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Lottery versus All-Pay Auction Contests –

Revenue Dominance Theorems

Economics

Keywords: All-pay auction; lottery contest; additive and multiplicative biases; revenue dominance

Abstract

We allow a contest organizer to bias a contest in a discriminatory way, that is, she can favor specific contestants through the choice of an appropriate contest success functions in order to maximize total equilibrium effort (resp. revenue) from a *heterogenous* set of (potential) contestants. The scope for revenue enhancement through biasing is analyzed and compared for the two predominant contest regimes in economic analyses: all-pay auctions and lottery contests. Biasing by the contest organizer can take two forms: either a bid by a contestants is weighted by an individual weight in the contest success function (multiplicative bias) or it is adjusted by an additive component (additive bias, respectively, “handicap” or “headstart”).

Our main results reveal (in closed form solutions) that in both cases, multiplicative and additive biasing alike, the respective optimally biased all-pay auction revenue-dominates the respective optimally biased lottery contest for all levels of heterogeneity among contestants. Not all contestants need to be active in those optimal contests. An optimally biased all-pay auction will never make use of the celebrated exclusion principle advanced by Baye et al. (1993). Moreover, the all-pay auction with optimal head starts; i.e. the optimally additively biased all-pay auction, generates higher revenue in equilibrium than any multiplicatively biased all-pay auction or lottery contest. While head starts are more effective than multiplicative biases in all-pay auctions, they are less effective than multiplicative biases in lottery contests.