



Group-contests with endogenous claims[☆]



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ABSTRACT

Before group members individually decide their efforts in a contest to set a policy, groups are allowed to make some concessions to their opponent by choosing a less controversial policy to lobby for. When valuations over the set of policies follow a linear function, we show that concessions are never profitable when the contest success function is homogeneous of degree zero but they are when it is of difference form. Surprisingly, concessions might be detrimental for the members of the group that does not make them. Comparing this situation with another where efforts are decided collectively at a group level allows us to identify the effect of positive externalities of effort as the key cause of this damage.

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1. Introduction

Contestants can often commit to altering their demands before making costly contributions that improve the chances to achieve their claims in a struggle. For example, lobbyists may change the policy proposal they will lobby for. In a conflict between an industry and an environmentalist interest group the parts may revise the pollution standards or the tax on emissions they will defend in the future. In a labor dispute on the minimum wage, the workers union and the capital owners may also adjust their claims before the confrontation. This strategic environment is analyzed by Epstein and Nitzan (2004) who show that if contestants' original claims are in an ideal point at which the first-order condition holds then they will be strategically moderated because this originates a positive effect by reducing the aggressiveness of the opposing group that dominates the reduction of their own payoff from winning the conflict (see also Epstein and Nitzan, 2007). This study aims to reconsider strategic restraint in a contest when the original claims do not hold the first-order condition.¹ This would be the case when agents' preferences are strictly concave but their preferred policies are not available, or when such preferences are either linear or convex. To develop

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¹ Münster (2006) presents a different reconsideration of this issue. His analysis focuses on the effects of a perfectly discriminating contest success function on strategic restraint and shows that, unlike Epstein and Nitzan (2004), moderation might be extreme in the sense that policy proposals coincide.

our point, we will restrict the analysis to the linear case. Although concavity of preferences over policies could be argued to be a plausible assumption, linearity of preferences will generally arise in a contest to locate a public facility where agents have linear transportation costs, or in contests between risk-neutral agents to obtain a fixed surplus.² For example, one may think of a contest among risk-neutral agents, poor and rich, to fix the redistribution policy in their society. From this viewpoint, our work can also be seen as a contribution to the literature that interprets the limited redistribution as an outcome of the political process (see Harms and Zink, 2003, for a detailed survey on this topic).

As in Epstein and Nitzan (2004), two groups of (possibly) different sizes are involved in a contest to implement some public policy, where alternatives are endogenously selected by the groups. Our model differs from the previous paper in two particular aspects: First, we consider that agents' preferences over policies are linear; and second, we allow agents to choose their effort levels individually and independently. The literature on group contests uses alternative impact functions to aggregate individual efforts. In this respect, we consider an additively linear impact function, as in Baik et al. (2001), Baik (2008) or Topolyan (2014). Additionally, we assume that individuals are identical with respect to their valuation of the prize and the cost of effort, as in Barbieri et al. (2014) or Topolyan (2014). In this setting our objective is twofold: First, to study the effect of the contest success function (henceforth, CSF) on the strategic restraint; and second, to illustrate how the coordination of efforts within groups affects the strategic restraint and its payoff implications. Regarding the first point, this study considers two alternative specifications of the CSF: Homogeneous of degree zero CSFs and the difference-form CSF introduced by Che and Gale (2000). The former is a widely used family of CSFs (e.g. Tullock, 1980) whereas the latter belongs to the other relevant class of CSF (e.g. Hirshleifer, 1989 or Baik, 1998).³ With respect to the second objective, the analysis compares the situation in which efforts are selected individually with the one in which group members coordinate their efforts. This allows to isolate the effects of positive externalities of effort on the equilibrium strategies and payoffs. The framework in which individuals choose efforts in a group-contest connects this paper to a rapidly growing literature that mainly focuses on the free-rider problem that normally arises when individuals must decide how much to contribute to a collective cause (see Baik et al., 2001, Baik, 2008, Chowdhury et al., 2013, Epstein and Mealem, 2009, Kolmar and Rommeswinkel, 2013, Lee, 2012, Barbieri et al., 2014 or Topolyan, 2014).⁴ Although the present paper is not focused on the free-rider problem in group contests, the analysis allows to illustrate the role of the positive externalities of effort on both the groups' incentives to moderate their target policies and their equilibrium utilities.

We show that in our setting there is no strategic restraint if the CSF is homogeneous of degree zero, neither when efforts are decided individually nor when they are settled collectively within each group. However, we also show that under the difference-form CSF the small group might be willing to moderate its claim in both settings: either when the choice of efforts is individual or when members coordinate efforts. This benefits all players in the latter case but, surprisingly, it may damage the large-group members in the former case. Intuitively, a concession made by the small group has two opposite effects: On the one hand, it reduces the effort of all individuals by the same amount, so the winning probability of the large group is reduced. On the other hand, this concession increases the large-group members' payoff from losing the dispute. Additionally, when efforts are decided individually the influence of positive externalities of effort adds to the first effect and tips the balance against the interest of the large-group members who are hurt by the concessions of the other group and, even more, by a concession of their own group. Consequently, they are not willing to choose a less controversial target-policy.

The paper is organized as follows: Section 2 presents the model. Sections 3 and 4 present the results in the uncoordinated and coordinated cases, respectively. Finally, Section 5 discusses some of the assumptions of our model and concludes.

2. The model

Consider two groups N and M consisting of n and m agents, respectively, with $n \geq m \geq 1$. These groups would compete in a contest for a public good, say a policy. The policy space is $X = [0, 1]$ and the preferences of agents are given by $u_i(z) = 1 - z$ for all $i \in N$ and $u_j(z) = z$ for all $j \in M$, for all $z \in X$.

Prior to the contest, the groups simultaneously select their target policy; that is, the policy they will implement in case of winning the subsequent contest. Let x and y denote the target policies of groups N and M , respectively. Once x and y have been settled, agents in N and M simultaneously choose their effort in order to affect the probability of winning. Let a_i and b_j denote individual efforts of agents $i \in N$ and $j \in M$, respectively; and define $A = \sum_{i \in N} a_i$ and $B = \sum_{j \in M} b_j$ as the group efforts. These aggregate effort levels will determine the winning probability of each group, denoted by $p_N(A, B)$ and $p_M(A, B) = 1 - p_N(A, B)$.

² Preferences could be even convex in reasonable settings. For example, in a contest between a workers union and a firm over the wage level in which the firm has the so-called 'right-to-manage', it is standard to assume that the firm's preferences are increasing and concave with respect to the employment level, which give rise to convexity with respect to the wage. We acknowledge a referee for pointing out this example.

³ Beviá and Corchón (2015) present a CSF that is of difference-form and homogeneous of degree zero. See Skaperdas (1996), Münster (2009) and Cubel and Sanchez-Pages (2015) for axiomatizations of relevant CSFs for individual and group-contests. Apart from axiomatizations, CSFs have been also characterized from other approaches: stochastic, optimally-designed and micro-founded (see Jia et al., 2013).

⁴ This is a classical issue in Economics analyzed by Bergstrom et al. (1986), Olson (1965), Gradstein et al. (1994), Varian (1994) or Vicary (1997), among others.

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