Dynamic Tournament Design: An Application to Prediction Contests*

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Abstract

Online competitions allow government agencies and private companies to procure innovative solutions from talented individuals. How does contest design shape incentives throughout the contest? Does a real-time leaderboard encourage players during the competition? To answer these questions, we build a tractable dynamic model of competition and estimate it using 55 prediction contests hosted by Kaggle.com. We evaluate players' incentives under counterfactual competition designs, which modify information disclosure, allocation of prizes, and participation restrictions. We find that contest outcomes are most sensitive to information design: without a public leaderboard the total number of submissions increases but high-type players are discouraged, which worsens contest outcomes.

Keywords: Dynamic contest, contest design, prediction, Kaggle, big data