

Economic Insight from Internet Auctions

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E-Commerce and Internet Auctions Background

- \$45 billion in e-commerce in 2002
- 632 million items listed for auction on eBay alone generating \$ 15 billion in gross sales.
- \$21.4 billion for the fourth quarter of 2004
- e-commerce sales accounted for 2.2% of all sales in 2004

Reason Behind Rapid Growth

- Online auctions provide a less costly way for buyer and sellers to meet
 - Creates a more liquid market for specialized goods
- Online auctions are a substitute for more traditional markets
 - Antique dealers
- Online auctions can be fun
 - Competing in strategic bidding
 - Sharing their insight with others

Structure of the paper

- Mechanics of auction and rules used
- Last minute bidding and the “winners curse”
- Asymmetric information and Reputation mechanisms
- Auction design and insight from internet auctions

Mechanics of auction and rules used

- eBay auction characteristics
 - Set deadline where all bidding stops
 - seller can set reserve price (not seen by bidders) and/or price where auction starts
 - Feed back system explaining past buyers experience dealing with the seller
 - Bid incrementally, Proxy bid automatically updates bid
- Other online auctions have different rules including auctions where bids extend the auction end time ten minutes



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Lot of Nobel Prize signatures ECONOMICS

Item number: 2191849949

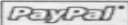
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<p>Current bid: US \$12.53</p> <p style="text-align: center;">Place Bid ></p> <p>Time left: 5 days 22 hours <small>7-day listing Ends Sep-18-03 15:00:41 PDT</small></p> <p>Go to larger picture</p> <p>History: 2 bids (US \$9.99 starting bid)</p> <p>High bidder: paul29 (258 ★)</p> <p>Location: Ohio Valley <small>United States /Pittsburgh</small></p> <p>Shipping and payment details</p>	<p>Seller information</p> <p>rogersbooks55 (38 ★)</p> <p>Feedback rating: 38 Positive feedback: 100% <small>Registered Feb-05-03 in United States</small></p> <p>Read feedback reviews</p> <p>Ask seller a question</p> <p>View seller's other items</p> <p> Safe trading with PayPal</p>
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Description

This is a lot of First Day Covers and cards authentically autographed (not a pre-print or autopen) by Nobel Prize laureates in Economics (14 in all) as follows: (signed blank index cards) Paul Samuelson, Jan Tinbergen, Wassily Leontief, (FDC's) Lawrence Klein, Milton Friedman, James Meade, HARRY M. MARKOWITZ, Robert Solow, Gary Becker, Douglass North, Alan Greenspan, John Kenneth Galbraith and Alan Dershowitz and a handwritten note from James Tobin . A Certificate of Authenticity by Rogersbooks will be provided if asked for when sending payment. Domestic Priority S & H with confirmation is \$7.00. SEE SELLER'S OTHER AUCTIONS FOR MORE UNIQUE AUTOGRAPHS

Payment








I accept the following forms of payment:

Figure 1. Sample eBay Listing

eBay “snipe” bidding

- Increase in bids around auction close despite length of the auction
 - sample of 240, 89 had bids in the last minute and 29 had bids in the last ten seconds
 - Less likely to occur when auction end is not fixed
- Last minute bidding difficult to explain using auction theory
 - Proxy bidding resembles the second-price sealed bid auction. Were the payment of the winning bidder pays the second highest price.
 - in this situation it is a dominate strategy to bid their private value using a proxy bid

Explanations for “snipe” bidding

- “tacit collusion”- collusion of the bidders against the sellers. A strategy to prevent bidding wars.
 - However early bid activity not correlated with increased final sales price
- Presence of naive bidders that do not understand proxy bidding.
 - Results in user placing incremental bids in response to competitors bids

Other explanations for “snipe” bidding continued

- Common value
 - Bidders want to withhold information about their value of the good until the last minute
 - Evidence for this is that there is more last minute bidding in antique auctions compared to computer auctions
- Snipe bidding is due to multiple identical items being listed at the same time
- Bidders have uncertainty about their private valuation of the good

Second before auction deadline and % chance in wining the auction

Seconds Won Before End	Number of Items	% of Total Items
0	2	0.10%
1	28	2.00%
2	1	0.10%
3	8	0.60%
4	1	0.10%
5 to 10	53	3.80%
11 to 20	53	3.80%
21 to 30	27	1.90%
31 to 45	31	2.20%
46 to 60	11	0.80%
TOTAL	215	15%

The “Winners Curse”

- Winners curse is being overly ambitious about the value of good
- Winners curse increases in online auctions because the buyers can not directly observe the characteristics of object being sold.
- Inexperienced bidders are frequently the subject to winners curse
- 48% of all internet fraud claims were related to misrepresentation of goods in online auctions

Measuring winners curse

- Compare the price paid at auction to the market value
 - Buy baseball cards on eBay and then have them appraised.
 - Jin and Kato found that fraud rate was 11% in online auctions compared to 3.2% in stores
 - the increased winners curse is due to asymmetric information
 - Internet auctions allow economists to determine whether the ex-post quality of the goods they buy online is equal to the price paid in the auction

Baseball card experiment

- Jin and Kato experiment of upgraded baseball cards
- Professional services grade baseball cards based on condition on a scale from 1-10
- Jin and Kato purchased 100 cards that were not graded by a grading service but the seller placed grade on auction site

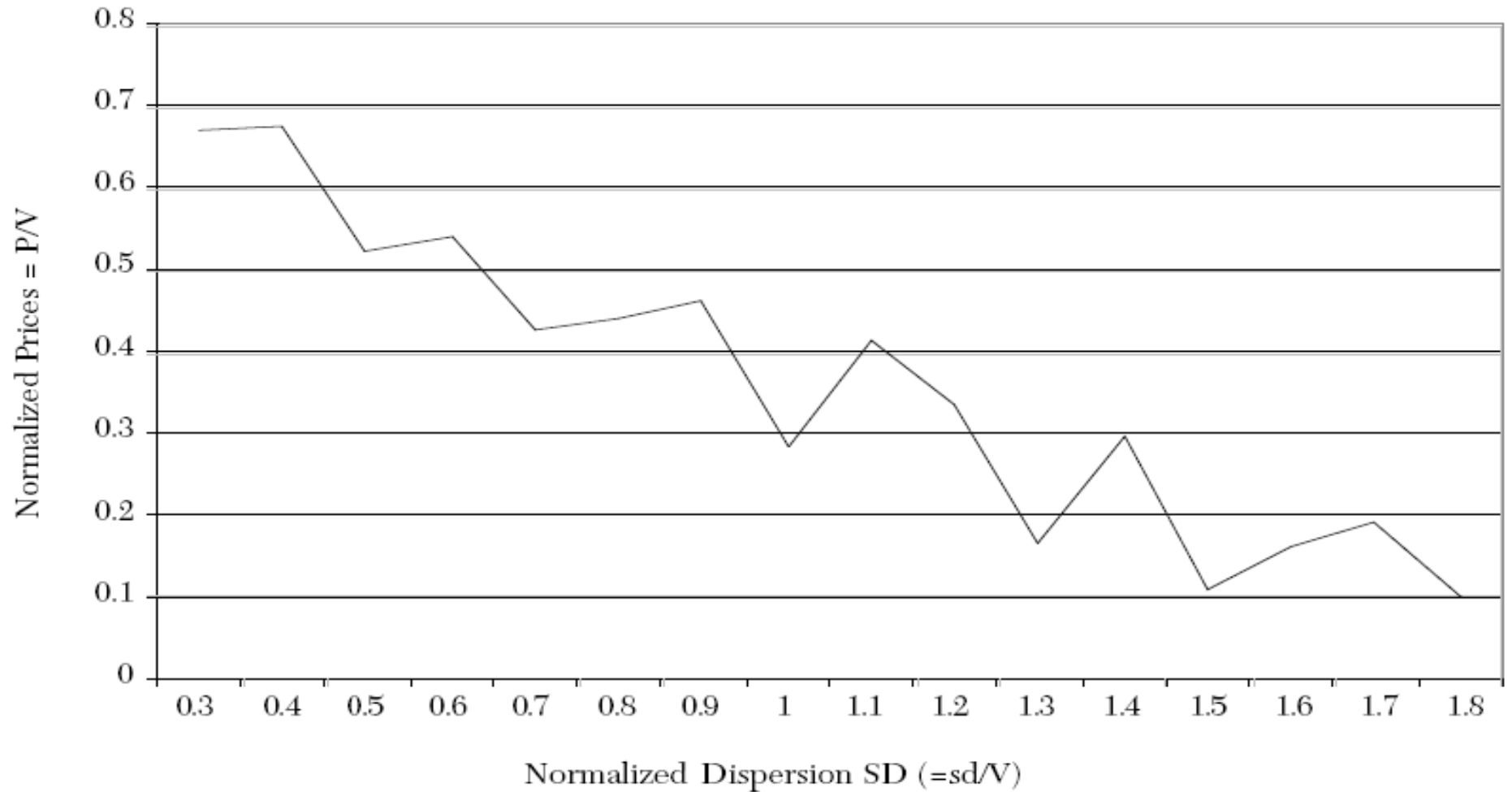
Baseball card experiment

- Sellers that claimed cards were 9-10 had actual grades of 6.34
- Sellers that claimed cards were 8.5 or below had an actual value of 6.87
- Buyers were willing to pay 27% more for cards advertised as having grades 9-9.5 and 47% more for cards advertised as being perfect 10s
- Shows the problem with fraud and the winners curse
- All though buyers overvalue cards rated by the seller buyers do take into consideration the source of the information and shade their bids.
 - Upgraded Ken Griffey Jr advertised as 10 sold for 94.26, 30 dollars over the average value.
 - Compared to a graded Griffey that trades for \$1450
- Shows that bidders to some extent automatically correct for the winners curse

Yin's experiment

- Yin tried to determine how aggressive bidders bid based on the information given about a product
- 233 auctions, asked survey respondents to place a value on each product excluding any information on the seller's reputation
- Calculated the variance of participants' evaluation and compared them to the final selling price
- Yin found that the winning bid is negatively correlated with the normalized variance of survey response
- As the dispersion of individuals' evaluations of the product increases they are likely to bid less for that good

Plot of Normalized price vs Normalized SD



Reputation Mechanisms

- The anonymity of the seller creates information asymmetries along with not being able to physically inspect the good.
 - To ensure honesty eBay created the voluntary feedback
 - +1 for positive feedback, 0 neutral, -1 negative feedback
- Faults with the system
 - Almost all comments are positive only .6% negative or neutral comments
 - Costly activity with only 52.1 % of buyers review the seller

Effectiveness of feedback system

- Estimating the market price of reputation in online auctions.
 - done by measuring the market price of online auctions through hedonic regressions
- Comparison of all the different studies not easy because of differences in reporting their findings
- All of the studies show that there is some premium placed on seller reputation
 - Varies between studies as much as 10- 12% premium placed on
- The value of reputation increases with value of the good being auctioned
- Jury is still out on the effectiveness of the reputation system used by eBay

Auction Design and insight

- The internet is a good way to test different variations of auction models
 - Need to test the theory
 - Give real world incentives not present in experiments
 - auction participants seem to make more rational decisions compared to other types of experiments
 - Data is readily available

Comparing the Dutch and sealed bid first price format

- Auction theory suggests that the Dutch auction and the sealed bid first price auction are equivalent
- Found that the Dutch auction yielded 30 percent higher average revenue compared to the first price auction
- Dutch auction attracted almost double the number of bidders
- Problem with the experiment is that they could not control for bidders having private value or common value for the objects being sold
 - Outcomes may differ depending on type of valuation by bidders

Other issues investigated using internet auctions

- Strategic difference between the second price auction and the English auction
- Whether or not a reserve price should be revealed or kept secret
 - In theory seller should be indifferent to both situation in the second price English auction (eBay)
 - However a secret reserve can increase revenue by 1% (in coin auctions)
 - Auctions with reserves concerning Pokemon cards received less revenue
 - No one answer to the question and depends on the good being sold

Prevalence of the Ascending English Auction

- All major online auction sites use ascending English auctions
 - eBay, Amazon, Yahoo!
 - 121 out of 142 auction sites surveyed use this type of auction
- The open ascending English auction yields higher revenue compared to the sealed bid counter part
 - Because other bidders evaluation is know minimizing the winner's curse
- Ascending auction yields benefits for all
 - Decreased winner's curse
 - Increased revenue to the seller
 - Higher commission to the hosting site

Conclusion

- Internet auctions are an inexpensive way to collect high quality data on different auction formats
- In online auctions economist can observe all the information known by the bidders limiting confounding variables
- Internet auctions can be easily altered to allow for comparison of different auction theories