

EE481: Industrial Economics

Auction

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Auction

What is auction?

- A process of selling and buying where potential buyers compete to offer their prices.
- Usually, the bidder who offers the highest price wins.

When is auction used?

- High demand for the product.
- The seller would like to extract as much surplus as possible from the buyers.
- etc.

The Standard Auction Types

- 1 Ascending-bid auction
- 2 Decending-bid auction
- 3 First-price sealed-bid
- 4 Second-price sealed-bid

The Standard Auction Types

- Ascending-bid auction
 - also called the open, oral, or English auction
 - price successively raised until only one bidder remains.
- Descending-bid auction
 - also called the ..Dutch auction by economists
 - price starts very high, then decreases gradually. The first bidder who calls out that he/she will accept the current price wins.

The Standard Auction Types

- First-price sealed-bid auction
 - each bidder independently submits a single bid. The one with the highest bid wins and pays that price.
- Second-price sealed-bid auction
 - each bidder independently submits a single bid. The one with the highest bid wins and pays the second-highest price.
 - in sealed-bid auctions, the bidding price of each party is not observed by others.

3G Auction in Thailand

What is 3G?

- 3rd Generation of mobile telecommunication technology
- Faster, more stable than 2G
- First commercial 3G network was in South Korea in 2002 !!
- 3G auction (for license) in Thailand
 - 1st time in 2010 (did not happen)
 - 2nd time in 2012

3G Auction in Thailand (2012)

An Auction for 3G licenses was held on 16th October 2012:

- Simultaneous ascending-bid auction
- Auction over 45 MHz 3G spectrum license rights (for 15 yrs)
 - Divided into 9 slots, 5MHz each.
 - Maximum slots/bidder = 3
- There were 3 bidders - AIS, DTAC, True Move

Reservation Price

- A research team at Chulalongkorn University tried to calculate the appropriate revenue from 3G auction
 - use regression analysis to incorporate other countries' past experiences.
 - conclude that the expected revenue from 3G auction should be $\approx 6,440$ million THB/slot.
 - The Office of the National Broadcasting and Telecommunications Commission (NBTC), then set the reservation to 4,500 million THB/slot (70% of the expected revenue).
- Is this reservation price appropriate?

Reservation Price in Theory

- Reservation Price (or reserve price)
 - set to avoid too low bidding price
 - usually used when
 - there are many bidders compared to the number of items (low competition)
 - seller does not know the exact number of bidders
 - seller has his/her own valuation of the item.
- Seller's own valuation of the item = opportunity cost of the item.

Reservation Price in Theory

Appropriate $\frac{\text{reserve price}}{\text{winning price}}$ given the number of bidders.

no. of bidders	$\frac{\text{reserve price}}{\text{winning price}}$ (1 item)		
1	1		
2	0.9		
3	0.82		
4	0.77		
5	0.72		
6	0.69		
7	0.66		

Key points on this 3G auction

- The government has an opportunity cost for giving 3G license to others.
 - Reserve price should at least reflect the government's opportunity cost
- If the bidders' (firms') willingness to pay for the license is greater than this cost
 - Government can extract further surplus and distribute to the society.
 - Require firms to build network infrastructure
 - Set price ceilings, etc.

Reference and Further Reading



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