A Typology of Chinese Online Bidders

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This study classifies Chinese online bidders based on their bidding behavior (i.e., sequential bidding, late bidding, multiple bidding, and willingness to pay). The findings demonstrate that Chinese online bidders are indeed a heterogeneous group. Three distinct types of bidders were identified and named as sequential early evaluators, sequential late participants, and simultaneous middle bidders. The profile of each group was examined. Implications and future research were also discussed.

INTRODUCTION

During the past decade, online auctions have grown dramatically all over the world. As a new transaction format, online auctions have become a widespread marketing practice. Although the online auction market size in China is relatively small, it grew at a surprisingly high rate in recent years. According to a China-based consulting company Analysis International, Consumer to consumer online auction sales in the China market reached $2.98 billion during the first quarter of 2008, representing a 36.4% quarterly increase. Taobao, the largest online auction site in China, had 170 million registered users by the end of 2009. Considering that China has become the world's largest online market with 485 million Internet users (www.internetworldstats.com), such explosive growth is expected to continue.

The growth of online auctions has gained wide attentions from academic researchers (Anwar et al. 2006; Ariely et al. 2005; Bajari and Hortacsu 2003; Chan et al. 2007). This phenomenon, however, has been largely studied in the US context. Though a few studies began to address China's online auction market (Chen et al. 2007; Hou 2007; Li et al. 2008), this research is still in its infancy. Specifically, little is known about Chinese online bidders' bidding behavior. In particular, are Chinese online bidders a heterogeneous group? If so, how do they differ in terms of their bidding behavior? Are there any cross cultural differences? Answers to these questions not only deepen our knowledge and understanding of online bidding behavior, but also are of practical importance.

Therefore, the purpose of this study is to investigate Chinese online bidders' bidding behavior, identify typologies of Chinese online bidders based on their bidding behavior, and evaluate different types of bidders.

CONCEPTUAL BACKGROUND

Several studies have attempted to classify online bidders based on their bidding behavior (e.g., time of entry, number of bids submitted in one auction, willingness to pay, etc.) in the U.S. online auction market. Bapna et al. (2004) developed a typology of online bidders in business-to-consumer online

auctions (e.g., Ubid.com), while Hou and Rego (2007) identified different groups of online bidders in the context of consumer-to-consumer online auctions (i.e., eBay).

Online bidding behavior can be described as a four-step decision making process. First, bidders must decide on the number of auctions they intend to participate in. They can enter several auctions at the same time or one auction at a time. Second, bidders must decide when to enter an auction; early or late. Third, bidders also need to decide how many bids they will place in the same auction; a single bid or multiple bids. Finally, bidders must decide how much they are willing to pay for the auction item. The following sections will review the literature on these bidding decisions.

Sequential/Simultaneous Bidding

In online auctions, a large number of auctions often sell similar or even identical items. These competing auctions may end simultaneously (ending at the same time), sequentially (one ending and another starting), or overlap (one not ending and another starting). This phenomenon posts a unique challenge for potential bidders, who must decide whether to participate in several auctions simultaneously or one auction at a time (i.e., sequentially). In other words, simultaneous bidding implies that bidders participate in competing auctions (i.e., simultaneously ending or overlapping auctions) at the same time, while the opposite is sequential bidding where bidders only participate in one auction at a time.

The phenomenon of competing online auctions has drawn some research interests recently. For example, Vishwanath (2004) indicated that bidders, when facing multiple competing auctions, tend to use simple heuristics and cues (e.g., starting price and current bid) in their decision making. Zeithammer (2006) showed that bidders tend to engage in a bidding strategy termed as "forward-looking bidding" where bidders reduce their current bids in anticipation of forthcoming auctions offering same items. Finally, several studies reported that simultaneous bidders were more likely to win an auction and pay a lower price than sequential bidders (Anwar et al. 2006; McCart et al. 2009).

Late Bidding

Online bidders need to decide on when to enter an auction. Although bidders can enter an open auction at any time, the literature has shown that online bidders frequently engage in a "late bidding," "last-minute bidding," or "sniping" strategy, which refers to submitting their bids as late as possible (Ariely et al. 2005; Bajari and Hortacsu 2003; Borle et al. 2006; Ockenfels and Roth 2006; Roth and Ockenfels 2002; Wilcox 2000; Wintr 2008). For example, Ockenfels and Roth (2006) reported that the percentage of eBay auctions having last minute and last 10 seconds bids were 37% and 12%, respectively, while Hossain (2008) found that 9.6% of all bidders submitted their bids in the last three minutes.

The literature has shown that bidders engage in late bidding in order to avoid bidding wars, thus lowering the final bid of the auction (Hou 2007). Studies have indicated that several factors (e.g., auction ending rules, bidder expertise, and different product categories) may influence the extent of late bidding. For example, studies reported that late bidding is more likely to occur in auctions with a fixed deadline (e.g., eBay) than with a soft deadline (e.g., Amazon) (Ariely et al. 2005; Ockenfels and Roth 2005; Roth and Ockenfels 2002). Studies have also found that experienced bidders are more likely to engage in late bidding then inexperienced bidders (Hossain 2008; Wilcox 2000; Wintr 2008). Finally, different product categories may involve different extents of late bidding (Borle et al. 2006; Wilcox 2000; Wintr 2008).

Multiple Bidding

When participating in an auction, bidders can bid only once, or they can gradually increase their bids thus bidding multiple times in the same auction. Studies have shown that a number of bidders engage in the latter strategy (i.e., multiple bidding). For example, Borle et al. (2006) reported that 37% of all bidders place multiple bids in the same auction. Similarly, Ockenfels and Roth (2006) found that 38% of bidders place more than one bid in the course of the auction, and on average, the number of bids per bidder was 1.89.

Previous studies have offered several explanations of multiple bidding. First, bidders can be naïve, and thus may not realize that multiple bidding increases competition and often leads to bidding wars.

Inexperienced bidders, as a result, are more likely to engage in multiple bidding than experienced bidders (Hossain 2008; Ockenfels and Roth 2006; Wilcox 2000). For example, Hossain (2008) reported that bidders who had fewer than 20 feedback ratings were one-third more likely to place multiple bids than those with more ratings. Second, bidders may be initially uncertain about their valuation of the auction item, but become more certain after spending more time considering the item as well as observing others' bids, thus increasing their bids during the course of the auction (Bajari and Hortacsu 2003; Cotton 2009). Finally, bidders may bid multiple times in an auction due to auction fever where bidders become obsessed with the auction item thus increasing their bids in order not to lose the auction (Heyman et al. 2004; Ku et al. 2005).

Willingness to Pay (WTP)

Bidders participate in online auctions for different reasons. Some may look for a bargain, while others may seek entertainment. Hou and Elliott (2010) identified motivations behind online bidders' participation, such as bargain hunting, enjoyment seeking, information seeking, variety seeking, and convenience seeking. Bidders' WTP, to a certain degree, may capture their underlying motivations. For example, bidders with a low WTP are more likely to be bargain hunters, while those with a high WTP tend to be enjoyment seekers who are less concerned about price (Wakefield and Inman 2003). Therefore, assessing bidders' WTP may reveal, to some degree, their motivation behind their participation.

The literature has shown that a number of factors may influence a bidder's WTP, including bidder characteristics such as bidder expertise and demographics, seller characteristics such as seller expertise and reputation, and selling strategies such as starting bid, reserve price, and product information revelation (Chan et al. 2007; Kauffman and Wood 2006).

METHODOLOGY

Data were collected at Eachnet.com, one of China's largest online auction sites. The 17- and 19-inch LCD monitors were chosen as the study's bidding object for two reasons. First, this study would like to select a competitive product category with a lot of bidders. Second, the product chosen should have a relatively high price such that bidders are serious about their bidding. LCD monitors satisfy both requirements.

Auction data were collected during a one-month period at the end of 2007. For each auction, the detailed bidding history was recorded, including bidder ID, bidders' feedback ratings, time of bid, amount of bid, the winning bid, and the winner ID. Overall, there were 246 auctions that received bids, with 1607 unique bidders. Table 1 gives a summary of the sample.

TABLE 1
SUMMARY OF THE SAMPLE

	Total	Average	Range
Unique Bidders	1607	6.35	N/A
Winning Bids	¥180246	¥732.71	¥490-1524
Bidder Experience*	5253	3.27	0-150

¥: Chinese Yuan; *: The number of a bidder's feedback ratings

Based on the conceptual ground, four classification variables were identified, including sequential bidding, time of entry (TOE), number of bids (NOB), and willingness to pay (WTP). The measurement and summary of these variables are provided in Tables 2 and 3.

TABLE 2
MEASUREMENTS OF CLASSIFICATION VARIABLES

Classification Variables	Measurements
Sequential Bidding	Dummy variable indicating whether a bidder participates in one (= 1) or multiple auctions (= 0) at the same time.
Time of Entry (TOE)	This measurement involves two steps. First, when bidders submit their first bid in an auction, the TOE is calculated as how much time left before the auction ends. Second, all bidders were equally divided into ten groups based on their TOE, with 1 being the earliest entrants and 10 being the latest ones.
Number of Bids (NOB)	Number of bids a bidder submits in one auction.
Willingness to Pay (WTP)	A bidder's highest bid as the percentage of the winning bid.

Note: For bidders participating in multiple auctions during the time of data collection, their TOE, WTP, and NOB were measured as the average across multiple auctions.

TABLE 3
SUMMARY OF CLASSIFICATION VARIABLES

Classification Variables	N	Minimum	Maximum	Mean	Std. Deviation
Sequential Bidding	1607	0	1	.72	.448
TOE	1607	1	10	5.60	3.59
NOB	1607	1	22	2.34	2.34
WTP (%)	1607	0	100	55.36	35.53

A TwoStep cluster analysis was conducted because this method is suitable for large sample sizes, can handle both categorical and continuous variables, and can automatically determine the number of clusters. A three-cluster solution was generated based on this method. A summary of each group by classification variables is given in Table 4. Table 5 shows the characteristics of each group by average bidder experience, likelihood of winning, and average winning bid.

TABLE 4
SUMMARY OF EACH GROUP BY CLASSIFICATION VARIABLES

	Sequential Early Evaluators (n = 667)	Sequential Late Participants (n = 494)	Simultaneous Middle Bidders (n = 446)
Sequential Bidding	1	1	0
TOE	2.49	9.15	6.32
NOB	2.59	1.64	2.73
WTP (%)	26.41	84.11	66.81

TABLE 5
SUMMARY OF EACH GROUP BY EXPERIENCE, LIKELIHOOD OF WINNING,
AND WINNING BID

Groups	Average Experience	Likelihood of Winning	Average Winning Bid
Sequential Early Evaluators	2.65	2%	¥732.86
Sequential Late Participants	3.30	19%	¥740.52
Simultaneous Middle Bidders	4.17	19%	¥701.50
Total	3.27	12%	¥732.71

THE PROFILE OF EACH GROUP

Sequential early evaluators (n = 667). This is the largest group, accounting for 41.5% of all bidders. These bidders attend one auction at a time, enter an auction relatively early, bid multiple times, and have the lowest willingness to pay among groups. Since they submit low bids and are least experienced (2.65), their purpose of attending auctions could be to gain some experience by actually bidding. As a result, it is not surprising they have such a low likelihood of winning an auction (2%).

Sequential late participants (n = 494). These bidders account for 30.7% of all bidders. They attend one auction at a time, enter an auction very late, submit fewer bids, and have the highest willingness to pay among groups. These bidders tend to be goal-driven. They focus on one auction, and their purpose of bidding is to win the auction.

Simultaneous middle bidders (n = 446). This is the smallest group, accounting for 27.8% of all bidders. These bidders attend multiple auctions at the same time, enter in the middle of an auction, submit multiple bids, and have a higher than average willingness to pay. They are most experienced (4.17) and tend to be bargain hunters. They bid across auctions in order to find a deal. Their average winning bid (¥701.50) is the lowest among groups. This result is consistent with the literature that simultaneous bidders are more likely to pay a lower price than sequential bidders (Anwar et al. 2006; McCart et al. 2009).

CONCLUSIONS

This study is the first in profiling Chinese online bidders based on their bidding behavior. The findings demonstrate that Chinese online bidders are indeed a heterogeneous group. Three distinct types of bidders are identified and named as sequential early evaluators, sequential late participants, and simultaneous middle bidders. Sequential early evaluators are the least experienced group and have the lowest likelihood of winning, whereas simultaneous middle bidders are the most experienced group and on average pay the lowest price.

Findings from this study can benefit online auctioneers. In particular, they need to optimize their auction design in order to attract different types of bidders. For example, auctioneers can design a good website and set a low starting bid to attract sequential early evaluators and simultaneous middle bidders in order to build traffic, which can eventually drive up the auction price (Hou 2007). To attract sequential late participants who focus on one auction at a time and have a high willingness to pay, auctioneers may want to provide detailed product information (e.g., pictures).

The present study classifies Chinese online bidders based on their bidding behavior, but does not directly compare bidding behavior across cultures. Future research may address this issue. For example, one could examine how bidders engage in sequential, late, and multiple bidding under different cultural contexts. Another research avenue is to investigate Chinese online bidders' motivations (e.g., bargain hunting, convenience seeking, enjoyment seeking, etc.) and examine how they can be related to different types of bidding behavior.

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