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Strategic Entry, Rent-Seeking and Transfers

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Abstract. In this paper, we consider strategic entry decisions in a two-player political transfer contest, i.e. the prize is a transfer from one lobby group to another. The size of the transfer depends on the lobbying effort of the politically active lobby groups. We show that the entry decision involves a trade-off between an influence loss and a strategic gain. The influence loss is related to the value of the foregone option to influence policymaking. The strategic gain is related to the strategic behaviour of the competitor. The existence of symmetric equilibria in which both lobby groups enter the contest and asymmetric equilibria in which only one lobby group enters is proved. In the latter type of equilibrium, rent-seeking expenditures are substantially reduced, and the strategic behaviour of the active lobby group acts as a barrier to entry by rewarding the competitor for staying our of the contest.

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Key words: Rent-seeking, entry, lobby groups, transfer contests.

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1. Introduction

Many aspects of rent-seeking, including aspects of political entry, have, since the pioneering papers by Tullock (1967, 1980) and Krueger (1974), received considerable attention in the literature.[2] Initially, the task of endogenizing the number of contestants was carried out in a non-dynamic framework by allowing free entry into the rent-seeking industry [see, e.g. Corcoran, 1984; Appelbaum and Katz 1986b; Hillman and Riley, 1989; and Perez-Castrillo and Verdier, 1992]. Another approach was taken by Hiersliefer (1989). In his analysis corner solutions (a contestant decides to invest nothing) can be interpreted as a decision to stay out of the contest. While generating interesting new insights about rent-dissipation and the properties of the contest function, the non-dynamic nature of these models, however, leaves out important strategic aspects of the entry problem.

The purpose of this paper is to highlight strategic aspects of political entry decisions in a dynamic framework. Political entry has previously been analysed in a dynamic framework by Gradstein (1995). He considers a (standard) rent-seeking contest with many potential contestants who value the prize differently. The prize is assumed to be *fixed* and *external*, i.e. the source of the prize is unspecified. Within this context, by giving up the option to participate, a contestant, of course, foregoes the opportunity to win the prize, but, on top of that, the outcome of the contest is of no consequence to her, and, so, the behavioural response of politically active competitors is immature for an inactive rent-seeker. This implies that the entry decision is simple: A contestant enters if (and only if) the expected gain from participating in the contest is greater than the fixed entry fee. Moreover, the incentive to stay out of the contest is related to the attributions of the rent-seeker herself, not to the attributes of the competitors. In particular, only contestants, who are "likely" to win the contest, enter.

While the assumption of a fixed and external prize is justified as an accurate description of many contests, including sport events and patent races, it is inadequate for a range of other contests. In particular so for all contests that involve redistribution of income between the contestants. In a transfer contest, the source of the prize is internal, i.e. the

[2]The literature on rent-seeking is surveyed by Tollison (1982, 1997), Brooks and Heijdra (1989), Hillman (1989) and Nitzan (1994a), while Mitchell and Munger (1991), Potters and van Winden (1996) and Austen-Smith (1997) survey the related literature on lobby groups.

subsidy (or prize) given to the group of winners is financed by a tax on the group of losers, and the losers are going to pay no matter whether they participate in the contest or not. Accordingly, as opposite to contests with an external prize, the motivation for entry is dual. On top of the desire to win the prize, political activities are, as pointed out by Appelbaum and Katz (1986a), Wenders (1987) and others, also motivated by a desire to avoid paying the tax. Moreover, rather than being fixed, the size of the transfer from one group to the other, typically, depends on the rent-seeking effort of the active contestants, i.e. the prize is variable. These features have important implications for the entry-strategies of (potential) contestants that are not captured by Gradstein's analysis.

In this paper, we explore these implications, i.e. we analyse entry decisions in the context of a transfer contest in which the prize is both internal and variable. To this end, we consider the following very simplistic model of a political contest. Two lobby groups with conflicting interests can, if they so desire, enter the contest to influence government policy. In our model, the government (the rent-setter) is not an active player, but a kind of mediator.[3] That is, government behaviour is described by an influence function that relates the lobby groups' political investment, if any, to a policy outcome. A policy outcome is a transfer from one group to the other. The model has two stages. In stage one, (binding) entry decisions are simultaneously made. In stage two, the politically active lobby groups, if any, invest in politics, and the monetary payment is transferred, via the public sector, from one group to the other.

The entry decision involves a trade-off between two effects. First, by staying out of the contest, a lobby group foregoes the valuable option to influence policymaking, and the competitor, if active, is free to decide on the size of the transfer that the inactive lobby group has to pay. This *influence loss*, which arises from the fact that the prize is internal, of course, makes entry attractive. Second, since the prize is variable, the strategic behaviour of an active competitor has payoff consequences for the inactive lobby group. This is what generates the

[3]By assuming a passive government, we rule out that the government i) decides on the size of the rent and ii) decides on the number of rent-seekers allowed to participate in the contest. The latter aspect has be considered by Michaels (1988) and Baye et al. (1993). Our specification of the government is in the tradition of the Chicago school [see, Stigler 1971; Pultzman, 1976; and Becker, 1983, 1985] that assumes that the government is captured by special interests, and, therefore, have no (or little) independent influence on policymaking.

incentive to stay out of the contest. If, say, lobby group 1 is offensive in the sense that its best response function is upwards sloping, then it *reduces* its political investment, and, thereby, indirectly the tax bill of lobby group 2, should lobby group 2, but not lobby group 1, decide to stay out. This is appreciated by lobby group 2, and the resulting *strategic gain* provides an incentive to stay out of the contest. Notice, however, that only if the strategic gain is sufficiently large to weight out the influence loss, it is, actually, profitable for a lobby group to be politically inactive. If, on the other hand, lobby group 1 is defensive in the sense that its best response function is downwards sloping, then it *increases* its political investment, and, thereby, the tax bill of lobby group 2, should lobby group 2, but not lobby group 1, decide to stay out of the contest. The result being a *strategic loss,* which along with the influence loss, gives lobby group 2 an incentive always to enter the contest. The important point is that, in contrast to Gradstein (1995), the incentive to stay out of the contest depends, not on the strategic attributions (as captured by the slope of the best response function) of a lobby group itself, but on those of the competitor. In particular, the strategic behaviour of an active lobby group may serve as a barrier to entry by rewarding the competitor for staying out of the contest.

The decision to stay out of a rent-seeking contest is equivalent to a pre-game commitment to invest zero effort in the underlying game. Therefore, our model belongs to a family of models that consider the value of pre-game commitment. The basic insight is that a commitment to a particular sequence of play [see Dixit, 1987; Hamilton and Slutsky, 1988; Balk and Shogren, 1992; Leininger, 1993; and Nitzan, 1994b], a fixed price [Hansen et al., 1996] or, as in our model, inactivity only has a value if it has a favourable impact on the behaviour of the other players once the underlying game (a duopoly game or a rent-seeking contest) is played.

The rest of the paper is organized as follows. In section 2, we set up the basic model. In section 3, we solve the model and characterise the set of subgame perfect equilibria. In section 4, we consider the implications of binding fund-constraints, and, in section 5, we conclude.

2. A Simple Model of a Transfer Contest

Consider a society with two groups of citizens and a government. The citizens in each group have common interests that are represented by a lobby group.[4] The government can redistribute income from one group to the other. Let t denote the transfer from group 1 to group 2. To simplify the analysis, we disregard the deadweight loss associated with redistribution of income. Therefore, the government's budget constraint is, trivially, satisfied.

Each lobby group makes two sequential decisions. First, it decides whether it wants to enter a political contest. Second, if the lobby group enters, it lobbies the government to influence policy. Let y_j, j= 1,2, be the political investment of lobby group j. We assume that lobby group j can, at maximum, raise Y_j dollars, and that Y_j is independent of the outcome of the transfer contest. The payoff function of lobby group j is given as:[5]

$$v^j = v^j\left(t, y_j\right). \tag{1}$$

The payoff of lobby group 1 is increasing in the transfer, whereas the payoff of lobby group 2 is decreasing, both at a non-increasing rate, i.e. $v_{11}^j \le 0$.The payoffs are, of course, decreasing in y_j, and the marginal disutility of a political investment is (weakly) increasing in *absolute* value, i.e. $v_{22}^j \le 0$. Without any essential loss of generality, we assume that $v_{12}^j = 0$.

The formulation of the political system is based on the influence function approach of Becker (1983, 1985), Kristov, Lindert and McClelland (1992) and others. According to this approach, the government is completely captured by special interests, and has no independent influence on policymaking. Thus, political investments "buy" influence on government policy according to the following differentiable influence function:

$$t = I\left(y_1, y_2\right), t \in R, I(0,0) = 0. \tag{2}$$

Lobby group l's political investment increases the transfer (I_1>0), whereas lobby group 2's political investment decreases the transfer (I_2<0). Assuming that the marginal effect of political investments is non-increasing in absolute value, i.e. I_{ll} <0 and I_{22}>0, seems

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[4]01son (1965) has pointed out that the fact that people have common interests is insufficient to insure that they form a lobby group. The main problem is, of course, that successful lobbying is a group-specific public good, and, accordingly, everybody has an incentive to free ride. For further discussion of this issue, see, e.g. Ursprung (1990), Katz et al. (1990) and Gradstein (1993). Here, we focus on entry decisions and sidestep the issue completely.

[5]Throughout the paper, we use the notation that a superscript on a function refers to a lobby group, whereas a subscript refers to the partial derivative of the function with respect to the relevant argument.

reasonable.We do not, *a priori,* impose any restrictions on the sign and size of the cross derivative, I_{12}. Notice that equation (2) implies that the prize of the political contest is variable.

3. The Political Equilibrium

We analyse the model as a two-stage game. In stage one, the entry stage, the lobby groups simultaneously decide if they want to enter the political contest. In stage two, the lobbying stage, depending on the decisions made in stage one, four subgames can arise. In subgame A, both lobby groups decide to enter the contest, and, so, they participate in a game of competitive lobbying in which they simultaneously choose their political investment. In subgame B (C), lobby group 2 (1) decides to stay out of the contest. Hence, lobby group 1 (2), who enters, is uncontested and free to lobby the government. In subgame D, neither of the lobby groups enters, and, so, no one lobbies the government. Our equilibrium notion is subgame perfection. To solve the game by backwards induction, we therefore start out analysing each of the four subgames of the lobbying stage.

In subgame A, the two politically active lobby groups, simultaneously, invest resources in politics to maximise their payoff. In doing so, they take the investment strategy of the competitor as given. A Nash equilibrium of subgame A is a set of investment strategies, (y_1^*, y_2^*), that solves the following programmes:

$$y_j^* = \arg\max v^j\left(t, y_j\right) \text{ s.t. } t = I\left(y_1, y_2\right), \text{ j} = 1{,}2. \qquad \textbf{(3)}$$

The payoffs are denoted $A_1 = v^1\left(I\left(y_1^*, y_2^*\right), y_1^*\right)$ and $A_2 = v^2\left(I\left(y_1^*, y_2^*\right), y_2^*\right)$. The investment strategies are characterized by the following first order conditions:[6]

$$v_1^j I_j + v_2^j = 0, \text{ j} = 1{,}2. \qquad \textbf{(4)}$$

The restrictions that we have imposed on the influence and payoff functions imply that the second order conditions, $a^j = v_1^j I_{jj} + I_j v_{11}^j$, j=1,2, are satisfied. From the first order conditions, we derive the best response functions, R^1: $y_1=r^1(y_2)$ and R^2: $y_2=r^2(y_1)$. Besides being

[6]We assume that the Nash equilibrium is interior in this section. In the next section, we consider the implications of binding fund-constraints.

single valued and monotonous, we assume that the best response functions satisfy the following assumption:

Assumption 1. $y_1=r^1(y_2)>0$, $\forall y_2 \in [0,Y_2]$ and $y_2=r^2(y_1)>0$, $\forall y_1 \in [0,Y_1]$.

That is, once a lobby group enters the contest, it is never an optimal response to any lobbying strategy of its competitor to invest nothing. The assumption is not crucial for our results, but it simplifies our analysis considerably.[7] The slopes of the best response functions are:

$$\rho^1 = \left.\frac{dy_1}{dy_2}\right|_{R^2} = -\frac{\beta^1}{\alpha^1}$$
$$\rho^2 = \left.\frac{dy_1}{dy_2}\right|_{R^2} = -\frac{\alpha^2}{\beta^2} \tag{5}$$

where $\beta^j = I_2 v_{11}^j I_1 + v_1^j I_{12}$, j=1,2. The second order conditions imply that sign[ρ^j]=sign[β^j]. The sign of β^j is ambiguous and so are the slopes of the best response functions. If the best response function of a lobby group is downwards sloping, we say that the lobby group is *defensive.* Likewise, if the best response function is upwards sloping, we say that the lobby group is *offensive.*

The first term of β^j captures the following effect. If one of the lobby groups increases its political investment, then, *ceteris paribus*, seen from the point of view of the other lobby group, the transfer moves in the wrong direction. This increases the marginal value of a counter-investment ($v_{11}^j < 0$). Hence, a lobby group's best response to an increase in the political investment of the competitor is to increase its own political investment, and, so, the first term tends to make both lobby groups offensive. If I_{12} is negative (positive), then the second term of β^j works against the first term for lobby group 1 (2), while reinforcing it for lobby group 2 (1). This is due to the fact that both lobby groups prefer to get a subsidy rather than to pay a tax ($v_1^1 > 0$ and $v_1^2 < 0$). Suppose that I_{12} is negative. Then an increase in the

[7]The assumption, essentially, rules out a number of dominated equilibria.

political investment of lobby group 1 *increases,* in absolute value, the marginal political effectiveness of lobby group 2, i.e. I_2. Therefore, the best response of lobby group 2 to an increase in the investment of lobby group 1 is, *ceteris paribus,* to exploit the additional political effectiveness and invest some more in politics. Accordingly, lobby group 2 is surely offensive. On the other hand, an increase in the political investment of lobby group 2 *decreases* the marginal political effectiveness of lobby group l, i.e. I_1. Therefore, the best response for lobby group l to an increase in the investment of lobby group 2 is, *ceteris paribus,* to decrease its political investment. Accordingly, if this effect is sufficiently large, the best response function of lobby group l is downwards sloping, and the lobby group is defensive. If I_{12} is positive, the pattern reverses.

It follows immediately that both lobby groups are never defensive at the same time, but that either may be defensive depending on the sign and size of I_{12}. Lemma 1 characterises the three feasible configurations of subgame A in terms of the posture of the two lobby groups.

Lemma 1. Define $a_1 = -\frac{I_1 v_{11}^1 I_2}{v_1^1} < 0$ and $a_2 = -\frac{I_1 v_{11}^2 I_2}{v_1^2} > 0$.

1) If $I_{12} \leq a_1$, then lobby group l is defensive and lobby group 2 is offensive; 2) if $a_l < I_{12} < a_2$, both lobby groups are offensive; and 3) if $I_{12} \geq a_2$, lobby group 2 is defensive and lobby group l is offensive.

Proof. A simple manipulation of β^1 and β^2 implies that if $I_{12} > a_1$ ($I_{12} \leq a_1$), then $\rho^1 > 0$ ($\rho^1 \leq 0$) and if $I_{12} < a_2$ ($I_{12} \geq a_1$), then $\rho^2 > 0$ ($\rho^2 \leq 0$) from which the Lemma follows immediately□

In the forthcoming discussion, we pool the two cases in which the two lobby groups have reverse postures and refer to them as the asymmetric regime. We refer to configuration two in which the two lobby groups have the same posture as the symmetric regime. Existence and uniqueness of the Nash equilibrium in pure strategies in the asymmetric regime are guaranteed by the fact that the best response functions are single valued, monotonous and have reverse slopes. In the symmetric regime, we need to worry about stability of the Nash equilibrium, and, so, in the forthcoming discussion, we assume that $\rho^1 > \rho^2$.

Having solved subgame A, the investment strategies and payoffs associated with the remaining three subgames are easily derived. In subgame B, lobby group 2 invests y_2=0. The best response to this from lobby group l is $y_1^{'}$=r^1(0). Hence, the payoffs are $B_1 = v^1\left(I\left(y_1^{'},0\right),y_1^{'}\right)$ and $B_2 = v^2\left(I\left(y_1^{'},0\right),0\right)$. Subgame C is the reverse of subgame B. and y_l=0 and $y_2^{'} = r^2(0)$. The payoffs are $C_1 = v^1\left(I\left(0,y_2^{'}\right),0\right)$ and $C_2 = v^2\left(I\left(0,y_2^{'}\right),y_2^{'}\right)$. Finally, in subgame D, in which no one enters the contest, the payoffs are $D_1 = v^1\left(I\left(0,0\right),0\right)$ and $D_2 = v^2\left(I\left(0,0\right),0\right)$.

Now, we turn to the entry stage. We assume that entry is free.[8] The following matrix illustrates the normal form of the game.

group 1/ group 2	enter	stay out
enter	A_1 A_2	B_1 B_2
stay out	C_1 C_2	D_1 D_2

Our first result is that the government is always subject to political pressure.

Proposition 1. At least one lobby group enters the contest.

Proof Suppose not. Then $D_1 \geq B_1$ and $D_2 \geq C_2$. Since lobby group 1 (2) in subgame B (C) could have chosen y_1=0 (y_2=0), but, by assumption 1, choses y_1>0 (y_2>0), B_1>D_1 (C_1>D_2). A contradiction□

The intuition behind the proposition is simple. If the competitor stays out, entering the contest cannot make a lobby group worse off. After all, it could choose y_j=0, and get the same payoff as it would have gotten by staying out. The proposition implies that subgame D cannot be part of equilibrium. By means of graphical arguments, we derive the set of subgame perfect equilibria in the asymmetric and symmetric regime below.

[8] If entry into the contest requires some organizational effort or research, it would be reasonable to include a fixed cost of entry. Clearly, an entry fee, uniformly, reduces the incentive of all lobby groups to enter the contest, and, so, it does not add much to our understanding of the strategic incentives underlying the entry decision. To be sure, let us stress that adding a small entry fee would not alter any of our results.

The asymmetric regime ($I_{12} \leq a_1$ or $I_{12} \geq a_2$).

In the asymmetric regime, one of the lobby groups is defensive and the other lobby group is offensive.

Proposition 2. If $I_{12} \leq a_1$ ($I_{12} \geq a_2$), then A and C (A and B) are the only subgame perfect equilibria in pure strategies.[9]

Proof. We only go through the proof for $I_{12} \leq a_1$. Consider Figure 1.[10] Subgame A is part of equilibrium if and only if $A_1 \geq C_1$ and $A_2 \geq B_2$. The offensive lobby group prefers to enter if the defensive lobby group does so. This is because of the slope of the best response function of the defensive lobby group. The defensive lobby group prefers to enter only if the iso-payoff curve, A_1, cuts the horizontal axis to the left of point C. Subgame C is part of equilibrium if and only if $C_1 \geq A_1$ and $C_2 \geq D_2$. The first condition is satisfied if the iso-payoff curve A_l cuts the horizontal axis to the right of point C . The second condition is always satisfied because the offensive lobby group's best response curve, by assumption 1, cuts the horizontal axis for a nonnegative y_2.[11] Subgame B is never part of equilibrium because the offensive lobby group has a unilateral incentive to deviate and enter if the defensive lobby group does so ($A_2 \geq B_2$). Furthermore, it follows from proposition 1 that subgame D is never part of equilibrium□

Define the Pareto superior set relative to the Nash equilibrium of subgame A as

[9]It is beyond the scope of this paper to consider mixed strategy equilibria.

[10]In all the Figures, we draw the best response functions as if they were linear, which they, of course, need not be. Moreover, since the payoff functions of each lobby group is monotonous in the action of the other lobby group, the iso-payoff curves of the two lobby groups in the (y_1,y_2) space always bent towards the horizontal (lobby group 1) and the vertical (lobby group 2) axis, respectively. Moreover, the payoff of a lobby group is increasing towards its "own" axis.

[11]If y_2 =0, lobby group 2 is indifferent between D and C. That is, equilibrium C *looks like* one in which both lobby groups stay out of the contest, but still D is not an equilibrium since lobby group 1 would enter if it believed that lobby group 2 would stay out ($B_1 > D_1$).

$P=\{(y_1,y_2) \mid v^1(y_1,y_2)>A_1, v^2(y_1,y_2)>A_2\}$. Then, using the terminology of Hamilton and Slutsky (1988), we can formulate the following corollary:

> **Corollary 1.** Let $I_{12} \leq a_1$ ($I_{12} \geq a_2$). If subgame C (B) is contained in the Pareto superior set, then the defensive lobby group is politically inactive, and the offensive lobby being active is the unique subgame perfect equilibrium of the game. If not, both lobby groups are politically active.

In the asymmetric regime, only the defensive lobby group has an incentive to stay out of the contest. The intuition is as follows. By staying out of the contest, the inactive lobby group renounces the right to seek influence on government policy and to respond to the political activities of the competitor. Hence, inactivity always (i.e. for both offensive and defensive lobby groups) involves an *influence loss,* which makes entry attractive. Hence, to making "staying out" an attractive option, a compensation for the influence loss is required. To identify the source of this compensation or gain, we consider the decision problem of the two lobby groups. First, consider the entry problem from the point of view of the defensive lobby group. If the defensive lobby group stays out of the contest, then the offensive lobby group *reduces* its political investment, and, in turn, the defensive lobby group's tax bill is, *ceteris paribus,* reduced. This is, of course, appreciated by the defensive lobby group, and constitutes what we refer to as a *strategic gain.* In terms of Figure 1, the influence loss of the defensive lobby group is measured as the difference between A_l and $A_1^{'}$. The strategic gain is the difference between $A_1^{'}$ and C_l. Only if the strategic gain is sufficiently large to weight out the influence loss, it is optimal for the defensive lobby group to stay out of the contest. According to corollary 1, this is the case if subgame C is contained in the Pareto superior set. From Figure 1, we see that this condition is more likely to be met, the flatter the best response function of the offensive lobby group is. That is, the defensive lobby group is more likely to stay out of the contest, the more offensive the competitor is. Notice, moreover, that the defensive lobby group does not stay out because it is defensive, but rather because the competitor is offensive.

Second, consider the entry problem from the point of view of the offensive lobby group. It is aware of the fact that the defensive lobby intents to *increase* its political investment if uncontested. This is, of course, not in the interest of the offensive lobby group, and its dominant strategy is to enter the contest no matter what. In terms of Figure 1, we see how the "strategic gain," measured as the difference between $A_2^{'}$ and B_2, *adds* to the influence loss, measured as the difference between A_2 and $A_2^{'}$.

The symmetric regime ($a_1 \leq I_{12} \leq a_2$).

In the symmetric regime, both lobby groups are offensive.

Proposition 3. A, B and C are the only subgame perfect equilibria in pure strategies. Moreover, equilibrium B and C may co-exist, giving rise to multiple equilibria.

Proof. Consider Figure 2. Subgame A is part of equilibrium if and only if $A_1 \geq C_1$ and $A_2 \geq B_2$. The two conditions are satisfied if the iso-payoff curves, A_2 and A_1, cut the vertical and the horizontal axis below point B and to the left of point C, respectively. Subgame B is part of equilibrium if and only if $B_1 \geq D_1$ and $B_2 \geq A_2$. $B_2 \geq A_2$, if the iso-payoff curve A_2 cuts the vertical axis above point B. Proposition 1 implies that lobby group 1 enters if lobby group 2 stays out, i.e. $B_1 \geq D_1$. Subgame C is part of equilibrium if and only if $C_1 \geq A_1$ and $C_2 \geq D_2$. $C_1 \geq A_1$, if the iso-payoff curve A_1 cuts the horizontal axis to the right of point C. Proposition 1 implies that lobby group 2 always enters the contest if lobby group 1 stays out, i.e. $C_2 \geq D_2$. Subgame D cannot be part of equilibrium by proposition 1. Finally, if the iso-payoff curve A_2 cuts the vertical axis above point B and the iso-payoff curve A_1 cuts the horizontal axis to the right of point C, equilibrium B and C co-exist□

Corollary. If neither subgame B nor subgame C is contained in the Pareto superior set, then, in the unique subgame perfect equilibrium, both lobby groups enter the contest. If subgame C, but not subgame B, is contained in the Pareto superior set, then in the unique subgame perfect equilibrium, lobby group 2, but not lobby group 1, enters the contest. If subgame B, but not subgame C, is contained in the Pareto superior set, then, in the unique subgame perfect equilibrium, lobby group 1, but not lobby group 2, enters the contest. Finally, if the Pareto superior set contains both subgame B and C, then multiple equilibria exist in which one of the lobby groups enters and the other stays out of the contest.

In the symmetric regime, either of the lobby groups may decide to stay out of the political contest. This is because they face (potential) competition from an offensive competitor, and, so, staying out always has a beneficial impact on the behaviour of the competitor. That is, both of the lobby groups look forward to a strategic gain by staying out. Again, to actually discourage entry, the strategic gain has to be sufficiently large to weight out the influence loss, i.e. the competitor must be sufficiently offensive.

From the analysis of the two regimes, we draw a number of conclusions. First, subgame A, in which both lobby groups enter, is always feasible as part of a subgame perfect equilibrium. Playing subgame A may, however, be quite inefficient. For instance, if $D_1>A_1$ and $D_2>A_2$, the game has the configuration of prisoners' dilemma in which the two lobby groups enter the political contest although they would be better off staying out. They are tricked into playing a Pareto dominated equilibrium by the fact that each of them has a unilateral incentive to enter if the competitor stays out. As argued in Aidt (1997), the resulting welfare loss may motivate the two lobby groups to cooperate on a mutual reduction of lobbying activities.

Second, in equilibrium B and C, one lobby group voluntarily decides to be politically inactive. This, of course, reduces competition at the political market. Moreover, since an incentive to stay out of the contest is only present if the active lobby group reduces its political activities relative to the Nash equilibrium of subgame A, the overall waste of resources is reduced. Hence, a self-imposed reduction in political competition, reduces the social cost of rent-seeking because the inactive lobby group does not waste money on politics and because the active lobby group reduces its political activities. Hence, rent-seeking models that exclude the issue of entry may *overestimate* the cost of rent-seeking. Moreover, in the asymmetric equilibria (B and C), the politically active lobby group is, surely, left with a positive rent, which the inactive lobby group could, if it so desired, seek.[12] However, due to the strategic behaviour of the active lobby group, the inactive group finds it profitable to

[12]The result is also derived by Hillman and Riley (1989). In their model, the barrier to entry, which leads to under-dissipation of the rent, is the fact that the valuation of the rent is asymmetric.

leave the rent alone. Hence, in our model the strategic behaviour of active lobby groups acts as a barrier to entry, or, rather, as a reward to the inactive lobby group for staying out of the contest.

Third, the incentive of a lobby group to be politically inactive depends, not on the posture of the lobby group itself, but on the posture of the competitor. This is due to the fact that the prize of the contest is variable *and* internal. If the prize were external in the sense that an inactive lobby group could avoid paying the tax bill, or the prize were internal, but fixed, then both lobby groups would surely enter the contest (unless the payoffs in subgame A are negative or less that some entry fee). It is the fact that the prize is both variable and internal that is the driving force behind the entry decisions in our model.

4. Binding Fund-constraints and the Incentive to Enter the Contest

Until now, we have assumed that both lobby groups have enough funds available, i.e. $Y_1 \geq y_1^*$ and $Y_2 \geq y_2^*$. In the next proposition, we summarise the effects of shortage of funds.

> **Proposition 4.** In the asymmetric regime, the defensive lobby group is more likely to enter if either of the two lobby groups has a binding fund-constraint. Shortage of funds, on the other hand, never induces the offensive lobby group to stay out of the contest. In the symmetric regime, both lobby groups are more likely to enter the political contest if either has a binding fund-constraint.

Figure 3 and 4 illustrate the asymmetric regime. We consider the case in which lobby group 1 is offensive and lobby group 2 is defensive. Without binding fund-constraints, we assume that the defensive lobby group is indifferent between entering and staying out of the contest, i.e. A_2=B_2. In Figure 3, the offensive lobby group has a binding fund-constraint, i.e. $Y_1 < y_1^*$. Hence, its best response function is the bolded line, and the equilibrium, in which both lobby groups enter the contest, is at point A' instead of at point A. We see that the defensive lobby group enters ($A_2' > A_2 = B_2$). The intuition is that the defensive lobby group can, at the margin, invest resources in politics without inducing an increase in the lobbying effort of the offensive lobby group. In Figure 4, the defensive lobby group has a binding fund-constraint. The bolded line illustrates its best response function. The fund-constrained equilibrium is at point A'. Again, the lobby defensive lobby group decides to enter ($A_2^{'} > B_2$). This is because it cannot invest more than Y_2: a fact that, *ceteris paribus*, induces the offensive lobby group to moderate its political activities. It is obvious from Figure 3 and 4 that binding fund-constraints never induce the offensive lobby group to stay out of the contest. Notice, however, that "staying out” looks better for the offensive lobby group if the defensive lobby group is short of funds. This is because the defensive lobby group's political activities, in case it is uncontested, are bounded.

Figure 5 illustrates the symmetric regime. Suppose that lobby group 2 has a binding fund constraint. We make the simplifying assumption that $A_1=C_1$ and $A_2=B_2$. Both lobby groups have an incentive to enter the contest ($A_1^{'} > C_1$ and $A_2^{'} > B_2$). Lobby group 1 enters because the binding fund-constraint prevents its competitor from being too offensive. Lobby group 2 enters because it is forced to be less offensive, which reduces the political activities of lobby group 1.

5. Concluding Remarks

In this paper, we analyse entry into a rent-seeking contest with a variable and internal prize. The basic trade-off involved in the entry decision is as follows. By staying out, a lobby group always incurs an influence loss. This is because it foregoes the option to counteract the lobbying effort of the competitor. The incentive to be inactive, hence, arises from the behavioural impact that inactivity has on the competitor, i.e. from a (potential) strategic gain. Only, if staying out induces an active competitor to moderate its lobbying effort substantially, it is worthwhile for a lobby group to stay out of the contest. Hence, our analysis shows how the strategic behaviour of an active lobby group may serve as a barrier to entry by rewarding the competitor for staying out of the contest. Moreover, a potential rent-seeker may find it profitable to leave a rent for its competitor. Since this incentive is only present if the uncontested competitor reduces its rent-seeking expenditures, the overall cost of rent-seeking may be substantially reduced compared to the equilibrium in which everybody seeks the rent. Accordingly, rent-seeking models, which exclude the issue of entry, may overestimate the cost of rent-seeking.

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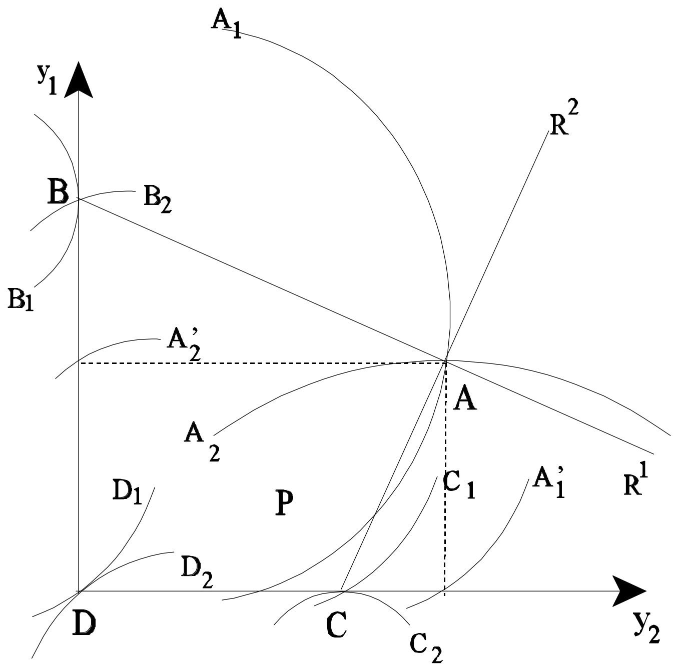

Figure 1. The asymmetric regime ($I_{12} \leq a_1$).

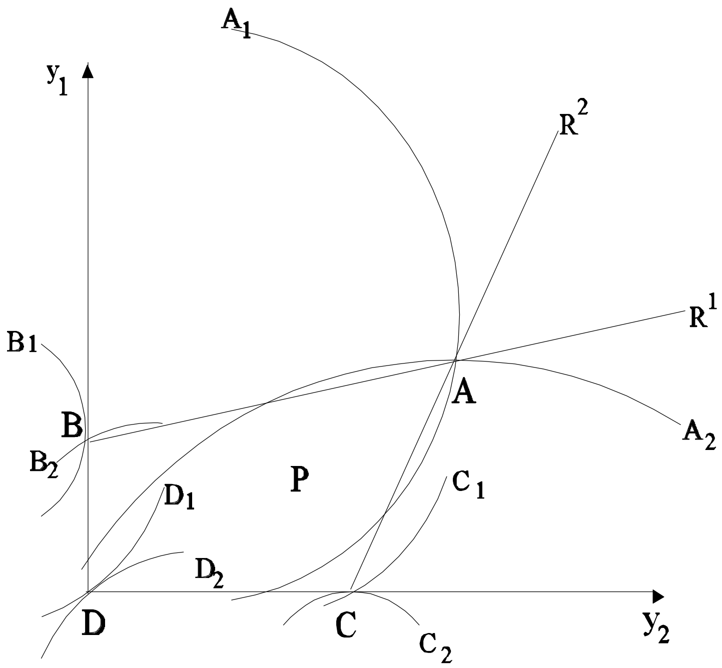

Figure 2. The symmetric regime ($a_1 < I_{12} < a_2$)

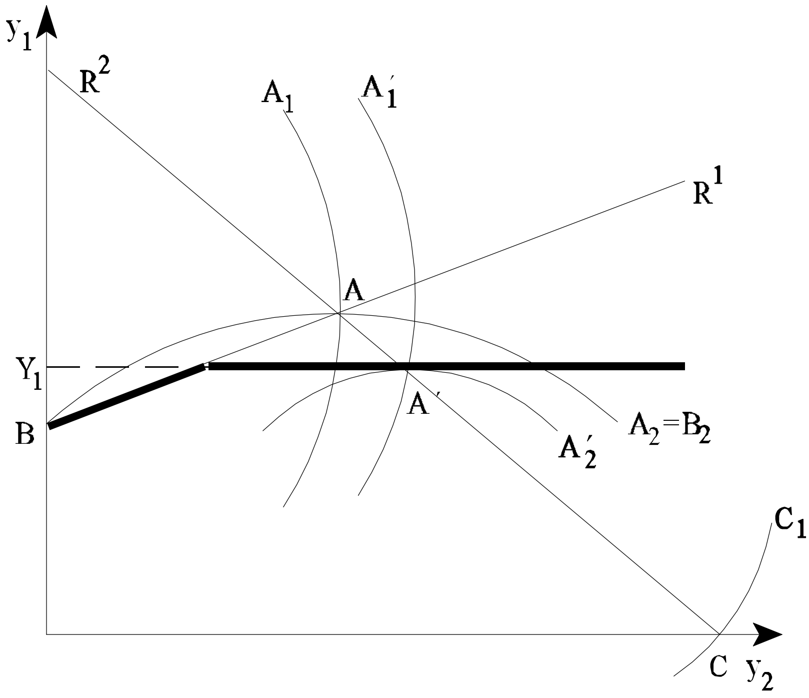

Figure 3. The asymmetric regime ($I_{12} \geq a_2$). Lobby group 1's fund-constraint is binding.

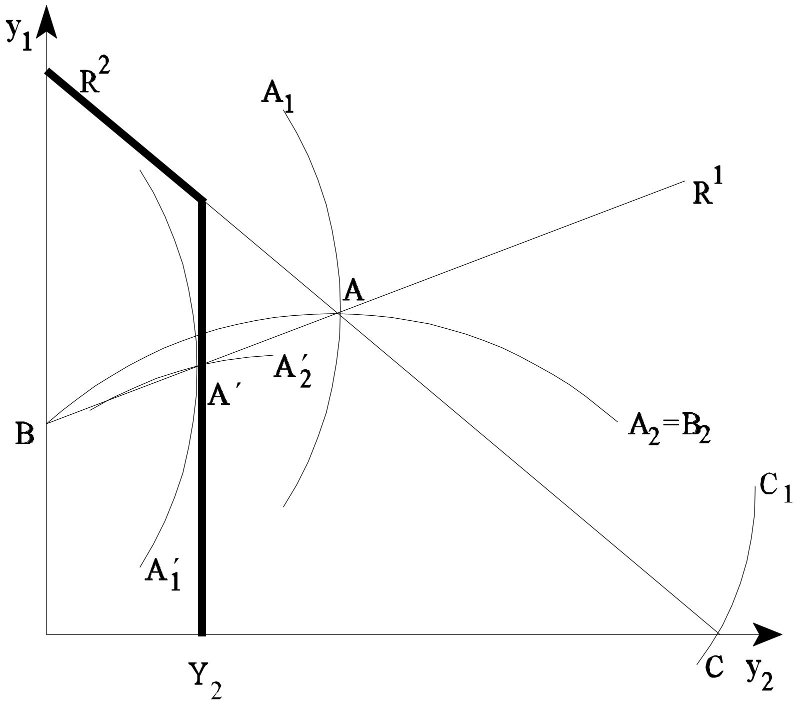

Figure 4. The asymmetric regime ($I_{12} \geq a_2$). Lobby group 2's fund-constraint is binding.

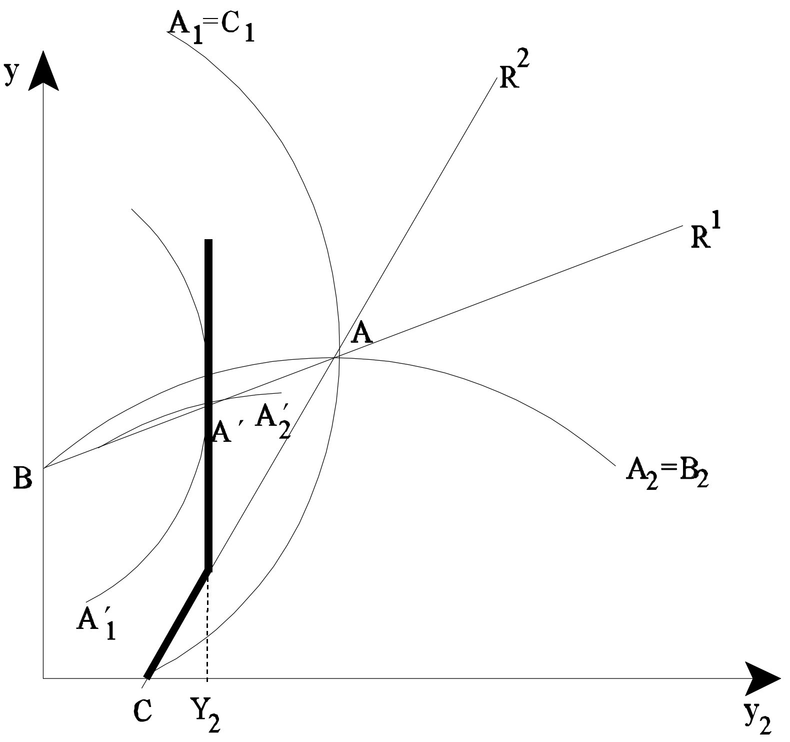

Figure 5. The symmetric regime ($a_1 < I_{12} < a_2$). Lobby group 2's fund-constraint is binding.

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