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**Recovery from bidding fever:
Why pay more than 102% to buy a gift card?**

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ABSTRACT

On eBay, gift certificates often sell for more than their face values. About 51.6% of Amazon gift certificates sold on eBay, for example, sell for prices that are ‘too high’ – on average 104.1% of face value. People often attribute this apparent overpayment to bidding fever or pseudo-endowment effects. However, using a novel dataset of eBay transactions, I show that about half of all Amazon gift card overpayment occurs in fact in Buy-it-now sales, and thus does not involve bidding, much less bidding fever. My data reveals that overpayment is not random; rather, it is highly cyclic. In fact, overpayments appear to be rationalized by institutional features such as eBay reward programs and special offers. These features affect bidding and buying behavior in meaningful ways and should thus be taken into consideration in future research using eBay data.

1 INTRODUCTION

Recent literature reveals that a substantial number of eBay items are overpriced at the time of sale. The majority of gift certificates in eBay auctions, for example, sell for more than their face values. Jones (2011) found 41.1% overbidding in his 2008 Amazon gift certificate data. He suggested *bidding fever* as an explanation for this phenomenon, i.e., expectation of extra utility from winning an auction that arises during the bidding process.

This paper uses a novel eBay data set collected over a period of six months observing more than 230,000 gift certificates sold.¹ Our data confirms that 51.6% of Amazon certificates are sold above face value (cf. table 1).² However, 53.3% of all overpaid Amazon gift certificates are actually acquired through eBay Buy-it-now, which does not involve any bidding. This suggests that behavioral explanations like bidding fever cannot explain the observed behavior.

More generally, this paper evaluates the common interpretations of seemingly irrational overbidding behavior and attempts to offer some rational explanations. We focus on Amazon and Walmart gift certificates, as most of the overbidding happens for gift certificates of well-known companies with a large retail store / internet presence. Furthermore, we can assume that the internet presence of Amazon and Walmart is generally known. Both stores offer their gift certificates at face value with free next-day or instant email delivery online and there should be no information or market frictions limiting the purchase of gift certificates directly. With this prominent outside option, auctions of Amazon and Walmart gift certificates provide a natural upper bound for rational bids in second price auctions: face value.

Our analysis reveals that spikes in overpayment can be observed on certain days of the year. There is substantial correlation (57.9%) between the number of Amazon and Walmart gift certificates overpaid for each day. We suggest that eBay reward programs and special offers are responsible for most of the overpaying observed on eBay. They alter the bidding and buying behavior for all eBay transactions, and thus should be accounted for in future research using eBay data.

A number of previous literature has analyzed bidding fever and similar behaviors: Heyman et al. (2004) sug-

¹From 08/08 2012 to 01/31 2013, we observed 233,719 transactions in eBay's "Gift Cards" category. Out of these, 7,020 transactions were Amazon and 8,881 were Walmart gift certificates.

²We define a gift certificate to be "above face value" if the price it is sold for exceeds 102% of the card's store value. The additional 2% are added because of the eBay Bucks reward program which offers customers 2% cash back. For more information on eBay Bucks, cf. section 3. Considering all gift certificate sold for prices exceeding 100% of the card's store value to be "above face value," 58.4% of Amazon certificates are sold above face value.

gest that bidding fever is related to an auction’s competitiveness. Building upon Malhotra and Murnighan (2000) and Ku (2000), Ku et al. (2005) present a model treating overbidding as a consequence of competitive arousal and escalation. They describe the decision-making of bidders to be influenced by factors such as rivalry and time pressure. Katkar and Lucking-Reiley (2001) propose that online bidders get “caught up in the bidding” at low bids and end up bidding more than they would have if the bidding had started at a relatively high reserve. Cooper and Fang (2008) suggest that non-standard preferences may be responsible for overbidding (“spite” or “joy of winning”).

Building upon the endowment effect introduced by Thaler (1992), Wolf et al. (2005) coin the utility change related to holding the highest bid for some instance the *pseudo-endowment effect*. They suggest that being the high bidder at some point during an auction “foster[s] attachment to [the] item” and thereby raises the individual’s willingness to pay. Ehrhart et al. (2008) considers the pseudo-endowment effect responsible for peoples’ tendency to submit higher bids than their actual evaluation.

Lee and Malmendier (2011) find evidence suggesting that overbidding relative to an existing fixed price occurs because these alternatives are ignored or forgotten. They argue that search friction and limited attention to outside options is most consistent with their results. Similarly, Ockenfels and Roth (2004) show how limited attention to outside options allow “Iraq most wanted” cards to sell for an auction price above its retail price in 2003.

Our findings refute behavioral explanations like bidding fever or pseudo-endowment effects for overbidding on gift certificates traded on eBay. It is reasonable to hold the eBay reward program and its promotions and special offers accountable for the observed overpaying. More generally, our findings should be taken into consideration whenever using eBay’s transaction prices for inferences on private values. This paper suggests that transaction prices are altered by eBay’s special offers and promotions.

The rest of this paper is structured in the following way: Section 2 lays out the eBay reward program “eBay Bucks” and related promotions and special offers. Section 3 introduces the data on Amazon and Walmart gift certificates. In section 4, we discuss and interpret our data which will be concluded in section 5.

2 EBAY REWARDS & PROMOTIONS

The eBay Bucks rewards program was introduced in 2010 in order to promote more consistent use of the eBay website. If eBay members join the reward program, they are given “eBay Bucks” for qualifying purchases. Upon the completion of each calendar quarter, members are issued an eBay Bucks certificate for their qualifying purchases in the previous three months. Each eBay Bucks certificate expires after 30 days.³

Although it is subject to change, the regular eBay Bucks reward amounts for 2% of the total paid for an item. Due to this well-advertised rewards program, we define *overpaying* if an item is bought for a price *exceeding 102% of the certificate’s store value*.

Additionally, most eBay promotions and special offers are tailored to certain members. Only members receiving email invitations to participate in a promotion are eligible for it. While some members receive a 3% bonus eBay Bucks offer for a certain day, others may not. Also, by signing up or shopping with other eBay and non-eBay programs such as Netflix, NewEgg, eBay BillMeLater, Hulu, Hotels.com, MacMall, and many more, eBay members can receive special eBay Bucks rewards.

It is hard to test how these extra incentive affect purchasing behavior, given the individual character of the promotions. However, we believe that an additional 2 to 8% eBay Bucks influence purchasing decisions substantially (see section 4). A member of the popular deals community DealsWoot recently asked “Why do popular gift cards on eBay often sell for more than face value?” (deals.woot.com) The three top-rated answers were:

- “I currently have 40 dollars in eBay Bucks that I can only spend at eBay [...] I currently have nothing I want on eBay. [...] I could buy a 50 dollar gift card for 52 dollars and [use] my eBay Bucks [...]”
- “If you have an eBay gift card or discount/credit and you don’t want any product on eBay, why not bid over the face value on a gift card for something you do want. You’re bound to win it.”
- “Some [overpayment is] because [buyers are] not paying that amount due to a discount / credit, and some [overpayment] is stupidity.”

³Eligible for earning eBay Bucks are all items paid for using PayPal in combination with eBay’s checkout system or a customized checkout system. Only purchases bought on the US eBay site (www.ebay.com) or Canadian eBay site (www.ebay.ca) made after eBay members enroll in the eBay Bucks rewards program qualify. Both winning bid and Buy-it-now items count toward the program.

3 DATA

Over a time period of six months (08/08 2012 to 01/31 2013), we recorded all completed auctions and Buy-it-now items sold in eBay’s “Gift Card” category. For more than 230,000 transactions, we acquired item and shipping price, bid history, item description, item characteristics, and the buyer profile from ebay.com. As gift certificates can easily be acquired for face value with almost no additional costs (only the cost of changing websites and buying the gift card there), the face value provides an upper limit to rational bids under the standard model. Nevertheless, most of the overbidding is observed for gift certificates of companies with a large retail store / internet presence. We focus on Amazon and Walmart gift certificates, as we can assume that the internet presence of those stores is generally known and there should be no information friction about the availability of gift certificates there. Out of all transactions recorded, we observe 7,020 Amazon and 8,881 Walmart gift certificates for the six months period.

SUMMARY STATISTICS

Tables 1 and 2 summarize the daily number and volume of Amazon and Walmart gift certificates sold on eBay. In our six months’ sample, an average of 39.7 Amazon gift certificates were sold every day; an average of 20.45 or 51.6% of them selling for more than 102% of face value every day. Out of those, 9.55 certificates were acquired through an eBay auction and 10.91 certificates through eBay Buy-it-now – overpayment using non-auction methods exceeded that of auction methods. Considering only the number of observations overbidding versus overpaying by Buy-it-now, we see that 53.3% of Amazon gift certificates overpaid for were acquired directly using eBay Buy-it-now. This relationship becomes even more obvious when looking at the daily average volume overbid versus overpaid Buy-it-now.

For Walmart gift certificates we observe a higher number and volume of daily transactions together with a lower number of overpayment. Out of the 50.18 gift certificates traded, only 10.57 or 21.1% sold above 102% of face value. However, we see that 49.0% of Walmart gift certificates overpaid for were acquired using Buy-it-now.

OVERPAYMENT

Figures 1 and 2 show the daily sales of Amazon and Walmart gift certificates, respectively. The fractions of Amazon and Walmart gift certificates sold for more than 102% of face value are shown in figures 3 and 4, respectively. The graph suggests that there is a relationship between the spikes in overpayment for

Table 1: Statistics for the daily sales of Amazon gift certificates (08/08 - 01/31)

Variable	Obs	Mean	Std. Dev.	Min	Max
Nr of items	7020	39.66102	16.7999	15	93
- Nr of items overpaid	3621	20.45763	12.48771	4	70
- Nr of items overbid	1690	9.548023	6.650291	0	36
- Nr of items overpaid BIN	1931	10.9096	7.363359	0	40
- Nr of items not overpaid	3399	19.20339	7.5981	6	45
Fraction of items overpaid by nr	7020	.4925274	.1435239	.1333333	.8235294
Vol of items (USD)	7020	336084.5	122936.1	90098	672049
- Vol of items overpaid (USD)	3621	132463.9	84156.64	14843	441454
- Vol of items overbid (USD)	1690	48452.44	42646.2	0	232213
- Vol of items overpaid BIN (USD)	1931	84011.49	60134.45	0	370113
- Vol of items not overpaid (USD)	3399	203620.6	84064.74	38899	480686
Fraction of items overpaid by vol	7020	.3830207	.1671414	.0686701	.8243284

Table 2: Statistics for the daily sales of Walmart (08/08 - 01/31)

Variable	Obs	Mean	Std. Dev.	Min	Max
Nr of items	8881	50.17514	16.74942	13	98
- Nr of items overpaid	1871	10.57062	6.037462	1	35
- Nr of items overbid	954	5.389831	3.573976	0	20
- Nr of items overpaid BIN	917	5.180791	3.452778	0	21
- Nr of items not overpaid	7010	39.60452	13.30378	10	80
Fraction of items overpaid by nr	8881	.2070297	.0827057	.0357143	.4268293
Vol of items (USD)	8881	889559.2	291564	191016	1569916
- Vol of items overpaid (USD)	1871	96916.69	64153.45	3553	378179
- Vol of items overbid (USD)	954	37078.23	38709.61	0	299196
- Vol of items overpaid BIN (USD)	917	59838.47	41715.73	0	256791
- Vol of items not overpaid (USD)	7010	792642.5	264945.6	176399	1485679
Fraction of items overpaid by vol	8881	.1100362	.0593715	.0077441	.2793805

Amazon and Walmart gift certificates. In our data, we find a correlation of 57.9% between the number of daily overpaying of both gift certificates. The correlation between the volume (in USD) of daily overpaying of Amazon and Walmart gift certificates is 36.0%.

Another anomaly we observe in our data is the pattern of increase in gift certificate trades due to pre- and post-Christmas activity. Even though the fraction of overpaid Amazon and Walmart transactions starts off at comparable levels, Amazon gift certificates display a big spike in overpayment relative to normal sales. Walmart gift certificates, on the other hand, mainly increase with the amount of non-overpaid transactions.

Furthermore, we observe that unexperienced buyers are more likely to overpay than experienced buyers as Garratt et al. (2012) suggest. However, overpaying buyers of Amazon and Walmart gift certificates have an average feedback scores of 209.9 and 321.0, respectively. With more than 200 successful eBay

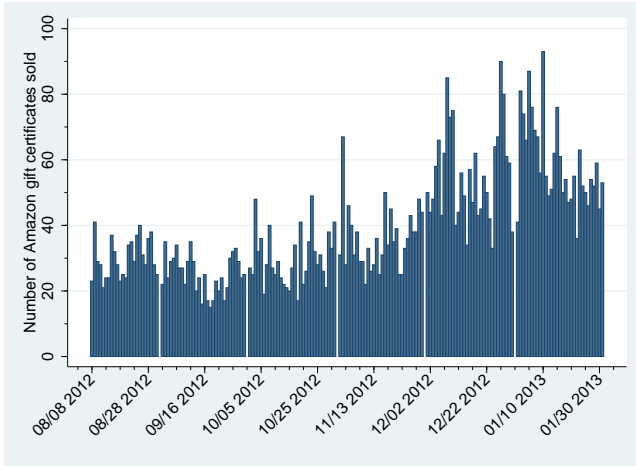


Figure 1: Number of Amazon gift certificates sold

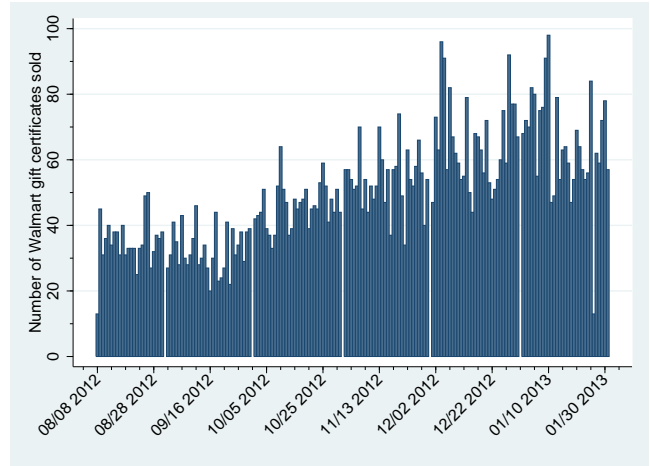


Figure 2: Number of Walmart gift certificates sold

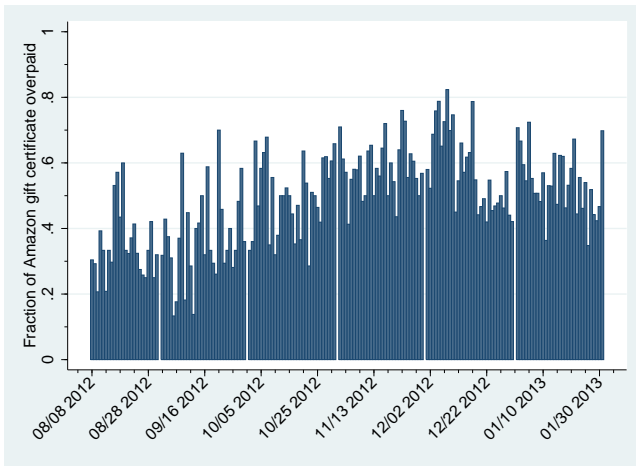


Figure 3: Fraction of overpaid Amazon gift certificates relative to the total number of Amazon gift certificates sold

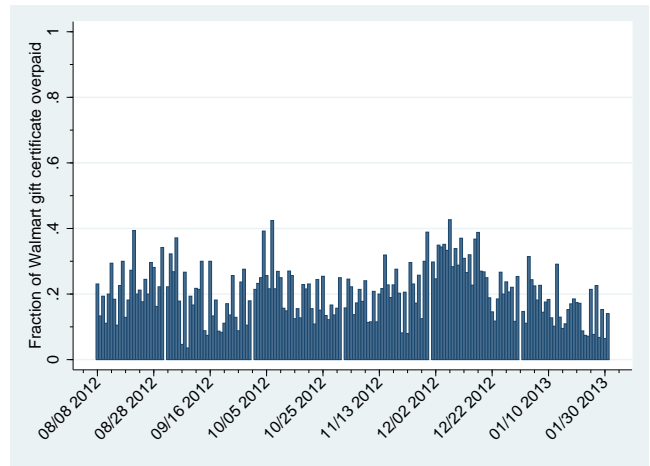


Figure 4: Fraction of overpaid Walmart gift certificates relative to the total number of Walmart gift certificates sold

transactions on average, buyers cannot be treated unexperienced in both cases.⁴

⁴An eBay member's feedback score increases by 1 for each positive feedback received for a transaction. On the other hand, it decreases by 1 for each negative feedback on a transaction. Although a low rating does not necessarily imply that the buyer is inexperienced, a high eBay rating indicates a high number of successful transactions on eBay. Therefore, buyers with a high eBay feedback score can be treated as experienced buyers.

4 INTERPRETATION

The rate of overpaying for Amazon gift certificates in eBay auctions we observe is comparable to that observed by Jones (2011) and Lee and Malmendier (2011). Jones (2011) reports that 41.1% of Amazon gift certificates sales happen for more than 100% of their face value in 2008.⁵ Lee and Malmendier (2011) find overbidding to be between 42% and 48% for the two different items they observe in their cross-sectional analysis. The fraction of Amazon gift certificates overpaid for is 51.6% in our data. However, the fraction of Walmart gift certificates overpaid for is less with 21.1%.

The institutional set-up and rules of eBay and its reward program offer a coherent?[coherent is a little too strong, but i don't know a better word here] way to explain this overpayment.

First, we observe a *correlation of 57.9% between the daily number of Amazon and Walmart gift certificates overpaid* for. This correlation suggests that overpayment is systematic. Indeed, searching on the popular online deal portal Slickdeals,⁶ we find that eBay members report being offered special rewards on certain days. Promotions are of the form “additional 2% in eBay Bucks,” “additional 3% in eBay Bucks on 08/29,” “additional 2% in eBay Bucks on purchases of USD 50 or more,” etc. These promotions are not publicly announced. eBay promotion are targeted promotions – they are not transferable and only apply to members receiving the promotion offer (mostly send via email). Even though we are unable to see the set of targeted promotions for a specific data, the high correlation between the overpaying of Amazon and Walmart gift certificates suggests that there are certain days particularly attractive to “overpay.”

Additionally, eBay offers promotions for their BillMeLater and Mastercard program. These promotions can be substantial, as the screenshot from a Slickdeals’ member in figure 5 suggests.

The way in which Amazon and Walmart gift certificate trades increases in frequency toward December suggests that Amazon gift card attracts more overpaying buyers than Walmart does. While for Amazon mainly overpaying trades increase, mainly non-overpaying trades increase for Walmart (cf. figure 3 - 4). We believe differences in consumer demographics to be responsible for this behavior. However, this hypothesis was not further tested here.

Second, *53.8% of all Amazon and 49.4% of all Walmart gift certificates overpaid for were acquired through*

⁵The eBay Bucks reward program was introduced in 2010. Thus, paying more than 100% in 2008 can be considered equivalent to paying more than 102% in 2012 with the existence of the program.

⁶With close to 50% of the overall vote, Slickdeals was announced the “best deal site” (cf. lifehacker.com (n.d.)).

Bucks Bonus Summary			
2011 Skullcandy Pipe Speaker ...			
Base earn		\$0.50	
Bonus Offer! : Extra \$10 eBay Bucks w/ BillMeLater on 1st purchase + 1% ALL MONTH		\$10.00	
Bonus Offer! : EXTRA 1% in eBay Bucks with BillMeLater ALL MONTH		\$0.25	
Bonus Offer! : EXTRA 1% in eBay Bucks with BillMeLater ALL MONTH		\$0.25	
Your eBay Bucks total		\$11.00	
		Price	Earned
		\$24.95	\$11.00

Figure 5: Screenshot of a USD 24.95 eBay purchase which leads to USD 11.00 in eBay Bucks earnings due to promotions (source: <http://slickdeals.net/forums/attachment.php?attachmentid=1650878&d=1355733801>, accessed Jan 14, 2013)

eBay Buy-it-now. Buy-it-now involves no bidding. The price of purchase is clearly displayed and there is no uncertainty. Once the Buy-it-now button is clicked, the buyer engages in a fixed-price legally binding transaction. Therefore, about 50% of eBay members overpaying for Amazon as well as Walmart gift certificates do so intentionally without any transaction uncertainties. Such transactions cannot be justified by behavioral explanations such as bidding fever and the pseudo endowment effect.

5 CONCLUSION

Auctions of gift certificates provide a natural upper bound for rational bids in second price auctions: face value. Buying new certificates is always possible, as major market players like Amazon and Walmart offer their gift certificates at face value with free next-day or instant email delivery. This prominent and somewhat well-known outside option should limit the maximum eBay purchase price of rationally behaving agents. However, about 51.6% of Amazon gift certificates sell ‘too high;’ on average they sell for 104.1% of their face value. Jones (2011) suggested bidding fever as an explanation for this phenomenon. More generally, literature often treats eBay bid information to directly reveal private values. Phenomenons such as overbidding are studied from directly observing transaction prices.

Our data reveals that 53.3% of all overpaid Amazon gift certificates are actually acquired through eBay Buy-it-now, which does not involve any bidding. Furthermore, we find a correlation of 57.9% between the number of daily overpaying for Amazon and Walmart gift certificates. These findings suggest that there is systematic, rational overpaying. Behavioral explanations like bidding fever or pseudo-endowment effects cannot explain this behavior observed on eBay, in particular the overbidding on gift certificates. Furthermore, our findings imply that highest bids cannot be treated as revealed private values for a good. Highest bids have to be put in the context of eBay’s institutional set-up. We suggest that factors such as eBay promotions alter the bidding behavior of rational agents in meaningful ways.

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