# THE POLITICS OF RANDOMNESS

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# THE POLITICS OF RANDOMNESS


## Abstract

The main drawback of the public-policy contest is that the notion of contest success function, a crucial component of the contest model, does not have micro-foundations and, therefore, the random behavior of the government seems ad-hoc. In the present paper we propose a partial micro-foundation for the public-policy contest. The possible rationalization of random government behavior is illustrated in the case of the all-pay auction and Tullock's lottery logit functions. We also clarify how stake asymmetry, lobbying-skill asymmetry and return to lobbying effort determine the relative desirability, from the government's point of view, of these CSFs.


JEL Classification: D72, D6.

Keywords: interest groups, policy makers, lobbying, public-policy contests, contest success function, rationalization of random government's behavior.

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## I. Introduction

Much of the recent literature in political economy is based on models that are useful for analyzing the interrelationship between economic and political agents under alternative given institutional settings, see Persson and Tabellini (2000) and Grossman and Helpman (2001) and the references therein. Typically, in the overall game-theoretic equilibria in these settings, economic and political outcomes are mutually consistent. A major advantage of these models is that they have explicit micro-foundations. However, the results derived from these valuable models critically depend on the assumed political institutions, agents' preferences and policy space.[1] The study of the regularities of the effect of lobbying on the nature of public policy in representative democracies cannot therefore be based on such elaborate models because they are sensitive to the institutional setting and to the assumptions regarding the nature of the policy space or the agents' preferences. Our claim is that the study of such regularities can be based on the complementing, reduced-form, simple contest approach that captures the basic forces affecting the relationship between policy and lobbying in a large variety of democratic political environments. The contest approach is not useful for dealing with important theoretical topics such as the role of asymmetric information in politics. It is also not suitable for studying economic policy determination in a general equilibrium setting, given a particular set of political institutions. It is useful, however, for explaining the basic interrelationships between public policy, the government's objectives and the characteristics of the interest groups that engage in influence activities. This approach, which was proposed by Tullock (1980), has been extensively enriched and generalized.[2] Recently, an extended such contest has been proposed to study public-policy determination,

[1] For example, as noted by Persson and Tabellini (2000), when studying electoral competition, two-party or two-candidate elections are assumed. The treatment of legislative decision usually entails drastic simplifications, particularly when modeling the process of government formation and dissolution in parliamentary democracies. The role of government administration in shaping the details of economic policy is almost always ignored. The policy space is often assumed to be uni-dimensional and preferences are usually represented by restricted single peaked or concave utility functions.

[2] The list of references in the last survey of the rent-seeking literature, a survey that focuses on the modeling of rent-seeking contests, Nitzan (1994), contains 104 items. Presently the number of papers in this literature has risen to more than 260.

Epstein and Nitzan (2002b). This extended contest emphasizes 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 and the prevalence of rent-seeking activities. Albeit, the main shortcoming of the contest approach is that it does not have micro-foundations. In particular, the contest success function (CSF), a crucial component in this model, is exogenous and this implies that the behavior of the government is ad-hoc as no attempt is made to rationalize it. The objective of this paper is to provide a partial micro-foundation for the CSF that plays such a central role in the literature on contests or rent-seeking games, and, in particular, in the extended public-policy game mentioned above.[3] Our rationalization of such CSFs hinges on the existence of government (politician) preferences that take into account the lobbying outlays of the interest groups, in addition to the public well being[4]. A simple, fundamental condition rationalizes the random behavior of the government and, in turn, the existence of a CSF that is assumed to be exogenous in numerous studies in the contest literature[5]. The most commonly used CSFs are Tullock's (1980) logit-form functions and the function associated with all-pay auctions that awards the prize to the most active rent seeker, Hillman and Riley (1989). In public-policy contests the government is usually assumed to be a passive player that only randomly approves or rejects policy proposals, Epstein and Nitzan (2002a), (2002c), as in the standard contest literature. In the extended public-policy contest, the government is an active rational 'principal' who determines policy in two senses; it proposes the policy and randomly approves or rejects it, Epstein and Nitzan (2002b). In this extended setting, the government selects a policy anticipating the lobbying efforts of the interest groups. On the one hand, it acts rationally in selecting a proposed policy (in setting the agenda) and, on the other hand, it acts randomly (seemingly "irrationally") in approving or rejecting its proposed policy. Our main result establishes that under an appropriate mix of

[3] For the related pressure group literature, see for example, Becker (1993) and Glazer and McMillan (1992).

[4] 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).

[5] For an axiomatic characterization of CSFs, see Skaperdas (1996).

objectives (desire to enhance the public well being and desire to increase the lobbying outlays) random behavior in the former narrower setting and "mixed" behavior in the extended latter setting is rational[6]. Our secondary results illustrate the rationalization of the most widely studied contests and clarify under what conditions a Tullock's logit-form CSF is preferred, equivalent or inferior to the all-pay auction.

## II. The Public Policy Contest

In the basic one-stage contest setting there are two risk-neutral interest groups, the low and high benefit groups *L* and *H*. Both interest groups are directly affected by the government's (politician's) choice of one of two exogenously given policies. The stake of player *i (i=L, H)* is denoted by $n_i$ , where $n_H \geq n_L$. In this contest the government has no control on the agenda: the two possible policies. Typically, one policy is the status-quo policy and the other policy is some new alternative policy and the government has to approve or reject the proposed new policy. In the extended two-stage contest the government controls the agenda. Typically, in the first stage of the game, it selects the proposed new alternative policy. In the second stage of the game, the payoffs of the two interest groups again depend on the binary policy choice of the government: the approval or rejection of the proposed new policy.

The government could decide to select the policy that results in the realization of the higher stake, i.e., the policy that generates the stake $n_H$ *for H*[7]. An alternative option for the government is to choose randomly between the two different policies that it faces. 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[8].

[6] For a discussion on rational policy-target ambiguity in electoral competition, see Alesina and Cukierman (1990) and Shepsle (1972).

[7] In the extended game, this option exists for any two feasible policies and, in particular, for the equilibrium pair of policies (the status quo policy and the equilibrium alternative proposed policy).

[8] In our complete information setting, a lottery on the possible policies is an inferior strategy. Under incomplete information, however, where the former strategy is not feasible, a lottery can be an efficient strategy. In particular, although it is vulnerable to resource misallocation, it can dominate some alternative non-market allocation mechanism like a waiting line auction (queue system) that involves rent-seeking costs, Boyce (1994), Holt and Sherman (1982), Suen (1989), Taylor, Tsui and Zhu (2001)

There is yet a third possibility. The politician can deliberately create a public-policy contest the outcome of which is the probability of realization of the two possible policies: the status-quo policy and the new policy proposal. By assumption, the approval of the proposed policy results in its realization and its rejection implies that the alternative status-quo policy is realized. The probabilities of realization of the two policies in the complete-information public-policy contest (in the basic or in the extended 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.[9] Denote by $Pr_i$ the probability of realization of player *i*'s preferred policy (see, for example, Baik (1999), Epstein and Nitzan (2002a), (2002b), (2002c) and Nti (1997)). A player's stake is secured if he wins the contest, that is, if ex-post his preferred policy is the outcome of the contest. Recall that for one player the desirable outcome is associated with the approval of the proposed policy while for the other player the desirable outcome is realized when the proposed policy is rejected. Given the CSF and the stakes, the expected net payoff (surplus) of interest group *i* can be written as follows:

(1) $$E\left(w_i\right) = \Pr_i(.)\, n_i - x_i$$

If the risk neutral player i chooses a pure strategy, $x_i$ denotes his lobbying effort. If he chooses a mixed strategy, $x_i$ denotes his expected effort.

As commonly assumed in the recent political economy literature, Grossman and Helpman (2001), Persson and Tabellini (2000), let the government's objective function be a weighted average of the expected social welfare and lobbying efforts:

(2) $$G(.) = \alpha\left(E\left(w_L\right) + E\left(w_H\right)\right) + \left(1-\alpha\right)\left(x_L + x_H\right)$$

and Koh, Yang and Zhu (2002).

[9] Modeling the contestants as single agents presumes that they have already solved the collective action problem. The model thus applies to already formed interest groups.

The parameters α and (1-α) are the weights assigned to the expected social welfare and the contestants' lobbying outlays.

**III. The Condition for Preferred Randomness**

If the government decides not to generate a contest and choose the policy that generates the higher stake $n_H$,[10] then the value of the government's objective function is equal to $\alpha\, n_H$. 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. That is, [11]

(3) $$\alpha\left(E(w_L)+E(w_H)\right)+(1-\alpha)(x_L+x_H)>\alpha\; n_H$$

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

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

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:

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[10] In the extended public-policy contest, the relevant $n_H$ corresponds to the sub-game perfect equilibrium policy proposal of the government. See footnote 7.

[11] Notice that the lobbying efforts and the corresponding contest winning probabilities of the players and their expected payoffs are computed in the Nash equilibrium of the public-policy contest.

(i) When b $\geq$ *1,* inequality (4) 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 (4) 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[12]. 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 $\alpha n$, regardless of who wins the contest. In such a case any contest that generates positive lobbying efforts is preferred to the 'no contest' alterative, 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

[12] When lobbying takes the form of information transmission, it can be a welfare enhancing activity, Gradstein (2002), Lagerlof (1997) (The allocative efficiency role of rent seeking in the context of the internal organization of a firm was pointed out already in the early eighties by Lazear and Rosen (1981)). In such a case the existence of a contest could be rationalized not only when the government assigns a higher weight to the extraction of resources from the lobbies, but also when it assigns a higher

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.[13]

(iv) The LHS of (3) 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 $\beta_1$ assigned to the expected stakes $(\Pr_L n_L + \Pr_H n_H)$ must be smaller than the weight $\beta_2$ associated with the lobbing effort $(x_L + x_H)$ , that is, $\beta_1 < \beta_2$ . In terms of the parameter $\alpha$, 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 (4) 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

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weight to the well being of the contestants and even when $\alpha = 1$.

[13] To ensure that the equilibrium is a pure strategy Nash equilibrium and that it is unique, in addition to the assumed properties of the CSF, we have to add the following requirement (see Skaperdas, 1992):

$$\Pr_i(x_i, x_j)(1 - \Pr_i(x_i, x_j))\frac{\partial^2 \Pr_i(x_i, x_j)}{\partial x_i \partial x_j} + (2\Pr_i(x_i, x_j) - 1)\frac{\partial \Pr_i(x_i, x_j)}{\partial x_i}\frac{\partial \Pr_i(x_i, x_j)}{\partial x_j} = 0$$

This condition is satisfied if $\frac{\partial^2 \Pr_i(x_i, x_j)}{\partial x_i \partial x_j} \gtreqless 0$ *iff* $\Pr_i(x_i, x_j) \gtreqless 0.5$. This plausible assumption means that player $i$ has an advantage in terms of ability, if a change in *j*'s effort positively affects his marginal winning probability. In other words, a positive (negative) sign of the cross second-order partial derivative of $\Pr_i(x_i, x_j)$, $\frac{\partial^2 \Pr_i}{\partial x_j \partial x_i}$ , implies that $i$ has an advantage (disadvantage) when *j*'s effort changes. Note that this assumption is satisfied by many contest success functions that have been studied in the literature (see Skaperds, 1992).

should generate outlays that are larger than the expected difference between the contestants' stakes. As is already known, when both stakes are equal, $n_L = n_H = n$, this condition is satisfied.

## IV. Applications

### A. The most common CSFs

The following examples of some of the most widely studied CSFs illustrate the applicability of the condition for preferred randomness.

#### A.1. The all-pay auction

Under the extensively studied all-pay auction, see, for example, Hillman and Riley (1989), Konrad (2002), in equilibrium, $E\left(x^*_L + x^*_H\right) = \frac{n_L\left(n_L + n_H\right)}{2n_H}$ and $\Pr_L^* = \frac{n_L}{2n_H}$.

Therefore, $\frac{(1-2\alpha)}{\alpha}\frac{\left(x^*_L + x^*_H\right)}{\Pr^*_L} = \frac{(1-2\alpha)}{\alpha}(b+1)n_L$. Inequality (4) is thus satisfied iff $\alpha < \frac{b+1}{3b+1}$. This latter condition is satisfied if $\alpha < 1/3$. We conclude therefore that from the government standpoint, the all-pay auction is always preferred to "no contest" whenever $\alpha < 1/3$. If $1/2 > \alpha > 1/3$, then the all-pay auction is preferred to "no contest", provided that the stake asymmetry is sufficiently small.

#### A.2. Tullock’s lottery logit functions:

**(i) The discriminating lottery function**:

Under this CSF, Gradstein (1995), Nti (1997), $\Pr_L = \frac{x_L}{d\,x_H + x_L}$ for $x_H, x_L, d > 0$. In equilibrium, $\Pr_L^* = \frac{n_L}{n_L + dn_H}$ and $x^*_L + x^*_H = \frac{dn_L n_H\left(n_L + n_H\right)}{\left(dn_H + n_L\right)^2}$. Therefore (4) is satisfied iff $\frac{(1-2\alpha)}{\alpha}\frac{d\ b\ (b+1)}{(d\,b+1)} > (b-1)$. When $d$=1, the CSF is the non-discriminating commonly used Tullock's lottery function. It can be readily verified that for d=1, the non-discriminating Tullock's contest is always preferred to "no contest" whenever $\alpha < 1/3$. Under the more general discriminating CSF, $\alpha < 1/3$ and

$d > \frac{(b-1)}{2b}$ are sufficient conditions for the fundamental condition (4) to be satisfied. That is, for the contest to be preferred to a certain approval or rejection , the weight assigned by the government to the contestants' aggregate expected payoffs has to be less than 1/3 and the asymmetry factor of the high stake player has to exceed $\frac{(b-1)}{2b}$. Notice that *d* is the weight assigned to the player with the higher stake. The condition implies that the skill-effectivity of the high-stake player must be sufficiently high. The value of *d* can be smaller than one since *d* must only be larger than $\frac{(b-1)}{2b}$, which is smaller than one. That is, although the lobbying effectivity of the high-stake player must be sufficiently high, he can still be disadvantaged in terms of his lobbying skills. This means that for a sufficiently small $\alpha$ , $\alpha$ <1/3, the contest is preferred to "no contest", if stake asymmetry is sufficiently low. But the asymmetry in lobbying effectivity can be either sufficiently low or sufficiently high, dependent on whether the high-stake player is disadvantaged or advantaged in terms of lobbying skills.

**(ii) The generalized lottery function**

Under this CSF, Lockard and Tullock (2001), $\Pr_L = \frac{x_L{}^r}{x_H{}^r + x_L{}^r}$ *for* $r \le 2$. In equilibrium, $\Pr_L{}^* = \frac{n_L{}^r}{n_L{}^r + n_H{}^r}$ and $x^*{}_L + x^*{}_H = \frac{r n_L{}^r n_H{}^r (n_L + n_H)}{(n_H{}^r + n_L{}^r)^2}$ . Therefore (4) is satisfied iff $\frac{(1-2\alpha)}{\alpha} \frac{r\, b^r\, (b+1)}{(b^r+1)} > (b-1)$ . In this case the contest is always preferred to "no contest" whenever $\alpha < 1/3$ and $r \ge 1$ . Given b, the condition provides a lower bound for *r*. As *r* decreases the return to effort decreases and, therefore, in equilibrium the effort invested in the contest decreases and so, for a sufficiently low level of the coefficient *r*, condition (4) will not be satisfied.

**B. Comparison of the common CSFs**

Let us now compare the three different CSFs presented above determining which of them would be preferred by a politician who designs the contest between the interest groups. Clearly, the preferred CSF results in the highest utility G(.). We thus compare the LHS of (4) corresponding to the different CSFs.

**B.1. The all-pay auction vs. the discriminating lottery function**

The all-pay auction is preferred to the discriminating lottery function iff $\frac{(1-2\alpha)}{\alpha}(b+1)n_L > \frac{(1-2\alpha)}{\alpha}\frac{d\ b\ (b+1)}{(d\,b+1)}n_L$ , namely, iff $1 > \frac{d\ b}{(d\,b+1)}$ . Since this latter inequality is always satisfied, the all-pay auction is preferred to the discriminating lottery function. The plausibility of the discriminating lottery function hinges therefore on the infeasibility of the CSF associated with the all-pay auction. Such infeasibility is possible, for example, when the political culture forbids a discriminating CSF of the sort corresponding to the all-pay auction.

**B.2. The all-pay auction vs. the generalized lottery function**

The all-pay auction is preferred to the generalized lottery function iff $\frac{(1-2\alpha)}{\alpha}(b+1)n_L > \frac{(1-2\alpha)}{\alpha}\frac{r\ b^r\ (b+1)}{(b^r+1)}n_L$ , namely, iff $1 > \frac{r\ b^r}{(b^r+1)}$ , or $1 > (r-1)\,b^r$ ,which may or may not hold. Notice that for $r \leq 1$, the inequality is satisfied. That is, when the CSF is of constant or decreasing returns to scale, it is inferior to the all-pay auction. When $r > 1$, the RHS of the inequality increases in both $r$ and $b$. Hence, in such a case, given the return to lobbying $r$, the all-pay auction is preferred to the generalized lottery provided that the stake asymmetry $b$ is sufficiently small. Similarly, given the stake asymmetry $b$, the all-pay auction is preferred to the generalized lottery provided that the return to lobbying $r$ is sufficiently small. For example, if $r=1.5$ (recall that $t < 2$) and $b=2$ , then the generalized lottery function is preferred to the all-pay auction. However, if $b = 1.5$, the opposite result is obtained. We therefore conclude that the all-pay auction is not necessarily preferred to the generalized lottery function. Finally note that in the rent-seeking literature when the CSF is assumed to be the generalized lottery function, for the sake of simplicity, $r$ is often assumed to be equal to one. Our analysis implies that this assumption makes a significant difference because it raises doubts regarding the plausibility of the assumed CSF that now becomes inferior to the all-pay auction.

## V. Concluding Remarks

We have argued that the CSF, a basic component in contest theory, has a plausible micro-foundation. That is, the government random behavior can be rationalized both when it acts randomly, as in the standard influence activities, lobbying or rent-seeking models, or 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 function applied in the analysis of all-pay auctions and two types of logit functions: Tullock's discriminating lottery function and Tullock's generalized lottery function.

In general, when the stakes of the interest groups differ, a necessary condition for preferred randomness is that the weight the government assigns to the contestants' aggregate net payoff is smaller than the weight assigned to the contestants' lobbying efforts. When the weight assigned to the aggregate gross stakes is smaller than the weight assigned to the total lobbying efforts, random behavior is preferred to a certain "no contest" behavior, provided that the contest generates outlays that are larger than the expected difference between the contestants' stakes. We have shown that random behavior can be rationalized if the weight assigned to the lobbying efforts is sufficiently high or stake asymmetry is sufficiently small.

In the special cases of the most commonly studies CSFs, we have obtained three further interesting results: (i) the all-pay auction can be rationalized if the weight assigned to the aggregate gross stakes is smaller than the weight assigned to the total lobbying efforts. (ii) random behavior conforming to a discriminating lottery function is preferred to a certain "no contest" behavior, if the weight assigned to the aggregate gross stakes is smaller than the weight assigned to the total lobbying efforts and the lobbying-skill effectivity of the high-stake contestant is sufficiently high. (iii) The generalized lottery function can be rationalized if the return to lobbying is sufficiently high. Finally, it has been shown that the all-pay auction is always preferred to the discriminating lottery CSF. However, it is not necessarily superior to the generalized lottery CSF. When the generalized CSF is of constant or decreasing returns to scale, it is inferior to the all-pay auction. When the generalized CSF is of increasing returns to scale, it is inferior to the all-pay auction provided that the stake asymmetry is sufficiently small or the return to lobbying is sufficiently small.

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 resources 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 the government to prefer the existence of a contest. When lobbying takes the form of information transmission, it can also induce the government to prefer a 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.

The first part of our analysis is confined to the comparison between two options the government faces: a certain "no-contest behavior" and a random "contest behavior" according to one particular CSF. The analysis is then extended to the comparison between a certain "no contest" behavior and random contest behavior that conforms to the most widely used CSFs. These restrictions naturally raise the question: Why do we focus on just these options. One could wonder, in particular, why we confine the analysis to just these CSFs, ignoring the possibility that the government looks for the "reasonable" or the "optimal" CSF?. Trying to suggest a workable definition for reasonableness, Skaperdas (1996) supplies axiomatizations for certain CSFs. The search for an optimal CSF has also started. A partial resolution of the problem of an "optimal contest design" is provided in Dasgupta and Nti (1998) and Nti (1997),(2002).[14,15] One could also wonder what can be said about the comparison between the stylized, reduced-form public-policy contest that was briefly discussed in this paper and some of the elaborate, political-economic models that were recently extensively used in the analysis of endogenous public policy. Both of these important issues are beyond the scope of the present study which purports to

[14] It has been shown that, in two special classes of symmetric logit CSFs, the maximum aggregate lobbying effort is attained, respectively, by a discriminating lottery function and by an all-pay auction with a reservation price. The optimal generalized lottery function has also been identified. Finally, it has been shown that Tullock's constant returns to scale CSF ($r$=1) is optimal for a risk-neutral contest designer whose valuation for the prize is sufficiently low.

[15] For "optimal contest design" in the different context of research and labor tournaments that focus on the adverse selection problem associated with the selection of the most highly qualified contestants in auctions, see Fullerton and McAfee (1999) and the references therein.

accomplish a more modest yet challenging objective, namely, to present a partial rationalization of random government behavior that conforms to some feasible CSF.

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