Sequential First-Price Auctions Under Partial Disclosure: An Application to Korean Fruit Auction*

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Abstract

I consider a model in which a first-price auction sells one object at a time and repeats. During this repetition, only the winner and the winning bid are announced after each auction. A bidder uses this announcement to adjust his bidding strategies in order to win multiple objects across the repeated auctions. I narrow the repetition down to a two-period, so that I can nonparametrically identify a bidder's strategy and the complementarity between objects that motivates him to acquire multiple objects. I show the usefulness of this model by applying it to the Korean Fruit Auction and suggest an alternative auction design, Product-Mix Auction. This new design finds a uniform price for each variety and mitigates bidders' bid shading, thereby preventing the oscillatory winning bids observed in the current sequential auction and protecting farmers' interests, which aligns with the government's objectives.

Keywords: Sequential(repeated) Auction, First-price Auction, Market Design, Nonparametric Estimation

JEL Codes: C14, C51, C57, D47

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