Controlling the Expense of Political Contests Using a Modified N-Players Tullock's Model

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Abstract : This work introduces a generalization of the classical Tullock's model of one-stage contests under complete information with multiple unlimited numbers of contestants. In classical Tullock's model, the contest winner is not necessarily the highest bidder. Instead, the winner is determined according to a draw in which the winning probabilities are the relative contestants' efforts. The Tullock modeling fits well political contests, in which the winner is not necessarily the highest effort contestant. This work presents a modified model which uses a simple non-discriminating rule, namely, a parameter to influence the total costs planned for an election, for example, the contest designer can control the contestants' efforts. The winner pays a fee, and the losers are reimbursed the same amount. Our proposed model includes a mechanism that controls the efforts exerted and balances competition, creating a tighter, less predictable and more interesting contest. Additionally, the proposed model follows the fairness criterion in the sense that it does not alter the contestants' probabilities of winning compared to the classic Tullock's model. We provide an analytic solution for the contestant's optimal effort and expected reward.

Keywords : contests, Tullock's model, political elections, control expenses

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