

Auctions under Limited Commitment

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Abstract

We consider the problem of optimal auction design under limited commitment in the standard symmetric independent private values environment. A seller with limited commitment power wants to sell an object to several potential buyers. The seller can propose a sequence of second price auctions with reserve prices to maximize her expected profits. In each period, the seller can commit to a reserve price for the current period but cannot commit to future reserve prices. The literature on the Coase conjecture suggests that there are two types of equilibria (Ausubel and Deneckere, 1989): First, there is an equilibrium in Markov-strategies in which reserve prices fall quickly to the seller's reservation value as the time interval between periods becomes short (McAfee and Vincent, 1997). Second, there may be reputational equilibria in which the seller can sustain other sequences of reserve prices as long as the expected continuation profit exceeds the profit from the Markov-equilibrium at every point on the equilibrium path. For a parametric family of buyers' type distributions, we show that reputational equilibria exist only if there are few potential buyers and the distribution of valuations is tilted towards low types. If reputational equilibria exist, we construct a solution that achieves the maximal revenue for the seller in the continuous time limit. The solution consists of an initial auction with a non-trivial reserve price followed by a continuously decreasing price path. We show that the maximal revenue is strictly below the revenue from an optimal auction under full commitment (Myerson, 1981). This is in contrast to the corresponding results for a price-setting monopolist who can achieve the monopoly profit in the continuous time limit (Ausubel and Deneckere, 1989). If reputational equilibria do not exist, it is optimal for the seller to run an efficient auction which leads to immediate trade.

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