The Allocation of a Prize

Professor Pradeep Dubey

State University of New York at Stony Brook & Yale University

Abstract:
Consider agents who undertake costly effort to produce stochastic outputs observable by a principal. The principal can award a prize deterministically to the agent with the highest output, or to all of them with probabilities that are proportional to their outputs.

We investigate, when there is sufficient diversity in agents’ skills relative to the noise on output, whether or not the proportional prize will elicit more output on average than the deterministic prize.

Indeed, assuming agents know each other’s skills (the complete information case), our findings show how any Nash equilibrium selection, under the proportional prize, is compared with any individually rational selection under the deterministic prize. When there is incomplete information, our findings address how we must treat Nash selections for prizes.