

Auctions

Industrial Organization

K. Graddy

English Auction

- Price is successively raised until only one bidder remains
- Examples:
 - antiques, art, and wine
 - fish in Boston
 - used cars in the United States
 - houses in Australia

Dutch Auction

- The auctioneer calls an initial high price and then lowers the price until one bidder accepts the current price
- Examples:
 - Cut flowers in the Netherlands
 - Fish in Israel, Spain
 - Tobacco in Canada

First-Price Sealed Bid Auction

- Potential buyers submit sealed bids and the highest bidder is awarded the item for the price he bid
- Examples:
 - Mineral rights to U.S. government-owned land
 - Real estate
 - Government procurement contracts

Second-Price Sealed-Bid Auction

- Bidders submit sealed bids having been told that the highest bidder wins the item but pays a price equal not to his own bid but to the second-highest bid
- In theory it should work, in practice have had problems

Outcomes

- The item is sold to the person with the highest valuation
- The price paid is related to the reservation price of the second highest bidder

Assumptions Underlying Revenue Equivalence

- The bidders are risk-neutral
 - If bidders are risk-averse, English auction worse
- The bidders have independent private valuations for the items being auctioned

Common Value Auctions

- In a pure common value auction, the item being auctioned has the same value to all participants (although they may not know this value)
 - Oil leases
 - Many things that are bought for investment value
- An important problem with common value auctions is the winner's curse
- Bidders may shave their bids because they are worried about the winner's curse
- Beware of the winner's curse

Avoiding the Winner's Curse

- The more information that bidders have regarding other bidders' valuations and the true valuation of the item, the less bidders will be concerned about the winner's curse.
- Avoiding the winner's curse was the rationale for revealing bids after each round in the US spectrum auctions
- With common values, English auction better

Strategies for Sellers

- Increase the number of bidders
- Impose a reserve price
 - Risk: Item goes unsold
 - Benefit: Force a bidder to increase his bid
- Publish price estimates

Beware Bidding Conspiracies

- Bid Signalling in spectrum auctions
- Antique auctions
- Sealed bid auctions tend to deter collusion
- Secret reserve prices

Ashenfelter (1989) and the Declining Price Anomaly

- "I believe it is common knowledge among auctioneers that, when identical lots of wine are sold in a single auction, prices are more likely to decline than to increase with later lots. This does not mean that price declines always occur, but they are far more common than would be expected by chance alone"

	Christie's London	Sotheby's London	Christie's Chicago	Butterfield's San Francisco
Later Price Higher	261	143	90	20
Later Price Lower	628	430	183	41
Later Price Identical	1498	1073	226	39
Mean Ratio (2nd to 1st price)	0.9943	0.9875	0.9884	0.9663
Standard Error of the Mean	0.00128	0.00188	0.00335	0.0103
Number of Comparisons	2370	1646	499	100

- Auctioneers are aware of this, but would rather not reveal it
- Limit extent to which buyers “see” decline by giving winning bidder on first lot the option to buy all lots
 - (Butterfield’s does not have this option)
- Penny Burns discovered this anomaly in Australian wool auctions in 1985

The Declining Price Anomaly

- Wine auctions
 - Prices are twice as likely to decrease as to increase for identical bottles of wine sold in same lot sizes
- Condominium auctions
 - Controlling for later sale price, one study found approximately a 5.2% decline throughout the auction

Why is this Surprising?

- First object has n bidders, second object has n-1 bidders
 - With fewer bidders, prices should decline, however....
- Bidders shave bid for first object in anticipation of second object
- If items were identical, price of first object should equal price of second object

The Declining Price in Art Auctions

- Contemporary Art
 - Pre-sale estimate decreases about .5% per item sold or 30% throughout the auction
 - Controlling for pre-sale estimate, bid decreases about .09% per item sold or about 6.3% throughout the auction

- Impressionist and Modern Art
 - Pre-sale estimate decreases about 1.2% per unit sold or 92% throughout the auction
 - Controlling for pre-sale estimate, bid still decreases about .05% per unit sold or 3.5% throughout the auction

- London, Thursday, 5 October 1995
- Chateau Petrus -- Vintage 1961
 - “Lot 105: impeccable appearance
 - Lot 106: damaged label. Excellent level.
 - Lot 107: good label. Level base of neck.
 - Lot 108: slightly damaged label. Level base of neck
 - Lots 109 and 110: good labels. Levels: top shoulder.
 - Lot 111: slightly damaged label. Level top shoulder.”

- Ashenfelter and Genesove on pooled auctions:
 - “In effect, the earlier bidders are buying the right to select superior products, and it is natural they should pay higher prices for them.”

Our Explanation

- Even though bidders should shave bid for first object in anticipation of the second object, with nonidentical items, if first item is preferred, do not shave bid enough, i.e. even controlling for pre-sale estimate, price will be higher for first item

- Black and DeMeza (1992) claim they exist primarily because the winner of the first auction in a sequence has the option to buy the remaining objects at the winning price
- McAfee and Vincent (1993) showed that risk aversion could create declining prices
- Von der Fehr (1994) whows that participation costs could create declining prices through strategic bidding
- Ginsburgh(1998) shows that the presence of absentee bidders can generate declining prices
- Declining prices found in auctions in a tremendous number of different types of items

Table 4
Declining Price Anomaly

Empirical Work (Declining Prices)	
Bonafant (1982)	Luxuries
Karim (1985)	Experimental results
Krishnamoorti (1988)	Wine
Morgan and Smith (1989)	Transportation tickets
Thurston and Peck (1989)	Stamps
Taylor (1989)	Stamps
Ashenfelter and Genesove (1990)	Collectible cars
Wright (1991, 1992)	Collectible cars
Engelbrecht-Wiggans and Kahn (1992)	Daily commodities
McAfee and Vincent (1993)	Wine
De Meza and Black (1992)	Wine
Laffont (1994)	Contractual and assets
Chenai, et al. (1996)	Gold jewelry
Wright and Smith (1998)	Transportation
Rosen and Stanley (1998)	Experimental results
Reger and Stanley (1997)	Art
Thurston (1995)	Mini yachts
Prakash Chandra (2001)	Flora
van der Brink, et al. (2001)	Flowers
Ginsburgh and van Dorck (2001)	Changes generated from preferences
Empirical Work (Increasing Prices)	
James, et al. (1988)	Wool auctions
Chenai, et al. (1996)	Watches
Grady (1997)	Wool cattle herdstock auctions
Grady, et al. (1997)	Sheep herdstock auctions
Smith and Maciejovsky (2001)	Liberty Bells
Theoretical Work	
Black and De Meza (1992)	Declining prices in sequential auctions and their link to frequent options
McAfee and Vincent (1993)	Risk aversion could create declining prices
Von der Fehr (1994)	Participation costs could create declining prices
Engelbrecht-Wiggans (1994)	Market price declines to heterogeneity of objects
Engelbrecht and Genesove (1998)	Market price declines to heterogeneity of objects
Reger and Stanley (1998)	Market price declines to heterogeneity of objects
Reger and Stanley (1998)	Offering to select can generate price increases in auctions
Ginsburgh (1998)	Declining prices can generate the declining price anomaly

Some References

- Ashenfelter O. *Journal of Economic Perspectives*, 1989.
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- Beggs, A. and K. Graddy (1997), “The Declining Price Anomaly in Art Auctions. *Rand Journal of Economics*.