

# EE481: Industrial Economics

## Auction

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# Outline

- What is auction?
- What are the standard auction types?
- Case study: Thailand's 3G Auction in 2012

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# Question 1

What is auction?

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- 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.

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- 2 Decending-bid auction - price decreases to meet the equilibrium
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  - price successively raised until only one bidder remains.
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  - in sealed-bid auctions, the bidding price of each party is not observed by others.
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# 3G Auction in Thailand

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- 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
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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.
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## 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).
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# 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.
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Appropriate  $\frac{\text{reserve price}}{\text{winning price}}$  given the number of bidders (1 item)

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		

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## 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
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## Reference and Further Reading

 Carlton, D.W. and J.M., Perloff.  
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