Spying in Contests

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Abstract

In real life contests, players tend to spy on each other. Built on [Fang and Morris, 2006], spying in contests is modeled by a symmetric private value all-pay auction (APA), where both players observe their own valuations as well as a noisy spying signal about opponent’s valuation, through a costly spying technology (ST). I show that the equilibrium can be non-overlapping or overlapping depends on the accuracy of the ST; the revenue of APA is lower than second price auction (SPA), and could be higher or lower than first price auction (FPA). Then the model is extended to study information acquisition prior to the contest, where players acquire an ST in an earlier period before the contest. When the accuracy of ST acquired is observable to the opponent, players do not always prefer more information (even when it is not more expensive); when the accuracy is unobservable to the opponent, level of information acquisition is decreasing with the cost. Under both cases, the seller/regulator can manipulate revenue by affecting the acquisition cost. Numerical examples suggest higher incentive of spying in FPA than APA.

Key words: All-pay Auction, Information Leakage, Revenue Equivalence

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