

Contestable Policies

Gil S. Epstein

Bar-Ilan University, Israel, CReAM, London and IZA, Bonn

Email: gil.epstein@biu.ac.il

Shmuel Nitzan

Bar-Ilan University, Israel

Email: nitzans@biu.ac.il

Abstract

In usual rent-seeking models, the prize is fixed and predetermined. Often, however, the contest involves the policy that is the source of rents, with gainers and losers engaging in lobbying to influence policy decisions. This chapter describes such policy contests. Insofar as resources are wastefully used in lobbying, the activity of lobbying is a case of socially unproductive rent seeking. Or rent seeking may occur in the quest for the position of the politician who benefits from the policy contest. The policy-contest models do not identify the social costs of lobbying or rent seeking but focus on describing the various equilibrium outcomes that can arise, including outcomes in which the politically chosen policy is more extreme than the policy sought by interest groups competing to influence policy.

JEL classification: D72, D6

Keywords: Public-policy contests , Interest groups, endogenous lobbying targets,

voluntary restraint, polarization, voluntary restraint.

1. Introduction

Rent-seeking models assume a contest for a fixed prize and focus on the social cost of resources used in contesting the prize (Nitzan 1994; Hillman 2013). The decision maker who assigns the prize to the successful rent seeker is not explicitly present in the models. The proxy for the presence of the assigner of rents is the contest-success function.

In another class of models, the assigner of rents is explicitly present. The rent-seeking prize is moreover endogenous and is influenced by lobbying to influence political decisions. Hillman and Riley (1989) used the term “transfer contests” to describe such contests in which policies and rents are endogenous and losers in a contest make transfers to gainers. Appelbaum and Katz (1986) had observed that the social cost in contests with gainers and losers includes the resources used in seeking to become the beneficiary of a policy and to avoid paying for the income transfer to another group. Models in which social costs include resources used by consumers in opposing the granting of monopoly, protectionist or other privileges fall into this category (Ellingsen 1991, Fabella 1995), as do models in which a political decision maker maximizes a political-support function in which the granting of benefits to interest groups is constrained by consumer or voter opposition (Peltzman 1976; Hillman 1982; Grossman and Helpman 1994). These models either set out the social cost of rent seeking when there is countervailing opposition or establish the politically chosen policy based on equilibrium conditions in which political costs and benefits of choosing policy equal at the margin.

This chapter shows how more complexity can be introduced into the determination of the politically chosen policy when interest groups seek to influence policy outcomes. The policy is chosen by a unitary politician and any political competition (see Hillman and Ursprung 1988) if present is implicit. The framework for policy contests that enables the simultaneous study of influence or rent-seeking activity and public-policy determination, proposed in Epstein and Nitzan (2002), is presented sections 3 and 4. The framework shows the dual importance of the government as an agenda setter and as a decision maker that approves or rejects policy proposals, while highlighting the significance of lobbying by organized interest groups engaged in rent-seeking activities. The

basic model of competition among interest groups is along the lines of the theme of Becker (1983), whose focus was, however, on the deadweight losses (Harberger triangles) associate with redistribution from losers to gainers in a simplified framework.¹

This chapter also describes a micro-foundation for political-support and contest success functions. Politicians or bureaucrats are viewed as choosing policies taking into account both the lobbying outlays of interest groups and the welfare of the general public, as in the political-support models.² The lobbying outlays may benefit the politician or bureaucrat (see for example Congleton 1989, 2004; Congleton and Lee 2009). A simple, fundamental condition that rationalizes random behavior of political decision makers also ensures the existence of the CSF that is assumed exogenous in the contest literature.³

The most commonly used CSFs are logit-form functions emanating from Tullock (1980) and the function associated with all-pay auctions that awards the prize to the highest outlay (Hillman and Samet 1987). In many expositions of public-policy contests, the government is assumed to be a passive player that only randomly approves or rejects policy proposals (see Epstein and Nitzan 2003, 2004), as in the standard contest literature. In the extended public-policy contest described in this chapter, the government or political or bureaucratic decision maker is an active rational 'principal' who determines policy in two senses; he or she proposes the policy and randomly approves or rejects the policy. On the one hand, the political or bureaucratic decision maker acts rationally in selecting a proposed policy anticipating the lobbying efforts of interest groups or in setting the agenda; on the other hand, the political or bureaucratic decision maker acts randomly (seemingly "irrationally") in approving or rejecting the proposed policy. This chapter will show that, under an appropriate mix of objectives encompassing the public welfare and the objective of seeking lobbying outlays, random behavior is rational. The rationalization of the most widely studied contests will be

¹ See also Glazer and McMillan (1992) and Aidt (2003).

² The lobbying efforts on which we focus are interpreted as resources that buy influence (e.g., campaign contributions) rather than resources involved in the dissemination of information by one means or another. For a detailed discussion on these alternative lobbying activities, see Grossman and Helpman (2001).

³ For an axiomatic characterization of CSFs, see Skaperdas (1996).

illustrated and the conditions clarified under which a Tullock logit-form CSF is preferred, equivalent, or inferior to the Hillman-Samet all-pay auction.

Lobbying is a part of the policy-making process in representative democracies.⁴ Hillman and Ursprung (1988) described lobbying in the context of political competition with interest groups making campaign contributions to candidates who announce policies to maximize the candidates' respective probabilities of electoral success. Grossman and Helpman (1996), modeling lobbying as a "menu-auction", also studied a Downsian model of electoral competition in which candidates chose policies to maximize their probabilities of winning; the common-agency setting for lobbying leads candidates to select policies that are a compromise between the policy preferences of voters and the lobbies, as in the models of political-support models of Peltzman (1976), Hillman (1982), and Grossman and Helpman (1994).

Building on Besley and Coate (1997, 2001), Felli and Merlo (2001) study a citizen-candidate model of electoral competition with "menu-auction" lobbying, assuming that the elected policy maker selects the lobbies that take part in the policy-making process. In their elaborate model, the equilibrium policy outcome is again a compromise, in this case between the policy preferences of the elected candidate and those of the (at most two) lobbies chosen by the policy maker.

In contrast to this literature, Glazer, Gradstein and Konrad (1998) demonstrate that extreme policies may appear not in spite of, but because of, political opposition. More specifically, an incumbent may gain political support by adopting a policy the challenger is more likely to change. The awareness of voters of the high cost of the more likely policy change induces them to support the extreme policy proposed by the incumbent.⁵

⁴ There are numerous studies (for example, Congleton 1986, 1991; Grossman and Helpman 2001; Persson and Tabellini 2000). Congleton (1991) develops a model of rent seeking encompassing voting, ideology, and rent seeking matter. He shows how voter ideology is a constraint on the rent-seeking game as well as a possible avenue of rent seeking. In a setting where there are both rent-seeking and ideological interest groups, rent-seekers can free ride on the efforts of ideologues, which tends to reduce rent-seeking effort. In a setting in which complementary economic and ideological interest groups coordinate their efforts, both rent-seeking and ideological conflict tend to increase.

⁵ The examples that are given by the authors are anti-abortion stands by the Republican Party in the United States, pro-affirmative action positions by the Democratic Party in the United States, adoption of

In a "menu-auction", an equilibrium comprises a set of contribution schedules that are optimal for the interest groups in light of the anticipated behavior of the politician who selects a policy that is his best response to the implicit offers of the interest groups. A complete political-economic equilibrium should however include the policy proposals that are optimal for the interest groups in light of the anticipated outcome of the lobbying contest that hinges on their lobbying efforts.⁶ In Epstein and Nitzan (2004), a reduced-form, two-stage lobbying game is described in which policies and rent-seeking activities are analyzed simultaneously. The policies proposed by the contenders tend to be restrained to reduce rent-seeking losses. In that model, as we show below, the implemented (winning) policy is always a compromise, that is, it belongs to the interior of the interval defined by the interest groups' (ex-post) preferred policies. However, in an imperfectly discriminating contest, the proposals of the different groups will not coincide. Munster (2006) shows that in a perfectly discriminating contest (an all-pay auction), the proposed policies also tend to be restrained. In contrast to Epstein and Nitzan (2004), Munster (2006) demonstrates that the policy proposals in the all-pay auction may coincide.

In these models, there are three players consisting of two interest groups and a two-tier government. One interest group is "a challenger" who is interested in the approval of the proposed policy. A second interest group is "a defender" who prefers the status quo and is therefore interested in the rejection of the proposed policy. The government consists of an elected politician who sets the agenda (proposes a policy that along with the status quo constitutes the agenda) and approves or rejects the proposed policy.

In this chapter, we show that, within a general class of this public-policy contest, contrary to the findings of Grossman and Helpman (1996), Felli and Merlo (2001) and Epstein and Nitzan (2004), lobbying may result in the proposal and implementation of an extreme policy. In other words, lobbying is not necessarily

the poll tax by the Thatcher government in the United Kingdom, and privatization in former Communist countries of Eastern Europe.

⁶ The interest groups can also try and influence the proposed policy. In our setting the proposed policy is not directly affected by the lobbying groups. However, it is indirectly affected by the interest groups in light of the awareness of the politician who proposes the policy to the lobbying efforts of the interest groups and their effect on the outcome of the contest.

compromise enhancing. This result crucially depends on the policy maker (the politician in our case) being a 'principal' and on his having an effective incentive to be extreme. The existence of such an incentive hinges on the payoffs (contest stakes) of the interest groups and their dependence on the implemented policy and on the preferences of the policy maker; in contrast, Epstein and Nitzan (2004) and Munster (2006) consider the case where two interest groups compete over the approval of a policy that each of them proposes. When lobbying outlays are positively related to the policy set by the politician, the stronger the political rent-extraction motive, as represented by the weight assigned to the lobbying outlays, the more extreme is the proposed policy.

It is therefore possible that the defender and the challenger of the status quo prefer a policy that is less radical and more efficient than the policy proposed by the politician. In particular, it is possible that more than the calf (challenger of the status-quo policy) wishes to suck, the cow (politician) desires to suckle. When this happens, the politician is more concerned than the challenger about enhancing the latter's interest.⁷

An example of policies in which lobbying can give rise to a proposed policy that is more extreme than the proposals preferred by the interest groups is the determination of a minimum wage (see Grossman and Helpman 2001, Chapter 8.2), where the proposed minimum wage is more extreme than the union's most preferred wage. Another example is migration quotas: governments can determine quotas that may well exceed the quota preferred by the capital owner who takes part in the political contest over the quota, and this quota can be lower than the capital owner's sought number of immigrants in a situation in which the quota is approved with certainty (or there is no political contest on the determination of the quota).⁸

⁷ Esteban and Ray (1999) observe that in a classical contest game where the two players not only have to decide about how much lobbying effort to provide, but also for which alternative they want to lobby, all lobbyists will always invest their effort in favor of their most preferred policy alternative. Hence we would have expected that agenda setting does not harm the interest groups while enhancing a compromise. As mentioned above, we show that this is not the case and that the proposed policy may well be more extreme even relative to the ideal certain proposal of the challenger. Note that if the proposed equilibrium policy is approved, it is also implemented because, ex-post, the challenger prefers it to his ex-ante most preferred policy.

⁸ See for example Boeri, Hanson and McCormick (2002). The price determined for a regulated monopoly – Peltzman (1976), Congleton (1988), Baik (1999), Epstein and Nitzan (2003) or the degree of restriction of bank branching (Kroszner and Strahan 1999) is also by the reasoning above an example where the

We start by presenting the micro foundations for a contest created by a politician and then discuss the self-restraint in policy set by a specific interest group. We proceed by considering policy restraint in a model of two interest groups, each restraining their proposed policy and finally consider the government as an active player determining the public policy contest. The results presented in this chapter are to be found in Epstein and Nitzan (2003, 2004, 2006a, 2006c) and other cited papers.

2. The policy contest

Suppose that a policy I is proposed by the government. Two interest groups, contestants i and j , compete on the approval or rejection of I . Approval is the preferred policy for player i , whereas rejection of the proposed policy is the preferred policy for player j . Approval implies that player i wins the contest. The present discounted value of the preferred outcome to player i is equal to u_i and the value of this outcome to his opponent, player j , is equal to v_j . Approval of the proposed policy is associated with a positive payoff for player i , since, by assumption, $u_i > v_i$. Similarly, rejection is associated with a positive payoff for player j , since, $u_j > v_j$. Note that the players' payoffs corresponding to the approval and rejection of the policy I depend on I . Player i 's preferred contest outcome, namely the approval of I , is reached in probability Pr_i . The probability of player j 's preferred contest outcome is Pr_j , $Pr_j = 1 - Pr_i$. These winning probabilities depend on the efforts made by the two contestants, x_i and x_j . The efforts of the players, x , affect the winning probability since they are directed at the government/politicians affecting their decision-making. Examples for such transfers to the politicians could be efforts invested in advertisement and public relations that benefit the politician, campaign contributions, bribes and other benefits for the rent extractor, which he may seek to maximize (see for example Congleton 2004, and Congleton and Lee, 2009).
can be seen as

The expected net payoff of the risk-neutral player i is equal to:

proposed policy can be more extreme than the policy that would have been proposed by the relevant interest groups. See also the policies in Glazer, Gradstein and Konrad (1998).

$$E(w_i) = \Pr_i u_i(I) + \Pr_j v_i(I) - x_i, i \neq j \quad (1)$$

Denote by $n_i = (u_i - v_i)$ the stake of player i (his benefit from winning the contest), (see Baik, 1999, Epstein and Nitzan, 2002, 2007 and Nti, 1999). The expected net payoff of interest group i can be rewritten as follows:

$$E(w_i) = v_i(I) + \Pr_i n_i(I) - x_i \quad (2)$$

In general, the stakes of the contestants may differ, one of them having an advantage over the other in terms of his benefit from winning the contest. In such cases, we will refer to the advantageous higher stake contestant as player H and to his opponent, the lower stake contestant as player L , so $n_L \leq n_H$.

Since $v_i(I)$ is the minimum benefit obtained by interest group/contestant i , regardless of the outcome of the contest, we can concentrate on his expected net payoff, disregarding this value. Such a simplification will no longer be legitimate when changes in the proposed policy I are allowed to affect the different contest outcomes. At this stage, however, the objective function of the contestant can be written as

$$E(u_i) = \Pr_i n_i(I) - x_i \quad (3)$$

We will refer to this expression as the net payoff of the contestant.

2.1 Contest equilibrium

The function that specifies the winning probabilities of the contestants corresponding to their efforts, the contest success function (CSF), is an important component of the policy contest. In this section we focus on contest equilibrium under two specific contest success functions. These CSF's are the most commonly assumed functions in the contest literature. The first is the logit CSF, first studied by Tullock (1980), under which the probability of winning the contest is a continuous function of the efforts invested in the contest. The second CSF, which is not continuous, is often applied in auctions. This CSF is referred to as the all-pay

auction (see Hillman and Samet 1987; Hillman and Riley 1989) and unambiguously determines the contest winner by comparing the expenditures of the contestants. The contest equilibrium outcome derived under the above two CSF's consists of the contestants' efforts (lobbying expenditures, influence activities, rent-seeking outlays) that directly yield their winning probabilities and their expected net payoff.

The logit (generalized lottery) CSF

The logit contest success function which is also referred to as the generalized lottery function (Tullock 1980, Lockard and Tullock, 2001) is given by:

$$Pr_i = \frac{g x_i^r}{g x_j^r + x_i^r} \text{ for } r \leq 2 \text{ and } g > 0. \text{ The return to effort according to this}$$

lottery function is captured by the parameter r . The other parameter g is positive. If $g > 1$, then player i has an advantage over player j in terms of ability to affect the contest outcome, that is, in terms of ability to turn effort into winning probability

2.3 The all-pay auction

Under the all-pay auction the contestant who makes the larger effort wins with probability one. If the two contestants make the same effort, then the winner is chosen randomly. The probability of winning (Hillman and Riley (1989) is thus given by

$$Pr_i = \begin{cases} 1 & \text{if } x_i > x_j \\ 0.5 & \text{if } x_i = x_j \\ 0 & \text{if } x_j > x_i \end{cases} \quad (4)$$

3. The rationalization of a contest

The government could decide to select the policy that results in the realization of the above policy, i.e., to select the policy that generates the highest benefit to one of the interest groups: the stake n_H for group H (H for the group with the higher

stake). The group with the lower stake is denoted group L . An alternative option for the government is to choose randomly between the two different policies that it faces. Even though the government chooses randomly, the interest groups may affect the choice probabilities. Clearly, if the utility the government derives from the selection of a policy is positively related to the aggregate net payoffs (stakes) of the interest groups, then it would never randomize, that is, it would select the policy that generates the higher stake. The probabilities of realization of the two policies in the complete-information public-policy contest are given by the contest success function (CSF). This function specifies the relationship between the interest groups' investment in the so called influence, lobbying or rent-seeking activities and the probability of realization of the two policies. The expected payoff of interest group i is given by $E(u_i)$ and the effort invested by each interest group is denoted by x_i .

As commonly assumed in the political economy literature,⁹ let the government's objective function be a weighted average of the expected social welfare and lobbying efforts:

$$G(.) = \alpha(E(u_L) + E(u_H)) + (1 - \alpha)(x_L + x_H) \quad (5)$$

The parameters α and $(1 - \alpha)$ are the weights assigned to the expected social welfare and the contestants' lobbying outlays.¹⁰ If the government decides not to generate a contest and choose the policy that results in the higher stake n_H , then

⁹ Congleton and Lee (2009) for example, using a similar setting, analyze how a stable unitary government's regulatory policies may be affected by revenues and other services generated by the efforts of rent seekers. Competition for monopoly privilege can be a significant source of government revenue that augments tax revenues, especially in settings in which collecting ordinary tax revenues is problematic. A revenue-maximizing government encourages greater monopolization than is compatible with economic efficiency, but sells monopoly privileges in a manner that promotes innovation and partially accounts for the deadweight losses associated with monopolized markets. Their analysis provides a possible public finance explanation for relatively successful authoritarian states that have relatively little corruption, but many internal and external barriers to trade.

¹⁰ Here we do not model the explicit deadweight loss of the rent-seeking activities as presented in Congleton (1988).

the value of the government's objective function is equal to αn_H . It is therefore sensible for the government to create a contest if and only if the expected value of its objective function increases as a result of the existence of the contest. As we presented by Epstein and Nitzan (2006c, 2007),

$$\alpha(E(u_L) + E(u_H)) + (1 - \alpha)(x_L + x_H) > \alpha n_H \quad (6)$$

We show that, if the weight assigned to the lobbying outlays is greater than that assigned to the expected stakes, a contest based on a CFS such as the commonly assumed all-pay auction or Tullock's lottery logit functions, can be preferable to no contest. That is, random government behavior is therefore rational

Rewriting (6), given (3), $Pr_L + Pr_H = 1$, $Pr_i > 0$ (both players participate in the contest) and $n_H = bn_L$, where $b \geq 1$, we obtain:

$$\frac{(1 - 2\alpha)(x_L + x_H)}{\alpha Pr_L} > (b - 1)n_L \quad (7)$$

Whether this condition is satisfied or not hinges on the CSF, on the parameters n_L , b and α that represent the contestants' stakes and the weights assigned by the governments to its two utility components, and on the resulting equilibrium lobbying efforts of the contestants $x_L + x_H$ and, in turn, on their contest winning probabilities Pr_L and Pr_H . Given the CSF and the three parameters, the above condition is satisfied if the lobbying efforts of the interest groups are sufficiently large or the contest winning probability of the low-stake player is sufficiently low. This simple condition has the following straightforward implications regarding the effect of the parameters:

(i) When $b \geq 1$, inequality (7) requires that $\alpha < 0.5$. That is, a necessary condition for the existence of an effective incentive for a politician to create a contest is that the weight he assigns to social welfare is lower than the weight assigned to the contestants' lobbying outlays, $\alpha < 0.5$. More generally, equation (7) highlights which parameter values of $(1 - \alpha)$ make random behavior more attractive to the government. A sufficiently low level of this parameter implies that random behavior is irrational. In such a case the government would not bother to create a

contest. If $(1 - \alpha)$ is sufficiently high, namely, the government assigns a sufficiently high weight to the lobbying outlays of the interest groups, then it is sensible to create a contest and act randomly in approving or rejecting the policy it proposes. A rational politician who only cares about the public well-being will never choose to act randomly. If he cares just about extracting tangible rents for himself, as explicitly or implicitly assumed in many studies that followed Tullock (1980), that is, if $(1 - \alpha) = 1$, then acting randomly is his preferred alternative, provided that the contestants' lobbying efforts are positive.

(ii) If the contest is symmetric in terms of the lobbies' stakes, ($n_L = n_H$, i.e., $b = 1$ and $\alpha < 0.5$), then the government always prefers to act randomly according to the CSF of this contest, rather than select the policy yielding the higher stake with certainty. The reason for this is that when both stakes are identical, $\Pr_H n_H + \Pr_L n_L = n$. The politician therefore always gains αn , regardless of who wins the contest. In such a case any contest that generates positive lobbying efforts is preferred to the 'no contest' alternative, provided that the weight assigned to the lobbying efforts is larger than the weight assigned to the aggregate net payoffs of the interest groups.

(iii) Rational randomness, i.e., preference of a contest, requires the existence of contest equilibrium. In the case of a pure strategy equilibrium, the following first

and second order existence conditions: $\frac{\partial \Pr_i}{\partial x_i} > 0$, $\frac{\partial \Pr_i}{\partial x_j} < 0$ and $\frac{\partial^2 \Pr_i}{\partial x_i^2} < 0$ are

also required for the government to prefer its seemingly ad hoc random behavior according to the CSF. Notice that these conditions also ensure that as the stake of a player increases, his effort as well as his expected payoff are increased.

(iv) The LHS of (7) can be rewritten as: $\beta_1 (\Pr_L n_L + \Pr_H n_H) + \beta_2 (x_L + x_H)$, where

$\beta_1 = \alpha$ and $\beta_2 = 1 - 2\alpha$. To satisfy the inequality $\frac{(1 - 2\alpha)}{\alpha} > 1$, the weight β_1

assigned to the expected stakes $(\Pr_L n_L + \Pr_H n_H)$ must be smaller than the weight β_2 associated with the lobbying effort $(x_L + x_H)$, that is, $\beta_1 < \beta_2$. In

terms of the parameter α , this condition becomes: $\alpha < 1/3$. For $\alpha < 1/3$, which satisfies the necessary condition for the superiority of the random contest

behavior, a sufficient condition for (7) to hold is that, in equilibrium,

$$x_L + x_H > n_H - (\Pr_H n_H + \Pr_L n_L)$$

or, equivalently,

$$x_L + x_H > \Pr_L (n_H - n_L) = \Pr_L (b - 1)n_L.$$

This means that, for $\alpha < 1/3$, the contest should generate outlays that are larger than the expected difference between the contestants' stakes. As is known, when the stakes are equal, so that $n_L = n_H = n$, this condition is satisfied.

It can be shown (see Epstein and Nitzan 2006 and 2007) that for $\alpha < 1/3$ the All-Pay auction and the Logit (generalized lottery) CSF satisfy (7). For $\alpha < 0.5$ these CFS may well satisfy (7) depending on the value of the different parameters.

We have argued that the CSF, a basic component in contest theory, has a plausible micro-foundation. That is, the government's behavior can be rationalized both when it acts randomly, as in the standard influence activities, lobbying or rent-seeking models, and when it acts rationally in setting the agenda (making policy proposals) and randomly in approving or rejecting these proposals. Our argument has been illustrated using the most commonly studied CSFs.

The micro-foundation of random government behavior has been provided in a context of lobbying that buys influence, disregarding the possible informational role of lobbying (Grossman and Helpman 2001). Our argument is nevertheless valid in the broader context where lobbying can be of both types. In a more general setting, the rationalization of a lobbying contest and in particular, of random behavior, can be based not only on the government's interest in extracting rents from the lobbies, but also on its interest in enhancing the aggregate equilibrium well-being of the interest groups. When lobbying takes the form of activities that buy influence, it can clearly induce a government to prefer the existence of a contest. When lobbying takes the form of information transmission, it can also induce the government to prefer contest behavior because such lobbying can be welfare enhancing (Gradstein, 2002; Lagerlof 1997). In such a broader context, the effect of the relevant parameters and in particular their relative effect on the incentives of the government to prefer the existence of a lobbying contest, certainly deserve a careful study.

4. Self-restraint

In this section we now consider the case under which one interest group can propose a policy that will be in its favor. After the interest group proposes a policy, both interest groups compete in favor or against the proposed policy. Thus, we describe a two stage contest under which in the first stage one interest group proposes a policy that benefits that group and then in the second stage both groups compete in favor or against the approval or rejection of the policy. The stakes of the interest groups depend on the proposed policy I , as presented by equation (3).

The expected net payoff (surplus) of the two groups are $E(u_1)$ and $E(u_2)$ given by

$$E(u_i) = \text{Pr}_i n_i(I) - x_i \quad \text{for } i = 1, 2 \quad (8)$$

where Pr_1 and Pr_2 are the winning probabilities of the two contestants.

We assume that the contest is determined by Tullock's (1980) simple non-discriminating rule. That is, the consumers' probability of success is given by

$$\text{Pr}_i = \frac{x_i}{x_j + x_i} \quad \text{for } i = 1, 2 \quad (9)$$

Equilibrium

It is clear from the structure of the game that both players participate in the contest (x_1 and x_2 are positive) and that one of them wins the contest. We therefore focus on interior Nash equilibria of the contest. The conditions characterizing an interior equilibrium of our two-player contest (sub-game) are¹¹

$$\frac{\partial E(u_i)}{\partial x_i} = \frac{x_j}{(x_j + x_i)^2} n_i - 1 = 0 \quad \text{for } i, j = 1, 2 \quad j \neq i \quad (10)$$

By (10), we obtain

¹¹ The sufficient (second order) conditions of such an equilibrium are satisfied.

$$\frac{x_2}{(x_2 + x_1)^2} n_1 = 1 \quad (11)$$

and

$$\frac{x_1}{(x_2 + x_1)^2} n_2 = 1 \quad (12)$$

Solving (11) and (12) yields the equilibrium investments x_1 and x_2 . Rewriting (10) we obtain

$$x_2 n_1 = (x_2 + x_1)^2 \quad (13)$$

Thus,

$$\sqrt{x_2 n_1} = (x_2 + x_1) \quad (14)$$

and we find that x_1 is equal to:

$$x_1 = \sqrt{x_2 n_1} - x_2 \quad (15)$$

This is player 1's reaction function to player 2's investment. Taking x_1 as in (15) and substituting into the first order condition as determined for player 2 - see (12) - we obtain:

$$\frac{\sqrt{x_2 n_1} - x_2}{(x_2 + \sqrt{x_2 n_1} - x_2)^2} n_2 = 1 \quad , \quad (16)$$

which is equivalent to

$$(\sqrt{x_2 n_1} - x_2) n_2 = x_2 n_1 \quad (17)$$

or

$$\sqrt{x_2 n_1} n_2 = x_2 (n_1 + n_2) \quad (18)$$

and

$$x_2 n_1 n_2^2 = x_2^2 (n_1 + n_2)^2 \quad (19)$$

Therefore,

$$x_2^* = \frac{n_1 n_2^2}{(n_1 + n_2)^2} \quad (20)$$

In a similar way we can calculate the investment of interest group 1:

$$x_1^* = \frac{n_2 n_1^2}{(n_1 + n_2)^2} \quad (21)$$

As we can see, the investments of the interest groups hinge only on the stakes. As the stake of interest group i increases, its investment also increases

$$\left(\frac{\partial x_i^*}{\partial n_i} = > 0 \text{ for } i = 1, 2 \right).$$

Given the results presented in (20) and (21), we can now calculate the equilibrium winning probability by substituting in (20) and (21) into (9) and obtain:

$$\text{Pr}_1 = \frac{n_1}{n_1 + n_2} \text{ and } \text{Pr}_2 = \frac{n_2}{n_1 + n_2} \quad (22)$$

As we can see, the winning probabilities also depend only on the stakes. As the stake of interest group I increases his winning probability is also increased

$$\left(\frac{\partial \text{Pr}_i}{\partial n_i} = > 0 \text{ for } i = 1, 2 \right).$$

Now let us substitute the equilibrium investments and the equilibrium probabilities into the expected net payoff function to obtain the equilibrium net payoffs of the groups (recall that the stakes are a function of the proposed policy):

$$E(u_1^*) = \frac{(n_1)^3}{(n_1 + n_2)^2}; \quad E(u_2^*) = \frac{(n_2)^3}{(n_1 + n_2)^2} \quad (23)$$

To simplify our calculations, assume that under the existing status-quo interest group 1 is interested in a change while interest group 2 is interested in preserving the status quo. Moreover, assume that as the proposed policy increases the stake of interest group 2 increases as they have more to lose if interest group wins and its policy applied $\frac{\partial n_2(I)}{\partial I} > 0$.

Determining the optimal policy

Let us first consider the optimal policy that interest group 1 would prefer if this policy were to be applied and implemented without any opposition. Under this assumption, interest group 1 will determine its policy such that it maximizes its stake: n_1 . The first order condition will thus be:

$$\frac{\partial n_1(I)}{\partial I} = 0 \quad (24)$$

and the second order condition,

$$\frac{\partial^2 n_1(I)}{\partial I^2} < 0. \quad (25)$$

Assuming that the second order condition is satisfied, denote the policy that maximizes the stake of interest group 1 by I_1^* .

Now consider the case where interest group 1 knows that the moment it determines its optimal policy and puts it forward as a proposal, interest group 2 will challenge it, investing effort in order to preserve the status quo, that is, prevent approval of the proposed policy. Under this scenario, interest group 1 will present a policy that will maximize its expected net payoff and not its stake since it will take into consideration the probability of the proposed policy being approved (Pr_1) and the effort invested in the contest (x_1). Therefore, interest group 1 will select the optimal policy I_2^* that maximizes

$$E(u_1^*) = \frac{(n_1(I))^3}{(n_1(I) + n_2(I))^2}.$$

The first order condition for determining of I_2^* is:

$$\frac{\partial E(u_1^*)}{\partial I} = \frac{3(n_1(I))^2 \frac{\partial n_1(I)}{\partial I} (n_1(I) + n_2(I))^2 - (n_1(I))^3 2(n_1(I) + n_2(I)) \left(\frac{\partial n_1(I)}{\partial I} + \frac{\partial n_2(I)}{\partial I} \right)}{(n_1(I) + n_2(I))^4} = 0 \quad (26)$$

Thus, I_2^* satisfies equation (26). Since this equation is not straightforward, let us consider the value of this derivative at $I = I_1^*$ where $\frac{\partial n_1(I_1^*)}{\partial I_1^*} = 0$ (note that by the definition of $I = I_1^*$ the stake of contestant 1 is optimal and equation (24) is

satisfied). Moreover, as described above, $\frac{\partial n_2(I)}{\partial I} > 0$ for any I and this also holds for $I = I_1^*$.

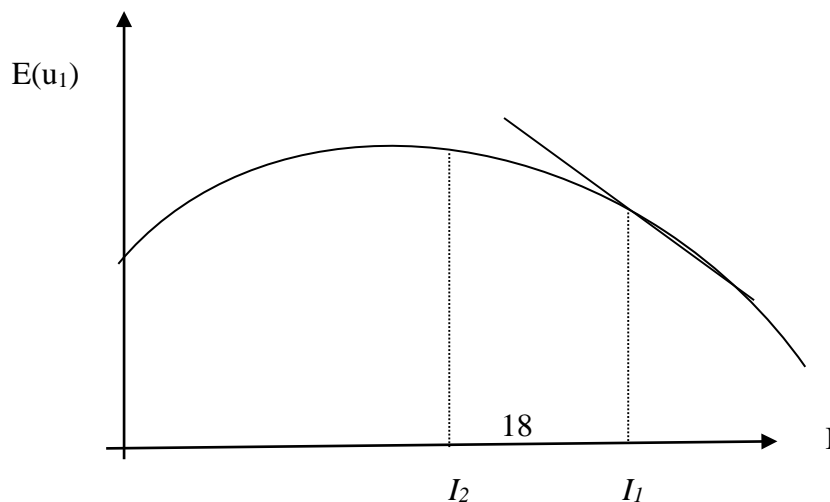
Using the fact that $\frac{\partial n_1(I_1^*)}{\partial I_1^*} = 0$, we can calculate the value of $\frac{\partial E(u_1^*)}{\partial I}$ at $I = I_1^*$: $\frac{\partial E(u_1^*)}{\partial I} \Big|_{I=I_1^*}$ and obtain:

$$\frac{\partial E(u_1^*)}{\partial I} \Big|_{I=I_1^*} = \frac{-(n_1(I))^3 2(n_1(I)+n_2(I)) \left(\frac{\partial n_2(I)}{\partial I} \right)}{(n_1(I)+n_2(I))^4} \quad (27)$$

Since $n_1(I) > 0$, $(n_1(I)+n_2(I)) > 0$ and $\left(\frac{\partial n_2(I)}{\partial I} \right) > 0$, we obtain that $\frac{\partial E(u_1^*)}{\partial I} \Big|_{I=I_1^*} < 0$. This implies that the policy that maximizes interest group 1's expected net payoff is smaller than the policy that maximizes interest group 1's stake: $I_2^* < I_1^*$.

In Figure 1 we can see the graph of the expected payoff function that has one optimal point at I_2^* . At this point $\frac{\partial E(u_1^*)}{\partial I} = 0$. The value of $\frac{\partial E(u_1^*)}{\partial I}$ at the point $I = I_1^*$ is negative, which means that the function $E(u_1^*)$ is decreasing and thus obtains a lower value at $I = I_1^*$ than at $I = I_2^*$.

Figure 1: The optimal policy



This result is similar to that of Leidy (1994). The intuition for this result is as follows: lowering the proposed policy of interest group 1 slightly below the policy that maximized interest group 1's stake leads only to a second order decrease of the interest group's stake (its profit from winning the regulatory contest), but yields a first order increase in interest group 1's benefit. Since this decreases the stake of interest group 2, interest group 2 will be less aggressive in the contest and, in turn, its probability of winning the contest is reduced. This favorable effect dominates the former unfavorable effect and therefore interest group 1 prefers to lobby for a policy $I = I_2^*$ which is lower than $I = I_1^*$.

In Epstein and Nitzan (2004), we generalize this result by enabling two interest groups that each can propose a policy and then compete for it. To understand their framework, suppose that a status-quo policy is challenged by one interest group and defended by another group. This policy can be the price of a regulated monopoly, the maximal degree of pollution the government allows, or the existing tax structure. The defender of the status-quo policy (henceforth interest group d) prefers the status-quo policy I_s to any alternative policy. The challenger of the status-quo policy (interest group c) prefers the alternative policy I_a . Without any loss of generality, it is assumed that $I_s \leq I_a$ and that the policy I_s (I_a) is the optimal policy proposal of the defender (the challenger), provided that his supported policy gains *certain approval*. That is, disregarding the possibility that his proposed policy can be rejected, in which case the policy proposed by the rival interest group is assumed to be approved. For example, in the contest over monopoly regulation studied in Baik (1999), Ellingsen (1991) and Schmidt (1992), the monopoly firm defends the status-quo, lobbying for the profit-maximizing monopoly price (against any price regulation), while consumers challenge the status-quo lobbying for the competitive price (a tight price cap).

The actual implemented policy depends on the contest between the interest groups on the approval of their proposed policies. These proposed

policies that are endogenously determined in the extended setting are denoted I_c and I_d . The outcome of the political contest is given in terms of the probabilities Pr_c and Pr_d that the interest groups c and d win the contest. The outcome of the contest depends on the stakes of the contestants and, in turn, on their proposed policies and on their exerted lobbying or rent-seeking efforts. In contrast to Epstein and Nitzan (2002), the government is not introduced as a player in the policy-determination game. However, the important role of the political environment (the form of the government, its motivation and the decision rule it applies) is represented by the commonly used contest success function that specifies the relationship between the outcome of the contest and the proposed policies or the efforts of the interest groups

In Epstein and Nitzan (2004), we establish that competition over endogenously determined policy proposals reduces the polarization between the positions of interest groups. In particular, each group restrains its proposal relative to its optimal proposal under certainty. Although the interest groups voluntarily restrain their proposals, they are nevertheless induced to engage in a wasteful contest as complete agreement is not an equilibrium outcome.

This result has broad applications. It rationalizes the self-restraint of interest groups such as firms investing in pollution control or voluntarily adopting cleaner production processes or such as environmentalists who do not maintain a zero pollution target. It explains why monopolists are induced to self-regulate their price and why their customer coalitions do not insist on a tight price cap. It also implies that an interest group's support of a welfare program or of any policy that has redistribution effects need not reflect its altruistic preferences but rather its egoistic strategic restraint. This result is somewhat related to the voting literature where two parties choosing platforms may have an incentive to moderate their positions and to converge to the same platform (the median voter's ideal position).

The above analysis applies to a discriminating CSF. Munster (2006) considers the endogenous policy proposals of the defender and the challenger assuming a perfectly discriminating contest, i.e., the all-pay auction. The winning probability of interest group i is given by (4) and, in turn, the expected net payoff is equal to:

$$E(u_i) = \begin{cases} n_i(I) - x_i & \text{if } x_i > x_j, \forall i \neq j \\ \frac{1}{2}n_i(I) - x_i & \text{if } x_i = x_j, \forall i \neq j \\ -x_i & \text{if } x_j > x_i, \forall i \neq j \end{cases} \quad (28)$$

Munster (2006) shows that, under the all-pay auction, in equilibrium both players make the same proposal. Since the two interest groups propose the same policy, there will be no need for a contest between the groups.

The difference in outcomes is due to the different nature of the contests. In an imperfectly discriminating contest, the group that chooses the higher lobbying outlay does not necessarily win. There is some "noise" in the determination of the winner and the winning probabilities are continuous functions of the lobbying efforts.

5. Public Policy

In the preceding section, the interest groups proposed the policy and then competed for its approval or rejection. In this section, we consider public policy that is proposed by the government and then brought forward before the interest groups. The proposed policy can be approved or rejected. In case of rejection the status-quo is preserved.

Suppose that a status-quo policy, I_s , is challenged by one interest group and defended by the other. The defender of the status-quo policy (henceforth, interest group d) prefers the status-quo policy I_s to any alternative policy. The most preferred policy of the challenger of the status-quo policy (interest group c) is I_c . With no loss of generality, it is assumed that $I_s < I_c$ and that the policy I_s (I_c) is the optimal policy proposal of the defender (the challenger), provided that his supported policy gains certain approval.¹² That is, each of these policies is optimal for the respective interest group when it disregards the possibility that its proposed policy can be rejected, in which case, by assumption, the policy proposed by the rival interest group is approved.

¹² Note that assuming that $I_s > I_c$ would not qualitatively change any of our results.

The interest groups engage in lobbying activities because they wish to increase their probability of winning the public-policy contest, i.e., secure the realization of their preferred policy¹³. In our model, the lobbying groups do not try directly to affect the policy proposed by the politician. Rather, the lobbying efforts are directed to the politician who approves or rejects the proposed policy and therefore they do affect, indirectly, the policy proposed by the politician. Interest group d wins the contest when the proposed policy is rejected. In such a case the status quo I_s is implemented. Its benefit in such a case is its avoided loss. Interest group c wins the contest when the proposed policy is approved and implemented. The ruling politician is responsible for the existence of the contest, being aware of its direct potential benefit, namely, of the possibility to benefit from all or part of the lobbying outlays. He may also be aware of the effect of his decision on his probability of being re-elected either via the expected campaign contributions of the contestants or via the expected support of the voters whose welfare depends on the policy of the government.

As in (3), the expected net payoffs of the two interest groups, d and c , are given by

$$E(u_d) = \Pr_d n_d(I) - x_d \quad \text{and} \quad E(u_c) = \Pr_c n_c(I) - x_c \quad (29)$$

where n_d and n_c denote, respectively, the net benefits or the contest stakes of the interest groups. We assume that for any I in the interval $[I_s, I_c]$, an increase in the proposed policy I increases the stakes of both interest groups, that is,

$$\frac{\partial n_d(I)}{\partial I} > 0 \quad \text{and} \quad \frac{\partial n_c(I)}{\partial I} > 0. \quad ^{14}$$

By our assumptions, the interest groups participate in the contest, that is, x_d and x_c are positive. We therefore focus on interior Nash equilibria of the second stage of the contest. Solving the first order conditions we obtain:

¹³ Modeling the rent seekers as single agents presumes that they have already solved their collective action problem. The proposed model thus applies to already formed interest groups.

¹⁴ This condition holds in many situations. In particular, it holds in the context of monopoly-price regulation where I_s is the competitive status-quo price and I_c is the profit-maximizing monopoly price, see Epstein and Nitzan (2003). The assumption is also plausible in the context of minimum-wage determination, where I_s represents the existing equilibrium wage and I_c represents the minimum wage preferred by the workers' union or in the context of protective trade policy (by tariff or quota).

$$\Delta_i = \frac{\partial \Pr_i(x_i, x_j)}{\partial x_i} n_i(I) - 1 = 0, \quad \forall i \neq j \text{ and } i, j = d, c \quad (30)$$

In the first stage of the game, the politician selects his strategy, that is, the proposed policy I subject to the political constraint, namely, subject to the lobbying contest on the approval of his proposal. Hence, as indicated above, his objective function $G(\cdot)$ is of the general form¹⁵ $G(E(u_c); E(u_d); (x_c + x_d))$, where $E(u_c)$ and $E(u_d)$ are the expected net payoffs of the challenger and the defender that positively affect G . See equation (5) as an example. The contenders' lobbying outlays $(x_d + x_c) = X$ represent either transfers to the government or resources wasted in the contest. Note that taking into account the public interest is consistent with the politician being either benevolent or self-interested in wishing to be re-elected.

The first order condition for an interior maximization of $G(\cdot)$ with respect to I requires that

$$\frac{\partial G(\cdot)}{\partial E(u_c^*)} \frac{\partial E(u_c^*)}{\partial I} + \frac{\partial G(\cdot)}{\partial E(u_d^*)} \frac{\partial E(u_d^*)}{\partial I} + \frac{\partial G(\cdot)}{\partial X^*} \frac{\partial X^*}{\partial I} = 0 \quad (31)$$

A sub-game perfect interior Nash equilibrium of the public-policy contest is thus characterized by the three equalities in (30) and (31).

The effectiveness of the policy maker's incentive to propose a policy that exceeds I_c^* or is lower than I_d^* depends on the sensitivity of G with respect to its three arguments and on the sensitivity of the equilibrium total lobbying outlays X^* and of the expected utility of the interest groups with respect to the proposed policy. Let I^{**} denote the equilibrium policy that satisfies (31). At I_c^* ,

$$\left. \frac{\partial E(u_c)}{\partial I} \right|_{I=I_c^*} = 0, \text{ at } I_d^*, \left. \frac{\partial E(u_d)}{\partial I} \right|_{I=I_d^*} = 0 \text{ and therefore at } I^{**}, \left. \frac{\partial E(u_c)}{\partial I} \right|_{I=I^{**}} < 0 \text{ and}$$

$$\left. \frac{\partial E(u_d)}{\partial I} \right|_{I=I^{**}} < 0. \text{ By the equilibrium condition (31), we therefore get that } I^{**} > I_c^*$$

or $I^{**} < I_d^*$ if

¹⁵ See Epstein and Nitzan (2002).

$$-\frac{1}{\frac{\partial G}{\partial X}\Big|_{I=I^{**}}}\left[\frac{\partial G}{\partial E(u_d)}\Big|_{I=I^{**}}\frac{\partial E(u_d)}{\partial I}\Big|_{I=I^{**}}+\frac{\partial G}{\partial E(u_c)}\Big|_{I=I^{**}}\frac{\partial E(u_c)}{\partial I}\Big|_{I=I^{**}}\right]<\frac{\partial X}{\partial I}\Big|_{I=I^{**}}\quad (32)$$

Notice that the LHS of (32) is positive and since its RHS is independent of $G(\cdot)$, we obtain that $I^{**} > I_c^*$ or $I^{**} < I_d^*$, if at I^{**} , $\frac{\partial X^*}{\partial I} > 0$ and the sensitivity of $G(\cdot)$ with respect to X relative to its sensitivity with respect to $E(u_d)$ and $E(u_c)$ is sufficiently large.

Note that $\frac{\partial E(u_d)}{\partial I}\Big|_{I=I^{**}} < 0$ and $\frac{\partial E(u_c)}{\partial I}\Big|_{I=I^{**}} < 0$. Therefore, since $\frac{\partial G}{\partial E(u_d)}\Big|_{I=I^{**}} > 0$ and $\frac{\partial G}{\partial E(u_c)}\Big|_{I=I^{**}} > 0$, if $\frac{\partial X}{\partial I}\Big|_{I=I^{**}} > 0$, then for (32) to hold, $\frac{\partial G}{\partial X}\Big|_{I=I^{**}} > 0$ must be satisfied.

If, for example, $G(E(u_c); E(u_d); (x_c + x_d)) = G((x_c + x_d))$, then (both in the perfectly and imperfectly discriminating contests) a sufficient condition for the proposition to hold is that $\frac{\partial X^*}{\partial I}\Big|_{I=I^{**}} > 0$.¹⁶ Recall that under the perfectly discriminating contest, the all-pay auction, the total amount of resources invested in the contest under the proposals of the interest groups will be zero. Therefore, if the politician wishes to obtain payments, he or she must propose a policy that is more extreme than that of the interest groups.

As we can see, in the above condition, the effect of a change in the proposed policy on the lobbying efforts of the contenders plays an important role. In general, the effect of a change in the proposed policy I on X^* is ambiguous in the imperfectly discriminating contest while it is positive in the all-pay auction. The role of stake-asymmetry and ability-asymmetry between the interest groups in determining the sign of $\frac{\partial X^*}{\partial I}$ is clarified in Epstein and Nitzan (2006b).¹⁷ A simple sufficient

¹⁶ For example, in the case of monopoly price determination, if the demand is given by: $p = 1 - q$, the marginal cost equals zero and the CSF is Tullock's lottery logit function, the monopoly profit-maximization price is equal to 0.5 while the price that maximizes the total lobbying efforts incurred by the contestants is equal to 0.575426.

¹⁷ Note that asymmetry in the contestants' ability depends on the form of the contest success function and, in particular, on its second order cross derivatives. However, it also depends on the stakes of the

condition ensuring that the total lobbying outlays are monotone increasing in the policy set by the politician is stated in terms of the relative stakes and the relative-stake- elasticities of the interest groups.¹⁸

In the above models, the lobbying efforts of the interest groups are directed to the politicians at the second stage of approval or rejection of the proposed policy. Alternatively, the interest groups could lobby the politician at the first stage in order to influence his proposed policy. In general, the interest groups may wish to influence both the proposed policy and the probability of its approval and therefore allocate their lobbying efforts between the two stages. In such alternative lobbying models, as long as the proposed policy or the approval of the proposed policy remain uncertain from the viewpoint of the interest groups, the main insight of the present study is basically preserved. Uncertainty regarding the contest outcome and a policy maker who is a 'principal' are the basic modeling features necessary for the existence of non-compromising lobbying. The sufficient conditions require appropriate relative commitments of the politician to the enhancement of the well-being of the interest groups and to the increase of the lobbying outlays and appropriate relative stakes and relative stake elasticities of the interest groups that ensure the positive effect of a change in the proposed policy on the total lobbying efforts. Therefore, we find that if the government is not directly involved in the determination of the proposals (as in Epstein and Nitzan, 2004), then moderation of the proposals will occur; however, if the government is involved directly in determining the proposal, then we have shown sufficient conditions for polarization.

The analysis has been confined to a reduced-form, very simple public-policy contest that has micro foundations for both the imperfectly discriminating contest and the discriminating contest - the all-pay auction. Despite its simplicity, this stylized setting is sufficient to illustrate that the compromise-enhancing effect of lobbying is not necessarily valid when the policy maker, the politician in our case, is a 'principal' rather than an 'agent'. As is well known from other models of

interest groups because these cross derivatives are computed in equilibrium, which is affected by the stakes.

¹⁸ In the context of monopoly regulation, Epstein and Nitzan (2003), the sufficient condition is satisfied, so an increase in the proposed price increases the total lobbying expenditure of the interest groups.

special interest politics, institutional details - such as the number of candidates, the number of interest groups, the voting rule, the amendment rules, the procedures for government formation and dissolution - can have a marked effect on outcomes. This has been demonstrated here regarding the effect of lobbying on the nature of the equilibrium public policy.

6. Concluding remarks

This chapter has viewed the creation of a contest between interest groups as endogenous. A government's random behavior can be rationalized both when it acts randomly, as in the standard influence activities, lobbying or rent-seeking models, and when it acts rationally in setting the agenda (making policy proposals) and randomly in approving or rejecting these proposals. We used for illustration the most commonly studied CSFs; the Hillman-Samet all-pay auction and two types of logit functions, Tullock's simple discriminating lottery function and Tullock's generalized lottery function.

This chapter has described how lobbying affects the choice of the agenda—the policies that lobbyists favor or oppose. A two-stage model has shown how a proposed policy is determined and then lobbying takes place. For example, in the first stage, interest groups may choose to lobby for a particular policy and, then, in a second stage, engage in a lobbying contest over the proposed policies.

Using as a benchmark a status-quo policy that is the preferred policy of one interest group (the status-quo defender) when there is no opposition, we showed that the status-quo is not an equilibrium strategy of “the defender”. Likewise, the equilibrium proposal of “the challenger” differs from his optimal proposal when he does not face opposition. Both interest groups choose more moderate positions. Hence, competition over endogenously determined policies can reduce polarization and, in turn, wasteful lobbying activities. Such competition would not result, however, in a (strategic) compromise where the two interest groups share the same equilibrium proposal and so entirely avoid the expenditure of wasteful resources.

We considered the case in which a government determines policy subject to lobbying. We showed that the policy determined by the government may be

increase polarization in a contest, by letting the interest groups determine the policy for which they will compete.

Overall, the policy-contest literature demonstrates that the effects of anticipated rent seeking on the policy proposals put forward by interest groups and governments should not be ignored.

References

- Aidt, Toke S. (2003), 'Redistribution and deadweight cost: the role of political competition', *European Journal of Political Economy*, **19**(2), 205-226.
- Baik, Kyung H. (1999), 'Rent-seeking firms, consumer groups and the social costs of monopoly'. *Economic Inquiry*, **37**(3), 542-554.
- Becker, Gary S. (1983), 'A theory of competition among pressure groups for political influence', *Quarterly Journal of Economics*, **98**(3), 371-400.
- Besley, Timothy and Stephen Coate (1997), 'An economic model of representative democracy', *Quarterly Journal of Economics*, **112**(1), 85-114
- Besley, Timothy and Stephen Coate (2001), 'Lobbying and welfare in a representative democracy', *Review of Economic Studies*, **68**(1), 67-82.
- Boeri, Tito, Gordon Hanson, and Barry McCormick (eds). (2002), *Immigration Policy and the Welfare System*, Oxford University Press, Oxford.
- Congleton, Roger D. (1986), 'Rent-seeking aspects of political advertising', *Public Choice*, **49**(3), 249-263; reprinted in Roger D. Congleton, Arye L. Hillman and Kai A. Konrad (eds) (2008), *Forty Years of Research on Rent Seeking 2 – Applications: Rent Seeking in Practice*, Heidelberg: Springer, pp. 297-311.
- Congleton, Roger D. (1988), 'Evaluating rent-seeking losses: do the welfare gains of lobbyists count?', *Public Choice*, **56**(2), 181-184.
- Congleton, Roger D. (1991), 'Ideological conviction and persuasion in the rent-seeking society', *Journal of Public Economics*, **44**(1), 65-86; reprinted in Roger D. Congleton, Arye L. Hillman and Kai A. Konrad (eds) (2008), *Forty Years of Research on Rent Seeking 2 – Applications: Rent Seeking in Practice*, Heidelberg: Springer, pp. 769-790.

- Congleton, Roger D. and Sanghack Lee (2009), 'Efficient mercantilism? Revenue-maximizing monopoly policies as Ramsey taxation', *European Journal of Political Economy*, **25**(1), 102-114.
- Ellingsen, Tore (1991), 'Strategic buyers and the social cost of monopoly', *American Economic Review*, **81**(3), 648-657; reprinted in Roger D. Congleton, Arye L. Hillman and Kai A. Konrad (eds) (2008), *Forty Years of Research on Rent Seeking 1 - Theory of Rent Seeking*, Heidelberg: Springer, pp. 399-408.
- Epstein, Gil S. and Shmuel Nitzan (2002), 'Endogenous public policy, politicization and welfare', *Journal of Public Economic Theory*, **4**(4), 661-677.
- Epstein, Gil S. and Shmuel Nitzan (2003), 'The social cost of rent seeking when consumer opposition influences monopoly behavior', *European Journal of Political Economy*, **19**(1), 61-69.
- Epstein, Gil S. and Shmuel Nitzan (2004), 'Strategic restraint in contests', *European Economic Review*, **48**(1), 201-210; reprinted in Roger D. Congleton, Arye L. Hillman and Kai A. Konrad (eds) (2008), *Forty Years of Research on Rent Seeking 1 - Theory of Rent Seeking*, Heidelberg: Springer, pp. 421-430.
- Epstein, Gil S. and Shmuel Nitzan (2006a), 'Lobbying and compromise', *Public Choice*, **126**(3-4), 317-330.
- Epstein, Gil S. and Shmuel Nitzan (2006b), 'Effort and performance in public-policy contests', *Journal of Public Economic Theory*, **8**(2), 265-282.
- Epstein, Gil S. and Shmuel Nitzan (2006c), 'The politics of randomness', *Social Choice and Welfare*, **27**(2), 423-433.
- Epstein, Gil S. and Shmuel Nitzan (2007), *Endogenous Public Policy and Contests*, Heidelberg: Springer.
- Esteban, Joan and Debraj Ray (1999), 'Conflict and distribution', *Journal of Economic Theory*, **87**(2), 379-415.
- Fabella, Raul V. (1995), 'The social cost of rent seeking under countervailing opposition to distortionary transfers', *Journal of Public Economics*, **57**(2), 235-247.
- Felli, Leonardo and Antomio Merlo (2001), 'Endogenous lobbying', CESifo, WP No. 291.

- Glazer, Amihai, Mark Gradstein, and Kai A. Konrad (1998), 'The electoral politics of extreme policies', *The Economic Journal*, **108**(451), 1677-1685.
- Glazer, Amihai and Henry McMillan (1992), 'Pricing by the firm under regulatory threats', *Quarterly Journal of Economics*, **107**(3), 1089-1099.
- Gradstein, Mark (2002), 'Can the pursuit of rents grease the wheels of the economy? Allocative benefits of rent seeking', unpublished paper, Department of Economics, Ben-Gurion University of the Negev.
- Grossman, Gene M. and Elhanan Helpman (1994) 'Protection for sale', *American Economic Review*, **84**(4), 833-850.
- Grossman, Gene M. and Elhanan Helpman (1996) 'Electoral Competition and Special Interest Politics', *Review of Economic Studies*, **63**(2), 265-286.
- Grossman, Gene M. and Elhanan Helpman (2001) *Special Interest Politics*. Cambridge, MA, M.I.T. Press.
- Hillman, Arye L. (1982), 'Declining industries and political-support protectionist motives', *American Economic Review*, **72**(2), 1180-1187.
- Hillman, Arye L. (2013), 'Rent seeking', in Michael Reksulak, Laura Razzolini and William F. Shughart II (eds), *The Elgar Companion to Public Choice, Second Edition*, Cheltenham UK and Northampton MA: Edward Elgar, pp. 307-330.
- Hillman, Arye L., and Dov Samet (1987) 'Dissipation of rents and revenues in small numbers contests' *Public Choice*, **54**(1), 63-82; reprinted in Roger D. Congleton, Arye L. Hillman and Kai A. Konrad (eds) (2008), *Forty Years of Research on Rent Seeking 1 - Theory of Rent Seeking*, Heidelberg: Springer, pp. 165-184.
- Hillman, Arye L. and John G. Riley (1989), 'Politically contestable rents and transfers', *Economics and Politics*, **1**(1), 17-39; reprinted in Roger D. Congleton, Arye L. Hillman and Kai A. Konrad (eds) (2008), *Forty Years of Research on Rent Seeking 1 - Theory of Rent Seeking*, Heidelberg: Springer, pp. 185-207.
- Hillman, Arye L. and Heinrich W. Ursprung (1988) 'Domestic politics, foreign interests, and international trade policy', *The American Economic Review*, **78**(4), 729-745; reprinted in Roger D. Congleton, Arye L. Hillman and Kai A. Konrad (eds) (2008), *Forty Years of Research on Rent Seeking 2 - Applications: Rent Seeking in Practice*, Heidelberg: Springer, pp. 113-129.

- Kroszner, Randall S and Phillip E. Strahan (1999), 'What drives deregulation? economics and politics of the relaxation of bank branching restrictions', *Quarterly Journal of Economics*, **114**(4), 1437-1467.
- Lagerlof, John (1997), 'Lobbying information and private and social welfare', *European Journal of Political Economy*, **13**(3), 615-637.
- Leidy, Michael P. (1994), 'Rent dissipation through self-regulation: the social cost of monopoly under the threat of reform', *Public Choice*, **80**(1-2), 105-128.
- Lockard, Alan and Gordon Tullock (2001), *Efficient Rent Seeking: Chronicle of an Intellectual Quagmire*, Boston: Kluwer.
- Munster, Johannes (2006), 'Lobbying contests with endogenous policy proposals', *Economics & Politics*, **18**(3), 389-397
- Nitzan, Shmuel (1994), 'Modelling rent-seeking contests', *European Journal of Political Economy*, **10**(1), 41-60.
- Peltzman, Sam (1976), 'Toward a more general theory of regulation' *Journal of Law and Economics*, **19**(2), 211-240.
- Persson, Torsten and Guido Tabellini (2000), *Political Economics: Explaining Economic Policy*, Cambridge MA: MIT Press.
- Schmidt, Torsten (1992), 'Rent-Seeking firms and consumers: an equilibrium analysis', *Economics and Politics*, **4**(2), 137-149.
- Skaperdas, Stergios (1996), 'Contest success functions', *Economic Theory*, **7**(2), 283-290; reprinted in Roger D. Congleton, Arye L. Hillman and Kai A. Konrad (eds) (2008), *Forty Years of Research on Rent Seeking 1 - Theory of Rent Seeking*, Heidelberg: Springer, pp. 263-270.
- Tullock, Gordon. (1980), Efficient rent seeking. In: James M. Buchanan, Rober D. Tollison, and Gordon Tullock (eds), *Toward a Theory of the Rent-Seeking Society*. College Station TX: Texas A&M Press; reprinted in Roger D. Congleton, Arye L. Hillman and Kai A. Konrad (eds) (2008), *Forty Years of Research on Rent Seeking 1 - Theory of Rent Seeking*, Heidelberg: Springer, pp. 105-120.

