SOCIAL NETWORK ANALYTICS

Auctions and Types of Auctions

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Auctions

What Is an Auction?

➢ **Auction** is the process of selling and buying of goods or services by offering them up for bid, taking bids and then selling the item to the highest bidder.

➢ An auction is a sales event wherein potential buyers place competitive bids on assets or services either in an open or closed format.
Auctions are popular because buyers and sellers believe they will get a good deal buying or selling assets.

Auctions

What Is a Bidder?

➢ **In a market, a bidder is a party offering to buy an asset from a seller at a specific price**.
A bidder can be an individual or organization, and the potential purchase can be part of a multiparty transaction or an auction.
In most cases, the party selling the asset chooses the bidder who offers the highest price.

What Is a Bid?

➢ In the context of auctions, **the price offer a business or individual (i.e., bidder) is willing to pay** is called a **bid**.

➢ A bid is a binding contract. When you bid on an item in an auction, you're committing to buy it if you win.

Auctions

How Auctions Work?

- In an open format, all bidders are aware of the bids submitted. In a closed format, bidders are not aware of other bids.

- Auctions can be live, or they can be conducted on an online platform.

- The asset or service in question is sold to the party that places the highest bid in an open auction and usually to the highest bidder in a closed auction.

Auctions

Examples of Auctions

➢Examples of auctions include

    o livestock markets where farmers buy and sell animals, car auctions, or

        o https://www.livestock-live.com/

    o an auction room at Sotheby's or Christie's where collectors bid on works of art.

        o https://www.sothebys.com/en/

➢**Leading online marketplace eBay is a host of online auctions.**

➢Auctions has a long history across various domains, for example **Indian Government uses Auctions for selling tenders for coal, oil, timber**, etc.

➢Government uses Auctions for mining leases, military procurement, refinancing credit, and foreign exchange.

Auctions

➢**Auction is a kind of economic activity that has been brought into peoples' everyday life by the internet** through sites such as **eBay**.

  ➢**Auctions**:

    https://pages.ebay.in/sellercentral/auctions.html

  ➢**Selling through auctions:**

    https://www.ebay.com/help/selling/listings/selling-auctions?id=4110

  ➢**How bidding works:**

    https://www.ebay.com/help/buying/bidding/bidding?id=4003

Auctions

➤ **Who Uses Auctions?**

   o Owners of art, cars, stamps, machines, mineral rights etc.

➤ **Why auction?**

   o **Because many markets are imperfect** and **it is hard to discover potential buyers' true valuations of your asset**. Auctions help to discover this information.

   o Deciding to put your Property/asset on the market is a huge decision and ultimately everybody wants to receive the highest price for their property.

   o The highly debated question though is

      o **does having an auction impact on sale price?** Or

      o **what are the benefits of having an auction in comparison to a private sale?**

Auctions

The Top 10 Online Auction Websites

1. **EBay**: Where the World Goes to Shop

2. **ShopGoodwill**: A Nonprofit That Benefits the Disabled

3. **Listia**: No Cash Needed. Just Donate Your Old Stuff

4. **UBid**: Overstock, Closeout and Recertified Products

5. **GovDeals**: Government Surplus and Confiscated Items

6. **Property Room.com**: Online Police Auctions

7. **IRS Auctions**: Focus on Big-Ticket Items

8. **Auction Zip**: Join Live Auctions Online

9. **Municibid**: Find Municipal Surplus and Forfeitures

10. **Webstore.com**: Rare and Collectible Merchandise

Auctions

Types of Auctions

1. Ascending-bid Auctions.
2. Descending-bid Auctions.
3. First-price sealed bid Auction.
4. Second-price sealed bid Auction.

Auctions

Ascending-bid Auction

➢ Also known as **English Auction**: These auctions are carried out interactively in real time, with bidders present either electronically or physically where the seller keeps increasing the price and bidders gradually drop out untill finally one bidder remains and wins the Object at the final price.

➢ Oral Auctions where bidders shout out prices also come under this form.

➢ The English auction is also known as an open outcry auction and is **the most commonly used type today.**

Auctions

Ascending-bid Auction

➢ All bidders are initially active

➢ Start price and increment are fixed

➢ At each stage of bidding:

1. Auctioneer calls out the last price+increment

2. zero or more bidders may become inactive

3. If atleast 2 bidders are still active the auction proceeds to the next stage

4. If only one bidder remains, he wins at the current price.

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Descending-bid Auction (Dutch auction)

➢ Also known as **Dutch Auctions**, in these type of auctions the seller keeps a high price of the selling Object and gradually decreases the price until the first buyer accepts and pays the current price.

➢ **Dutch auction:**

1. auctioneer announces a high bid and then gradually lowers the bid

2. first buyer to accept wins and pays that price.

Auctions

Descending-bid Auction (Dutch auction)

➢ All bidders are initially inactive.

➢ Start price and decrement are fixed

➢ At each stage of bidding

- Auctioneer calls out the last price minus decrement
- If atleast one bidder says yes
    o then the first bidder to say yes, wins at the current price.
    o else auctioneer proceeds to the next round.

Auctions

Descending-bid Auction (Dutch auction)

- Google had a famous example of a Dutch Auction IPO. Read about [Google's Dutch Auction](#).

- https://corporatefinanceinstitute.com/resources/knowledge/finance/dutch-auction/

Auctions

First price sealed-bid Auction (Blind auction)

➢ In this type of Auction the bidders submit simultaneous sealed bids to the seller. After which all the bids are opened all at once and the bidder with the highest bid wins.

➢ **Sealed-bid first-price auction:**

    o bids are private information

    o bids are made simultaneously

    o highest bid wins

    o winner pays his bid.

➢ The first-price sealed-bid type of auction is often used in government contract tendering, mining leases, military procurement, refinancing credit, and foreign exchange.

Second price sealed-bid Auction

➢ Also called **Vickrey Auctions**, bidders simultaneously submit their bids in closed envelops and the bidder with highest bid wins and pays the price of the second-highest bid.

➢ **Sealed-bid second-price auction:**
- bids are private information
- bids are made simultaneously
- highest bidder wins
- winner pays second-highest bid
- also known as a Vickrey auction.

➢ This kind of auction is used in automated contexts such as real-time bidding for online advertising.

Auctions

Reserve Price

➤**What is Reserve Price?**

- A seller specified bid level below which no sale is made.

Reserve Price

➢ A **reserve price** is the minimum price that would enable the sale to occur.

➢ When a reserve price is not met, the item is not sold.

➢ Sometimes the auctioneer will maintain secrecy about the reserve price, and he must start the bidding without revealing the lowest acceptable price.

➢ One possible explanation for the secrecy is to thwart **rings.**

➢ A **ring** is subsets of bidders who have banded together and agree not to outbid each other, thus effectively lowering the winning bid.

Economists' Classification of Auctions

➤**Private-value auctions:**

- Every potential buyer knows for sure her own valuation of the item for sale

- All these individual valuations are independent of each other.

Economists' Classification of Auctions

➢ **Common-value auctions:**

- Item for sale has the same value to every potential buyer

- Potential buyers differ in their own estimates of this common value.

References

1. Wikipedia – Current Literature

2. https://www.investopedia.com/terms/a/auction.asp

3. https://corporatefinanceinstitute.com/resources/knowledge/finance/auction/

4. https://corporatefinanceinstitute.com/resources/knowledge/finance/dutch-auction/

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Auction Design

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Auction Design

- Goals:

  - Pareto efficiency

  - maximization of the seller's profit.

Auction Design: Pareto efficiency

- **Pareto efficiency**, or **Pareto optimality**, is **a state of allocation of resources in which it is impossible to make any one individual better off without making at least one individual worse off**.

- The term is named after Vilfredo Pareto (1848–1923), Italian engineer and economist, who used the concept in his studies of economic efficiency and income distribution.

- The concept has applications in academic fields such as economics, engineering, and the life sciences.

Auctions

Auction Design: Pareto efficiency

- **Pareto improvement** is defined to be a change to a different allocation that makes at least one individual better off without making any other individual worse off, given a certain initial allocation of goods among a set of individuals.

- An allocation is defined as "**Pareto efficient**" or "**Pareto optimal**" when no further Pareto improvements can be made.

Auction Design: Pareto efficiency

- **Pareto efficiency is a minimal notion of efficiency** and does not necessarily result in a socially desirable distribution of resources: it makes no statement about equality, or the overall well-being of a society.

- The notion of Pareto efficiency can also be applied to the selection of alternatives in engineering and similar fields.

- Each option is first assessed under multiple criteria and then a subset of options is identified with the property that no other option can categorically outperform any of its members.

Auctions

Auction Design

- **Pareto efficiency:**

  - the item must sell to the buyer with the highest valuation of the item.

- Which auctions are Pareto efficient?

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Auctions and Efficiency

- **English auction with no reserve price must be efficient** since,

  if a buyer with a low valuation was about to buy, the highest

  valuation buyer would bid higher.

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Auctions and Efficiency

- **English auction with a reserve price need not be efficient** since if the reserve price is set above the (unknown to the seller) highest buyer valuation, then there will be no sale and so no gains-to-trade.

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Auctions and Efficiency

- **Dutch auction need not be efficient.** No buyer knows other buyers' valuations, so the highest valuation buyer may delay too long and lose to another bidder.

Auctions and Efficiency

- **Sealed-bid first-price auction need not be efficient.** No buyer knows other buyers' valuations, so the highest valuation buyer may bid too low and lose to another bidder.

Auctions and Efficiency

- **Sealed-bid second-price auction is Pareto efficient** even though no buyer knows the other buyers' valuations.

References

1. Wikipedia – Current Literature

2. https://www.investopedia.com/terms/a/auction.asp

3. https://corporatefinanceinstitute.com/resources/knowledge/finance/auction/

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THANK YOU

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Why Use a Reserve Price?

- Suppose there are 2 buyers.

- The seller believes each buyer's valuation is $20 with chance 1/2 and $50 with chance 1/2.

- I.e. with chance 1/4 each, the seller believes she faces buyer valuations ($20,$20), ($20,$50), ($50,$20) and ($50,$50).

Auctions

Why Use a Reserve Price?

- I.e. with chance 1/4 each, the seller believes she faces buyer valuations ($20,$20), ($20,$50), ($50,$20) and ($50,$50).

- Use an English auction.

- Bids must be raised by at least $1.

- With chance 1/4 each, **winning bids** will be $__, $__, $__ and $__ if there is no reserve price.

Auctions

Why Use a Reserve Price?

- I.e. with chance 1/4 each, the seller believes she faces buyer valuations ($20,$20), ($20,$50), ($50,$20) and ($50,$50).

- Use an English auction.

- Bids must be raised by at least $1.

- With chance 1/4 each, **winning bids** will be $20, $21, $21 and $50 if there is no reserve price.

Auctions

Why Use a Reserve Price?

- With chance 1/4 each, winning bids will be $20, $21, $21 and $50

  if there is no reserve price.

- Seller's expected revenue is

  ($20 + $21 + $21 + $50)/4 = $28

  with no reserve price.

Auctions

Why Use a Reserve Price?

- With chance 1/4 each, the seller believes she faces buyer valuations ($20,$20), ($20,$50), ($50,$20) and ($50,$50).

- Set a reserve price of $50.

- With chance 1/4 there will be __ ____.

- With chance 3/4 the winning bid will be $__.

Auctions

Why Use a Reserve Price?

- With chance 1/4 each, the seller believes she faces buyer valuations ($20,$20), ($20,$50), ($50,$20) and ($50,$50).

- Set a reserve price of $50.

- With chance 1/4 there will be no sale.

- With chance 3/4 the winning bid will be $50.

Auctions

Why Use a Reserve Price?

- Set a reserve price of $50.

- With chance 1/4 there will be no sale.

- With chance 3/4 the winning bid will be $50.

- Seller's expected revenue is

$$\frac{3}{4} \times \$50 + \frac{1}{4} \times \$0 = \$37 \cdot 50 > \$28.$$

Auctions

Reserve Price and Efficiency

- The reserve price causes an efficiency loss since, with chance 1/4, there is no trade.