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Bidding Behavior Evolution in Sequential Auctions: Characterization and Analysis

Paulo B. Goes, Gilbert G. Karuga, and Arvind K. Tripathi

Abstract

Retailers are increasingly exploiting sequential online auctions as an effective and low cost distribution channel for disposing large quantities of inventory. In such auction environments, bidders have the opportunity of participating in many auctions to learn and choose the bidding strategy that best fits their preferences. Previous studies have mostly focused on identifying bidding strategies in single, isolated online auctions. Using a large data set collected from sequential online auctions, we first characterize bidding strategies in this interesting online environment and then develop an empirical model to explain bidders’ adoption of different strategies. We also examine how bidders change their strategies over time. Our findings challenge the general belief that bidders employ their strategies regardless of experience or their specific demand. We find that bidders’ demand, participation experience, and auction design parameters affect their choice of bidding strategies. Bidders with unit demand are likely to choose early bidding strategies, while those with multiple unit demand adopt late bidding strategies. Auction design parameters that affect bidders’ perception of demand and supply trends affect bidders’ choice of bidding strategies. As bidders gain experience within a sequence of auctions, they start choosing late bidding strategies. Our findings help auctioneers to design auction sequences that maximize their objectives.

Keywords: Sequential online auctions, bidding behavior, bidding strategies, auction design