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ON THE WEB

Economic Scene: Online Users as Laboratory Rats

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Online auctions offer a wonderful laboratory for experimental economists: the participants are intelligent adults, spending real money, who hope to purchase goods in which they have an intense interest. This is a far cry from the reluctant sophomores whom experimentalists have had to rely on in the past to test economic theories.

Analysis of online auction data has yielded a wealth of insights, and a few puzzles. A particularly intriguing puzzle has been the tendency for "late bids." In a representative sample of eBay auctions, researchers found that 37 percent of them exhibited bids in the last minute and 12 percent had bids in the last 10 seconds. These data understate the actual number of bids submitted in the closing seconds of the auction, since bids that arrived at eBay after the auction had closed were not counted.

The late-bid puzzle is particularly interesting, since eBay offers an automated "bidding agent" that is intended to eliminate any incentive for late bidding. I only need to tell my bidding agent the most I am willing to pay for an item, along with my initial bid.

If someone bids more, my agent will automatically increase my bid by the minimal bid increment, as long as this doesn't raise my bid over my maximum.

In theory, each bidder should report his true maximum willingness to pay and let the agent do the work of bidding. In the end, the person with the highest willingness to pay for the item will win the auction, paying a price equal to the second-highest willingness to pay plus the bid increment.

So why doesn't this happen? One theory, advanced by Patrick Bajari and Ali Hortacsu, two auction researchers at Stanford, is that experts don't want to reveal their interest in the auction too early. Suppose you are a recognized experts on coins. If you bid early on a particular coin, you may reveal to others that this coin is highly desirable. Perhaps it is better to delay bidding in the hopes that others won't recognize the coin's value, and then sneak in at the last minute with a winning bid.

This explanation makes a lot of sense for auctions where expert opinions matter. But late bidding doesn't just occur in markets for coins, stamps, and collectibles; it also happens in auctions for computer parts, where one player's bid isn't likely to influence other bidders' valuations. How can late bidding be explained in these cases?

Recently Al Roth and Axel Ockenfels, two Harvard researchers, have offered a different, but complementary, explanation.

Their hypothesis is that late bidding is a way for participants to avoid bidding wars, allowing them to get the item at a lower price than they would by bidding early.

To give the flavor of the analysis, put yourself in the place of a bidder for a Pez dispenser — just the one you need to complete your collection. It's worth $10 to you, and you know there is only one other possible bidder, who you believe is also willing to pay $10. The seller has set a reservation price (the minimum price at which he will sell) of $2.

If each of you tells your bidding agents your true willingness to pay for the Pez dispenser early on, the agents will get in a bidding war, raising the final selling price to $10. Even if the tie is resolved in your favor, this is no bargain: you have to pay $10 for a Pez dispenser that is worth just $10 to you.

What happens if you each bid $10 in the last few seconds of the auction? In this case, there's a good chance that one of the bids will be dropped by the server, leaving only a single bidder, who wins by default and must pay only the seller's reservation price of $2.

You don't have to be an economist to recognize that paying $2 is a lot better than paying $10. True, when you bid late you run the risk of your bid being dropped, but even if you get the Pez dispenser for $2 only half the time, you're still better off than you would be by bidding early.

Simple as this example is, it exhibits the essential intuition of the Roth-Ockenfels analysis: bidding high at the last minute and letting chance determine the outcome is better for both players than bidding high early and precipitating a bidding war.

This is an appealing explanation for late bidding, but is it right? What one would like to do is to vary the auction design, to see how players behave when "letting chance decide" isn't an option.

Luckily, there are other auctions on the Internet that use different rules.

Amazon.com, for example, has a "Going, Going, Gone" rule. If there is a bid in the last 10 minutes of the auction, it is automatically extended for another 10 minutes. The auction terminates only when 10 minutes have gone by with no bids.

If the Roth-Ockenfels theory is right, we would expect to see much less last-minute bidding in Amazon auctions. Indeed, that's what the researchers found. While in the sample of eBay auctions 37 percent had bids in the last minute, on Amazon fewer than 1 percent of the auctions exhibited this sort of behavior. Also, on eBay experienced bidders tend to submit late bids; on Amazon experienced bidders submit early bids.

So perhaps the late-bid phenomenon makes sense after all. The online auction bidders, either through cunning or through trial and error, have managed to figure out a winning strategy.