

Suppose that a certain policy option  $y$  is available to a society. Think of this as a piece of legislation. The set of feasible policies is the closed interval  $[0, 1]$ , where  $y = 0$  stands for the lowest policy level and  $y = 1$  stands for the highest policy level.

The society is inhabited by a large number (formally a continuum) of individuals, where the size (mass) of the population is normalized to unity. Individuals differ in their policy preferences. Denote by  $x \in [0, 1]$  an individual's preferred policy outcome. (In what follows, I refer to an individual with an ideal policy  $x$  as "individual  $x$ ".) For ease of exposition,  $x$  is assumed to be distributed in the population uniformly with density 1.<sup>2</sup> Individual  $x$ 's utility from policy  $y$  is given by

$$u_x(y) = -(x - y)^2 + m,$$

where  $m$  stands for the amount of money that the individual has.

The incumbent government decides on a policy outcome  $y$ . I assume that the government cares about the policy outcome and about money. Formally, denote by  $\gamma \in \Gamma \subset [0, 1]$

---

<sup>2</sup>The qualitative results of this analysis hold for a smooth, well-behaved, symmetric cumulative distribution function. The assumption of a uniform distribution has been made because it considerably simplifies the analysis.

the government's preferred policy outcome.<sup>3</sup> If  $\gamma < 0.5$ , the individuals face an anti-policy government; if  $\gamma = 0.5$ , the government is utilitarian; if  $\gamma > 0.5$ , the government is pro-policy. The government's preferences are represented by

$$U_\gamma(y) = -(\gamma - y)^2 + M,$$

where  $M$  denotes the government's monetary payoff. It is reasonable to assume that the government's preferences are moderate such that the domain  $\Gamma$  does not include very extreme policy levels.<sup>4</sup> This assumption is formalized in (4.1) in Section 4.

Policy-making involves not only government decision-making but also special interest politics, or lobbying. Lobbying is modeled here as a two-stage game. The first stage of the game is a lobby formation stage, where individuals decide either to participate in lobbying activities or not. The second stage of the game is a contribution game, where lobbies (organized in the first stage) offer the government contributions to affect the policy outcome. The game is described in detail in the following subsections.

## 2.1. First Stage: Lobby Formation

I assume that just two lobbies can be formed: a lobby of pro-policy individuals, given by a set  $P$ , and a lobby of anti-policy individuals, given by a set  $A$ . Lobby  $P$ 's goal is to defend the special interests of the individuals who are in favor of the policy, while lobby  $A$  aims to defend the special interests of the individuals who prefer low policy levels.

Suppose further that, once formed, these lobbies care about the aggregate utility of their members. Thus, their gross objective functions are given by

$$\begin{aligned} U_P(y) &= \int_{x \in P} u_x(y) dx, \\ U_A(y) &= \int_{x \in A} u_x(y) dx. \end{aligned}$$

Each individual's choice is either to be a member of one of two lobbies,  $P$  or  $A$ , or not to participate in lobbying activities at all. I assume that each individual can belong just to one lobby, since in the model lobbies represent opposite interests. There is no fixed cost of forming lobbies. If an individual belongs to a lobby, that individual's utility is taken into account in the lobby's objective function, but the individual should pay a contribution fee.

---

<sup>3</sup>One can think of a situation where an office holder is a "citizen-candidate" (as in Besley and Coate 1997 or Osborne and Slivinski 1996) with a preferred policy outcome  $\gamma$ .

<sup>4</sup>This assumption reflects the idea that candidates with extreme views have less electoral support and are less likely to be elected than ones with moderate preferences.

How do individuals solve the coordination problem when making their choice? I impose a simple form of the coordination that I label *temptation-free lobbying*. The *temptation-free-lobbying condition* is that free-riding individuals (i.e., individuals who benefit from lobbying activities but deviate from paying a contribution fee) bear a very high cost that exceeds the dues. Think of this cost as an outcome of the punishment schemes adopted by the lobby members to punish the free riders. Indeed, recent experimental studies have reported a widespread willingness of the cooperators to punish the free riders even if punishment is costly and does not provide any benefits for the punisher (see Fehr and Gächter 2000, 2002, and Herrmann et al. 2008, among many others). Moreover, Carpenter (2007) found that large groups contribute at rates no lower than small groups because punishment does not fall appreciably in large groups. In the context of the lobby formation model under consideration, it follows that since the gain from free riding (i.e., the saved dues) is lower than the resulted cost, individuals will have no temptation to free ride and join a lobby when the benefit from lobbying activities exceeds the contribution fee. Then an equilibrium occurs only if no lobby member would prefer his lobby to cease to exist. Intuitively, if a lobby member would like his lobby to cease to exist, then he is "lobbying" in the "wrong" way given his expectations and preferences.

## 2.2. Second Stage: Contribution Game

I focus on lobbying activities in the context of the common-agency model of Bernheim and Whinston (1986), adapted to lobbying by Grossman and Helpman (1994). In this approach, lobbying is modeled as a "menu auction", where lobbies confront government with contribution schedules that map any possible policy into a contribution payment.

First, each lobby  $i \in \{P, A\}$ , noncooperatively and simultaneously, presents its common agent, the government, with a contribution schedule  $C_i(y)$ , giving a binding promise of payment conditional on a chosen policy level  $y$ . Following the literature cited in the previous paragraph, I concentrate on (globally) truthful contribution schedules that satisfy

$$C_i(y) = \max[U_i(y) - b_i, 0],$$

where  $b_i$  is a constant chosen optimally by lobby  $i$ . So lobbies reveal their true preferences: they contribute to the government the maximum amount that they are willing to exchange for the government's decision. The objective of lobby  $i$  is to maximize the net utility of its members, namely

$$U_i(y) - C_i(y).$$



Second, the government sets  $y$  to maximize its utility, where its monetary payoff  $M$  is exactly equal to the lobbies' contributions:

$$-(\gamma - y)^2 + C_P(y) + C_A(y). \quad (2.1)$$

An equilibrium of the game is a subgame perfect Nash equilibrium in the contribution schedules, the chosen policy and the lobbies' compositions. In the following section, the game is analyzed backwards. First, I solve for the policy level and lobbies contributions. Second, I examine the individuals' choice of participating in lobbying activities.

### 3. Common-Agency Lobbying

Suppose that two lobbies  $P$  and  $A$  have been formed. To derive an equilibrium in truthful strategies, the following lemma is used. (See Bernheim and Whinston 1986 and Dixit et al. 1997 for a proof.)

**Lemma 1.** *The equilibrium policy is Pareto optimal in the bilateral relation between the government and each lobby.*

Therefore, the equilibrium policy maximizes the sum of the lobbies' net objective functions

$$\sum_{i \in \{P, A\}} (U_i(y) - C_i(y))$$

and the government's objective (2.1). This sum equals

$$-(\gamma - y)^2 + U_P(y) + U_A(y). \quad (3.1)$$

Maximizing (3.1) yields the equilibrium policy level  $y^*$ :

$$y^* = \arg \max_{y \in [0, 1]} \left( -(\gamma - y)^2 + U_P(y) + U_A(y) \right).$$

To find the contribution levels in the equilibrium, define  $y^j$  to be the policy that would emerge if the contribution offered by lobby  $i$  were zero,  $i, j \in \{P, A\}$ ,  $j \neq i$ . So,

$$\begin{aligned} y^P &= \arg \max_{y \in [0, 1]} \left( -(\gamma - y)^2 + U_P(y) \right), \\ y^A &= \arg \max_{y \in [0, 1]} \left( -(\gamma - y)^2 + U_A(y) \right). \end{aligned} \quad (3.2)$$

In other words,  $y^j$  is the policy that would emerge if lobby  $i$  were not formed.

Lobby  $i$  will raise the constant  $b_i$  in its truthful contribution schedule to the point where the government is just indifferent between choosing policy  $y^j$  and choosing the equilibrium policy  $y^*$ , i.e.,

$$\begin{aligned} -(\gamma - y^A)^2 + C_A(y^A) &= -(\gamma - y^*)^2 + C_P(y^*) + C_A(y^*), \\ -(\gamma - y^P)^2 + C_P(y^P) &= -(\gamma - y^*)^2 + C_P(y^*) + C_A(y^*). \end{aligned}$$

Now one can solve for the lobbies' contributions in equilibrium. The following proposition summarizes the results of the lobbies' common-agency contribution game. Proofs of this and other propositions are given in the Appendix.

**Proposition 1.** *There exists an equilibrium in truthful strategies such that the equilibrium policy level is given by*

$$y^* = \arg \max_{y \in [0,1]} \left( -(\gamma - y)^2 + U_P(y) + U_A(y) \right).$$

The lobbies' equilibrium contributions are equal to

$$\begin{aligned} C_P^* &\equiv C_P(y^*) = -(\gamma - y^A)^2 + (\gamma - y^*)^2 + U_A(y^A) - U_A(y^*), \\ C_A^* &\equiv C_A(y^*) = -(\gamma - y^P)^2 + (\gamma - y^*)^2 + U_P(y^P) - U_P(y^*). \end{aligned}$$

If there is just one organized lobby, the government derives exactly the same utility as it would have achieved without any contribution. Thus, a lobby that faces no competition captures the entire surplus from lobbying activities. If two lobbies compete for the final policy, the government captures some surplus from lobbying activities, and each lobby pays according to the political strength of its rival.

The lobby formation stage of the game is analyzed in the following section.

## 4. Lobby Formation

The *temptation-free-lobbying condition* requires that an equilibrium occurs only if no lobby member would prefer his lobby to cease to exist. I assume furthermore that lobby members contribute equally such that each pays a contribution fee of the same amount.<sup>5</sup> Formally,

$$\begin{aligned} \text{if } x \text{ belongs to lobby } P, \text{ then } u_x(y^*) - \frac{C_P^*}{\int_{z \in P} dz} &> u_x(y^A); \\ \text{if } x \text{ belongs to lobby } A, \text{ then } u_x(y^*) - \frac{C_A^*}{\int_{z \in A} dz} &> u_x(y^P). \end{aligned}$$

---

<sup>5</sup> Alternatively, one could let individual contributions be proportional to the benefits that each lobby member receives from the actions of the lobby. This extension is left for future research.

The left-hand side of the inequalities above corresponds to the utility of a lobby member who contributes to a lobby and benefits from that lobby's actions. The right-hand side is his utility when that lobby does not exist (i.e., does not contribute to the government in order to affect the policy outcome). In equilibrium, the former exceeds the latter. Two definitions are now introduced.

**Definition 1.** *An indifferent pro-policy individual  $\pi$  is an individual whose gain from  $P$ 's lobbying equals  $P$ 's contribution fee. Formally,*

$$u_{\pi}(y^*) - u_{\pi}(y^A) = \frac{C_P^*}{\int_{z \in P} dz}.$$

**Definition 2.** *An indifferent anti-policy individual  $\alpha$  is an individual whose gain from  $A$ 's lobbying equals  $A$ 's contribution fee. Formally,*

$$u_{\alpha}(y^*) - u_{\alpha}(y^P) = \frac{C_A^*}{\int_{z \in A} dz}.$$

The following proposition characterizes the lobbies' compositions in equilibrium. The proof of the proposition uses the fact that lobby  $P$ 's members prefer high policy levels while lobby  $A$ 's members prefer low policy levels. To reflect this conceptual difference between the two lobbies, it is required that in equilibrium lobby  $P$  and lobby  $A$  make contributions to the government in order to raise and to lower, respectively, the final policy outcome, i.e.,  $y^A \leq y^* \leq y^P$ .

**Proposition 2.** *If in equilibrium there exist lobby  $P$  and lobby  $A$ , then*

$$\begin{aligned} P &= (\pi, 1], \\ A &= [0, \alpha). \end{aligned}$$

Intuitively, since for indifferent individuals  $\pi$  and  $\alpha$  the gain from lobbying equals the contribution fee, then for individuals with more extreme preferences the gain from the policy change promoted by the corresponding lobby is definitely greater than the contribution fee (which is the same for all the lobby members). These individuals thus take part in lobbying.

To reflect the fact that in equilibrium each individual can belong either to one or to no lobby, the restriction  $\alpha \leq \pi$  is imposed. Furthermore, to formalize the assumption that the government's preferences are moderate (Section 2), I consider the following domain for the government's preferred policy:

$$\Gamma = [\alpha, \pi]. \tag{4.1}$$

The lobbies' gross objective functions read

$$\begin{aligned} U_P(y, \pi) &= \int_{\pi}^1 u_x(y) dx = -(1-\pi)y^2 + (1-\pi^2)y - \frac{1}{3}(1-\pi^3) + m(1-\pi), \\ U_A(y, \alpha) &= \int_0^{\alpha} u_x(y) dx = -\alpha y^2 + \alpha^2 y - \frac{1}{3}\alpha^3 + m\alpha. \end{aligned}$$

Then Proposition 1 and (3.2) imply the following corollary (the proof is straightforward).

**Corollary 1.** *The equilibrium policy level with two organized lobbies  $P$  and  $A$  is equal to*

$$y^*(\pi, \alpha, \gamma) = \frac{1 + \alpha^2 - \pi^2 + 2\gamma}{2(2 + \alpha - \pi)}.$$

The policies that would emerge if one of the lobbies did not contribute are given by

$$\begin{aligned} y^P(\pi, \gamma) &= \frac{1 - \pi^2 + 2\gamma}{2(2 - \pi)}, \\ y^A(\alpha, \gamma) &= \frac{\alpha^2 + 2\gamma}{2(1 + \alpha)}. \end{aligned}$$

The lobbies' equilibrium contributions in the case of two organized lobbies  $P$  and  $A$  are equal to

$$\begin{aligned} C_P^*(\pi, \alpha, \gamma) &= \frac{(1 - \pi)^2 (1 + \alpha + \pi + \pi\alpha - \alpha^2 - 2\gamma)^2}{4(1 + \alpha)(2 + \alpha - \pi)^2}, \\ C_A^*(\pi, \alpha, \gamma) &= \frac{\alpha^2 (1 - 2\alpha + \pi\alpha - \pi^2 + 2\gamma)^2}{4(2 - \pi)(2 + \alpha - \pi)^2}. \end{aligned}$$

In what follows, I show the existence of nonempty organized lobbies  $P$  and  $A$ , i.e., I find  $\pi$  and  $\alpha$  such that  $0 < \alpha \leq \gamma \leq \pi < 1$ .

## 5. Equilibrium

The following proposition establishes the existence of an equilibrium with two organized lobbies.

**Proposition 3.** *For the government's preferred policy  $\gamma \in [0.3, 0.7]$ , there exists an equilibrium with two nonempty lobbies  $P$  and  $A$  such that*

$$\begin{aligned} P &= (\pi^*(\gamma), 1], \\ A &= [0, \alpha^*(\gamma)), \end{aligned}$$

where  $\pi^*(\cdot)$  and  $\alpha^*(\cdot)$  are implicit functions of  $\gamma$  that satisfy

$$\begin{aligned} 1 + \alpha^* + \alpha^{*2} + 2\gamma - 3\pi^*(1 + \alpha^*) &= 0, \\ 1 - \pi^{*2} + 2\gamma - 3\alpha^*(2 - \pi^*) &= 0. \end{aligned}$$

Figure 1 depicts the shapes of the curves

$$\begin{aligned} 1 + \alpha + \alpha^2 + 2\gamma - 3\pi(1 + \alpha) &= 0, \\ 1 - \pi^2 + 2\gamma - 3\alpha(2 - \pi) &= 0 \end{aligned} \tag{5.1}$$

for different levels of the government's preferred policy  $\gamma$ . The shaded area represents  $\alpha \leq \gamma \leq \pi$ . In Figures 1a and 1c, the solution to (5.1) does not satisfy  $\alpha \leq \gamma \leq \pi$ . Indeed, the intersection of the curves (5.1) does not lie in the shaded area. In Figure 1b, however, the solution to (5.1) lies in the shaded area and thus yields an equilibrium  $\pi^*(\gamma)$ ,  $\alpha^*(\gamma)$ , which satisfies  $\alpha^*(\gamma) \leq \gamma \leq \pi^*(\gamma)$ . Numerical solution of this inequality yields  $\gamma \in [0.3, 0.7]$ .

The proof of Proposition 3 applies the implicit function theorem. In what follows, I use this theorem again to provide comparative-statics results.

**Proposition 4.** *The more pro-policy the government, the less numerous the pro-policy lobby  $P$  and the more numerous the anti-policy lobby  $A$  are, i.e.,*

$$\begin{aligned} \frac{d(1 - \pi^*)}{d\gamma} &< 0, \\ \frac{d\alpha^*}{d\gamma} &> 0. \end{aligned}$$

Moreover, the more pro-policy the government, the higher the equilibrium policy level, i.e.,

$$\frac{dy^*}{d\gamma} > 0.$$

Finally, the more pro-policy the government, the lower the pro-policy lobby  $P$ 's equilibrium contribution and the greater the anti-policy lobby  $A$ 's contribution, i.e.,

$$\begin{aligned} \frac{dC_P^*}{d\gamma} &< 0, \\ \frac{dC_A^*}{d\gamma} &> 0. \end{aligned}$$

Figure 2 depicts the lobbies' equilibrium compositions and the equilibrium policy level  $y^*$  for the government's preferred policy  $\gamma \in [0.3, 0.7]$ . Figure 3 presents the lobbies' equilibrium contributions for  $\gamma \in [0.3, 0.7]$ .

**Corollary 2.** *Under an anti-policy government, the pro-policy lobby  $P$  is more numerous and contributes more than the anti-policy lobby  $A$ . Lobbying favors pro-policy individuals, i.e., the equilibrium policy level is greater than the government's preferred level (the policy level that would emerge without lobbying) but still lower than a socially optimal outcome:*

$$1 - \pi^* > \alpha^*, \quad C_P^* > C_A^* \quad \text{and} \quad \gamma < y^* < 0.5 \quad \text{for} \quad \gamma < 0.5.$$

*Under a pro-policy government, the pro-policy lobby  $P$  is less numerous and contributes less than the anti-policy lobby  $A$ . Lobbying favors anti-policy individuals, i.e., the equilibrium policy level is lower than the government's preferred level but still greater than a socially optimal outcome:*

$$1 - \pi^* < \alpha^*, \quad C_P^* < C_A^* \quad \text{and} \quad 0.5 < y^* < \gamma \quad \text{for} \quad \gamma > 0.5.$$

*Under a utilitarian government, the lobbies are of the same size and contribute the same amount to the government. Lobbying does not affect the policy outcome, i.e., the equilibrium policy level is equal to the government's preferred level, which is socially optimal:*

$$1 - \pi^* = \alpha^*, \quad C_P^* = C_A^* \quad \text{and} \quad y^* = \gamma = 0.5 \quad \text{for} \quad \gamma = 0.5.$$

Thus, lobbying somewhat moderates the government's preferences and favors those individuals who are initially disadvantaged by the government's preferred policy. Consider a nonutilitarian government (either anti- or pro-policy). Then individuals whose preferences differ considerably from the government's have more stake in the policy than individuals with preferences similar to the government's. In other words, owing to the concavity of preferences, "disadvantaged" individuals are willing to pay more than "favored" individuals for the same (in absolute value) policy change. As a result, the lobby of "disadvantaged" individuals is more numerous and contributes more than the lobby of initially "favored" individuals. And the final policy becomes less extreme and goes in favor of the lobby with higher relative political strength, i.e., the lobby of individuals who are initially disadvantaged by the government's preferred policy.

Under a utilitarian government, lobbying does not affect the policy outcome. In this case the lobbies "neutralize" one another, so that in equilibrium  $P$ 's bids for a higher policy level are matched by  $A$ 's bids for a lower policy level, and political competition results in a socially optimal outcome. Nonetheless, each lobby must make a positive contribution in order to induce the government to choose this outcome rather than one that would be worse from that lobby's perspective.

The literature claims that the institute of lobbying favors richer strata of a society (Domhoff 1983, Mills 1956). However, the results presented here indicate that it is not wealth that determines the outcome of lobbying. My model of lobby formation predicts that lobbying over a particular policy issue prevents extremism and favors individuals who are initially disadvantaged by the government's preferences and therefore have more stake in that policy. These individuals are ready to contribute more to the government for a policy favor than are the individuals favored by the government's preferred policy.

Note that the equilibrium policy level under a pro-policy government is higher than that under an anti-policy government, with or without lobbying. Therefore, the pro-policy individuals would prefer a pro-policy government to an anti-policy one in spite of the fact that under the latter they could influence the final policy in their favor by lobbying. In turn, the anti-policy individuals would prefer an anti-policy government to a pro-policy one, even when they could lobby more successfully under a pro-policy government.

## 6. Conclusion

The present paper studies the impact of lobbying on government decision-making. I develop a model of endogenous lobby formation, which predicts that individuals with more extreme preferences are more likely to participate in lobbying. It follows that the lobbyists are rather extremists than moderates. However, the competition between the lobbies benefits the public at large resulting in a less extreme policy outcome relative to that initially preferred by the government. I show that lobbying somewhat moderates the government's preferences and favors individuals who are initially disadvantaged by the government's preferred policy. Indeed, under a pro-policy government, lobbying favors anti-policy individuals, i.e., the final policy outcome is somewhat more moderate than the one initially preferred by the pro-policy policymakers. Under an anti-policy government, lobbying moderates the final policy in favor of pro-policy individuals. In the case of a utilitarian government, lobbying does not affect the final policy, and political competition results in a socially optimal outcome. However, each lobby has to contribute the same amount to the government to maintain this policy level.

My paper therefore presents a formal argument in support of lobbying as a guard against extremism. According to my results, the competition between extreme special interests results in a quite moderate policy outcome, which would not be achieved with no lobbies around. Nevertheless this paper constitutes a partial attempt to study individual lobbying behavior and focuses on a specific form of the coordination among citizens. It might be interesting to consider different coordination mechanisms that citizens use to overcome the free-riding problem.<sup>6</sup> It might also be interesting to consider a nonsymmetric distribution of preferences. In this case, I expect that the qualitative results presented above will still hold (except, probably, those for the case of a utilitarian government).

---

<sup>6</sup>Smith (2000), in a systematic analysis of postwar lawmaking, showed that the public does overcome the free-riding problem in the case of issues that affect the interests of the majority of the population such as tax rates, air pollution and product liability.

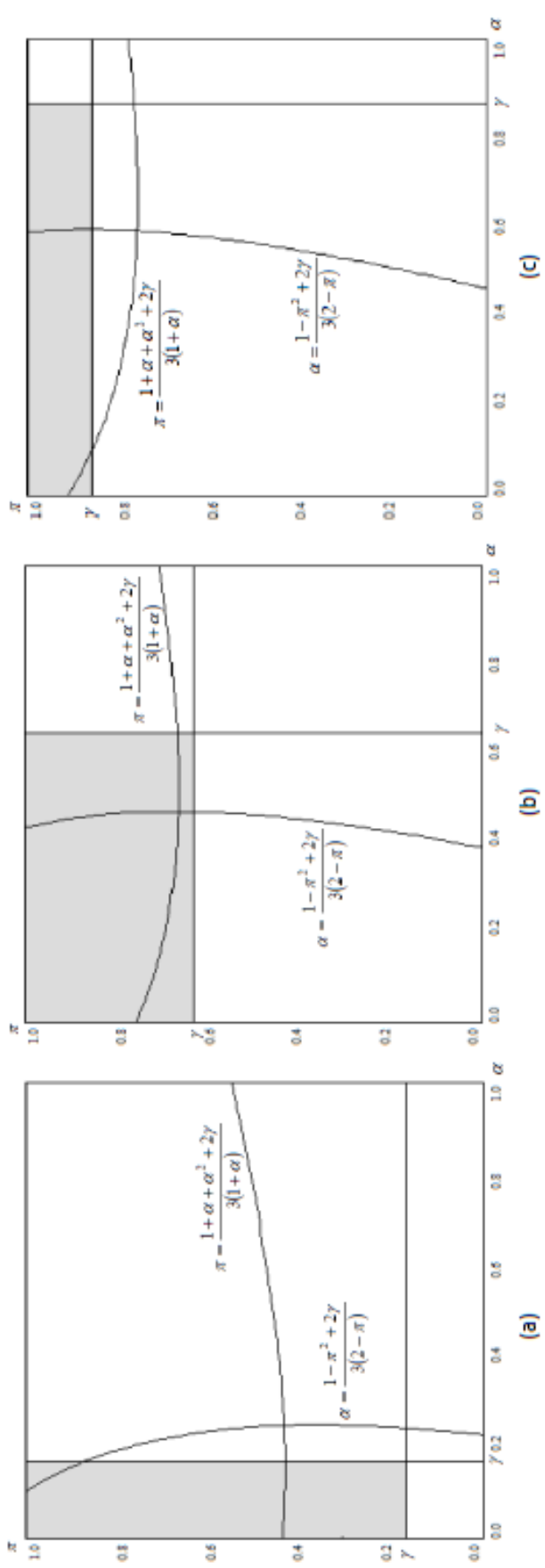


Figure 1.  $\pi$  as a function of  $\alpha$  and  $\alpha$  as a function of  $\pi$  for different levels of the government's preferred policy  $\gamma$ .



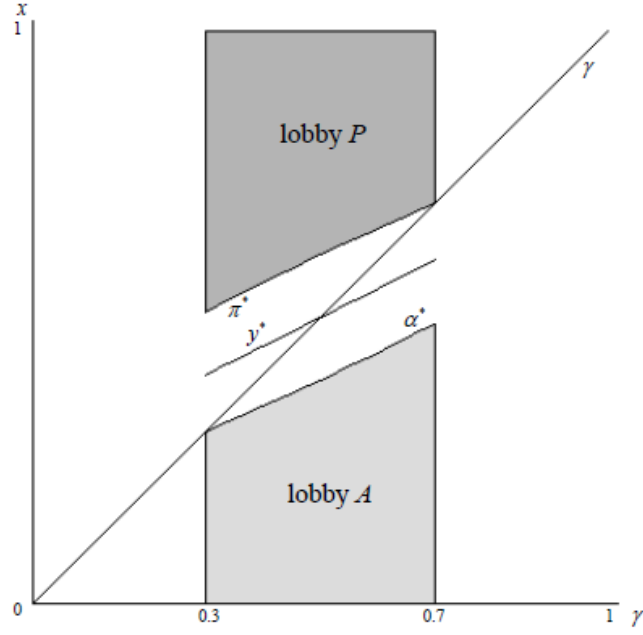


Figure 2. Equilibrium compositions of lobbies  $P$  and  $A$  and equilibrium policy level  $y^*$  for the government's preferred policy  $\gamma \in [0.3, 0.7]$ .

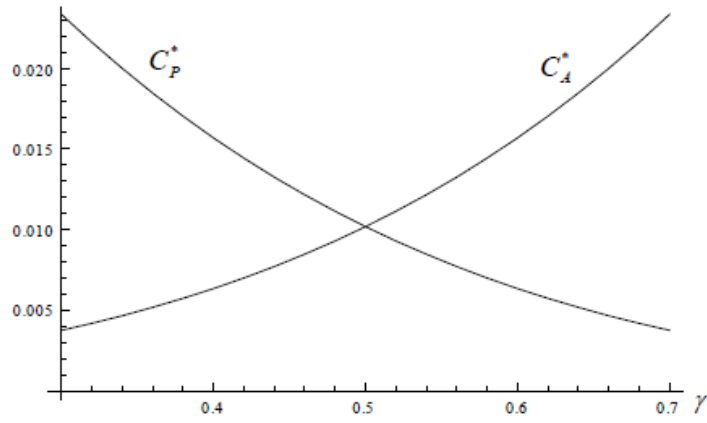


Figure 3. Equilibrium contributions of lobbies  $P$  and  $A$  for the government's preferred policy  $\gamma \in [0.3, 0.7]$ .

# Appendix

## A. Proof of Proposition 1

The lobbies' truthful contribution schedules are

$$\begin{aligned} C_P(y) &= \max[U_P(y) - b_P, 0], \\ C_A(y) &= \max[U_A(y) - b_A, 0]. \end{aligned} \tag{A.1}$$

The constants  $b_P$  and  $b_A$  in the lobbies' truthful contribution schedules satisfy

$$\begin{aligned} -(\gamma - y^A)^2 + C_A(y^A) &= -(\gamma - y^*)^2 + C_P(y^*) + C_A(y^*), \\ -(\gamma - y^P)^2 + C_P(y^P) &= -(\gamma - y^*)^2 + C_P(y^*) + C_A(y^*). \end{aligned} \tag{A.2}$$

Plugging (A.1) into (A.2) yields

$$\begin{aligned} U_P(y^*) - b_P &= -(\gamma - y^A)^2 + (\gamma - y^*)^2 + U_A(y^A) - U_A(y^*), \\ U_A(y^*) - b_A &= -(\gamma - y^P)^2 + (\gamma - y^*)^2 + U_P(y^P) - U_P(y^*), \end{aligned}$$

where the first line is lobby  $P$ 's equilibrium contribution  $C_P^*$ , and the second line is lobby  $A$ 's equilibrium contribution  $C_A^*$ . ■

## B. Proof of Proposition 2

Assume that in equilibrium there exists lobby  $P$ . Then

$$P = \left\{ x \mid u_x(y^*) - \frac{C_P^*}{\int_{z \in P} dz} > u_x(y^A) \right\}.$$

Taking into account the fact that  $y^A \leq y^*$ , the above inequality yields

$$x > \frac{1}{2} \left( y^* + y^A + \frac{1}{y^* - y^A} \frac{C_P^*}{\int_{z \in P} dz} \right).$$

The definition of an indifferent pro-policy individual  $\pi$  yields

$$\pi = \frac{1}{2} \left( y^* + y^A + \frac{1}{y^* - y^A} \frac{C_P^*}{\int_{z \in P} dz} \right).$$

The last two equations imply that in equilibrium, lobby  $P$  satisfies

$$P = (\pi, 1].$$

By analogy, if in equilibrium there exists lobby  $A$ , then

$$A = \left\{ x \mid u_x(y^*) - \frac{C_A^*}{\int_{z \in A} dz} > u_x(y^P) \right\}.$$

Taking into account the fact that  $y^* \leq y^P$  and the definition of an indifferent anti-policy individual  $\alpha$ , the above inequality yields

$$x < \frac{1}{2} \left( y^P + y^* + \frac{1}{y^P - y^*} \frac{C_A^*}{\int_{z \in A} dz} \right) = \alpha.$$

Therefore, in equilibrium, lobby  $A$  satisfies

$$A = [0, \alpha). \blacksquare$$

### C. Proof of Proposition 3

By the definition of indifferent pro- and anti-policy individuals  $\pi$  and  $\alpha$ ,

$$\begin{aligned} u_\pi(y^*(\pi, \alpha, \gamma)) - u_\pi(y^A(\alpha, \gamma)) &= \frac{C_P^*(\pi, \alpha, \gamma)}{\int_\pi^1 dz}, \\ u_\alpha(y^*(\pi, \alpha, \gamma)) - u_\alpha(y^P(\pi, \gamma)) &= \frac{C_A^*(\pi, \alpha, \gamma)}{\int_0^\alpha dz}. \end{aligned}$$

Plugging in the expressions for  $y^*(\pi, \alpha, \gamma)$ ,  $y^P(\pi, \gamma)$ ,  $y^A(\alpha, \gamma)$ ,  $C_P^*(\pi, \alpha, \gamma)$  and  $C_A^*(\pi, \alpha, \gamma)$  from Corollary 1 yields a system of two equations with two unknowns  $\pi$  and  $\alpha$

$$\begin{aligned} \frac{(1 - \pi)^2 (1 + \alpha + \pi + \pi\alpha - \alpha^2 - 2\gamma) (-1 - \alpha - \alpha^2 + 3\pi + 3\pi\alpha - 2\gamma)}{4(2 + \alpha - \pi)(1 + \alpha)^2} &= 0, \\ \frac{\alpha^2 (-1 + \pi^2 + 6\alpha - 3\pi\alpha - 2\gamma) (-1 + \pi^2 + 2\alpha - \pi\alpha - 2\gamma)}{4(2 + \alpha - \pi)(2 - \pi)^2} &= 0. \end{aligned}$$

This simplifies to

$$\begin{aligned} 1 + \alpha + \alpha^2 + 2\gamma - 3\pi(1 + \alpha) &= 0, \\ 1 - \pi^2 + 2\gamma - 3\alpha(2 - \pi) &= 0 \end{aligned} \tag{C.1}$$

and yields an equilibrium with two organized lobbies. Note that the functions (C.1) have continuous partial derivatives with respect to  $\gamma$ ,  $\pi$  and  $\alpha$ . Moreover, the following Jacobian determinant is nonzero:

$$\begin{aligned} |J| \equiv \left| \begin{array}{cc} \frac{\partial(1+\alpha+\alpha^2+2\gamma-3\pi(1+\alpha))}{\partial\pi} & \frac{\partial(1+\alpha+\alpha^2+2\gamma-3\pi(1+\alpha))}{\partial\alpha} \\ \frac{\partial(1-\pi^2+2\gamma-3\alpha(2-\pi))}{\partial\pi} & \frac{\partial(1-\pi^2+2\gamma-3\alpha(2-\pi))}{\partial\alpha} \end{array} \right| &= \\ &= 18 - 7\pi - 6\pi^2 + 15\alpha + 4\pi\alpha - 6\alpha^2, \end{aligned}$$

which is strictly positive for  $0 < \alpha \leq \pi < 1$ . Then, by the implicit function theorem, the equilibrium values  $\pi^*(\gamma)$  and  $\alpha^*(\gamma)$  are implicit functions of  $\gamma$  that satisfy (C.1).

Figure 1 depicts the behavior of the functions (C.1) for different levels of the government's preferred policy  $\gamma$ . (The shaded area corresponds to  $\alpha \leq \gamma \leq \pi$ .) An equilibrium exists for moderate levels of  $\gamma$  such that  $\alpha^*(\gamma) \leq \gamma \leq \pi^*(\gamma)$ . First,  $\alpha^*(\gamma) \leq \gamma$  yields numerically  $\gamma \geq 0.299554 \approx 0.3$ . Second,  $\gamma \leq \pi^*(\gamma)$  yields numerically  $\gamma \leq 0.700446 \approx 0.7$ . Thus, an equilibrium  $\pi^*(\gamma), \alpha^*(\gamma)$  exists for  $\gamma \in [0.3, 0.7]$ . ■

## D. Proof of Proposition 4

I use the implicit function theorem to find

$$\frac{d\pi^*}{d\gamma} = \frac{1}{|J|} \left| \begin{array}{cc} -\frac{\partial(1+\alpha+\alpha^2+2\gamma-3\pi(1+\alpha))}{\partial\gamma} & \frac{\partial(1+\alpha+\alpha^2+2\gamma-3\pi(1+\alpha))}{\partial\alpha} \\ -\frac{\partial(1-\pi^2+2\gamma-3\alpha(2-\pi))}{\partial\gamma} & \frac{\partial(1-\pi^2+2\gamma-3\alpha(2-\pi))}{\partial\alpha} \end{array} \right| = \frac{14 - 12\pi + 4\alpha}{18 - 7\pi - 6\pi^2 + 15\alpha + 4\pi\alpha - 6\alpha^2},$$

which is strictly positive for  $0 < \alpha \leq \pi < 1$ , and

$$\frac{d\alpha^*}{d\gamma} = \frac{1}{|J|} \left| \begin{array}{cc} \frac{\partial(1+\alpha+\alpha^2+2\gamma-3\pi(1+\alpha))}{\partial\pi} & -\frac{\partial(1+\alpha+\alpha^2+2\gamma-3\pi(1+\alpha))}{\partial\gamma} \\ \frac{\partial(1-\pi^2+2\gamma-3\alpha(2-\pi))}{\partial\pi} & -\frac{\partial(1-\pi^2+2\gamma-3\alpha(2-\pi))}{\partial\gamma} \end{array} \right| = \frac{6 - 4\pi + 12\alpha}{18 - 7\pi - 6\pi^2 + 15\alpha + 4\pi\alpha - 6\alpha^2},$$

which is strictly positive for  $0 < \alpha \leq \pi < 1$ .

For the equilibrium policy level,

$$\frac{dy^*}{d\gamma} = \frac{\partial y^*}{\partial \pi^*} \frac{d\pi^*}{d\gamma} + \frac{\partial y^*}{\partial \alpha^*} \frac{d\alpha^*}{d\gamma} + \frac{\partial y^*}{\partial \gamma} = \frac{40 - 64\pi + 29\pi^2 - 2\pi^3 + 56\alpha - 50\pi\alpha + 14\pi^2\alpha + 37\alpha^2 - 14\pi\alpha^2 + 2\alpha^3 + 8\gamma(1 - \pi - \alpha)}{(2 - \pi + \alpha)^2 (18 - 7\pi - 6\pi^2 + 15\alpha + 4\pi\alpha - 6\alpha^2)},$$

which is strictly positive for  $0 < \alpha \leq \gamma \leq \pi < 1$ .

Finally, consider the lobbies' equilibrium contributions:

$$\begin{aligned} \frac{dC_P^*}{d\gamma} &= \frac{\partial C_P^*}{\partial \pi^*} \frac{d\pi^*}{d\gamma} + \frac{\partial C_P^*}{\partial \alpha^*} \frac{d\alpha^*}{d\gamma} + \frac{\partial C_P^*}{\partial \gamma} = \\ &= \frac{(1 - \pi)(1 + \alpha + \pi + \pi\alpha - \alpha^2 - 2\gamma)}{2(2 - \pi + \alpha)^3(1 + \alpha)^2(18 - 7\pi - 6\pi^2 + 15\alpha + 4\pi\alpha - 6\alpha^2)} \cdot \\ &= (-58 + 65\pi + 10\pi^2 - 31\pi^3 + 10\pi^4 - 163\alpha + 125\pi\alpha + 59\pi^2\alpha - 51\pi^3\alpha + 10\pi^4\alpha - 147\alpha^2 + \\ &\quad 51\pi\alpha^2 + 84\pi^2\alpha^2 - 22\pi^3\alpha^2 - 15\alpha^3 - 39\pi\alpha^3 + 34\pi^2\alpha^3 + 28\alpha^4 - 26\pi\alpha^4 + 4\alpha^5 + 52\gamma - \\ &\quad 70\pi\gamma + 26\pi^2\gamma - 4\pi^3\gamma + 130\alpha\gamma - 138\pi\alpha\gamma + 24\pi^2\alpha\gamma + 80\alpha^2\gamma - 60\pi\alpha^2\gamma + 8\alpha^3\gamma), \end{aligned}$$

which is strictly negative for  $0 < \alpha \leq \gamma \leq \pi < 1$ , and

$$\begin{aligned} \frac{dC_A^*}{d\gamma} &= \frac{\partial C_A^*}{\partial \pi^*} \frac{d\pi^*}{d\gamma} + \frac{\partial C_A^*}{\partial \alpha^*} \frac{d\alpha^*}{d\gamma} + \frac{\partial C_A^*}{\partial \gamma} = \\ &= \frac{\alpha(1 - 2\alpha + \pi\alpha - \pi^2 + 2\gamma)}{2(2 - \pi + \alpha)^3(2 - \pi)^2(18 - 7\pi - 6\pi^2 + 15\alpha + 4\pi\alpha - 6\alpha^2)} \cdot \\ &= \frac{(24 - 40\pi - 2\pi^2 + 36\pi^3 - 22\pi^4 + 4\pi^5 + 138\alpha - 209\pi\alpha + 24\pi^2\alpha + 75\pi^3\alpha - 26\pi^4\alpha - 33\alpha^2 + 128\pi\alpha^2 - 120\pi^2\alpha^2 + 34\pi^3\alpha^2 - 28\alpha^3 + 55\pi\alpha^3 - 22\pi^2\alpha^3 - 20\alpha^4 + 10\pi\alpha^4 + 48\gamma - 80\pi\gamma + 44\pi^2\gamma - 8\pi^3\gamma + 180\alpha\gamma - 210\pi\alpha\gamma + 60\pi^2\alpha\gamma + 38\alpha^2\gamma - 24\pi\alpha^2\gamma + 4\alpha^3\gamma)}{2(2 - \pi + \alpha)^3(2 - \pi)^2(18 - 7\pi - 6\pi^2 + 15\alpha + 4\pi\alpha - 6\alpha^2)}, \end{aligned}$$

which is strictly positive for  $0 < \alpha \leq \gamma \leq \pi < 1$ . ■

## E. Proof of Corollary 2

First, consider the case of a utilitarian government, where  $\gamma = 0.5$ . The system (C.1) yields the following closed-form solution for  $\gamma = 0.5$ :

$$\begin{aligned} \pi^* &= \frac{9 - \sqrt{17}}{8}, \\ \alpha^* &= \frac{-1 + \sqrt{17}}{8}. \end{aligned}$$

Then, for  $\gamma = 0.5$ ,

$$\begin{aligned} y^* &= \frac{2 + \alpha^{*2} - \pi^{*2}}{2(2 + \alpha^* - \pi^*)} = 0.5, \\ C_P^* &= \frac{(1 - \pi^*)^2 (\alpha^* + \pi^* + \pi^*\alpha^* - \alpha^{*2})^2}{4(1 + \alpha^*)(2 + \alpha^* - \pi^*)^2} = \frac{199 - 47\sqrt{17}}{512}, \\ C_A^* &= \frac{\alpha^2(2 - 2\alpha + \pi\alpha - \pi^2)^2}{4(2 - \pi)(2 + \alpha - \pi)^2} = \frac{199 - 47\sqrt{17}}{512}. \end{aligned}$$

Therefore,  $1 - \pi^* = \alpha^*$ ,  $C_P^* = C_A^*$  and  $y^* = \gamma$  for  $\gamma = 0.5$ .

Second, consider the cases of anti-policy ( $\gamma < 0.5$ ) and pro-policy ( $\gamma > 0.5$ ) governments. Since  $1 - \pi^*$  is a decreasing function of  $\gamma$  and  $\alpha^*$  is an increasing function of  $\gamma$ ,

$$\begin{aligned} 1 - \pi^* &> \frac{-1 + \sqrt{17}}{8} \text{ and } \alpha^* < \frac{-1 + \sqrt{17}}{8} \text{ for } \gamma < 0.5 \Rightarrow 1 - \pi^* > \alpha^* \text{ for } \gamma < 0.5, \\ 1 - \pi^* &< \frac{-1 + \sqrt{17}}{8} \text{ and } \alpha^* > \frac{-1 + \sqrt{17}}{8} \text{ for } \gamma > 0.5 \Rightarrow 1 - \pi^* < \alpha^* \text{ for } \gamma > 0.5. \end{aligned}$$

Next, consider the lobbies' equilibrium contributions. Since  $C_P^*$  decreases with  $\gamma$  and  $C_A^*$

increases with  $\gamma$ ,

$$\begin{aligned} C_P^* &> \frac{199 - 47\sqrt{17}}{512} \text{ and } C_A^* < \frac{199 - 47\sqrt{17}}{512} \text{ for } \gamma < 0.5 \Rightarrow C_P^* > C_A^* \text{ for } \gamma < 0.5, \\ C_P^* &< \frac{199 - 47\sqrt{17}}{512} \text{ and } C_A^* > \frac{199 - 47\sqrt{17}}{512} \text{ for } \gamma > 0.5 \Rightarrow C_P^* < C_A^* \text{ for } \gamma > 0.5. \end{aligned}$$

For the equilibrium policy level, note that

$$\begin{aligned} \frac{d(y^* - \gamma)}{d\gamma} &= \frac{1}{(2 - \pi + \alpha)^2 (18 - 7\pi - 6\pi^2 + 15\alpha + 4\pi\alpha - 6\alpha^2)} \cdot \\ &\quad (-32 + 36\pi + 7\pi^2 - 19\pi^3 + 6\pi^4 - 76\alpha + 58\pi\alpha + 25\pi^2\alpha - 16\pi^3\alpha - 17\alpha^2 - \\ &\quad 17\pi\alpha^2 + 20\pi^2\alpha^2 + 11\alpha^3 - 16\pi\alpha^3 + 6\alpha^4 + 8\gamma(1 - \pi - \alpha)) \end{aligned}$$

is strictly negative for  $0 < \alpha \leq \gamma \leq \pi < 1$ . Therefore,  $y^* - \gamma$  decreases with  $\gamma$ . Since  $y^* - \gamma = 0$  for  $\gamma = 0.5$ ,

$$\begin{aligned} y^* - \gamma &> 0 \text{ for } \gamma < 0.5, \\ y^* - \gamma &< 0 \text{ for } \gamma > 0.5. \blacksquare \end{aligned}$$

## References

- [1] Anesi, V. (2009). "Moral Hazard and Free Riding in Collective Action." *Social Choice and Welfare*, 32, 197-219.
- [2] Austen-Smith, D. (1997). "Interest Groups: Money, Information, and Influence." In *Perspectives on Public Choice. A Handbook*, edited by D. C. Mueller. Cambridge University Press.
- [3] Baron, D. (1989). "Service-Induced Campaign Contributions and the Electoral Equilibrium." *Quarterly Journal of Economics*, 104, 45-72.
- [4] Becker, G.S. (1983). "A Theory of Competition among Pressure Groups for Political Influence." *Quarterly Journal of Economics*, 98, 371-400.
- [5] Becker, G.S. (1985). "Public Policies, Pressure Groups and Deadweight Costs." *Journal of Public Economics*, 28, 330-347.
- [6] Bernheim, B.D. and Whinston, M.D. (1986). "Menu Auctions, Resource Allocation, and Economic Influence." *Quarterly Journal of Economics*, 101, 1-31.

- [7] Besley, T. and Coate, S. (1997). "An Economic Model of Representative Democracy." *Quarterly Journal of Economics*, 112, 85-114.
- [8] Bombardini, M. (2008). "Firm Heterogeneity and Lobby Participation." *Journal of International Economics*, 75, 329-348.
- [9] Carpenter, J.P. (2007). "Punishing Free-Riders: How Group Size Affects Mutual Monitoring and the Provision of Public Goods." *Games and Economic Behavior*, 60, 31-51.
- [10] Damania, R. and Fredriksson, P.G. (2000). "On the Formation of Industry Lobby Groups." *Journal of Economic Behavior & Organization*, 41, 315-335.
- [11] Damania, R. and Fredriksson, P.G. (2003). "Trade Policy Reform, Endogenous Lobby Group Formation, and Environmental Policy." *Journal of Economic Behavior & Organization*, 52, 47-69.
- [12] DeKieffer, D.E. 2007. The Citizen's Guide to Lobbying Congress: Revised and Updated. Chicago Review Press. Chicago IL.
- [13] Dixit, A., Grossman, G.M. and Helpman, E. (1997). "Common Agency and Coordination: General Theory and Application to Government Policy Making." *Journal of Political Economy*, 105, 752-769.
- [14] Domhoff, G.W. (1983). Who Rules America now? Englewood Cliffs, NJ: Prentice-Hall.
- [15] Drazen, A., Limão, N. and Stratmann, T. (2007). "Political Contribution Caps and Lobby Formation: Theory and Evidence." *Journal of Public Economics*, 91, 723-754.
- [16] Felli, L. and Merlo, A. (2006). "Endogenous Lobbying." *Journal of the European Economic Association*, 4, 180-215.
- [17] Felli, L. and Merlo, A. (2007). "If You Cannot Get Your Friends Elected Lobby Your Enemies." *Journal of the European Economic Association*, 5, 624-635.
- [18] Fehr, E. and Gächter, S. (2000). "Cooperation and Punishment in Public Goods Experiments." *American Economic Review*, 90, 980-994.
- [19] Fehr, E. and Gächter, S. (2002). "Altruistic Punishment in Humans." *Nature*, 415, 137-140.
- [20] Furusawa, T. and Konishi, H. (2011). "Contributing or Free-Riding? Voluntary Participation in a Public Good Economy." *Theoretical Economics*, 6, 219-256.

- [21] Glazer, A. and Gradstein, M. (2005). "Elections with Contribution-Maximizing Candidates." *Public Choice*, 122, 467-482.
- [22] Grossman, G.M. and Helpman, E. (1994). "Protection for Sale." *American Economic Review*, 84, 833-850.
- [23] Grossman, G.M. and Helpman, E. (1996). "Electoral Competition and Special Interest Politics." *Review of Economic Studies*, 63, 265-286.
- [24] Grossman, G.M. and Helpman, E. (2001). *Special Interest Politics*. MIT Press.
- [25] Helpman, E. and Persson, T. (2001). "Lobbying and Legislative Bargaining." *Advances in Economic Analysis & Policy*, 1, Article 3.
- [26] Herrmann, B., Thöni, C. and Gächter, S. (2008). "Antisocial Punishment Across Societies." *Science*, 319, 1362-1367.
- [27] Laussel, D.G. (2006). "Special Interest Politics and Endogenous Lobby Formation." *Topics in Theoretical Economics*, 6, Article 1.
- [28] Leaver, C. and Makris, M. (2006). "Passive Industry Interests in a Large Polity." *Journal of Public Economic Theory*, 8, 571-602.
- [29] Magee, C. (2002). "Endogenous Trade Policy and Lobby Formation: an Application to the Free-Rider Problem." *Journal of International Economics*, 57, 449-471.
- [30] McCarty, N., Poole, K. and Rosenthal, H. (2006). *Polarized America*. MIT Press.
- [31] Mills, C.W. (1956). *The Power Elite*. New York: Oxford University Press.
- [32] Mitra, D. (1999). "Endogenous Lobby Formation and Endogenous Protection: A Long-Run Model of Trade Policy Determination." *American Economic Review*, 89, 1116-1134.
- [33] Olson, M. (1965). *The Logic of Collective Action: Public Goods and the Theory of Groups*. Harvard University Press.
- [34] Osborne, M.J. and Slivinski, A. (1996). "A Model of Political Competition with Citizen-Candidates." *Quarterly Journal of Economics*, 111, 65-96.
- [35] Persson, T. (1998). "Economic Policy and Special Interest Politics." *Economic Journal*, 108, 310-327.



- [36] Persson, T. and Tabellini, G. (2002). Political Economics: Explaining Economic Policy. MIT Press.
- [37] Redoano, M. (2010). "Does Centralization Affect the Number and Size of Lobbies?" *Journal of Public Economic Theory*, 12, 407-435.
- [38] Smith, M.A. (2000). American Business and Political Power: Public Opinion, Elections, and Democracy. Chicago: University of Chicago Press.
- [39] Snyder, J. (1990). "Campaign Contributions as Investments: The U.S. House of Representatives, 1980-86." *Journal of Political Economy*, 98, 1195-1227.