Do Practice Rounds Affect Experimental Auction Results?

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Abstract

Researchers use practice rounds to familiarize participants with experimental auction mechanisms. We find a positive correlation between practice bids and bids submitted in later rounds. We consider three explanations for this correlation: a behavioral anchoring effect, a tendency for some auction participants to be more free-spending, and misconception of the experimental auction’s demand revealing qualities.

Keywords:
Experimental auctions, practice rounds, anchoring, misconceptions, spendthrift effect

JEL classification: C9, Q1

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1. **Introduction**

Most practitioners agree that auction experiments should include practice rounds. Drichoutis et al. (2011) show that auction participants with extensive training bid more rationally than those without. In a review of the experimental auction literature, Alfnes and Rickertsen (2011) recommend that practitioners “make sure the participants understand the mechanism” by, among other methods, including practice rounds.

But practice rounds raise unanswered questions. Ariely et al. (2003) and Nunes and Boatwright (2004) find that bids can become “anchored” to seemingly unrelated price information. In this case, practice rounds may inadvertently affect bidding in the later rounds if participants anchor their later bids to the bids they submitted in practice rounds. This could mean practitioners are inadvertently biasing their experimental auction results by their choice of the goods for sale in practice rounds.

Absent anchoring, practice bids could perhaps explain some variation in real bidding. For example, free-spending bidders may place higher value on all products and therefore submit higher bids in both practice and real rounds. Misunderstanding of the auction mechanism could also lead to correlation between practice and real bids. Bidders who mistakenly believe it is in their best interest to strategically underbid may do so in both practice and real rounds.

In this paper, we first examine the relationship between practice and real bids from two auction experiments where participants bid on homegrown-value goods in both practice and real rounds. We then discuss an experiment specifically designed to test for the presence of these anchoring, spendthrift and misconception effects.

2. **Examples of correlation between practice and real bids**

We use data from two peer-reviewed studies where participants bid on homegrown-value goods in practice and real rounds (Corrigan and Rousu, 2008; Thrasher et al., 2011). We looked
for data from other similar experimental auction studies, but found nothing. While bidding on homegrown-value goods in practice and real rounds is common, bids from practice rounds are rarely recorded.¹

2.1. Study 1

In Corrigan and Rousu (2008), participants placed separate BDM bids in a hypothetical practice round for a box of pens and a box of pencils. In the real auctions that followed, participants placed separate bids on four food products.

Figure 1 shows a positive relationship between bids in the practice and real rounds. We use random-effects Tobit analysis to account for the panel nature of the data and the left-censoring of auction bids. The dependent variable is real bids. Independent variables include a constant, product-specific dummy variables, and the average of practice bids. We find that a $1 increase in a participant’s average practice bid is associated with a $0.50 increase in average real bids.

2.2. Study 2

In Thrasher et al. (2011), 257 participants placed separate BDM bids for two candy bars in hypothetical practice auctions. In the real auctions that followed, participants placed separate bids on two cigarettes packs with different health warning labels.

Figure 2 shows a positive relationship between bids in the practice and real rounds. We again use random-effects Tobit analysis to account for the panel nature of the data and the left-censoring of auction bids. The dependent variable is real bids. Independent variables include a constant, product-specific dummy variables, and the average of practice bids. We find that a $1 increase in a participant’s average practice bid is associated with a $0.50 increase in average real bids.

¹ One economist well known for his work with experimental auctions responded “I pulled up three old data sets associated with various published papers. Alas, it seems I did not enter the practice round data (normally with candy bars) for any of them.”
increase in a participant’s average practice bid is associated with a $1.56 increase in average real bids.

3. Potential explanations

We find clear evidence of positive correlation between practice and real bids. We now outline three different theories that could explain this correlation.

3.1. Spendthrift effect

Rick, Cryder, and Loewenstein (2008) develop a “spendthrift-tightwad scale” to measure individual variation in disutility experienced when spending money. They construct the scale by combining responses from four questions about whether survey respondents self-identify as either a spendthrift or a tightwad, whether they have trouble limiting their spending, and whether they have a history of passing up purchases that would have yielded positive surplus. The authors find that respondents with scores in the spendthrift range are more likely to agree to hypothetical purchases than are respondents with scores in the tightwad range.

In experimental auctions spendthrifts are likely to be more free-spending when bidding on homegrown-value goods. The same is not true for induced values. There is no evidence suggesting that spendthrifts would be willing to pay $12 for a $10 bill. Therefore, the spendthrift effect cannot explain positive correlation between practice and real bids in auctions where participants bid on induced values in practice rounds.

If observed in an experimental auction context, the spendthrift effect would not represent a bias, but instead would reflect participants’ individual preferences.

3.2. Anchoring effect

Ariely et al. (2003) and Nunes and Boatwright (2004) find that market participants’ willingness to pay can become anchored to seemingly unrelated prices. In an experimental
auction context, participants who perceive a homegrown-value good for sale in the practice round to be of high value may place higher bids in later rounds than participant who perceive the practice good to be of lower value. Alternatively, participants who bid on relatively large induced values in practice rounds may submit relatively high bids for homegrown-value goods in real rounds. No correlation is expected in auctions where participants bid on induced values in both practice and the real rounds since no amount of anchoring should prompt participants to bid anything other than their induced value.

If observed, the anchoring effect would represent a bias because it would suggest that practitioners may inadvertently manipulate real bids through their choice of goods for sale in practice rounds.

3.3. Misconception effect

Very few experimental auction participants will have experience with the demand revealing auctions used in economic experiments. Therefore, detailed explanations and practice rounds may not be enough to overcome participants’ deep-seated desire to underbid in the hope of getting a good deal. Plott and Zeiler (2005) argue that this kind of misconception may help explain the often-observed gap between willingness to accept and willingness to pay.

If observed, the misconception effect would represent a bias because it would suggest that auction participants are systematically understating willingness to pay.

4. Study 3

To understand which of these three effects might explain the observed positive correlation between practice and real bids, we designed a new experiment to test for the presence of anchoring, spendthrift, and misconception effects.
One hundred and twenty students at a major Philippine university took part in one of two experimental treatments that varied only by the size of the induced value auctioned off during the practice round: ₱20 versus ₱1000.²

Participants bid in a second-price auction (Vickrey 1961). They first bid in a hypothetical practice auction for either a ₱20 or a ₱1000 induced value depending on the treatment.³ The monitor announced the highest bidder and the second-highest bid. Participants then bid on a pair of sunglasses in three potentially binding rounds. Finally, participants answered demographic questions and questions used to calculate their spendthrift-tightwad score, and the monitor determined the binding round and executed transactions.

Table 1 presents the results of Tobit regressions for each round individually. The dependent variable in each case is the real round bid. Independent variables include practice bid as a percentage of induced value, spendthrift-tightwad score, and a dummy variable indicating whether participants bid on a high induced value in the practice round. We use Tobit analysis because real bids are censored from the left at ₱0. We focus on practice bid as a percentage of the induced value rather than the practice bid itself because induced values varied by a factor of 50 across treatments. We calculate the spendthrift-tightwad score based on responses to four survey questions as in Rick, Cryder, and Loewenstein (2008). Spendthrift-tightwad scores range from 4 to 26 with a higher score indicating a participant is more free-spending.

Results from round 1 indicate a positive and statistically significant anchoring effect. Participants with a high induced value in the practice round submitted real bids in round 1 that were ₱150 higher than participants with a low induced value. We find no evidence of a

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2 At the time of the experiment, $1 was worth ₱43.
3 Participants in all three of our studies submitted hypothetical practice bids. Plott and Zeiler (2005) recommend nonhypothetical practice bidding. Future research is needed to determine whether a positive correlation exists between nonhypothetical practice bids and real bids.
spendthrift effect in round 1. We find a positive and statistically significant correlation between practice bid percentage and the real bid in round 1. A ten percentage-point increase in the practice bid as a fraction of induced value is associated with a $24 increase in the real bid in round 1. Having controlled for anchoring and spendthrift effects experimentally, we attribute this remaining correlation to the misconception effect.

Results from rounds 2 and 3 provide no evidence of anchoring or spendthrift effects. We also find no evidence of misconception since no statistically significant correlation between practice and real bids remains after controlling for anchoring and spendthrift effects.

5. Conclusions

The use of practice rounds is widespread in experimental auctions. However, the effect of practice-round bidding on real-round bidding has been ignored. Using results from an experimental auction specifically designed to test for anchoring, spendthrift, and misconception effects, we find no evidence of a spendthrift effect. While we do find evidence of anchoring and misconception effects in the first real round, repeated real rounds mitigate these effects. These results have important implications for the design of auction experiments. We recommend using repeated real auction rounds without price feedback. It is more common to use repeated real rounds with price feedback, but prices posted after each round may introduce their own undesirable biases.
References


Fig. 1. Relationship between practice and real bids in Study 1

![Graph showing the relationship between practice and real bids in Study 1. The x-axis represents the average of practice bids, and the y-axis represents the average of real bids. The graph includes various data points and a trend line.]

Fig. 2. Relationship between practice and real bids in Study 2

![Graph showing the relationship between practice and real bids in Study 2. The x-axis represents the average of practice bids, and the y-axis represents the average of real bids. The graph includes various data points and a trend line.]

Average of practice bids
Table 1. Results of Tobit analysis of Study 3

<table>
<thead>
<tr>
<th>Variable</th>
<th>Round 1 (N=120)</th>
<th>Round 2 (N=120)</th>
<th>Round 3 (N=120)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient estimate</td>
<td>p-value</td>
<td>Coefficient estimate</td>
</tr>
<tr>
<td>Constant</td>
<td>-50.48 (125.98)</td>
<td>0.69</td>
<td>-193.63 (323.46)</td>
</tr>
<tr>
<td>Practice bid as a percentage of induced value</td>
<td>2.40 (0.73)</td>
<td>0.00</td>
<td>3.09 (1.88)</td>
</tr>
<tr>
<td>Spendthrift/tightwad score</td>
<td>-1.66 (7.12)</td>
<td>0.82</td>
<td>18.62 (18.24)</td>
</tr>
<tr>
<td>High induced value</td>
<td>150.97 (54.11)</td>
<td>0.01</td>
<td>32.98 (138.52)</td>
</tr>
</tbody>
</table>

*Standard errors in parentheses.*