The effects of ascending-bid auctions

In the Norwegian real estate market, object are usually sold using a form of auction called ascending-bid, also known as an English auction. This differs from the practice in other countries when looking at markets around the world. The auction process is also very transparent in Norway, with the bid history being available to all auction bidders. This blog post aims to discuss the effects the form of auction and the number of bidders has on the final price. When doing reasearch for this blog post, a recent report from Samfunnsøkonomisk analyse AS (Walbækken and Benedictow, 2020), written by Mikkel Walbækken and Andreas Benedictow piqued my interest. They analysed a large dataset of real estate auctions, drawing many interesting conclutions. The most interesting in relation to this blog post being the correlation between number of bidders and final price reached.

As previously mentioned, real estate in Norway is usually sold using a form of auction called ascending-bid. In this form of auction, the bidders are interacting by placing bids electronically, gradually increasing the price, trying to out-bid each other. The auction continues until a bid is placed which no other bidder counters. This is then the winning bid. The winning bid is the price the winner must pay for the object.
The ascending-bid auctions used in the norwegian marked can be classified in the following three categories:

- Negotiations
- Auctions
- Competitive auctions

(Walbækken and Benedictow, 2020, p. 18)
Negotiations are auctions with a single bidder, Auctions has at least two bidders, while competitive auctions has at least three bidders with at least three bids each. Competitive auctions are those we find most similar to the defenition given in the curriculum, (Easley, Kleinberg, et al., 2010, p. 250) but

they are actually quite rare in these circumstances. Just under 2.7% of the auctions studied by Walbækken and Benedictow were competitive auctions. (Walbækken and Benedictow, 2020, p. 18) There is also variation between geographical locations. Some locations are more prone to competitive auctions than other.

So what is the most fair method to sell real estate? The seller wants a high price, the buyer wants a low price. It's fair to say that a price in between would be the fairest to both the seller and the buyer. And that price should be as close as possible to the bidder's collective valuation. In other words, we want to encourage truthful bidding. Let's look at some bidding scenarios to determine if the current form of auction encourages truthfull bidding.

Scenario 1

> You are bidding in an auction with very few participants where there is a low frequency of bids.

Scenario 2

> You are bidding in an auction with a lot of participants and a high frequency of bids.

Consider that you are really interested in purchasing the object. In scenario 1, you would place bids until you reach you maximum limit that you decided before the auction. Since there are few bids, you would have a good amount of time to consider each bid before countering. In scenario 2, since there is more competition, there is often a shorter time between each bid, which means less time for you to consider the bids. There may also be a phycological effect to this scenario, as there is more interest in the object, it may be percieved as more valuable. There is also a stress factor in this screnario, which may lead to decicions you may regret later. Lastly, more competition may lead to a greater vararity of bidding strategies, adding more uncertanty, stress and pushing the price up. Intuitively, the final price reached in scenario 2 should be greater than the price in scenario 1. This is confirmed in the referenced report as well. (Walbækken and Benedictow, 2020, p. 30)

Second-price sealed-bid auctions may be a better alternative. In this form of auction, all bidders submit a secret bid to the seller. The highest bid wins the bidding round, while the price the winner has to pay is equal to the second highest bid. (Easley, Kleinberg, et al., 2010, p. 250) Altough it may not look like it, Second-price sealed-bid auctions encourages truthfull bidding. Let's say you are submitting a bid in an auction of this type and you bid the amount equal to what you belive is the true value of the object. If you win the auction, you will pay less than what you belive the value to be, because you pay the amount in the second highes bid. Your payoff would then be the difference between your valuation and the price you payed. If you raise your bid, you would pay more for the object than your true valuation, and thus get a negative payoff. If you lower your bid, you may lose the auction, and your payoff would then be zero. To conclude, you would not be inclined to change your bid, and because of this, truthful bidding is the dominant strategy in these auctions. (Brinton and Chiang, 2017, p. 79)

I belive second-price sealed-bid auctions would be better for both the buyers and the sellers. The buyers would not have to deal with the stress factor of a competitive auction, and there would be less competition amongst the bidders. The seller would get a more predictable price, not dependent on how many bidders are participating in the auction. I think the prices in the marked would be more even as well: The objects that sell for a very high price would sell for a lower price and the objects that sell for a very low price would sell for a higher price.

References

Brinton, C. G. and M. Chiang (2017). *The Power of Networks: Six principles that connect our lives.* Princeton University Press.

Easley, D., J. Kleinberg, et al. (2010). *Networks, crowds, and markets.* Vol. 8. Cambridge university press Cambridge.

Walbækken, M. and A. Benedictow (July 2020). "Kvantitativ analyse av bolig-omsetning og budgivning". In: R23-2020. URL: `https://www.regjeringen.no/contentassets/79704749185444af9cad00cb5f95c17c/samfunnsokonomisk-analyse.pdf`.