The Vickrey-Target Strategy and the Core in Ascending Combinatorial Auctions

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Abstract

This paper considers a class of combinatorial auctions with ascending prices, which includes the Vickrey-Clarke-Groves mechanism and core-selecting auctions. We analyze incentives in ascending combinatorial auctions under complete information. We show that in every ascending auction, the "Vickrey-target strategy" constitutes a subgame perfect equilibrium if bidders' strategy space is restricted. The equilibrium outcome is in the bidder-optimal core and unique under some criteria. This implies that equilibrium selection is done by an ascending price scheme from many equilibria of sealed-bid auctions. The equilibrium outcome is "unfair" in the sense that winners with low valuations tend to earn high profits. This payoff non-monotonicity leads to inefficiency in the equilibrium under unrestricted strategy space.

Keywords: combinatorial auction, ascending price, the Vickrey auction, core-selecting auction, core

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