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A comparison of different pay-per-bid auction formats

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ABSTRACT

Pay-per-bid auctions are a popular new type of Internet auction that is unique because a fee is charged for each bid that is placed. This paper uses a theoretical model and three large empirical data sets with 44,614 ascending and 1,460 descending pay-per-bid auctions to compare the economic effects of different pay-per-bid auction formats, such as different price increments and ascending versus descending auctions. The theoretical model suggests revenue equivalence between different price increments and descending and ascending auctions. The empirical results, however, refute the theoretical predictions: ascending auctions with smaller price increments yield, on average, higher revenues per auction than ascending auctions with higher price increments, but their revenues vary much more strongly. On average, ascending auctions yield higher revenues per auction than descending auctions, but results differ strongly across product categories. Additionally, revenues per ascending auction also vary much more strongly.

1. Introduction

Pay-per-bid auctions offered by retailers, such as Quibids, Bidcactus and MadBid, are exciting, fast-paced business-to-consumer online auctions that are attracting significant interest from consumers, popular press and start-up companies. Unlike other well-known auction sites, such as eBay, pay-per-bid auctions charge a fee for each bid that is placed, regardless of whether one wins the auction. Additionally, a bid placed increases the price by a certain increment that is chosen by the auctioneer.

At first glance, fee-based bidding does not sound attractive because the bidder encounters the risk of having to pay bidding fees without winning the auction. However, the compelling part of this model is that the bidders who win an auction can potentially save more than 99% off the current retail price (CRP) of the product. For example, on MadBid.com, a new MINI One car was sold for €8.47 rather than its retail price of €15,000. Similarly, a new Kymco scooter, which regularly sells for €1,240, was sold for €0.40.

Popular magazines, newspapers and online blogs are replete with heated discussions regarding this emerging type of auction.[4] Although some commentators are enthusiastic about the attractive deals offered by pay-per-bid auctions and how enjoyable they are, others strongly warn consumers against participating in them. Such commentators point to potentially huge losses for bidders as a result of the high

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[4] For magazines, see for example, Last, Jonathan V. (February 23, 2009) "Take a chance on an auction; Swoopo and the rise of Entertainment Shopping" in The Weekly Standard; (December, 2011) "Can you buy products dirt cheap on QuiBids? Behind the hype" in Consumer Reports. For newspapers, see for example, King, Marc (January 28, 2012) "How penny auction websites can leave you with a hole in your pocket" in The Guardian; Zimmerman, Ann (August 17, 2011) "Penny auctions draw bidders with bargains, suspense" in The Wall Street Journal; Choi, Candice (June, 24, 2011) "Penny auction sites could cost a chunk of change" in The Washington Times; ConsumerReports.org (December 2011) "With penny auctions, you can spend a bundle but still leave empty-handed"; McCarthy, John (June, 2, 2011) "Penny auctions promise savings, overlook downsides" in USA Today; Migoya, David (January 25, 2010) "BARGAIN BIDDERS On penny auction sites, buyers can get gift cards for a fraction of face value — or pick up a new addiction" in The Denver Post; and Thaler, Richard H. (November 15, 2009) "Paying a Price For the Thrill of the Hunt" in The New York Times. For blogs, see for example, http://www.foxbusiness.com/personal-finance/2012/07/10/online-auction-virtual-bargain-or-real-rip-off/, http://www.scambook.com/blog/2012/07/penny-auction-fraud-alert-how-you-can-lose-by-winning/, http://www.usatoday.com/tech/columnist/kimkomando/2011-05-13-komando-penny-auctions_n.htm, http://www.thesimpledollar.com/2010/11/20/a-deeper-look-at-quibids-and-why-i-dont-think-its-worth-it/, and http://www.theregister.co.uk/2009/01/02/swoopo_startrup/.

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bidding costs, which can easily be in the range of several hundred dollars per auction. However, all commentators have based their conclusions on a fairly limited number of observations, some of which are quite anecdotal.

Furthermore, auctioneers lack knowledge regarding how different auction formats influence their profitability. They frequently adjust their auction formats, and many auctioneers, such as the pioneer of this type of auction, Swoopo, have become bankrupt. Thus far, only a few researchers have analyzed pay-per-bid auctions by developing theoretical models (Augenblick, 2012; Gallice, 2011; Platt, Price, & Tappen, 2013) and by testing these models with actual sales data. Others have empirically compared the effect of the buy-now price feature on bidders' behavior in ascending penny auctions (Reiner, Natter, & Skiera, 2014). Analysis of the economic effects of different pay-per-bid auction formats that differ in the sizes and signs of price increments has thus far been neglected. We are the first researchers to close this gap.

We aim to theoretically and empirically assess the economic effects of different pay-per-bid auction formats. In particular, we compare different price increments (penny vs. ten-cent auctions) of ascending auctions as well as of ascending and descending pay-per-bid auctions. Therefore, we adapt and extend previous theoretical models, formulate predictions regarding the influence of auction formats on auctioneer revenues and empirically analyze them using three unique and large empirical data sets. Our data include the results of 44,614 ascending pay-per-bid auctions and 1,460 descending pay-per-bid auctions along with 1,142,738 bids.

The remainder of this manuscript is structured as follows. In the next section, we compare the most prominent pay-per-bid auctioneers and outline previous literature on pay-per-bid auctions. In Section 3, we describe our theoretical models and formulate predictions for the economic effects of different pay-per-bid auction formats. We investigate the economic influence of different formats of ascending pay-per-bid auctions in Section 4 and those for descending pay-per-bid auctions in Section 5. In Section 6, we compare the results of ascending and descending auctions. Section 7 summarizes our findings, discusses implications and points to topics for future research.

2. Pay-per-bid auctions

Pay-per-bid auctions are characterized by the association of bidding with tangible costs. Using traffic data (May 5 to August 5, 2013) from Alexa.com, Table 1 outlines some of the largest pay-per-bid auctioneers (with a reach of more than 0.001% of all global Internet users) and the characteristics of their auctions. All ascending auctioneers begin with a price of zero, but they differ by how much they change the price for each bid. Quibids offer various price increments that range from €0.01 to €0.15, whereas others increase the price by only €0.01. The start price of descending auctions is equal to the CRP. Bidding fees are substantial in all auction formats, ranging from €0.50 to €1.50.

2.1. Description of pay-per-bid auctions

Fig. 1 is a graphic illustration of ascending and descending pay-per-bid auctions. An ascending auction opens with a starting price that is usually €0.00. Each bid increases the price, and the bidder must pay for each bid. For example, in a typical auction at Quibids, each bid costs approximately €0.40 and increases the price by €0.01. Additionally, placing a bid delays the end of the auction by a countdown time (often 20 s). The auction ends when the countdown time has elapsed without an additional bid. The last bidder wins the auction and has the option to purchase the product from the auctioneer for the price of the final bid.

In contrast, in a descending auction, such as those offered by vipauktion, each placed bid costs €1.00 to €2.00 and decreases the current price by €0.40. After placing the bid, the bidder receives information regarding the current price. Hence, in a descending auction, the bid is not simply a bid in the narrow sense, as it is not a bid on a specific price. However, every placed bid reveals additional information regarding the current price. When the bidder accepts the current price, the product is purchased, and the auction ends. Otherwise, the auction continues, and the bidder can wait and place an additional bid to reveal information regarding an updated (lower) price.

2.2. Previous literature

Research on online auctions has recently been increasing in popularity (Barrot, Albers, Skiera, & Schäfers, 2010; Dholakia, Basuroy, & Soltysinski, 2002; Haruvy & Popkowski Leszczyc, 2009; Jap & Naik, 2008; Pinker, Seidmann, & Vakrat, 2003). Ever since the broad acceptance of the Internet online auctions such as eBay have become more popular. As a consequence, a variety of auction formats have emerged, such as name-your-own-price auctions (Amaldoss & Jain, 2008; Hinz & Spann, 2008; Spann, Skiera, & Schäfers, 2004) and pay-per-bid auctions.

Knowledge of ascending pay-per-bid auctions in particular is currently growing. Augenblick (2012), Hinnosaar (2010) and Platt et al. (2013) were the first researchers to provide theoretical models of ascending pay-per-bid auctions. Independently of one another, they show that any subgame perfect equilibrium of an ascending pay-per-bid auction that receives more than one bid must be in mixed strategies. A mixed strategy in this context means that bidders randomly choose between bidding and not-bidding in each round of the auction.

According to their theoretical models, Augenblick (2012) and Platt et al. (2013) find deviations with actual revenues being well above expected revenues. Therefore, Platt et al. (2013) extend their model to allow for risk preferences (risk-loving/risk-averse vs. risk-neutral), which leads to expected revenues that better match actual revenues. Byers, Mitzenmacher, and Zervas (2010) build on the theoretical model developed by Platt et al. (2013) and Augenblick (2012) and analyze information asymmetries across bidders. Their model shows that

Table 1
Comparison of the most popular pay-per-bid auctions.

Provider	Quibids	Dealdash	MadBid	Beezid	Bidcactus	ClicxaBids	Vipauktion
Auction format	Ascending	Ascending	Ascending	Ascending	Ascending	Descending	Descending
Starting price	$0.00	$0.00	£0.00	$0.00	$0.00	CRP	CRP
Bidding fee	$0.60	$0.60	£0.25–£1.20	$0.55–$0.90	$0.75	Varies	€1.00–€2.00
Price increment	$0.01–$0.20	$0.01	£0.01	$0.01	$0.01	Varies	€0.40
Operating countries	US/Europe/Canada/ Australia	US only	UK/Spain/Germany/ Italy/Ireland	US, ships worldwide	US, also ships to Canada	US/Ireland	Germany
Market share May–Aug 2013	75.69%	7.60%	5.06%	3.46%	2.95%	n.a.	n.a.
(% reach)	0.050	0.005	0.003	0.002	0.002	n.a.	n.a.

Market share based on reach between May and Aug 2013; % reach = percentage of all Internet users visiting this site; CRP: current retail price, with all prices in local currencies; n.a. = not available.