Second-Price Sealed-Bid Auctions

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We introduce the second-price, sealed-bid auction, and describe the strategic consequences of this payment rule.

1 The Second-Price, Sealed-Bid Auction

The second-price, sealed-bid auction is also called the Vickrey auction, named after Nobel laureate William Vickrey. This auction format requires auction winners to pay the second-highest bid.

2 A Strategy for the Second-Price, Sealed-Bid Auction

We begin with the second-price auction, because reasoning about it is easier than reasoning about the first-price auction.

We plot utility as a function of payment: utility is at least zero when $v \ge p$, and at most zero when $v \le p$.



Figure 1: Utility as a function of bid, if the price (the second-highest bid) is smaller than v.

Figure 2: Utility as a function of bid, if the price (the second-highest bid) is larger than v.

Theorem 2.1. Bidding one's value is a dominant strategy in the secondprice, sealed-bid auction.