Auctions

Bidding and other topics

Unit 6.2
Types of auctions

- Open, ascending-bid, outcry (English)
- Open, descending-bid, outcry (Dutch)
- Sealed bid
  - First price
  - Second price
- English both-pay auction
- Sealed bid with common uncertainty but differential information
English auction

• How to prepare for the auction?
  – Breakeven value analysis (BEV)
• Example: Raiffa’s bid for rocking chair
• Not much to it: bid until your BEV
Dutch auction

- Example: flower auction in Amsterdam

$1000

$800 = BEV

$700

$600 = MBOO

$1000

$800 = BEV

$700

$600 = MBOO
Sealed bid, first price

• How to prepare for the auction?
  – Breakeven value analysis (BEV)
  – Probabilistic analysis (MBOO)
    • What you think the distribution of other bids will be
    • Corresponds to estimated probability of winning given a certain value for your bid
Probability of winning curve

Expected payoff = Area of rectangle
Too low a bid

Expected payoff = Area of rectangle
Too high a bid

\[
\text{Expected payoff} = \text{Area of rectangle}
\]
Eliciting a probability of winning curve

• Start with easy questions
  – Ask about extremes
• Locate the median
• Locate the lower and upper quartiles
  – Repeat with smaller divisions if needed
• Plot the values to a smooth curve
Dutch vs. sealed bid first price

• Similarities
  – Need to conduct a BEV analysis
  – Need to conduct a MBOO analysis

• Differences
  – Consider what happens in the Dutch auction when the indicator is between the BEV and the MBOO
  – Dynamics vs. statics
N-player auction for a $10 bill

• Does the strategy depend on N?
• Analysis for N = 2:
  • Equilibrium analysis:
  • ( $10, $10 ) is an eq. Pair
  • Are there others?
• What would you do playing against one other individual in the class?? PLAY!!
N-player auction for a $10 bill

• Does the strategy depend on N?
  – N=2?
  – N=3?
  – N=5?
  – N=1000?

• What would be your bid?
Empirical results

• Against MBA students
• N=2 : best bid = $7.80
• N=3 : best bid = $8.70
• N=5 : best bid = $9.70
• Why does the best bid go up so quickly?
Sealed bid, second price (Vickrey)

• **High bid wins at price of second high bid**

• **Example: bidding for a condo**
  – Rice does not know the bids (or even how many other people) he is bidding against
  – His BEV is $750k
  – What should he bid?
Equilibrium analysis

• Should he bid $800k?
  – Why not?

• Should he bid $700k?
  – Why not?
Surprising result

• Rice should bid his true valuation!
• Another example
  – 2-player $10 bill auction
  – Now with a sealed bid, second price auction
  – What should you bid?
• As a seller, should you prefer the first price or second price auction?
Transparent jar

• Filled with coins: pennies, nickels, dimes, and quarters
• What is your probabilistic assessment of the value of the jar?
  – Median?
  – Lower quartile?
  – Upper quartile?
Distribution of Medians
Winner’s curse
English both-pay auction

- Prize: $10
- First bid: $1
- Increment for successive bids: $1
- How would you play?

- PLAY for Real Money!!!
  - Remember you can lose your bid amount
Observations

• Empirical results
  – Colleagues at Faculty Club
  – Against MBAs

• Escalation and de-escalation

• Also known as the Entrapment Game
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• Empirical results
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• Escalation and de-escalation
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• “The optimal strategy is not to play at all”
• But if the other guy follows that advice, should you also???
Insights

• Sunk costs: you might be forced to stay in longer than you want
• If you don’t play, you can never win
• Bid with gusto
• Internal misgivings/signs of weakness encourage aggression
• Good (ex ante) decisions with bad (ex post) outcomes
• Play cards close to your chest

Try to get out of them!
Real world examples

- Arms races
- Wars
- Strikes
- Others?