Analyzing the Simultaneous use of Auctions and Posted Prices for Online Selling

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Abstract

Internet auctions for consumers’ goods are an increasingly popular selling venue. The Internet’s computational ability makes possible the sale of multiple units of the same good in a single auction. As a result, we observe that many firms in the business to consumer market sell identical products online using auctions and posted prices at the same time. In this seminar, we develop and analyze a model of the key tradeoffs sellers face in such a dual-channel setting that is built around the optimal choice of three design parameters: the posted price, the auction lot size, and the auction duration. Our results show how sellers can increase their revenues by offering auctions and a fixed price concurrently, and we identify when either a posted price only or a dual channel strategy is optimal for the sellers. Our results also suggest that unless the sellers jointly manage these online channels, firms may find that adding auctions actually reduces their revenues. We model the consumer choice amongst these two purchasing channels, and thus market segmentation, and find that there is a unique (symmetric) auction-participation equilibrium in which consumers who value the item for more than its posted price use a threshold policy to choose between the two channels. The threshold defines an upper bound on the remaining time of the auction. Our findings also demonstrate that there are two dominant auction design strategies in this setting: one-unit auctions that tend to be short and
long multi-unit auctions. Which of these two strategies is optimal for the seller depends on the consumer arrival rate and the disutility of delivery delay incurred by high valuation consumers. In either case, the optimal design of the dual channel can significantly outperform a single posted price channel. We show even greater benefits over a naïve approach to managing the two channels that optimize each independently. The analysis explains how optimizing the design parameters enable the seller to effectively segment the market so that the two channels reinforce each other and cannibalization is mitigated. We conclude the seminar with some ongoing practical business applications of our theoretical work.