AN EBAY SELLER'S DILEMMA
SHIPPING – TO BUNDLE OR PARTITION

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ABSTRACT

A fully rational bidder on eBay will base their purchase decision on the total cost incurred to obtain the item. Therefore, it will be irrelevant whether the seller bundles the shipping cost with the price for the actual item or partitions the item's price and the shipping cost.The paper used a field study to test this hypothesis by offering identical cell phone power banks for auction, holding seller determined variables constant, except for variable shipping cost (free or $1.99) nd the day the auction ended. The results did not support the rational bidder hypothesis; items using partitioned pricing and $1.99 shipping cost)(actual price shipping cost) achieved higher final revenue than items offering bundled pricing (actual price and $1.99 shipping cost) achieved higher final revenue than items offering bundled pricing (price including free shipping). The study also did not find that , contrary to popular belief, ending the auction on the weekend will result in a higher final sale price.

Keywords: Online Auctions, eBay, Partitioned Pricing, e-commerce

INTRODUCTION

The most successful online auction site to date is eBay. The eBay marketplace is very competitive because there are often many sellers offering the same or similar items for sale, therefore sellers need to determine the most effective and efficient selling strategies. eBay offers sellers an auction facility or a fixed price 'Buy it Now' option, this study focuses on eBay's auction facility. A seller faces numerous decisions regarding an auction strategy, these include the auction opening bid price, auction length (3, 5, 7, 10 days), using a reserve price, item description (written, photos, video), day of the week to end the auction and the shipping method to offer (free shipping or buyer pays).

It is common for eBay sellers to separate the price a buyer pays for an item into two sections, firstly the price for the actual item and the other price for shipping and handling, referred to a price partitioning. Hossain & Morgan (2006) discuss the concept of mental accounting (Kahneman & Tversky, 1984; Thaler, 1985) where a buyer focuses on the actual purchase price but fails to adequately add on the related shipping cost. Therefore some

bidders will calculate the shipping fee fully or at least in part, while others may totally ignore this added cost (Hou & Blodgett, 2012).

An issue that this study shines a light on is eBay's campaign encouraging sellers to offer free shipping, for example the following information is available on the eBay website.

> "If you offer free shipping in your listing—and we can confirm the buyer didn't pay for shipping—you will automatically receive a 5-star rating on your shipping and handling charges detailed seller rating." *(eBay, 2013)*

> "Attract more buyers and get higher placement in search results by offering free shipping." (*eBay, 2013)*

Therefore, sellers that do not offer free shipping risk having their item being placed lower in the search results which can be a telling disadvantage in a competitive homogeneous category. Of course shipping is not free, therefore if the buyer does not pay, the seller must pay the cost for postage. Also image theory (Beach, 1993) suggests that individuals often create decision rules when they have numerous alternatives from which to choose, the alternatives that do not match these rules are rejected. eBay proposes that items offering free shipping attract a greater number of buyers, and suggests that many buyers may have a decision rule that requires only bidding on items that offer free shipping. In fact, eBay has a filter available that results in only auctions offering free shipping being displayed for any particular search query. Results from previous research support the proposition that a higher number of bids should positively affect the winning price of an auction (Hansen, 1985; Vincent, 1995; Bajari & Hortacsu, 2003; Reynolds, Gilkeson & Niedrich, 2009).

The format of this paper is as follows. First, the hypotheses and support from the literature. Secondly, the data collection process is described and summary statistics for the data collected are provided. Next, a description of the empirical results for the study are described. Finally, a discussion of the results, their limitations and the implications for future research.

LITERATURE REVIEW

Earlier research has explored a range of topics related to price partitioning and online auctions. Morwitz, Greenleaf & Johnson (1998) allocated names to each price partition, the *base price* and the *surcharge*; in relation to eBay auctions, the price of the item being auctioned is the base price and the shipping cost is the surcharge ("shipping cost" is used to represent the cost of shipping and handling). Morwitz *et al*. (1998) presupposed that firms implemented a price partitioning strategy because it would increase consumer demand and then argued that if consumers calculate the base price and the surcharge with the same accuracy as they use when considering the 'bundled' price, the partitioned price should not increase demand. The current study uses the number of bids as a proxy for 'demand'.

Morwitz *et al*. (1998) proposed that surcharges had less influence on buyers than the base price because buyers either fail to process the surcharge or focus on the base price and adjust

insufficiently for the surcharge. Therefore, sellers using a partitioning price strategy may receive greater profits when buyers disregard the surcharge. Xia & Monroe (2004) asked participants to consider a desktop computer purchase where shipping and handling were either included or partitioned from the base price. Despite the fact that the total price was also presented in the price partitioned condition, purchase intentions were higher when the price was partitioned than when it was combined. The prediction that price partitioning can increase purchase intentions seems to challenge some findings from prospect theory (Kahneman & Tversky 1979) which propose that people prefer to integrate losses, and therefore would consider a lower total cost from bundled pricing than from price partitioning.

Choosing which day of the week to finish an auction is another strategy component for the seller to consider, however there is a dearth of literature available. Studies have found that auctions ending during the weekend result in higher final prices than auctions that ended on weekdays (weekend effect) and suggest that people are willing to bid higher for the same item when they have more time to consider the purchase (Wood & Kauffman, 2001; Melnick & Alm, 2002; Lucking-Reilly, Bryan, Prasad, & Reeves, 2007), however, Schamel (2004) could not support a weekend effect.

This study is important because it holds values for numerous elements regarding a seller's auction strategy constant, and thus allows focus on investigating the optimal shipping method and day to end an auction. Hou & Blodgett (2012) noted that keeping background factors like the starting bid and book value constant was a key to "isolating the effect of shipping fees" on consumers online bidding decisions. An important factor in this study is that the seller offered shipping without distinction between local and international destinations and this factor has not been investigated previously. All items were listed on EBay's U.S site but available on all eBay sites, the items were listed in US dollars and dispatched from Hong Kong.

HYPOTHESES DEVELOPMENT

Partitioned pricing refers to the price of a single product in which the surcharge represents an additional amount intrinsic to the overall purchase cost, like shipping and handling fees (Burman & Biswas, 2007).
The notion of revenue equivalence between different eBay listings for an identical product is quite simple. If, in two standard English auctions, the shipping costs serve as the only transaction cost paid by the bidder, then the bidder uses the total cost of the item (price plus shipping) in the decision making process and selects the item that has the lowest total cost, regardless of how that cost is structured between the price and shipping charge. Therefore:

Item A_1 [Free shipping] Final bid + Shipping ($0.00) = $\boldsymbol{R_1}$

Item A_2 [Buyer pays shipping] Final bid + Shipping ($1.99) = $\boldsymbol{R_1}$

Where R_1= Seller's final aggregate sale revenue

H0. An item offering 'Free Shipping' (bundled price) will achieve the same final aggregate sale revenue (R_1) as an identical item offering shipping at a fixed, specified cost (partitioned price).

H1. An item offering 'Free Shipping' (bundled price) will achieve a higher final aggregate sale revenue (R_1) as an identical item offering shipping at a fixed, specified cost (partitioned price).

Impact of the number of bids on final sale price

Standard auction theory proposes that a greater number of bidders will positively impact the final sale price (Hansen, 1985; Vincent, 1995). This supports EBay's statement that offering free shipping will result in more bids. Willcox (2000) argues that this positive association results from there being more information available for each bidder. Auction fever suggests that even rational bidders with access to perfect information can be affected by profound emotion (Ku, Malhotra & Murnighan, 2005).

H2a. An item offering 'Free Shipping' (bundled price) will receive a greater number of bids (demand) than an identical item offering shipping at a fixed, specified cost (partitioned price).

H2b. An item with a greater number of bids (demand) will achieve higher final aggregate sale revenue for an identical item

Weekend effect

Much of the advice found on EBay seller forums suggests that sellers should end their auction on the weekend, because it will attract more bidders as people have more leisure time to participate in online auctions on weekends. Wan and Teo (2001) suggest that people who are interested in bidding on eBay can do so with ease because bids can be submitted anytime anywhere. Earlier studies have found the weekend effects on auction price were not significant (Lucking-Reilly, 2000; Lucking-Reilly *et al.* 2007; Wan & Teo, 2001; Melnik & Alm, 2002). Schamel (2004) could not support a weekend effect, finding that auctions ending on Mondays and Saturdays resulted in final selling prices 6% higher (at 1% significance) relative to the Sunday base, while Tuesdays and Wednesdays showed no significant difference.

H3. Auctions ending on the weekend (Saturday, Sunday) will achieve higher final aggregate sale revenue than auctions ending on weekdays

METHODOLOGY

Seller controlled variables

The primary interest of this study is learning the validity of suggestions and policy found on the eBay website regarding the benefits to sellers of offering free shipping as compared to buyers paying a shipping fee (policy) and the weekend effect (suggestion). To investigate these issues dummy variables are allocated; free shipping = 0 and $1.99 shipping fee = 1, while auctions ending on a weekend = 1 and week days = 0. Any seller controlled variable that could have an effect on the dependent variable (final selling revenue), other than the independent variable (shipping method) has been controlled to keep them from affecting the dependent variable.

 a. Identical item = 2600mAh POWER BANK external portable USB battery charger for mobile phones
 b. Opening bid = $0.01
 c. Description = identical written description and photos (see Appendix A)
 d. Worldwide shipping = Standard international mail
 e. Auction duration = 5 days

Note:

i. *This seller offered at least 4 items for auction every day of the study period.*

ii. *The ending time for each auction in this study was between 02:56:19 and 03:05:36 PDT [a gap of less than 10 minutes]; therefore potential bidders had easy opportunities for comparison.*

iii. *Note: $1.99 shipping fee is 35.86% of the average final sale revenue for free shipping*

DATA COLLECTION

Data were collected directly from www.eBay.com on a daily basis, during a five-week period in June and July 2014. Auction data for this study were recorded for an identical item,2600mAh POWER BANK external portable USB battery charger for mobile phones, being offered by a single seller (bg27cyf). The data recorded includes the following elements: shipping method (free shipping, buyer pays $1.99 shipping), number of bids (as calculated by eBay, including multiple bids by a single bidder) and final selling price (winning bid). The five-week period was used to lessen the potential for market price changes due to the release of new models or technology. The high sales volume of these items assisted the data collection process. For example on 25th June 2014 at 15:00 there were 9,283 2600mah USB

power bank items listed for sale, of which 189 were being offered using the auction format, with 32 auctions ending within next 24 hours.

TABLE 1: A SUMMARY OF THE DATA COLLECTED FROM 133 AUCTIONS
(*N=133*)

Summary statistics - mean*(stdev)*			
	Free shipping		Buyer pays $1.99 shipping
Number of bids	14.81 *(5.23)*		14.12 *(6.54)*
Final aggregate sale revenue	$5.55 *(1.40)*		$7.61 *(2.88)*
Weekend average aggregate sale revenue	$5.14 *(0.75)*		$6.62 *(0.25)*
Weekday average aggregate sale revenue	$5.81*(0.33)*		$7.98 *(0.89)*

Each of the 133 auctions in this study resulted in a sale. The auction outcomes displayed a considerable variation in the number of bids, minimum being 5, and the maximum being 34 bids.

DATA ANALYSIS AND FINDINGS
A test of the revenue equivalence theorem relating to partitioned pricing in eBay auctions.

H1 stated that an item offering free shipping (bundled) will achieve a higher final sale revenue as an identical item offering shipping at a fixed, specified cost (partitioned price @ $1.99). A one-way ANOVA was conducted to compare the effect of shipping options on final selling revenue in free shipping and buyer pays $1.99 shipping fee conditions. The final selling revenue differed significantly across the two shipping options at the *p<0.05 level*, $F_{(1, 132)} = 30.52$, p = .000. The results clearly indicate that an item offered with a $1.99 shipping fee component results in higher final sale revenue than an item offering free shipping, thus H1 is not supported.

This result supports the proposition that shipping charges have less influence on buyers than the base price because buyers either fail to process the shipping charges or focus on the base price and adjust insufficiently for the shipping charges (Morwitz *et al.*, 1998; Xia & Monroe, 2004).

Impact of the number of bids on final sale price

H2a stated that an item offering free shipping will receive a greater number of bids than an identical item offering shipping at a fixed, specified cost ($1.99). In other words, sellers following eBay's suggested strategy will benefit from extra bidders being attracted to the items they list for auction. A one-way between subjects ANOVA was conducted to compare the effect of shipping options on the number of bids received, in free shipping and buyer pays $1.99 shipping fee conditions. The analysis revealed that the shipping option did have a significant, positive, though relatively minor effect on the number of bids received. The number of bids received differed across the two shipping options at the *p<0.05 level*, F (1, 132) = 11.95, p = .000. The results indicate that an item offered with no shipping fee component (free shipping) results in a greater number of bids than an item offering shipping at a fixed, specified cost ($1.99), thus H2a is supported. However, the actual difference between the average number of bids [free shipping = 14.81 ; buyer pays $1.99 shipping fee = 14.12 ; 6.8%] is relatively minor.

H2b stated that an item that receives a greater number of bids than an identical item will achieve higher final sale revenue. As mentioned above, this follows eBay's recommendation to sellers. A one-way ANOVA was conducted to compare the effect of the number of bids on the final selling revenue in free shipping and buyer pays $1.99 shipping fee conditions. The analysis revealed that number of bids did have a significant, negative effect on the final selling revenue across the two shipping options at the *p<0.05 level*, F (1, 132) = 11.95, p = .000. The results indicate that an item receiving a greater number of bids (free shipping) achieved lower final sale revenue than an item offering shipping at a fixed, specified cost ($1.99), thus H2b is not supported.

Weekend effect

H3 stated that auctions ending on the weekend (Saturday, Sunday) will achieve higher final sale revenue than auctions ending on weekdays. A one-way ANOVA was conducted to compare the effect of ending the auction on a weekend or a weekday on the final selling revenue in free shipping and buyer pays $1.99 shipping fee conditions. The analysis indicates that ending auctions did have a significant, negative effect on the final selling revenue across the two shipping options at the *p<0.05 level*, F (1, 132) = 8.32, p = .004. The results show that auctions that end on a Saturday or Sunday achieved lower final sale revenue, thus H3 is not supported.

DISCUSSION AND FUTURE RESEARCH

A primary issue for people who use online auction sites is the shipping fee decision. Should they specify a shipping fee as a separate component to be added to the price for the actual

item or combine these into one bundled price, referred to as free shipping? Obviously, shipping is not free; someone needs to pay and sellers using the eBay auction platform need to consider eBay's policies that reward sellers that offer free shipping. Another important factor for sellers using online auction sites is deciding which day of the week to end their auctions to gain the highest sale price.

The findings indicate that sellers benefit significantly by partitioning shipping fees rather that offering free shipping. Sellers offering free shipping received $5.55 (average) per item, while sellers requiring buyers to pay a shipping fee received $5.60 (average) per item plus $1.99; resulting in a $2.04 or 36 percent premium. The size of the premium is a surprise because the shipping fee was clearly displayed under the current bid price. This may be due to the seller offering a standard, international shipping fee, resulting in the buyer's loss aversion was lowered (Kahneman & Tversky, 1979; Tversky & Kahneman, 1991). This finding is particularly noteworthy as EBay actively encourages sellers to offer free shipping based on the conclusion that free shipping indirectly affect final sale price via an increased number of bids (Hou & Blodgett, 2012). Interestingly, the items offering free shipping did receive more bids, a relatively minor but statistically significant 6.8 percent, but this did not result in these items achieving a higher final sale revenue.

Another interesting finding was that the weekend effect was not supported. The results show auctions offering free shipping and ending on weekdays achieved a 12 percent premium when compared to those ending on weekends. Auctions requiring $1.99 shipping fee and ending on weekdays achieved an 18 percent premium when compared to those ending on weekends. These results do not support findings reported by several previous studies (Wood & Kauffman, 2001; Melnick & Alm, 2003; Lucking-Reilly *et al.* 2007). This may result from the opening of the huge mobile market by the introduction of the iphone in 2007 with its user friendly touchpad design and the android operating system in 2010. In 2013, eBay's mobile commerce (smartphone & tablet) volume increased by 75 percent, eBay increased its mobile users by more than 3.2 million individuals and 22 percent of eBay's sales were made via mobile (http://www.retailinasia.com/article/tech/technology/2013/10).

It would be interesting to compare the results of this study with a study, using the same variables, of auctions using an item from a different product category. Further, it would be useful for future research to examine the effect of offering this item at a Buy it Now set price on final selling revenue using the same variables.

REFERENCES

Bajari, P., & Hortacsu, A., (2003). The Winner's Curse, Reserve Prices, and Endogenous Entry: Empirical Insights from eBay Auctions. *The RAND Journal of Economics*, 34(2), 329-355.

Beach, L., (1993).Image Theory: an Alternative to Normative Decision Theory. *Advances in Consumer Research, 20, 235-238*

Burman, B., & Biswas, A., (2007), Partitioned Pricing: Can We Always Divide and Prosper? *Journalof Retailing*, Vol. 83, No. 4, 423-436.

eBay. (2013) How do I offer free shipping? Retrieved on 10July 2014 from http://pages.eBay.com/pt/en-s/help/ pay/questions/free-shipping.html

eBay (2013) Selling Practices Policy. Retrieved on 10 July, 2014 from http://pages.eBay.com/help/policies/selling-practices

Hansen, R. (1985). Empirical Testing of Auction Theory.*American Economic Review*, *AEA Papers and Proceedings,* 75, 862-865.

Hossain, T., & Morgan, J., (2006). Plus Shipping and Handling: Revenue (Non) Equivalence in FieldExperiments on eBay. *Advances in Economic Analysis & Policy,* 6(2),Article3

Hou, J., & Blodgett, J., (2012) Do bidders compensate for shipping fees in online auctions? *Journalof Services Marketing*, 26(6) 435-443.

Kahneman, D., & Tversky, A., (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47(2), 263–292.

Kahneman, D., & Tversky, A. (1984).Choices, Values and Frames.*American Psychologist,* 39, 341-350

Ku, G., Malhotra, D., & Murnighan, J. K. (2005) A model of decision-making: A study of auctionfever in live and internet auctions. *Organizational Behavior and Human Decision Processes*,96, 89–103.

Lucking-Reiley, D. (2000) Auctions on the Internet: what's being auctioned, and how? *JournalofIndustrial Economics*, 48(3):227–252.

Lucking-Reiley, D., Bryan, D., Prasad, N., & Reeves, D. (2007). Pennies from eBay: the determinants of price in online auctions. *Journal of Industrial Economics,*

55(2):223–233.

Melnick, M., & Alm, J. (2002). Does a seller's ecommerce reputation matter? Evidence from eBayauctions. *Journal of Industrial Economics*, 50, 337-349.

Morwitz, K., Greenleaf, E.,& Johnson, E., (1998). Divide and Prosper: Consumers' Reaction toPartitioned Prices. *Journal of Marketing Research,* 35, 453-463.

Retail Tech Innovation (2013, 18th October). *eBay Inc. reports strong Q3 growth*. Retrieved on 12 July 2014 from http://www.retailinasia.com/article/tech/technology/2013/10/ eBay-inc-reports-strong-q3-growth

Reynolds, K., Gilkeson, J., & Niedrich, R. (2009). The Influence of Seller Strategy on the Winning Price in Online Auction.A moderated Mediation Model, *Journal of Business Research,* 62, 22-30.

Schamel, G.(2004), "Online Auctions: Pricing Bordeaux Wine on eBay," Humboldt University   Berlin Working Paper.

Thaler,R.(1985), Mental Accounting and Consumer Choice, *Marketing Science,* 4,199-214

Tversky, A., & Kahneman, D., (1991). Loss aversion in riskless choice: a reference dependentmodel**.** *Quarterly Journal of Economics*, 106, 1039–1061

Vincent, D., (1995). Bidding Off the Wall: Why Reserve Prices May Be Kept Secret. *Journal of Economic Theory,* 65(2), 575-84.

Wan, W. & Teo, H. (2001), 'An Examination of Auction Price Determinants on eBay', in Proceedings of The 9th European Conference on Information Systems, Bled, Slovenia,June 27-29.

Wilcox, R. (2000), "Experts and Amateurs: The Role of Experience in Internet Auctions," *Marketing Letters,* 4 (11): 1–12.

Wood, C., & Kauffman, R., (2001). What Factors Drive Final Price in Internet Auctions? A Multi-year Assessment of Coin Transactions on eBay." Paper presented at the 2001 Convention of the Institute for Operations Research and the Management Sciences.

Xia, L., & Monroe, K. (2004), "Comparative Others, Trust, and Perceived Price Fairness," paper   presented at the Annual Conference of Society of Consumer Psychology, San Francisco.