

Sniping

In Roth and Ockenfel's first sample of about 1000 Ebay auctions in May and June 1999:

28% had zero bidders

16% had one bidder

and of the remaining 585 auctions:

78% had at least one bidder raising his reservation price during the auction

18% had bids in the last 60 seconds

In their main sample:

On Ebay, 20% of bidders submitted their last bids in the last hour. The figure for Amazon auctions was 7%.

On Ebay, 40-59% of all *auctions* had their last bids in the last five minutes. On Amazon, only 3% of auctions had their last bids in the last 5 minutes ("last" relative to the original deadline, I guess).

QUESTIONS

- Is it useful for bidders in a private-value second-price auction to know how much other bidders are going to bid?
- Why do bidders update their bid ceilings in E-Bay internet auctions?
- Why do bidders use "sniping"-- the practice of submitting bids at the last minute? (in a sense, the opposite of pre-emptive bids)
- Do auction deadlines hurt sellers?

Sniping Advice

Advanced Auction Management

http://www.tblightning.com/ebay/auction_management.htm

(02.02.20)

I recommend the 'time conscious proxy bidding' strategy personally - I find this to be the most effective for myself. Some refer to this bidding style as 'sniping'.

- Bid only once
- Bid your absolute would never ever pay more maximum proxy bid
- Bid as late in the auction as you are comfortable

I often tell people that there is no advantage to bidding early in the auction process. There are however, many **reasons for not bidding early** in the auction process.

- You don't have to worry about bid stalkers
- You don't have to worry about shilling sellers
- You don't have to worry about nibble bidders running up your early proxy
- You don't have to commit to an auction item, only to find a cheaper or better one later
- You will know immediately the results of your bid - if you lose you can quickly move on to another auction

Avoiding Competition-

Suppose there are two bidders, each with value 100 for the object. Let the minimum bid be 20, the minimum bid increment be 1, and let .10 be the probability that a bid submitted at time $t=1$ arrives in time and is registered.

Equilibrium 1: Each bidder follows the strategy of bidding 20 at $t=0$ and then bidding up to a maximum bid of 100 as necessary.

Equilibrium 2: Each bidder follows the strategy of bidding 80 at $t=1$ unless the other bidder deviated. If the other bidder bids early, then bid up to a maximum bid of 100 as necessary.

A bidder who follows the equilibrium strategy and bids $x=80$ wins the auction if his bid alone registers (probability $.10(.90)$), or with 50 percent probability if both bids register (probability $.5(.10)(.10)$), for an expected payoff of

$$[.10(.90)+.5(.10)(.10)](100-x)=[.090+.005][100-x]=9.5-.095x$$

That's greater than the zero payoff he would get if he deviated and bid early.

If a bidder deviates to bidding $x+1$ at $t=1$ then his payoff changes to

$$[.10(.90)+(.10)(.10)](100-x-1)=[.09+.01][99-x]=9.9-.10x$$

If $x=80$, these two payoffs are identical. So any $x \geq 80$ will support an equilibrium like this.

This is a Puppy Dog strategy: Don't commit to being Tough, because the other bidders will be tough too.

Value Discovery

Even in a private value auction, the buyer does not necessarily know his private value--- he estimates it. If he is willing to exert more effort, he can get a better estimate.

Suppose you think that you have the highest value, and nobody else has a private value even close to your own. Then you won't bother to get a very precise estimate of your value. You know buying the object will be a good deal for you at any likely winning bid.

But suppose, you then learn that someone else does have a value close to yours, so the price is going to be bid up to close to your estimate of your value. That could stimulate you to spend more time thinking about your value estimate. Your improved estimate might be higher, or might be lower.

Thus, it can be useful to know someone else's value even in a private value auction. The reason is not that it will affect your bidding strategy, but that it will affect your decision about how accurately to estimate your value.

The Story of Jeff

Jeff happily awaited the end of the E-Bay auction. He'd submitted a bid ceiling of \$2,100 for a custom-made analog stereo amplifier, and the highest anybody else had submitted was \$1,400, so he was sure to win. Since he'd followed the advice of E-Bay and academic auction theory, submitting his true maximum price, he looked forward to a cool \$700 in consumer surplus. It was five minutes before the auction deadline. And then disaster struck. The winning bid rose to \$1,800, and then \$1,900, and \$2,000. And then it rose to \$2,150, and Jeff was losing! Worse yet, as he feverishly thought hard about how much the amplifier was worth to him, he realized he actually would have been willing to pay \$2,500. But by then it was too late--the auction was over.

Value Discovery

Example 1

Let bidder 1 have a private value uniformly distributed on $[0,100]$. He can take 5 minutes and pay \$3 to discover his value precisely if he wishes; otherwise, his estimate is \$50.

Let bidder 2 have a value of either \$30 or \$60, with equal probability.

Other bidders have values of 5, 7, 8 and 10.

First, suppose bidder 2 does not exist. Then bidder 1 will put in a bid ceiling of \$50. He figures on winning at a price of 10, the 2nd highest value, for an expected payoff of $E(v) - 10 = 50 - 10 = 40$.

He thinks that if he paid \$3 to discover v , then his payoff would be

$$\begin{aligned} & -3 + .1(0) + .9 [(E(v|v>10)-10)] \\ & = -3 + .9 (55-10) \\ & = -3+40.5 \\ & = 37.5, \end{aligned}$$

so he won't do it.

Value Discovery

Example 2

Let bidder 1 have a private value uniformly distributed on $[0,100]$. He can take 5 minutes and pay \$3 to discover his value precisely if he wishes; otherwise, his estimate is 50. Let bidder 2 have a value of either 30 or 60, with equal probability. Other bidders have values of 5, 7, 8 and 10.

Now, suppose bidder 2 does exist, but bidder 1 doesn't realize that. Bidder 1 will put in a bid ceiling of \$50.

What should bidder 2 do?

If his value is 30, he'll lose the auction, so he might as well bid 30 at any time.

If his value is 60, though, he should wait till 4 minutes before the deadline and then put in a reservation price of 60. He will win at a price of 50.

What if bidder 2 puts in a reservation price of \$60 earlier?

Bidder 1's payoff from paying \$3 to improve his estimate of v would be

$$-3 + .6(0) + .4[(E v | v > 60) - 60] = -3 + .4(80 - 60) = -3 + 8 = 5,$$

compared to \$0 from giving up and just bidding \$50.

Value Discovery

Example 3

Let bidder 1 have a private value uniformly distributed on $[0,100]$. He can take 5 minutes and pay \$3 to discover his value precisely if he wishes; otherwise, his estimate is 50. Let bidder 2 have a value of either 30 or 60, with equal probability. Other bidders have values of 5, 7, 8 and 10.

Now, suppose bidder 2 does exist, and bidder 1 realizes it, and is afraid bidder 2 will not bid till the last 4 minutes. What should bidder 1 do?

If Bidder 1 just hopes for the best and bids 50, his payoff is $.5 (E_v - 30) + .5 (0) = .5 (50 - 30) = .5 (20) = 10$.

If Bidder 1 pays the \$3 and learns v , he will bid v and his expected payoff is

$$\begin{aligned}
 & -3 + \{ .5 [.3][0] + .5 [.7] [(E_v|v>30) - 30] \} + \{ .5 [.6][0] + .5 [.4] \\
 & \quad [(E_v|v>60) - 60] \} \\
 = & -3 + .35[65 - 30] + .2[80 - 60] = -3 + 12.25 + 4 = 13.25.
 \end{aligned}$$

So Bidder 1 will prefer to pay the \$3 up front, as a precaution against Bidder 2 having a high value and sniping.

Internet Auctions

Ebay Antiquities:

<http://listings.ebay.com/aw/plistings/list/category355/index.html>

- <http://pages.ebay.com/>
- **Rules and Safety**
- <http://pages.ebay.com/help/community/index.html>
- **Fees:** <http://pages.ebay.com/help/basics/n-fees.html>
- **Sony Laptops:**
<http://listings.ebay.com/aw/plistings/list/all/category3716/index.html?ssPageName=CompLaptpMB7>
- <http://www.biddersedge.com/>
- <http://www.bidnapper.com/> A sniper on Ebay.