

The Effects of Shipping Costs on Bidder Entry and Seller Revenues in eBay Auctions^{*}

Sean Tyan

seantime@gmail.com

Advisor: Jonathan Levin

Economics Department, Stanford University

May 10, 2005

Abstract

Standard auction theory predicts that shipping cost, which along with the minimum starting bid comprise the effective reserve of an auction, should have the same effect on auction outcomes as the starting bid. However, previous research indicates that bidders do not fully incorporate shipping cost when bidding. To examine the effects of shipping cost on eBay auctions, we look at completed auctions for five different items: a trading card, a DVD, a gold coin, a silver proof set, and a laptop. In our analysis, we find across all items that bidders do not fully incorporate shipping cost when they bid. Furthermore, dollar for dollar, increasing shipping cost yields higher revenues than increasing the minimum starting bid, conditional on sale. Shipping cost also has a smaller negative effect on the number of bidders and the probability of an auction having no bids than the starting bid.

^{*} I would like to thank Professor Jonathan Levin for his invaluable support throughout this project, Darren Kempiners for his assistance with learning Perl, and Sandra Tyan for proofreading this thesis.

Table of Contents

1. Introduction	2
2. Methodology/Hypotheses	5
3. Data	8
4. Analysis/Results	15
5. Conclusion	30
A. Data Appendix	33
B. Tables and Figures	36
References	55

List of Tables and Figures

Fig. 1A	Sample Completed Auction Page
Fig. 1B	Sample Running Auction page
Table 1	Regression Variables List
Table 2A	Summary Statistics – Binary Variables
Table 2B	Summary Statistics – Price Variables
Table 2C	Summary Statistics – Bid and Auction Characteristics
Table 2D	Gold Eagle Grading Agency/MS
Table 3A/B	Gold Eagle Regressions
Table 4A/B	Silver Proof Set Regressions
Table 5A/B	<i>Passion</i> DVD Regressions
Table 6A/B	Force of Will Regressions
Table 7A/B	ThinkPad Regressions
Table 8	Free Shipping Regressions
Table 9	Summary of Regressions

1. Introduction

eBay is the largest online auction site, and also one of the largest online business sites in general. In the year 2004, over 1.4 billion auctions were listed, with total value of sales over \$34 billion. The number of registered users is over 135 million, and active users number more than 56 million.¹ This fertile ground for auctions is a perfect place for testing whether bidders behave rationally, a central assumption of auction theory. One area where we can determine bidder rationality is how they incorporate shipping costs into their bidding; the analysis in this paper reveals that bidders do not behave rationally when thinking about shipping cost. Shipping cost is the amount that the bidder has to pay in addition to the winning bid. While the cost is mainly for the shipment of the item, sellers may charge handling charges or add other expenses into the shipping cost. For simplicity's sake, we will address the above charges simply as shipping cost. Additionally, because of the smaller profit margins on eBay versus a retail outlet, a small effect on price may determine profitability for volume eBay sellers. Shipping cost is one cost variable that can be easily adjusted by sellers. This paper is an empirical study on how shipping cost affects outcomes in eBay auctions.

Mentions of shipping cost are relatively rare in both theoretical and empirical papers on eBay auctions. Previous empirical studies instead have focused on seller reputation.² While the results are far from conclusive, in general it is shown that higher feedback rating corresponds to higher prices and higher probability of sale and more negative feedback corresponds to lower prices and lower probability of sale. See Bajari and Hortacsu (2004) and Resnick et al. (2004) for summaries of recent papers regarding seller reputation. Melnik and Alm (2002), in their

¹ For financial statements and statistics, see <http://investor.ebay.com/>.

² The eBay feedback rating is composed of positive feedbacks, negative feedbacks, and neutral feedbacks. The overall rating is the difference between positive and negative feedbacks. Also included in the reputation mechanism is the percentage of positive feedback and the seller's age. The actual feedback comments can be reviewed through the feedback record page.

empirical study on seller reputation, have shipping as one of their dependent variables and noticed that bidders do not completely incorporate shipping and handling costs when bidding.

A few papers have looked at the effect of reserve prices and “effective reserve” prices in eBay auctions. The effective reserve price, as defined by Hossain and Morgan (2002), is equal to the minimum starting bid plus the shipping cost. In their field experiment, they auctioned off 80 Xbox games and CDs on eBay. These goods were determined to have unit demand and well-established retail markets. Hossain and Morgan varied the effective reserve price as well as the constituent parts of the effective reserve price (i.e. varied shipping costs and starting bids). The main finding of Hossain and Morgan is that if the effective reserve price is less than 30% of the retail price of the object, then revenue is greater when more of the effective reserve price is diverted into the shipping charge (i.e. high shipping charge, low opening bid). On the other hand, when effective reserve is over 50% of the retail price, then no shipping effect is seen. Two possible explanations that Hossain and Morgan give for this effect is as follows: bidders might be loss averse and, following the works of Kahneman and Tversky (1984) and Thaler (1985), have separate mental accounts for shipping and the price of the item; also, some bidders might overlook the shipping charge when bidding, but as shipping cost gets larger, fewer bidders will ignore it.

No paper has specifically looked primarily at the effect of shipping cost. There are many motivations to consider the effect of shipping cost in eBay auctions. First, for less valuable items, shipping cost may constitute a substantial part of the winning bid, and may be even more than the winning bid itself. Another effect we wish to examine is whether giving free shipping, which is usually prominently displayed in the item title if offered, has any effect on the revenues of sellers. Another reason why shipping cost might be a pertinent variable for sellers to vary is

because, while eBay charges commission on the winning bid value, it does not charge commission on shipping. Thus, all else equal, there appears to be an incentive for sellers to charge shipping prices that are higher than the actual cost of shipping an item.

We are looking for two main effects: how shipping cost affects the total price paid on an item, where total price is the sum of the winning bid and any shipping charges. Secondly, we are looking at how shipping cost affects bidder entry. Standard auction theory predicts that shipping cost, as a component of the effective reserve price, should have the same effect on any auction outcome parameter as the minimum starting bid amount. However, motivated by the results of Hossain and Morgan (2002) and Melnik and Alm (2002), we anticipate that shipping may in fact differ from starting bid in its effect on total price. Moreover, we hypothesize that more valuable items, where shipping cost is a smaller proportion of the total value of the item, will have higher coefficients than cheaper items where shipping cost represents a sizeable fraction of the total price to be paid due to psychological framing effects. Such framing effects might also cause bidder entry to differ between shipping and starting bid components of effective reserve. We would expect that the starting bid would deter bidder entry more than the shipping cost.

Looking at completed auctions for five different items on eBay (a trading card, a DVD, a gold coin, a silver proof set, and a laptop), we find across all items that bidders do not fully incorporate shipping cost when they bid. In fact, only for two items can we reject the hypothesis that bidders completely ignore shipping cost when bidding. Additionally, the effect of an increase in shipping on total price is greater than a similar increase in the minimum starting bid for all five items. Finally, we see that shipping cost has an equal or smaller negative impact on bidder entry than the minimum starting bid. These effects combined lend strong support that

shipping is processed in a different mental account than the bid amount, supporting the claim that bidders do not behave entirely rationally while bidding on eBay.

The rest of the paper is organized as follows. Section 2 reviews our methodology and the hypotheses that we wish to test. Section 3 describes the data collection process and summary statistics. In Section 4, we present the results of our analyses. Finally, Section 5 concludes.

2. Methodology/Hypotheses

2.1 Theoretical Methodology

We will first consider the simple English auction model as a simplification of an eBay auction, where an auction is considered in isolation, all other control variables ignored, and bidders with values drawn from the same distribution. Let t be the type of a bidder, and let s be the shipping cost for the item.

In a private values setting, a bidder that is rational will have a certain value for an item, and will bid up to his value (Vickrey 1961) less the shipping cost:

$$b = \beta(t) - s$$

where b is the equilibrium bid, and $\beta(t)$ is the dominant-strategy equilibrium bid function in the English auction.

A bidder that ignores shipping cost will bid up to his value:

$$b = \beta(t).$$

In general, it is possible that mental accounting effects, where bidders place separate weights on shipping cost versus bid price, may make a bidder bid in between the two scenarios described above:

$$b = \beta(t) - f(s)$$

where $f(s)$ in this case should be a non-decreasing function in s and map $f \rightarrow [0, s]$. Since the shipping cost does not change during the course of an auction, $f(s)$ can be viewed as a constant discount factor. It would not make sense, in a private values setting, for shipping cost to influence one's valuation of the item. Thus, even though we assumed that bidder values were drawn from the same distribution, if some bidders ignore shipping cost or "play down" shipping cost due to mental accounting effects, we in effect have bidders drawing from shifted distributions. In this case, people who play down shipping cost will have, in effect, higher valuations for an item. "Irrational" bidders will then win a disproportionate number of auctions.

In a common values scenario, the shipping cost might be an indicator of the value of the item and cause bidders to adjust their bids accordingly:

$$b_i = \beta(t, t_{-i}, Z, s)$$

where Z represents any other additional parameters or information gleaned throughout the auction up to the present time, including other bidders' bids. In this scenario, it is possible to have a \$1 increase in shipping cause a person to value the item more than \$1. There are a few possible effects that can cause this. First, if a higher shipping cost means that a seller is shipping the item from overseas and this implicates a potentially inferior product, then a higher shipping cost might cause bidders to value the item less and bid less. However, as a general case, we would expect higher shipping costs to be correlated with faster shipping methods, safer packaging of items, and more insurance (if any). Furthermore, the necessity or the seller's desire for better shipping may in fact signal a higher-quality item, all else equal. Sellers who incorporate handling fees into the shipping cost may be viewed as being more businesslike and

thus more reliable, and so a higher shipping cost will yield a higher total price. Although we cannot code for these effects in our regressions, these effects might make a bidder willing to bid extra given higher shipping costs.

2.2 Empirical Methodology

To test for the effect of shipping on price, we perform OLS regressions with total price, equal to the sum of the winning bid and shipping, as the dependent variable:

$$totalprice = \alpha + \beta_1 shipping + \beta_2 startingbid + X\beta + \varepsilon$$

where X represents our set of control variables, to be discussed in the Data section. We predict that the coefficient of shipping should be somewhere between 0 and 1, where 0 means bidders fully incorporate shipping cost when bidding, and 1 means that bidders completely ignore shipping cost when bidding.

Another effect of shipping is that it may influence the number of bidders bidding in an auction. In general, theory predicts that a higher effective reserve price will cause fewer bidders to enter an auction.³ If bidders are ignoring or playing down shipping cost due to mental accounting, then we would expect that the minimum starting bid would also have a larger negative effect on bidder entry than the shipping cost. We run OLS regressions to test for bidder entry:

$$numbidders = \alpha + \beta_1 shipping + \beta_2 startingbid + X\beta + \varepsilon$$

where X again represents our set of control variables. Although we tested Poisson and negative binomial models, they did not fit our data any better or give us any additional insight versus

³ This result is obvious from the theories of optimal auction design. See Myerson (1981), Riley and Samuelson (1981), Milgrom and Weber (1982), and Levin and Smith (1994).

ordinary least squares, and so for clarity we stick with the OLS specification for these regressions.

Additionally, we wish to determine the effect of shipping cost on the probability of an auction ending with a sale. To do this, we run logistic regressions with the binary variable no bids being the dependent variable:

$$\Pr(\text{nobids}) = \Lambda(\alpha + \beta_1 \text{shipping} + \beta_2 \text{startingbid} + X\beta)$$

where $\Lambda(\bullet)$ is the logistic function. As in the *numbidders* regression, we expect that mental accounting may cause the starting bid to have a larger negative effect on a sale versus the shipping cost.

3. Data

3.1. Data Collection

The data used for analysis were collected off eBay via a program written in Perl. Completed auction pages were saved and parsed for the following items:

1. the 2004 Five Dollar Gold Eagle coin (“gold coin”)
2. the 2004 US Mint Silver Proof Set (11-coin set) (“silver proof set”)
3. the DVD *The Passion of the Christ* (“*Passion*”)
4. the Force of Will card from the Magic: the Gathering trading card game (“FoW”)
5. the IBM ThinkPad T42 model (“ThinkPad”)

The criteria for selecting the above items were a mix of value, popularity, and heterogeneity. Prices for the items ranged from approximately fifteen dollars upward to two

thousand dollars. Further, the items were popular enough to have a dense market, and while some (e.g. gold and silver coins, Magic cards) are collectible items, many auctions for the items are running at any given time and there are “established” prices so that private values assumptions might still hold. Objects that were heterogeneous were chosen to be quantifiable and thus differences among items can be indicated on the auction pages. For example, there are many ThinkPad T42 model laptops, but the differences among them (amount of RAM, processor speed, etc.) should be clearly identifiable and relevant to bidders. Similarly, the condition of gold coins is standardized through grading agencies.

Another determinant for choice of items is that many similar items have been analyzed in previous papers. This makes it easier to corroborate the control variables. Melnik and Alm (2002) examined an older \$5 gold eagle, Cabral and Hortacsu (2004) examined an older year for the gold eagle and the silver proof sets and also an older ThinkPad model. Katkar and Lucking-Reiley (2001) examined a Pokémon trading card, whereas here we are looking at a Magic: the Gathering trading card.

Data were collected approximately every ten days for three months on the following dates in 2004: Sep 19, Oct 2, Oct 14, Oct 24, Nov 6, Nov 15, Nov 27, Dec 8, Dec 18, and Dec 29. Data collection for *The Passion of the Christ* stopped on Nov 6, and data collection for the ThinkPad and silver proof set stopped on Dec 18. The Force of Will and gold coin were the only two collected on Dec 29. (An error in data collection on Oct. 2 resulted in some missing observations in the FoW auctions. This is why there are no observations in Week39 of FoW.)

Variables coded in all auctions include dummy variables for Buy-it-now auctions, presence of a secret reserve price, whether PayPal is accepted, whether credit cards are accepted, and whether a picture is present. Shipping cost, ending bid, and starting bid are obviously

included. Additionally, the length of the auction and the week of year the auction ended are also coded.

The value of the shipping cost is the lowest value of all shipping cost choices if more than one shipping method is specified. For most of the results, we are assuming that bidders are indifferent among shipping choices and so will choose the cheapest option available. Practically, this is the best we can do, since we can't see the actual shipping method used or preferred by any bidder. Additionally, we assume that all bidders are within the US. Finally, shipping discounts for multiple auctions won, a common practice especially in Magic trading card auctions where sellers are likely to post many auctions of different cards simultaneously, are ignored. Auctions that don't state shipping cost are not included in our analyses.

In addition to the standard variables, the gold coin was coded for grading condition (if any), and grading agency (if coin was graded). Factors not coded include other condition factors of the coin (e.g. cameo, blemishes, or strike features) and minting location.

The silver proof sets were coded for whether they were graded and whether they had an error. Grading agency and grading condition, unlike in the gold coins, were not included.

For the *Passion* DVDs, some sellers state that, in an effort to reduce shipping cost, the DVDs would be shipped in a paper sleeve instead of the standard keepsake case. In reality, there would be no way to tell whether such DVDs were in fact new or used. Auctions in which sellers indicate that they are shipping repackaged DVDs (which incidentally included all foreign sellers) are marked with a "questionable" dummy variable.

The Force of Will cards were in auctions that had a variable number of cards. In a tournament-legal deck, you are allowed up to four of the same card; thus, a playset of Force of Wills consists of four cards. Because of this, we see that a high frequency of FoW auctions sell

four of them at once. In addition to number of cards in the auction, the seller's stated condition of the card(s) was coded in two categories: mint/near mint and excellent, representing the better conditions a card could be in.

For the ThinkPad auctions, a variety of item-specific variables were coded in order to differentiate among the various models. Processor speed, amount of RAM, hard disk size, and screen resolution are coded as a series of dummy variables. Not all auctions specified a screen resolution, and so a few auctions do not have a screen resolution dummy. Bluetooth capability and presence of a fingerprint scanner are also coded. One auction, where the shipping fee was \$1800 and the final bid price was \$6, was dropped as an extreme outlier.

For additional descriptions and other considerations of the variables coded, please refer to the Data Appendix.

3.2 Descriptive/Summary Statistics

The summary statistics for various variables are given in Tables 2A, 2B, 2C, and 2D. Of particular note, we see that shipping prices varied among and within auction items. For the gold coin and silver set, the average shipping cost was around \$5, the average shipping for the *Passion* DVD was \$3.60, the average shipping for Force of Will cards was \$2, and the average shipping for the ThinkPad was a little over \$36. Secondly, the proportion of shipping cost to the total price of the item varies widely among items and within items. For the *Passion* DVD, the shipping cost constituted over 25% of the total price on average, and ranged up to 67%. The silver set's shipping cost averaged 11% of the total price, while the gold coin's and FoW's were about 6-7%. The ThinkPad's shipping averaged only 2% of the total price. As a percentage of the effective reserve, we see that auctions ranged from 0% (free shipping offered) to 100% (minimum starting bid of \$0.01 and the rest in shipping). Average percentage of shipping to

effective reserve is around 40% for the gold coin, Force of Will, and *Passion* DVD and around 20% for the silver proof set and ThinkPad.

The number of auctions with a secret reserve is in general low throughout, from 1.1% in the *Passion* DVDs to 4.6% in ThinkPads. However, auctions with secret reserves tended to have their reserves met more often than not. We also note that in the gold coin and Force of Will auctions, almost all auctions had at least one bid, whereas over one third of ThinkPad auctions failed to garner a single bid. Additionally, the frequency of auctions that ended with Buy-it-now also varies considerably among items, from a low of 6.7% in gold coins up to 22% in FoW.

For the number of bidders, we see that the silver proof set and *Passion* DVD averaged less than 3 bidders, the ThinkPad averaged roughly 3.5 bidders, and the gold coin and Force of Will card averaged over 5 bidders. Seller feedback and negative feedback had a lot of variation, with both very new sellers and some sellers with over 10,000 feedback. We observe that seller feedback doesn't vary too much across item categories versus within categories.

3.3 Control Variables

Table 1 shows the variables present in our regressions. Previous empirical research indicates that many potential factors have significant roles in determining price and bidder entry in eBay auctions, and these are included as additional control variables in the regressions.

The log of seller feedback and the number of negative feedbacks are included as our controls for seller reputation. Looking at 1999 \$5 gold coins, Melnik and Alm (2002) found that both positive and negative feedback statistically influenced price, but only for a small fraction of the total price. They postulate that the magnitude of the effect of seller reputation will increase given higher-value or more heterogeneous goods. Resnick et al. (2004) found that a high-

reputation seller will gain a revenue premium over a new seller. Furthermore, they found that one or two negative feedbacks for a new seller has no statistical effect versus a new seller with no negative feedback. From their data on pennies sold on eBay, Lucking-Reiley, et al. (2000) discovered that an increase in the percentage of positive feedback is positively correlated with auction price, although not at a statistically significant level. However, an increase in the percentage of negative feedback statistically significantly decreased revenue.

The natural logarithm of the number of words and whether a picture is present are included as control variables. Milgrom and Weber (1982) note that, for common-values auctions, a seller can increase the expected price of an auction by providing more information to the bidders, especially expert appraisals of the item being sold. From their theory, it can do much good for sellers to provide as much information as possible in their item descriptions, especially if the item for sale has common values properties. Thus, we would expect the length of the item description as well as the inclusion of pictures to lead to higher values given common values and to have little or no effect given private values.

The week of year dummy variables are included to capture change in demand over time and change in commodity prices over time. The change in the price of gold and silver will doubtless have some effect on the price of the gold coin and silver set. Furthermore, we anticipate that the *Passion* DVD will have a steep drop in demand over time, as is the case for most media items. The value of a ThinkPad should also slowly drop over time as a result of the general depreciation of electronics goods due to new technologies being introduced. No prior belief about the change in value of FoW is given, although as a collector's item that is no longer being produced, we would expect the value of the item to slowly increase in price over time.

Previous empirical research indicates that the length of an auction may have a significant effect on price. Lucking-Reiley et al. (2000) found that an increase in auction length tends to increase revenue. While three and five day auctions yield approximately the same revenue, seven and ten day auctions yield much higher revenue. Melnik and Alm (2002), however, found that auction length did not influence the price. They attribute this to the fact that the item they observed is more homogeneous than the ones that Lucking-Reiley et al. observed, making bidders more likely to limit their searches to auctions ending soon. To control for this effect, dummy variables for the length of non-Buy-it-now auctions are included in the regressions.

Whether PayPal or credit cards are accepted as payment methods may make bidders willing to bid more due to easier payment. Since accepting PayPal implies accepting credit cards, we code accepting PayPal and accepting credit cards but not PayPal as two additional controls.

Finally, we wish to examine the effect of the Buy-it-now (BIN) option on price.⁴ Because the length of the BIN auction is the time until the exercising of the BIN option, this is different than and necessarily shorter than the actual length of the auction (if no bids were to be placed). The actual length of the auction is not recoverable once BIN is exercised. Also, having a secret reserve and a BIN option changes the specifications of the BIN option,⁵ so we have an additional variable *reservebin*, which indicates the additional effect of having a reserve on BIN auctions. In Mathews' theory of the Buy-it-now option (2004), depending on the specifics of bidder and seller time impatience, having an exercised BIN will have differing effects on price. In

⁴ Mathews (2004) describes the advantages of having a Buy-it-now option as including getting the item now, securing a pre-specified price, eliminating the risk of losing the auction to a buyer with a higher willingness to pay, and saving monitoring costs throughout the progress of an auction. eBay's buyout option is temporary, in that once a regular proxy bid is placed, the Buy-it-now feature disappears.

⁵ Having a secret reserve in addition to BIN option allows bidders to bid on an item without making the BIN option disappear, distinct from the standard effect.

particular, if bidders are time impatient, a BIN option will be exercised with positive probability and may yield higher than the expected revenues.

4. Analysis/Results

4.1A Effect of Shipping Cost on Total Price

To test for the effect of shipping on the price of the auctions, regular OLS regressions with robust standard errors to correct for heteroskedasticity are run according to the model:

$$totalprice = \alpha + \beta_1 shipping + \beta_2 startingbid + \beta_3 BIN + X\beta + \varepsilon$$

where X is the set of control variables, including item-specific controls. This is conditional on either a winning bid or Buy-it-now (BIN) being exercised. Auctions with no bids or with the ending bid below the secret reserve price are not included. Because of the way eBay deals with BIN, *startingbid* is set equal to zero for exercised BIN auctions.

Tables 3A, 4A, 5A, 6A, and 7A regression (1) show the results of the regression for the various items. From the r-squared values, aside from the *Passion* DVDs, we see that the independent variables in general explain much of the effect of total price. The silver proof set, Force of Will, and ThinkPad all have r-squared values of around .9, while the gold coin has a value of .77. For the *Passion* DVD, the r-squared is only .35, but overall total price variation is relatively low.

As seen in the tables, the coefficients for shipping vary but are always positive. Furthermore, the 95% confidence intervals never contain zero. Since a coefficient of zero means that shipping cost has no effect on total price, the results indicate that bidders do not fully incorporate shipping cost into the price that they bid. This may be because some bidders may

ignore shipping cost when bidding. It appears then that increasing shipping cost will yield higher revenues for sellers. Since eBay does not charge commission on shipping cost but does for the winning bid, charging a higher shipping cost seems to be an even better idea for sellers.

For the gold coin, the shipping variable has a point estimate of over 1. However, the standard error is rather large, and the 95% confidence interval contains nearly all of our “acceptable” values (i.e. in between 0 and 1). The high point estimate is likely due to the relatively small sample size for the gold coins (only 378 auctions had a winner).

For the silver proof set and *Passion DVD* auctions, we see that shipping is well contained within 0 and 1. The *Passion DVD* results suggest that every increase in dollar in shipping roughly translates to an increase of \$.46 in revenue. For the silver set, the bottom of the confidence interval is nearly 0, meaning that it is possible that bidders fully incorporate shipping cost into their bids.

For the Force of Will auctions, the shipping point estimate is roughly .9, indicating that bidders do not fully incorporate shipping cost into their bids. Since the 95% confidence interval contains 1, we cannot reject the hypothesis that bidders completely ignore shipping costs when bidding.

Most interestingly, the ThinkPad auctions have a shipping point estimate of 2.47, well over what we could consider acceptable by any standard. It makes no sense that, all else equal, an increase in \$1 in shipping would increase the total price paid by \$2.47. However, given the large standard error, the 95% confidence interval contains 1, so we cannot reject the hypothesis that bidders merely ignore shipping costs when bidding. It seems likely, however, that the omitted (or included) variables might have an influence on shipping costs or that higher shipping is correlated with a more valuable product.

In support of different mental accounting for shipping costs versus bid price, we see that for all the items, the coefficient for *startingbid* is smaller than shipping, and in the cases of the *Passion* DVD, gold coin, Force of Will, and ThinkPad, the 95% confidence intervals for the two variables do not overlap. This gives further support that some bidders play down shipping costs, and that the current bid (and starting bid) value is much more pertinent than the shipping cost. One of the reasons for separate mental accounts is fairly clear: as seen in Figures 1A and 1B, the current bid is displayed much more prominently than the shipping cost. While a careful and rational bidder would not miss the shipping cost, it is easy in real life to ignore the shipping cost.

Aside from the silver proof set auctions, we see that as the average total price of the item increases, the coefficient for shipping also increases. This supports our hypothesis that as the value of an auction increases, shipping cost is more likely to be ignored.

The FoW data are the only ones that show a negative point estimate for *startingbid*, indicating that an increase in the starting bid yields a small but significant negative effect on the total price of the auction. For the gold coins, we cannot reject the hypothesis that the starting bid has no effect on final price. However, for the ThinkPad, silver set, and *Passion* auctions, it appears that increasing the starting bid has a significant positive effect on revenue, but again this effect is much smaller dollar for dollar than the shipping effect.

4.1B Buy-it-now and Shipping Interaction

Since we feel that bidders who exercise the Buy-it-now option might be influenced differently by shipping cost, we run new regressions with shipping interacted with BIN.

Examining regression (2) on Tables 3-7A:

$$totalprice = \alpha + \beta_1 shipping + \beta_2 startingbid + \beta_3 BIN + \beta_4 BIN \times shipping + X\beta + \varepsilon ,$$

we see that BIN*shipping has a positive coefficient for all auctions, with statistical significance for gold coin, silver proof set, and *Passion* auctions. This might mean that winning bidders who exercised BIN appear to be willing to pay more for shipping, all else equal. This would not be surprising since we expect that, in Mathews' (2004) model, time-impatient bidders would be willing to pay more for potentially expedited shipping.

However, it is also possible that bidders who exercise BIN tend to ignore shipping costs more than those who do not. This is not likely, though, since average elapsed time until BIN is exercised is over a day for all auctions. Since it is probably not an "in the heat of the moment" bid, shipping cost should be as visible and relevant to BIN bidders as regular bidders.

We notice the large coefficient that the shipping-BIN interaction term has on the gold coin auctions and also the fact that, after adding this interaction, the regular shipping coefficient nearly reaches zero (and is not statistically different from zero) for the silver proof set. These two effects appear to indicate a possibility that high shipping costs are a strong signal for higher quality items, at least for coins.

4.1C Effect of Free Shipping on Total Price

One final effect we wish to test is whether offering free shipping is in any way different from the other shipping amounts. Because free shipping is often prominently advertised, there might be a difference between offering free shipping versus other low shipping amounts. We run OLS regressions of the follow form:

$$totalprice = \alpha + \beta_1 shipping + \beta_2 startingbid + \beta_3 BIN + \beta_4 BIN \times shipping + \beta_5 freeshipping + X\beta + \varepsilon$$

where *freeshipping* is a dummy variable. The results are presented in Table 8.

The gold coin and Force of Will auctions have negative coefficients for *freeshipping*, indicating that offering free shipping is deleterious towards total price. For *Passion* DVDs, the coefficient of 0.77 indicates that free shipping offers a \$0.77 increase in total price if free shipping is offered. However, this is less than the expected increase in total price if \$2 shipping is charged. Since the average shipping cost is over \$3.50, it would be better for a seller to just charge the average shipping cost than offer free shipping. Similarly, for ThinkPad auctions, offering free shipping yields less revenue than offering the average shipping cost. Only for the silver proof set does it appear that offering free shipping increases the total price more than offering the average shipping price. Our results suggest that, despite being prominently displayed, offering free shipping does not appear to be a profit-maximizing strategy for sellers, conditional on sale.

4.1D Effects of Other Auction Characteristics on Total Price

Contrary to the theory posited by Vincent (1995), who indicated that, in a common values environment, a secret reserve instead of a public reserve would yield higher expected profits due to greater aggregation of information, we find that having a secret reserve does not seem to increase total price. For the gold coin, Force of Will, and ThinkPad auctions, having a secret reserve yields a lower total price. For the silver proof set, a secret reserve increases revenue, but is not statistically different from having no effect. Only for the *Passion* DVD does having a secret reserve appear to significantly increase total price. However, since the *Passion* DVD is the item that would have the least common-values components among our items, this result is counter to Vincent's theory. Our results more closely match Katkar and Lucking-Reiley's (2001) field experiment, where they found that revenue is higher in the public-reserve auctions

compared to the private-reserve auctions. Other effects and confounding factors may be at play, however. In particular, we do not know if the auctions with a secret reserve also had a large (public) effective reserve.

Seller feedback seems to have a bit of an ambiguous effect on price. Only for the ThinkPad and Force of Will auctions do we have the expected positive coefficient for seller feedback and negative coefficient for negative feedback. However, in the case of FoW, the negative feedback is not statistically significant and also extremely small. For the silver set, both overall feedback and negative feedback have positive coefficients, but only negative feedback is statistically significant. For the gold coin and *Passion* DVD, the coefficient for overall feedback is negative while the negative feedback coefficient is positive, opposite of what we expected.

The discrepancy of the feedback results may be because negative feedback is strongly correlated to positive feedback. In other words, it is likely that almost all sellers have a very similar feedback profile by percentages. If, for example, a seller garners one negative feedback per hundred, then the interpretation of the two variables can be difficult. Unlike Lucking-Reiley, et al. (2000) and Melnik and Alm (2002), both which found that overall feedback is positively correlated with price and negative feedback is negatively correlated with price, our analysis indicates that the effect of feedback on total price is weak and ambiguous, but higher overall feedback appears to lead to a small positive increase in total price.

Since both having a picture and more words in the item description reveal more information to potential bidders, we would expect both to have positive effects on total price if common values are present. This claim is generally supported for all auctions except the ThinkPad auctions, where both coefficients are negative, and the gold coin auctions, where picture is negative but not statistically significant. It appears that bidders do not have purely

private values. These discrepancies might be due to the idiosyncrasies of the two variables noted in the Data Appendix: links to outside pictures or text, which wouldn't be picked up by our parser, might in fact be utilized by more successful or larger sellers who have access to suites of eBay auction-making tools.

The effect of the length of the auction on price is not strong. There is a general trend that longer auctions yield higher prices, but aside for ThinkPads, the effects are not statistically significant. This effect is especially ambiguous in the silver set, *Passion*, and gold coin auctions.

We see that there is no strong trend over week of year for the gold coin or silver proof set auctions. However, for the Force of Will auctions, there is a strong positive trend over time, and for the *Passion* DVD and ThinkPad auctions, there are strong negative trends over week of year. Thus, our hypotheses that demand for *Passion* and ThinkPad will decrease over time are borne out. The dramatic increase in price over time for the Force of Will auctions is unexpected. Breaking down the number of cards by week does not show any strong trends, so we cannot attribute the increase in price to the auctions offering more cards over time. Demand increase for FoW might have occurred for a variety of reasons, but it is not important to discuss them here.

For item-specific factors, we have more or less what we would expect. For gold coins, we notice that the grading agency has an extremely important effect on the closing price of the auction. For silver proof sets, being graded or an error set result in significantly much higher prices. For the Force of Will cards, the number of cards has a strong, linear effect on price, as should be expected. However, we see that the stated conditions of the cards do not have statistically significant effects on price. This may be because bidders are wary of stated condition and do not take them seriously at face value. For the *Passion* DVD auctions, we see that an item

marked questionable has an extremely large negative effect on the price of the auction, as we would expect from an item that is stated as new but might not be.

For the ThinkPad auctions, we see that screen resolution, processor speed, and hard drive capacity scale up with better quality as we expect. Differences in RAM seem to have a less clear-cut effect on price. Especially, it is strange that having 768 MB of RAM should result in higher prices than 1 GB or 2GB of ram, and that having 512 MB or 1 GB should cost approximately the same. However, interactions between RAM and other endogenous variables might account for this problem. Bluetooth capability appears to add roughly \$134 to the value of the laptop, and a fingerprint reader roughly \$191.

Finally, we note that the Buy-it-now coefficient is positive in all five items, and is statistically different from zero in the silver proof set and ThinkPad auctions. The coefficient of *reservebin* is positive in all items except the ThinkPad. These results indicate that bidders who exercise the Buy-it-now option are time impatient, according to the theory of Mathews (2004), and additionally are willing to pay more than the expected value of the item.

4.2 Correlation between Shipping and Other Variables

There is an alternative interpretation for the shipping results above. We see that, when we regress shipping against the other control variables, there are some strong correlations:

$$shipping = \alpha + \beta_1 startingbid + X\beta + \varepsilon .$$

As seen in Tables 3-7A, regression (3), we see that the r-squared values for the shipping regressions vary widely among items, from a low of 0.08 for the Force of Will cards to a high of roughly 0.45 for the ThinkPad and gold coin auctions.

The first thing we see is that the starting bid is not highly correlated with shipping. For the gold coin and Force of Will auctions, the effect is not significant. For the silver proof set, *Passion* DVD, and ThinkPad, the coefficients for *startingbid* are statistically significant, but are relatively small in actual terms of the effective reserve. Similarly, having a secret reserve does not appear to be correlated with shipping cost, except for in Force of Will auctions, where it implicates a modest rise in shipping, and in ThinkPad auctions, where it implicates a modest decrease in shipping. Auctions that ended with Buy-it-now are correlated with higher shipping for gold coins and lower shipping for silver proof sets, *Passion* DVDs, and ThinkPads.

Seller feedback appears to have some effect on all the items. For the gold coins, silver proof sets, and Force of Will auctions, higher seller feedback is correlated with lower shipping cost, while more negative feedback implicates slightly higher shipping. For the *Passion* DVD, both higher seller feedback and negative feedback are related to higher shipping. For the ThinkPad auctions, higher seller feedback yields higher shipping and negative feedback is related to lower shipping.

The most peculiar aspect of this regression, however, is that accepting PayPal and occasionally credit cards with no PayPal seems to influence shipping price. For gold coins, there is approximately a \$1 drop in shipping price if PayPal is accepted; for silver proof sets, a \$0.36 rise; for *Passion* DVDs, a \$.39 drop; for Force of Will, a \$0.35 drop; and for ThinkPad, an \$8.34 drop. All but the FoW are significant at 95%, and the FoW is nearly so. While accepting PayPal is a convenience for bidders, it comes with extra charges for sellers. Advantages to sellers for accepting PayPal include faster payments and ridding the need to cash checks or money orders. One possible reason for our observed coefficients may be that sellers who do not accept PayPal

are more cost-conscious, and thus posting higher shipping costs and not accepting PayPal will be correlated.

Aside from the *Passion* DVD, the week of year has no effect on the shipping charged. For the *Passion* DVDs, shipping price dropped roughly \$.50 over the 10 weeks monitored. This is likely just a part of the price reduction of the *Passion* DVD in general.

The number of words appears to have a strong positive relationship to shipping cost for the gold coin and silver set auctions and a strong negative relationship to the shipping cost for the ThinkPad. Having a picture implicates significantly higher shipping for the gold coin, *Passion* DVD, ThinkPad, and Force of Will auctions. Having a picture has no effect on shipping for the silver proof set. There is no *a priori* reason why we would expect that either of these variables should be correlated with shipping. The fact that these correlations exist implies that shipping is related to some unseen seller characteristics.

The length of the non-Buy-it-now auctions also appears to have effects on shipping. For gold coins, the ten-day auctions have significantly higher shipping than other lengths. For the silver proof set, there is no significant effect. For *Passion* DVD auctions, we see that 1-, 5- and 7-day auctions appear to have significantly higher shipping costs than 3- and 10-day auctions. Seven-day auctions have slightly higher shipping than others for Force of Will. ThinkPad auctions lasting 3 days appear to have lower shipping charges than others.

The above analysis indicates that a high shipping coefficient may in fact be related to other auction or seller characteristics. In particular, differences in shipping cost, along with seller feedback and choices in other auction characteristics, may be related to some unidentifiable seller or item characteristics. If higher shipping means, all else equal, that a product is better in some way, then our interpretations from the total price regressions will be biased upwards, and

bidders may be more “rational” than we make them out to be. Additionally, as stated above, we are ignoring the fact that different shipping methods are used. In fact, bidders might derive utility out of receiving an item faster, so would be willing to pay more for higher shipping cost if that meant expedited shipping through a faster shipping method.

4.3A Effect of Shipping on Number of Bidders

In addition to total price, the other effect of shipping that we wish to examine is how it influences the number of bidders entering an auction. For this regression, we run OLS regressions on non-Buy-it-now auctions (since BIN auctions have exactly one bidder, unless it is also a secret reserve auction):

$$\text{numbidders} = \alpha + \beta_1 \text{shipping} + \beta_2 \text{startingbid} + X\beta + \varepsilon$$

Results of the regression are presented in Tables 3-7B, regression (1). As stated before, theory on optimal auctions predicts that since shipping is part of the effective reserve, a higher shipping cost will result in fewer bidders due to the higher (public) reserve price. Furthermore, since both shipping and starting bid are parts of the effective reserve, the effects of shipping on bidder entry should be the same as the effects of the minimum starting bid. We note that the number of bidders is censored by the fact that a potential bidder must bid at least one increment over the current bid price for a bid to be counted. Therefore, potential bidders who are late to see the auction and have low valuations will not be counted. However, we still believe that our available definition of number of bidders is still useful for our purposes.

We see that for silver proof set, *Passion* DVD, and Force of Will auctions, both shipping and starting bid have negative effects on the number of bidders. For the silver proof set and Force of Will auctions, the two have roughly equal effects, with a dollar increase in either

causing roughly a decline of 0.13 to 0.14 bidders. For the *Passion* DVD, coefficient for *startingbid* (-0.44) is much larger than that for shipping (-0.16). For the gold coin and ThinkPad auctions, shipping appears to have a positive effect on the number of bidders while the starting bid has a negative effect; only for the gold coin is this effect statistically significant.

The effect of shipping on the number of bidders and the probability of sale (results below) gives us a testing ground to differentiate between our two hypotheses on why shipping has a positive effect on total price. If the increase that shipping cost offers to total price is a result of shipping cost being correlated to the (unobserved) quality of the item, then we would expect that higher shipping costs would attract more bidders since higher-quality items should garner more bidders, all else equal. From our analysis, evidence that shipping cost is correlated with some unseen quality variable is weak, supported only by the gold coin auctions.

However, if the effect of shipping cost on total price is due to differences in mental accounting, then higher shipping cost should lead to fewer numbers of bidders, but to a lesser degree than the effect of starting bid. The rational-bidder theory of equal effect of shipping and starting bid on bidder entry is only supported by the Force of Will and silver proof set auctions. Similar to the total price regressions, we see that shipping has a smaller or equal negative effect on the number of bidders than the starting bid. Our results thus indicate that the mental accounting story is probably more correct, and that it is because bidders process shipping costs and bid amounts differently that shipping costs lead to higher seller revenues.

4.3B Effect of Free Shipping on Number of Bidders

Table 8 displays the effect of offering free shipping on the number of bidders according to the OLS regression:

$$\text{numbidders} = \alpha + \beta_1 \text{shipping} + \beta_2 \text{startingbid} + \beta_3 \text{freeshipping} + X\beta + \varepsilon .$$

For the silver proof set, offering free shipping decreases the number of bidders by -0.72 bidders, a large but non-significant effect. For the other items, offering free shipping increases the number of bidders by a small (0.26 in Force of Will auctions) to a fairly modest (0.83 in Passion DVDs and 0.99 in gold coins) amount. Free shipping thus appears to increase the number of bidders bidding on an auction, but the increase in bidder entry does not cover the losses of posting an average shipping price instead.

4.3C Effects of Other Variables on Number of Bidders

Only for *Passion* DVD and Force of Will auctions does having a secret reserve have an impact on bidder entry, and for both cases, it is a large negative effect. This runs counter to our intuition and Vincent (1995) that setting a secret reserve should increase revenues due to aggregation of bidder information. We see, however, that both items can probably be viewed as private-values items, since the *Passion* DVD has dubious resale value, and the Force of Will card has a thick market and as seen above, the condition of the card does not appear to affect price by much. It is surprising, however, that in the gold coin auctions, where common values would be most likely, not only does a secret reserve not have any effect on bidder entry and a large negative effect on price, but also that the secret reserve is underutilized relative to other items.

Seller reputation seems in general to have the effects we would think it would have. In all but the silver proof set auctions, higher seller feedback results in more bidders and more negative feedback results in fewer bidders. The statistical and actual significance of this result differs across items. For the silver proof sets, we have the reverse effect, namely that higher feedback results in fewer bidders and negative feedback has a small but inconsequential positive effect on

number of bidders. However, as noted in the above regressions, a high correlation between the two feedback variables makes it difficult to tease apart actual effects.

The coefficients for the item-specific factors agree very nicely with our predictions. The grading of the gold coin, along with the specific grading agency, appears to have fairly large effects on the number of bidders, not surprising since these factors would indicate the difference in quality of the items to the bidders. Also not surprising is the fact that graded and error sets for silver proof sets result in higher bidder entry, due to the additional value of such items. For *Passion* DVDs, a questionable seller also appears to reduce the number of bidders significantly, by 1.66, again as we would predict. For Force of Will cards, more cards in an auction scales up the number of bidders, and card conditions don't have a significant effect on bidder entry. And for ThinkPad auctions, higher quality specifications result in more bidders.

Surprisingly, longer auctions do not seem to significantly increase the number of bidders in any of the item categories. Only the *Passion* DVD auctions have a strong trend in the number of bidders over week of year, with the number of bidders dropping rapidly after the first two weeks.

4.4 Effect of Shipping on Probability of Sale

Our final regression is a logistic regression with the dependent variable *nobids* run on non-BIN auctions:

$$\Pr(\textit{nobids}) = \Lambda(\alpha + \beta_1 \textit{shipping} + \beta_2 \textit{startingbid} + X\beta).$$

Due to insufficient numbers of Force of Will auctions that had no bids, this data set is ignored for this regression. The results are presented in Tables 3-7B, regression (2).

As in the previous regression, we see in the gold coin auctions the paradoxical result that an increase in shipping causes the probability of no bids to decrease. An increase in starting bid, however, causes an increase in the probability of no bids.

While in the *numbidders* regression, the coefficients for shipping and starting bid in the silver proof sets were about equal, in the logistic regression, we see that the odds ratios differ a little more. An increase in the starting bid results in a higher probability for no bids to occur than a similar increase in shipping.

For the *Passion* auctions, the results from the *numbidders* regression carry through here. Higher shipping and starting bid both lead to a larger probability of no bids in an auction. The odds ratio for starting bid is higher.

For ThinkPad auctions, we see that, while shipping had a non-significant positive effect on the number of bidders, it now has a non-significant positive effect on the probability of no bids. Having a higher shipping cost seems to increase the probability of no bids, but by a very small amount. The starting bid, on the other hand, still has a significant effect on the probability of receiving no bids.

Similar to the *numbidders* regression results, only for the gold coin is there support for the hypothesis that higher shipping cost is correlated with better quality, which would cause higher shipping costs to decrease the probability of no bids. The rest of the results show that a higher shipping cost leads to a higher probability of no bids, but its effect is consistently smaller than that of the starting bid. Thus, the logistic regressions also support the mental accounting story over the hypothesis that shipping cost is correlated with quality.

The effects of other variables on probability of no bids are consistent with their effects on the number of bidders.

4.5 Summary of Results

Table 9 summarizes the results of the regressions. To reiterate, an increase in shipping cost raises total price more than a comparable increase in the starting bid. For three of the five items, we cannot reject the null hypothesis that the shipping coefficient is equal to one, which can be interpreted as bidders completely ignoring shipping cost when bidding. Only for the silver proof set is there any indication that bidders completely incorporate shipping cost when bidding. Free shipping yields less revenue for all items except for the silver proof set, but in general increases the number of bidders in an auction. While increasing the starting bid universally decreases the number of bidders and increases the probability of no bids, shipping cost has a bit of an ambiguous effect. For the gold coin and ThinkPad auctions, we see that higher shipping implicates more bidders, and for the gold coin, higher shipping results in a higher probability of sale. Finally, time-impatient bidders (i.e. bidders who exercise the Buy-it-now option) appear to be willing to pay more for an item, and higher shipping cost appears to be correlated with the higher-quality auctions.

5. Conclusion

Conditional on sale, increasing shipping cost appears to increase revenue regardless of the item being auctioned. Increasing starting bid also appears to increase revenue, conditional on sale, but this does not hold for the Force of Will auctions. Furthermore, the coefficient on the starting bid is much smaller than that on shipping. This supports the theory that bidders have separate mental accounts for shipping and bidding price. Furthermore, it supports the theory that

bidders tend to ignore or downplay shipping charges. We have given several reasons for why this might be the case. First, the bid value is displayed much more prominently than the shipping cost, which would obviously facilitate holding different mental accounts for shipping and current bid value. People are more likely to be influenced by the current bid amount than the shipping cost.

In a common-values environment, higher shipping cost might be a signal for higher quality items. Although it was a simplifying assumption, we cannot deny the fact that higher shipping charges might be correlated with better shipping service, which of course would raise bidders' willingness to pay.

Also, we note that a higher starting bid detracts bidder entry, which is statistically significant across all regressions. Higher shipping cost is correlated to fewer bidders in only three of the items, and is correlated with more bidders in the other two. Separate mental accounting instead of quality correlation is supported by this result.

Despite possible alternative interpretations, given the results of Hossain and Morgan (2002) and our analysis across regressions, it is safe to say that at least part of the effect of shipping on total price is due to bidder "irrationality" and mental accounting effects. Since higher shipping increases total price, while at the same time shipping has the same or smaller influence on bidder entry as starting bid, it makes sense to prescribe sellers to put as much of the effective reserve into shipping instead of starting bid. Doing this has the added effect of decreasing the amount of commission a seller has to pay eBay. Setting shipping cost equal to the profit-maximizing reserve,⁶ not setting a secret reserve, and setting starting bid equal to \$0.01 (the lowest possible) appears to be a good revenue-maximizing strategy for sellers. Given that

⁶ Given all the influential parameters in eBay auctions, exactly what this expected profit-maximizing reserve is is not entirely clear, and obviously a potential area of further research. It would make sense that an optimal effective reserve should at least cover actual shipping charges.

most auctions appear to have at least partial common-values components to them, previous research (e.g. Reiley 2004) advocates that the effective reserve be kept to a minimum to encourage bidder entry. However, this does not deny the fact that the effective reserve should be funneled completely into the shipping component. From our analysis, it is very clear that offering free shipping is a bad idea for sellers who wish to maximize profits.

An obvious refinement that could be pursued in future research is the coding of actual shipping methods used. However, since many auctions do not specify the method employed, this would be difficult to control in an empirical setting.⁷ A field experiment would be able to discern whether bidders are willing to pay more than the actual difference in shipping costs for better or faster shipping methods. Also, examining items where the shipping cost is equal to or greater than the value of the item would add greatly to the generality of these results. Additional experiments with shipping costs outside of eBay's auction format would also potentially yield additional insights into the exact causes of the observed aberrant bidder behavior.

⁷ Attempts to code for shipping methods in our data sets were met with failure since most auctions either did not state the shipping method or just stated that "Standard Shipping Service" is used.

A. Data Appendix

Collection and Coding

The Perl program `auction.pl` would save the HTML files for both the auction page and the bid history page for each of the desired completed auctions. Then other Perl programs (`parser.pl`, `bid parser.pl`, `time parser.pl`, etc.) would parse the files for relevant data, saving them into tab-separated value files. These were converted into Excel files for sanity checking, deleting bad/incorrect observations, and for manually adding in any data that were unable to be parsed. Finally, this cleaned up data set is converted to Stata data format for further data manipulation and statistical analyses.

Of special note is the way that eBay handles Buy-it-now (BIN) and secret reserve prices. An auction that ends with BIN without a secret reserve price will have its starting bid changed to the BIN price. However, an auction that ends with BIN with a secret reserve price will retain its original starting bid. Because of this, and because most auctions do not have a secret reserve, we have changed the value of starting bid for all BIN auctions to zero (*startingbid2* = starting bid if regular auction, 0 if BIN).

Due to the automatic nature of most of the data processing, certain variables have idiosyncrasies that should be described.

- The picture dummy variable is assigned true only if the seller posts a picture through eBay's service. Links to pictures or pictures loaded from outside servers will not yield true to this variable.

- The number of words counted in the item description is the number of non-tagged words. It is possible for a seller to link to outside text that would be displayed but

not countable. Thus, the number of actual words appearing in the item description might be understated for some auctions.

- By default, the acceptance of PayPal means credit cards are accepted. However, individual sellers may opt out of accepting credit card payments through PayPal, since PayPal charges a fee for credit card transactions. Also not parsed is whether a seller accepts PayPal as the only form of payment; it is assumed that all sellers accept cash, cashier's checks, (personal checks?) and money orders (i.e. physical currency).

- The number of negative feedbacks for a seller is calculated through the seller's feedback rating (positive feedback – negative feedback) and percent positive feedback rating. Thus, the negative feedback may not be integers, and may differ from the actual number of negative feedback if total feedback is large.

Special properties of items

Properties of laptops not coded, which might cause omitted variable bias, include wireless card, installed software, installed operating system, size of laptop (the T42 series comes in 14.1" and 15" diagonal screen size), and warranty length.

For the *Passion of the Christ* DVDs, bootleg and "all region" DVDs are prevalent for international sellers. Care was taken to differentiate between US sellers and international sellers. Special care was also taken to differentiate between repackaged DVDs and ones in their original packaging.

Force of Will is considered by almost all professional Magic game developers and players as the "glue that holds Type I (the game format containing the largest card base)

together”⁸ and is consistently rated one of the best cards in the game. The Force of Will card was printed in 1996 and has been consistently valued by players and traded on eBay.

While many different grading scales are used, mint and near mint are always used to describe perfect and nearly perfect cards, respectively, while an excellent condition card is just one step below a near mint card.⁹ An auction is coded as in a category if the worst condition card of the auction is described to be in the category. Thus, all cards in the auction would have to be stated as mint or near mint to be in the mint/near mint category. If, in a two-card auction, one card is stated as excellent and the other as mint, then the auction would be marked as excellent. A four-card auction with three mint cards and one played/good/fair card would not be in either of the binary categories above. The limitation to the amount of control for quality is recognized for this method, and the results using these variables should be taken with appropriate caution.


A potential omitted variable in the FoW data is that autographed cards were not identified. We would expect an autographed card to be worth more, all else equal.

⁸ For example, see <http://www.wizards.com/default.asp?x=mtgcom/feature/168>.

⁹ For examples of Magic card grading, see http://www.anycraze.com/card_quality.asp, <http://www.londes.com/resources/cardcondition.php>, and <http://www.trollandtoad.com/cardconditionguide.php>.

B. Tables and Figures

Figure 1A: Sample Completed Auction Page



[home](#) | [pay](#) | [register](#) | [sign in/out](#) | [services](#) | [site map](#)

Buy


Sell

My eBay

Community

Help

[Advanced Search](#)

Powered By 


💡 Giving this as a gift? Print a [Gift Preview](#) to show it's on the way!

🔙 [Back to home page](#) Listed in category: [Coins](#) > [Bullion](#) > [Gold](#) > [American Eagle](#)

2004 \$5 1/10 oz Gold American Eagle Item number: 3945992356

Bidder or seller of this item? [Sign in](#) for your status [Email to a friend](#)

Bidding has ended for this item. (maksymonko8sj4 is the winner).




[Larger Picture](#)

Winning bid: **US \$47.00**

Ended: Dec-14-04 19:28:07 PST

Start time: Dec-07-04 19:28:07 PST

History: [7 bids](#) (US \$0.99 starting bid)

Winning bidder: [maksymonko8sj4](#) (436 ⭐) 


Item location: Wisconsin
United States

Ships to: United States, Europe, Australia, Asia, Canada

Shipping costs: US \$3.50 - Standard Flat Rate Shipping Service (within United States)

[Shipping, payment details and return policy](#)

Seller information

[jim_teri](#) (5385 ⭐) 

Feedback Score: 5385
Positive Feedback: 99.8%
Member since May-26-01 in United States


[Read feedback comments](#)


[Add to Favorite Sellers](#)

[Ask seller a question](#)

[View seller's other items](#)

Visit this seller's eBay Store!



 **PayPal Buyer Protection** NEW!
Free Coverage now up to \$1,000. [See eligibility.](#)

Description

XXXXXXXXXXXXXXXXXXXX (Description Cut Out) XXXXXXXXXXXXXXXXXXXX

Shipping, payment details and return policy

Shipping Cost	Services Available	Available to
US \$3.50	Standard Flat Rate Shipping Service	United States Only


Will ship to United States, Europe, Australia, Asia, Canada






Shipping insurance
US \$2.00 Optional

Sales Tax
5.100% (only in WI)

Payment methods accepted

💬 This seller, jim_teri, prefers PayPal.



- Personal check
- Money order/Cashiers check
- Other - See Payment Instructions for payment methods accepted
- Visa/MasterCard

[Learn about payment methods.](#)

Where to go next?

🔙 [Back to home page](#) | [Email this item to a friend](#) | [Printer friendly page](#) | [Safe Trading Tips](#)

Seller assumes all responsibility for listing this item.

[About eBay](#) | [Announcements](#) | [Security Center](#) | [Policies](#) | [Site Map](#) | [Help](#)

Copyright © 1995-2004 eBay Inc. All Rights Reserved. Designated trademarks and brands are the property of their respective owners. Use of this Web site constitutes acceptance of the eBay [User Agreement](#) and [Privacy Policy](#).

[eBay official time](#)




Figure 1B: Sample Running Auction Page

[home](#) | [pay](#) | [register](#) | [sign out](#) | [services](#) | [site map](#)

[Buy](#) | [Sell](#) | [My eBay](#) | [Community](#) | [Help](#)


Start new search Search [Advanced Search](#)

Powered By

[Back to list of items](#) Listed in category: [Coins](#) > [Bullion](#) > [Gold](#) > [American Eagle](#)

2004 GOLD EAGLE \$5 NGC MS70 Item number: 3970731504

You are signed in [Email to a friend](#) | [Watch this item](#) in My eBay



[Supersize](#)

Current bid: **US \$81.09** ([Reserve not met](#))

Time left: **6 hours 14 mins**
7-day listing, Ends Apr-25-05 08:37:33 PDT

Start time: Apr-18-05 08:37:33 PDT

History: [10 bids](#) (US \$0.99 starting bid)

High bidder: [mbemerick](#) (88 ★)

Item location: Apple Region, NY
United States

Ships to: Worldwide

Shipping costs: US \$7.00 - Standard Flat Rate Shipping Service (within United States)
Other shipping services available

[Shipping, payment details and return policy](#)

Seller information

[numismatrix](#) (80 ★)

Feedback Score: 80
Positive Feedback: 100%
Member since Feb-05-02 in United States

[Read feedback comments](#)
[Add to Favorite Sellers](#)
[Ask seller a question](#)
[View seller's other items](#)

PayPal Buyer Protection NEW!
Free Coverage now up to \$1,000. [See eligibility.](#)

Financing available NEW!

10% off your first purchase
(maximum of \$20 off) if you sign up for and make a purchase with PayPal Buyer Credit between 4/4/05 and 5/31/05. Subject to credit approval. US residents only.
[See details](#) | [Apply now](#)

Description

[2004.AMERICAN EAGLE GOLD \\$5 NGC MS70 1/10 Oz.](#)

Graded perfect MS 70 by NGC, a Leading Grading Company. **None graded finer -nor will one ever be!**

This Brilliant Superior Gem comes out of my own personal collection.

Please place your high bid today for the coin in the picture.

On Apr-21-05 at 08:39:59 PDT, seller added the following information:

Any bidder with zero feedback who plans to bid on this or any of my auctions must first contact me. Failure to comply with this order will result in the immediate cancellation of all such bids.



Table 1: Regression Variables List

Stata Name	Description	Comments
Bidding Data		
totprice	Total Price Paid by Winner	equal to the sum of winning bid and shipping
startingbid2	Modified Starting Bid	equal to starting bid if regular, set to 0 if BIN
numbidders	Number of Bidders	bidders can bid more than once
nobids (d)	Auction Attracted No Bids	
Seller Data		
logsfb	ln(Seller Feedback Rating + 1)	
negfb	Seller Negative Feedback	calculated from the fbpercent and sellerfb; not rounded
Auction Characteristics		
shipping	Shipping Cost	
freeshipping (d)	Auction Offers Free Shipping	
binshipping	BIN * Shipping Cost	difference in shipping between regular and BIN auctions
reserve (d)	Secret Reserve Price Dummy	
paypal (d)	PayPal Accepted	
ccnopp (d)	Credit Card but Not PayPal	is true only if credit card is accepted, but not PayPal
picture (d)	Picture Dummy	
lognumwords	ln(Number of Description Words)	
days## (d)	Auction Length - Days	length of non-BIN auctions
week## (d)	Auction End Week of Year	to control for time varying effects
bin (d)	Auction Ended with Buy-It-Now	
reservebin (d)	Reserve * BIN	special case for secret reserve auctions w/BIN
Gold Specific Variables		
anacsgrade68 (d)	Grade 68 by ANACS	
pcgsgrade68 (d)	Grade 68 by PCGS	
anacsgrade69 (d)	Grade 69 by ANACS	
ngcgrade69 (d)	Grade 69 by NGC	
pcgsgrade69 (d)	Grade 69 by PCGS	
accgrade70 (d)	Grade 70 by ACC	
icgrade70 (d)	Grade 70 by ICG	
ngcgrade70 (d)	Grade 70 by NGC	
pccgrade70 (d)	Grade 70 by PCC	
Silver Specific Variables		
graded (d)	Graded Set	the set is graded by an agency
error (d)	Set Has an Error	makes set more valuable
Passion Specific Variables		
questionable (d)	Ships DVD in Sleeve Instead of Case	may indicate DVD is used, also includes foreign sellers
Force of Will Specific Variables		
numcards# (d)	Number of Cards in the Auction	playset of 4 is the max useable in a deck
excond (d)	Card(s) Stated as Excellent +	denotes only small flecks, etc.; no major damage to card
mintcond (d)	Card(s) Stated as Mint/Near Mint	mint is perfect condition; near mint only very small defects
Thinkpad Specific Variables		
bluetooth (d)	Laptop Has Bluetooth Capability	
fingerprint (d)	Laptop Has Fingerprint Reader	
xga (d)	Screen Resolution XGA	lowest screen resolution
sxga (d)	Screen Resolution SXGA	middle screen resolution
uxga (d)	Screen Resolution UXGA	highest screen resolution
ram### (d)	Amount of RAM in Laptop	RAM of 256 MB, 512 MB, 768 MB, 1 GB, or 2 GB
cpu## (d)	Processor Speed of Laptop	CPU speed of 1.5, 1.6, 1.7, 1.8, 2.0, or 2.1 GHz
hd## (d)	Hard Disk of ## GB Capacity	hard disk size of 30, 40, 60, or 80 GB

(d) denotes dummy variable

Table 2A: Summary Statistics – Binary Variables

	Gold Eagle	Silver Proof	Passion	Force of Will	ThinkPad
Regular Auction Win	80.7%	53.7%	66.3%	75.5%	41.9%
Buy-It-Now Win	6.7%	19.3%	17.5%	22.2%	20.3%
No bids	6.7%	26.8%	16.0%	1.5%	36.0%
Reserve	1.8%	1.3%	1.1%	4.5%	4.6%
Reserve Met (if Reserve)	62.5%	86.7%	81.6%	77.8%	60.8%
Free Shipping	0.5%	2.1%	5.4%	4.3%	1.6%
PayPal	73.4%	85.3%	96.0%	96.2%	86.8%
Credit Card	82.1%	86.5%	96.1%	96.4%	89.2%
Picture	78.0%	75.3%	85.5%	73.2%	88.0%
1 Day Auction (if not BIN)	2.5%	11.8%	29.0%	1.8%	4.8%
3 Day Auction	10.1%	13.3%	25.6%	10.2%	47.9%
5 Day Auction	11.1%	11.7%	12.0%	22.2%	22.0%
7 Day Auction	56.3%	59.5%	31.4%	63.2%	22.0%
10 Day Auction	20.1%	3.7%	2.0%	2.6%	3.3%
Error		0.4%			
Graded		3.9%			
Questionable			15.5%		
Excellent Cond				13.8%	
Mint/NM Cond				43.4%	
1 Card				23.7%	
2 Cards				13.6%	
3 Cards				5.4%	
4 Cards				56.4%	
5 Cards				0.4%	
8 Cards				0.2%	
12 Cards				0.1%	
20 Cards				0.2%	
Bluetooth (d)					30.1%
Fingerprint (d)					3.2%
XGA (d)					46.0%
SXGA (d)					44.8%
UXGA (d)					6.8%
256 MB RAM (d)					14.0%
512 MB RAM (d)					61.6%
768 MB RAM (d)					1.0%
1 GB RAM (d)					23.1%
2 GB RAM (d)					0.3%
1.5 GHz CPU (d)					12.1%
1.6 GHz CPU (d)					0.8%
1.7 GHz CPU (d)					62.9%
1.8 GHz CPU (d)					17.1%
2.0 GHz CPU (d)					6.4%
2.1 GHz CPU (d)					0.6%
30 GB Hard Disk (d)					3.6%
40 GB Hard Disk (d)					55.5%
60 GB Hard Disk (d)					22.1%
80 GB Hard Disk (d)					18.8%
Unique Sellers	120	226	511	646	197
N	436	1135	3515	992	1106

Table 2B: Summary Statistics - Price Variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
Gold Eagle					
Starting Bid	436	25.91	40.28	0.01	275
Winning Bid (non-BIN)	352	60.02	18.84	42.56	190.59
Winning Bid (BIN)	29	90.00	33.91	44.75	199.99
Days Elapsed until BIN	29	2.73	2.66	0.01	9.44
Total Price	378	66.96	22.04	45.5	204.99
Shipping	433	4.89	1.96	0	25
Shipping / Effective Reserve	433	0.489	0.346	0	1.00
Shipping / Total Price	378	0.075	0.028	0	0.20
Silver Proof Set					
Starting Bid	1135	33.96	29.35	0.01	220
Winning Bid (non-BIN)	610	41.19	14.40	27.77	199
Winning Bid (BIN)	219	47.68	25.62	29	225
Days Elapsed until BIN	219	1.98	2.08	0.01	9.44
Total Price	804	47.17	17.90	32.52	232.5
Shipping	1103	5.10	1.55	0	16.95
Shipping / Effective Reserve	1103	0.237	0.248	0	1.00
Shipping / Total Price	804	0.109	0.034	0	0.36
Passion DVD					
Starting Bid	3515	7.33	4.81	0.01	27.99
Winning Bid (non-BIN)	2332	10.53	2.59	2.99	21.25
Winning Bid (BIN)	614	10.74	2.91	3.95	26.17
Days Elapsed until BIN	614	1.70	2.08	0.00	9.98
Total Price	2935	14.26	2.54	7.94	30.67
Shipping	3481	3.66	1.38	0	10
Shipping / Effective Reserve	3481	0.412	0.258	0	1.00
Shipping / Total Price	2935	0.265	0.107	0	0.67
Force of Will					
Starting Bid	992	15.08	22.65	0.01	85
Winning Bid (non-BIN)	749	44.58	27.09	7	326
Winning Bid (BIN)	220	48.03	23.00	2.25	99.99
Days Elapsed until BIN	220	1.07	1.40	0.00	6.77
Total Price	940	47.51	26.53	3.75	328
Shipping	963	2.06	1.08	0	15
Shipping / Effective Reserve	963	0.420	0.325	0	1.00
Shipping / Total Price	940	0.062	0.051	0	0.40
ThinkPad					
Starting Bid	1106	1399.12	836.26	0.01	3650
Winning Bid (non-BIN)	463	1784.17	529.25	736	3850
Winning Bid (BIN)	225	1988.15	591.98	1000	3650
Days Elapsed until BIN	225	2.03	1.90	0.00	9.24
Total Price	648	1910.04	565.74	933.99	3900
Shipping	1058	36.15	12.96	0	99.5
Shipping / Effective Reserve	1058	0.197	0.367	0	1.00
Shipping / Total Price	648	0.021	0.008	0	0.08

Table 2C: Summary Statistics - Bid and Auction Characteristics Variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
Gold Eagle					
Number of Bids	436	7.41	5.19	0	29
Number of Bidders	434	5.20	3.18	0	12
Seller Feedback	436	3022.48	2509.25	1	12352
Seller Negative Feedback	436	6.73	7.24	0	74.11
Number of Words	436	234.60	229.39	7	1296
Silver Proof Set					
Number of Bids	1135	3.62	4.47	0	26
Number of Bidders	1135	2.65	2.94	0	12
Seller Feedback	1134	2943.41	6959.97	1	59744
Seller Negative Feedback	1134	20.07	56.11	0	365.74
Number of Words	1135	171.78	169.14	5	1712
Passion DVD					
Number of Bids	3515	4.44	4.62	0	27
Number of Bidders	3515	2.99	2.69	0	15
Seller Feedback	3483	4271.74	9028.85	1	59990
Seller Negative Feedback	3483	37.49	114.69	0	1452.48
Number of Words	3515	251.18	238.40	0	1541
Force of Will					
Number of Bids	992	8.69	6.25	0	44
Number of Bidders	990	5.60	3.53	0	17
Seller Feedback	978	1231.88	2667.96	0	24714
Seller Negative Feedback	978	8.43	31.53	0	469.57
Number of Words	992	184.13	283.27	4	5347
ThinkPad					
Number of Bids	1106	7.07	12.22	0	65
Number of Bidders	1106	3.46	5.55	0	26
Seller Feedback	1094	1999.22	2768.52	1	15847
Seller Negative Feedback	1094	21.87	27.41	0	123.97
Number of Words	1106	780.84	454.99	3	2008

Table 2D: Grading Agency and Condition for Gold Eagle Coins

Grading Agency	Grading (MS)				Total
	60	68	69	70	
ANACS	0	2	2	0	4
PCC	0	0	0	8	8
ICG	0	0	0	15	15
NGC	1	0	85	55	141
PCGS	0	1	91	0	92
ACC	0	0	0	1	1
Total	1	3	178	79	261

Table 3A: Total Price and Shipping in Gold Eagle Auctions

Dependent Variable:	(1)		(2)		(3)	
	Total Price		Total Price		Shipping	
	OLS, robust s.e.		OLS, robust s.e.		OLS, robust s.e.	
	coeff	s.e.	coeff	s.e.	coeff	s.e.
Conditional on:	sale		sale			
Shipping/Reserve Factors						
Shipping	1.404	(0.436)	**	1.109	(0.438)	*
Starting Bid	0.053	(0.036)		0.053	(0.036)	
Secret Reserve (d)	-15.326	(7.533)	*	-14.287	(6.980)	*
Buy-it-now (d)	1.630	(7.504)		-25.885	(10.912)	*
BIN x Secret Reserve (d)	11.606	(10.223)		-5.033	(12.739)	
BIN x Shipping				5.803	(2.055)	**
Item-Specific Factors						
Grade 68 - ANACS	4.886	(3.767)		3.916	(3.729)	-2.131 (0.389) **
Grade 68 - PCGS	1.374	(2.943)		1.786	(2.949)	1.148 (0.420) **
Grade 69 - ANACS	28.234	(8.049)	**	26.966	(7.422)	**
Grade 69 - NGC	6.247	(1.954)	**	5.893	(1.996)	**
Grade 69 - PCGS	14.030	(1.693)	**	13.871	(1.714)	**
Grade 70 - ACC	5.386	(2.988)		4.947	(2.950)	-2.941 (0.471) **
Grade 70 - ICG	46.211	(11.003)	**	42.020	(11.537)	**
Grade 70 - NGC	57.632	(4.894)	**	58.227	(4.908)	**
Grade 70 - PCC	21.587	(5.017)	**	21.653	(4.966)	**
Seller Reputation						
In(Feedback Rating + 1)	-0.614	(0.517)		-0.745	(0.489)	-0.475 (0.094) **
Negative Feedback	0.208	(0.188)		0.236	(0.179)	0.026 (0.028)
Other Factors						
PayPal (d)	7.826	(2.094)	**	7.364	(2.068)	**
Credit Card & no PayPal (d)	4.555	(2.716)		4.400	(2.697)	0.158 (0.363)
Picture (d)	-2.902	(2.271)		-2.860	(2.267)	0.682 (0.265) *
In(Number of Words)	0.462	(0.844)		0.469	(0.828)	0.513 (0.140) **
Length of Auction - 1 Day (d)	(dropped)			(dropped)		(dropped)
3 Days (d)	-1.016	(8.270)		-0.888	(8.132)	1.336 (0.684)
5 Days (d)	-6.339	(7.331)		-5.985	(7.204)	1.013 (0.684)
7 Days (d)	-4.665	(7.066)		-4.373	(6.932)	1.466 (0.713) *
10 Days (d)	6.285	(7.571)		6.657	(7.449)	2.274 (0.627) **
Week36	(dropped)			(dropped)		(dropped)
Week37	-10.005	(4.301)	*	-9.775	(4.387)	*
Week38	-4.869	(4.559)		-4.575	(4.641)	-0.193 (0.599)
Week39	-0.264	(4.442)		-0.067	(4.536)	0.239 (0.564)
Week40	-4.812	(4.336)		-4.416	(4.418)	1.244 (0.920)
Week41	0.678	(4.540)		0.863	(4.645)	0.408 (0.602)
Week42	1.008	(5.502)		1.718	(5.574)	1.447 (0.614) *
Week43	-0.817	(4.629)		-0.294	(4.709)	1.005 (0.620)
Week44	-1.838	(4.664)		-1.286	(4.787)	0.742 (0.707)
Week45	-4.879	(4.174)		-4.444	(4.285)	0.577 (0.562)
Week46	-1.505	(4.332)		-0.927	(4.388)	0.393 (0.521)
Week47	3.127	(5.750)		4.493	(5.906)	0.344 (0.547)
Week48	-0.071	(4.314)		-0.090	(4.404)	0.172 (0.563)
Week49	4.233	(4.624)		4.033	(4.732)	0.088 (0.553)
Week50	-2.535	(4.239)		-2.721	(4.330)	0.554 (0.579)
Week51	-0.678	(4.358)		-0.339	(4.431)	0.585 (0.549)
Week52	-5.590	(4.377)		-5.269	(4.463)	0.707 (0.523)
Week53	-10.229	(6.864)		-9.713	(7.062)	0.248 (0.690)
Constant	49.415	(10.996)	**	51.344	(10.706)	**
R-squared	0.768			0.774		0.435
N	378			378		433

(d) = dummy variable
 * = 5% significance
 ** = 1% significance

Table 3B: Bidder Entry in Gold Eagle Auctions

Dependent Variable:	(1)		(2)	
	Number of Bidders		No Bids (d)	
	OLS, robust s.e.		logistic, robust s.e.	
	coeff	s.e.	odds ratio	s.e.
Conditional on:	non-BIN		non-BIN	
Shipping/Reserve Factors				
Shipping	0.232	(0.118)	*	0.385 (0.136) **
Starting Bid	-0.069	(0.005)	**	1.187 (0.046) **
Secret Reserve (d)	0.158	(1.220)		(prediction)
Item-Specific Factors				
Grade 68 - ANACS	1.141	(0.807)		(prediction)
Grade 68 - PCGS	-3.764	(0.564)	**	(prediction)
Grade 69 - ANACS	-1.743	(1.380)		(dropped)
Grade 69 - NGC	-0.474	(0.374)		1.029 (1.623)
Grade 69 - PCGS	0.955	(0.298)	**	2.505 (4.459)
Grade 70 - ACC	1.845	(0.675)	**	(prediction)
Grade 70 - ICG	0.092	(0.731)		2576.601 (6968.05) **
Grade 70 - NGC	2.212	(0.485)	**	0.018 (0.038)
Grade 70 - PCC	-0.939	(0.726)		1.93E+11 (4.58E+11) **
Seller Reputation				
ln(Feedback Rating + 1)	0.045	(0.097)		0.944 (0.325)
Negative Feedback	-0.011	(0.023)		1.025 (0.092)
Other Factors				
PayPal (d)	-0.525	(0.347)		7.349 (8.789)
Credit Card & no PayPal (d)	-0.669	(0.455)		47.778 (121.921)
Picture (d)	0.066	(0.310)		2.291 (3.296)
ln(Number of Words)	-0.105	(0.146)		1.458 (0.975)
Length of Auction - 1 Day (d)		(dropped)		3.223 (10.005)
3 Days (d)	-0.054	(0.721)		16.234 (32.269)
5 Days (d)	0.371	(0.737)		0.463 (0.688)
7 Days (d)	0.484	(0.662)		46.940 (93.954)
10 Days (d)	0.470	(0.711)		(dropped)
Week36		(dropped)		23.397 (57.660)
Week37	1.482	(0.816)		5.421 (13.835)
Week38	1.585	(0.804)	*	52.854 (137.388)
Week39	1.542	(0.815)		6.693 (15.451)
Week40	1.051	(0.781)		13.722 (43.341)
Week41	1.727	(0.841)	*	1.110 (2.250)
Week42	2.056	(0.795)	**	10.991 (33.496)
Week43	1.550	(0.761)	*	20.858 (53.350)
Week44	1.365	(0.785)		17.685 (47.034)
Week45	1.784	(0.857)	*	9.378 (32.349)
Week46	2.426	(0.732)	**	0.199 (0.615)
Week47	1.734	(0.769)	*	5.242 (9.540)
Week48	2.383	(0.759)	**	4.753 (11.852)
Week49	1.446	(0.830)		1.828 (5.135)
Week50	0.736	(0.754)		105.005 (286.549)
Week51	1.480	(0.723)	*	0.000 .
Week52	2.194	(0.758)	**	0.053 (0.137)
Week53	2.045	(1.150)		(dropped)
Constant	4.108	(1.573)	**	
R-squared	0.655		0.793 (pseudo)	
N	402		393	

(d) = dummy variable

(prediction) = dropped due to perfect prediction

* = 5% significance

** = 1% significance

Table 4A: Total Price and Shipping in Silver Proof Set Auctions

Dependent Variable:	(1)		(2)		(3)	
	Total Price		Total Price		Shipping	
	OLS, robust s.e.		OLS, robust s.e.		OLS, robust s.e.	
	coeff	s.e.	coeff	s.e.	coeff	s.e.
Conditional on:	sale		sale			
Shipping/Reserve Factors						
Shipping	0.408	(0.146)	**	0.166	(0.269)	
Starting Bid	0.131	(0.053)	*	0.133	(0.053)	*
Secret Reserve (d)	3.340	(2.475)		3.299	(2.475)	
Buy-it-now (d)	7.933	(1.633)	**	5.247	(1.687)	**
BIN x Secret Reserve (d)	55.149	(6.966)	**	54.021	(7.178)	**
BIN x Shipping				0.512	(0.312)	
Item-Specific Factors						
Graded Set (d)	117.310	(20.932)	**	117.515	(20.794)	**
Error Set (d)	109.364	(6.179)	**	109.879	(6.183)	**
Seller Reputation						
ln(Feedback Rating + 1)	0.238	(0.214)		0.250	(0.217)	
Negative Feedback	0.024	(0.014)		0.019	(0.012)	
Other Factors						
PayPal (d)	1.490	(0.402)	**	1.331	(0.431)	**
Credit Card & no PayPal (d)	-1.136	(0.749)		-1.090	(0.711)	
Picture (d)	1.441	(0.796)		1.466	(0.804)	
ln(Number of Words)	1.049	(0.330)	**	1.174	(0.377)	**
Length of Auction - 1 Day (d)	(dropped)			(dropped)		
3 Days (d)	0.806	(0.797)		0.554	(0.776)	
5 Days (d)	-0.073	(0.732)		-0.374	(0.781)	
7 Days (d)	1.105	(0.699)		0.905	(0.717)	
10 Days (d)	0.555	(1.360)		0.256	(1.336)	
Week36	(dropped)			(dropped)		
Week37	0.393	(0.927)		0.399	(0.888)	
Week38	-0.407	(0.868)		-0.335	(0.820)	
Week39	-0.593	(0.919)		-0.472	(0.895)	
Week40	-4.510	(3.094)		-4.503	(3.065)	
Week41	-1.322	(1.071)		-1.257	(1.020)	
Week42	-3.068	(1.136)	**	-3.018	(1.113)	**
Week43	0.523	(1.513)		0.442	(1.482)	
Week44	-3.384	(1.737)		-3.512	(1.690)	*
Week45	-1.874	(1.250)		-1.907	(1.219)	
Week46	-1.476	(1.181)		-1.460	(1.148)	
Week47	-1.005	(0.902)		-0.996	(0.861)	
Week48	-0.535	(0.907)		-0.485	(0.860)	
Week49	0.627	(0.874)		0.717	(0.826)	
Week50	1.988	(0.893)	*	2.060	(0.847)	*
Week51	2.312	(0.961)	*	2.446	(0.890)	**
Constant	29.293	(2.903)	**	30.139	(2.608)	**
R-squared	0.887			0.888		
N	804			804		
						0.222
						1103

(d) = dummy variable

* = 5% significance

** = 1% significance

Table 4B: Bidder Entry in Silver Proof Set Auctions

Dependent Variable:	(1)		(2)	
	Number of Bidders		No Bids (d)	
	OLS, robust s.e.		logistic, robust s.e.	
	coeff	s.e.	odds ratio	s.e.
Conditional on:	non-BIN		non-BIN	
Shipping/Reserve Factors				
Shipping	-0.137	(0.069)	*	1.199 (0.178)
Starting Bid	-0.128	(0.016)	**	1.515 (0.216) **
Secret Reserve (d)	-0.571	(0.689)		(prediction)
Item-Specific Factors				
Graded Set (d)	16.992	(3.678)	**	1.78E-28 (4.07E-27) **
Error Set (d)	-5.633	(0.681)	**	(dropped)
Seller Reputation				
ln(Feedback Rating + 1)	-0.144	(0.065)	*	1.023 (0.115)
Negative Feedback	0.003	(0.004)		1.005 (0.006)
Other Factors				
PayPal (d)	0.450	(0.172)	**	0.232 (0.082) **
Credit Card & no PayPal (d)	2.481	(0.287)	**	(prediction)
Picture (d)	0.221	(0.239)		0.643 (0.294)
ln(Number of Words)	0.053	(0.088)		0.914 (0.237)
Length of Auction - 1 Day (d)		(dropped)		(dropped)
3 Days (d)	0.101	(0.252)		1.325 (0.650)
5 Days (d)	0.237	(0.222)		1.020 (0.555)
7 Days (d)	0.417	(0.227)		1.584 (0.651)
10 Days (d)	0.668	(0.419)		0.405 (0.409)
Week36		(dropped)		1.242 (1.111)
Week37	0.731	(0.647)		0.915 (0.670)
Week38	0.437	(0.643)		1.225 (0.918)
Week39	0.164	(0.632)		2.018 (1.523)
Week40	-0.489	(0.739)		6.621 (5.165) *
Week41	0.351	(0.661)		3.128 (2.299)
Week42	0.756	(0.657)		2.223 (2.021)
Week43	0.152	(0.640)		2.307 (1.993)
Week44	-0.063	(0.692)		1.644 (1.424)
Week45	0.445	(0.684)		7.924 (7.740) *
Week46	0.974	(0.692)		(dropped)
Week47	1.222	(0.687)		0.887 (0.699)
Week48	1.362	(0.674)	*	0.801 (0.624)
Week49	1.597	(0.660)	*	0.306 (0.244)
Week50	1.748	(0.638)	**	0.196 (0.143) *
Week51	1.166	(0.630)		0.326 (0.248)
Constant	6.324	(0.923)	**	
R-squared	0.700		0.561 (pseudo)	
N	884		872	

(d) = dummy variable

(prediction) = dropped due to perfect prediction

* = 5% significance

** = 1% significance

Table 5A: Total Price and Shipping in Passion DVD Auctions

Dependent Variable:	(1)			(2)			(3)		
	Total Price			Total Price			Shipping		
	OLS, robust s.e.			OLS, robust s.e.			OLS, robust s.e.		
	coeff	s.e.		coeff	s.e.		coeff	s.e.	
Conditional on:	sale			sale					
Shipping/Reserve Factors									
Shipping	0.462	(0.031)	**	0.371	(0.032)	**			
Starting Bid	0.077	(0.013)	**	0.068	(0.013)	**	-0.069	(0.006)	**
Secret Reserve (d)	-0.229	(0.489)		-0.413	(0.474)		-0.288	(0.191)	
Buy-it-now (d)	0.125	(0.153)		-2.083	(0.434)	**	-0.688	(0.082)	**
BIN x Secret Reserve (d)	1.551	(0.507)	**	1.948	(0.503)	**			
BIN x Shipping				0.585	(0.118)	**			
Item-Specific Factors									
Questionable (d)	-3.302	(0.153)	**	-3.309	(0.158)	**	0.665	(0.089)	**
Seller Reputation									
ln(Feedback Rating + 1)	0.002	(0.026)		0.010	(0.026)		0.088	(0.017)	**
Negative Feedback	0.003	(0.001)	**	0.003	(0.001)	**	0.001	(0.000)	**
Other Factors									
PayPal (d)	0.083	(0.303)		0.015	(0.303)		-0.397	(0.103)	**
Credit Card & no PayPal (d)	-0.491	(0.689)		-0.715	(0.615)		-0.796	(0.425)	
Picture (d)	1.263	(0.162)	**	1.076	(0.163)	**	0.400	(0.067)	**
ln(Number of Words)	0.082	(0.038)	*	0.035	(0.038)		-0.014	(0.023)	
Length of Auction - 1 Day (d)	(dropped)			(dropped)			(dropped)		
3 Days (d)	-0.212	(0.129)		-0.273	(0.129)	*	-0.550	(0.078)	**
5 Days (d)	0.023	(0.153)		-0.010	(0.153)		-0.041	(0.092)	
7 Days (d)	0.001	(0.120)		-0.020	(0.120)		0.083	(0.076)	
10 Days (d)	-0.241	(0.330)		-0.338	(0.333)		-0.587	(0.153)	**
Week36	(dropped)			(dropped)			(dropped)		
Week37	-1.121	(0.211)	**	-1.158	(0.206)	**	-0.120	(0.104)	
Week38	-1.484	(0.212)	**	-1.569	(0.209)	**	-0.038	(0.110)	
Week39	-1.879	(0.237)	**	-1.997	(0.231)	**	-0.433	(0.127)	**
Week40	-2.383	(0.225)	**	-2.449	(0.221)	**	-0.283	(0.118)	*
Week41	-2.629	(0.247)	**	-2.667	(0.243)	**	-0.429	(0.126)	**
Week42	-2.660	(0.241)	**	-2.795	(0.236)	**	-0.676	(0.133)	**
Week43	-2.651	(0.233)	**	-2.733	(0.229)	**	-0.451	(0.128)	**
Week44	-2.568	(0.243)	**	-2.594	(0.242)	**	-0.644	(0.126)	**
Week45	-2.430	(0.262)	**	-2.534	(0.259)	**	-0.601	(0.140)	**
Constant	12.825	(0.456)	**	13.726	(0.476)	**	3.951	(0.192)	**
R-squared	0.354			0.365			0.144		
N	2904			2904			3436		

(d) = dummy variable
 * = 5% significance
 ** = 1% significance

Table 5B: Bidder Entry in Passion DVD Auctions

Dependent Variable:	(1)			(2)		
	Number of Bidders			No Bids (d)		
	OLS, robust s.e.			logistic, robust s.e.		
	coeff	s.e.		odds ratio	s.e.	
Conditional on:	non-BIN			non-BIN		
Shipping/Reserve Factors						
Shipping	-0.162	(0.024)	**	1.819	(0.116)	**
Starting Bid	-0.443	(0.008)	**	2.123	(0.096)	**
Secret Reserve (d)	-2.043	(0.464)	**	(prediction)		
Item-Specific Factors						
Questionable (d)	-1.725	(0.105)	**	7.928	(2.037)	**
Seller Reputation						
ln(Feedback Rating + 1)	0.003	(0.020)		0.889	(0.045)	*
Negative Feedback	-0.001	(0.000)	**	1.005	(0.001)	**
Other Factors						
PayPal (d)	-0.370	(0.173)	*	1.305	(0.605)	
Credit Card & no PayPal (d)	-0.699	(0.616)		(prediction)		
Picture (d)	-0.314	(0.112)	**	2.245	(1.013)	
ln(Number of Words)	0.056	(0.032)		1.070	(0.093)	
Length of Auction - 1 Day (d)	(dropped)			1.638	(0.522)	
3 Days (d)	-0.135	(0.091)		1.500	(0.450)	
5 Days (d)	-0.027	(0.120)		(dropped)		
7 Days (d)	0.242	(0.092)	**	0.830	(0.259)	
10 Days (d)	0.339	(0.241)		0.335	(0.280)	
Week36	(dropped)			(dropped)		
Week37	-0.224	(0.194)		3.798	(2.780)	
Week38	-0.927	(0.198)	**	12.746	(9.495)	**
Week39	-1.192	(0.200)	**	21.302	(15.591)	**
Week40	-1.688	(0.207)	**	31.981	(23.929)	**
Week41	-1.857	(0.204)	**	47.374	(35.863)	**
Week42	-1.660	(0.209)	**	31.910	(24.172)	**
Week43	-1.613	(0.212)	**	32.191	(24.642)	**
Week44	-1.546	(0.221)	**	43.369	(33.730)	**
Week45	-1.576	(0.229)	**	30.595	(24.130)	**
Constant						
R-squared	0.665			0.482 (pseudo)		
N	2825			2802		

(d) = dummy variable

(prediction) = dropped due to perfect prediction

* = 5% significance

** = 1% significance

Table 6A: Total Price and Shipping in Force of Will Auctions

Dependent Variable:	(1)		(2)		(3)	
	Total Price		Total Price		Shipping	
	OLS, robust s.e.		OLS, robust s.e.		OLS, robust s.e.	
	coeff	s.e.	coeff	s.e.	coeff	s.e.
Conditional on:	sale		sale			
Shipping/Reserve Factors						
Shipping	0.885	(0.255) **	0.746	(0.281) **		
Starting Bid	-0.080	(0.026) **	-0.080	(0.026) **	0.002	(0.003)
Secret Reserve (d)	-2.753	(1.974)	-2.630	(1.983)	0.585	(0.177) **
Buy-it-now (d)	1.549	(2.246)	-0.072	(2.598)	-0.202	(0.252)
BIN x Secret Reserve (d)	5.769	(3.304)	5.324	(3.353)		
BIN x Shipping			0.868	(0.692)		
Item-Specific Factors						
2 Cards (d)	14.707	(0.964) **	14.532	(0.981) **	0.169	(0.096)
3 Cards (d)	31.668	(1.594) **	31.638	(1.592) **	0.373	(0.160) *
4 Cards (d)	48.995	(0.968) **	48.869	(0.981) **	0.325	(0.088) **
5 Cards (d)					-0.627	(0.513)
8 Cards (d)					-0.249	(0.229)
12 Cards (d)					0.673	(0.156) **
20 Cards (d)					0.997	(0.429) *
Excellent Condition (d)	-0.057	(1.011)	-0.106	(1.013)	0.001	(0.100)
2 Cards x Exc. Cond. (d)	1.242	(1.767)	1.362	(1.779)		
3 Cards x Exc. Cond. (d)	0.430	(2.346)	0.383	(2.351)		
4 Cards x Exc. Cond. (d)	-1.293	(1.448)	-1.188	(1.460)		
Mint Condition (d)	0.540	(0.805)	0.451	(0.812)	0.111	(0.083)
2 Cards x Mint Cond. (d)	1.057	(1.232)	1.296	(1.255)		
3 Cards x Mint Cond. (d)	-1.990	(2.246)	-1.940	(2.212)		
4 Cards x Mint Cond. (d)	0.373	(1.146)	0.546	(1.166)		
Seller Reputation						
In(Feedback Rating + 1)	0.931	(0.146) **	0.909	(0.148) **	-0.048	(0.021) *
Negative Feedback	-0.004	(0.008)	-0.004	(0.008)	0.001	(0.000)
Other Factors						
PayPal (d)	1.371	(1.322)	1.556	(1.350)	-0.330	(0.180)
Credit Card & no PayPal (d)	-5.350	(5.014)	-5.124	(4.934)	-0.261	(0.380)
Picture (d)	2.192	(0.526) **	2.075	(0.536) **	0.206	(0.082) *
In(Number of Words)	0.731	(0.226) **	0.708	(0.225) **	-0.025	(0.038)
Length of Auction - 1 Day (d)		(dropped)		(dropped)		(dropped)
3 Days (d)	0.655	(2.290)	0.664	(2.287)	-0.204	(0.270)
5 Days (d)	1.111	(2.237)	1.141	(2.235)	-0.122	(0.256)
7 Days (d)	2.176	(2.211)	2.232	(2.209)	-0.025	(0.252)
10 Days (d)	3.312	(2.728)	3.295	(2.711)	-0.226	(0.428)
Week36	-11.076	(1.781) **	-10.692	(1.826) **	-0.051	(0.319)
Week37	-9.458	(1.755) **	-9.061	(1.773) **	-0.302	(0.290)
Week38	-7.193	(1.798) **	-6.898	(1.829) **	0.044	(0.278)
Week39		(no data)		(no data)		(no data)
Week40	-7.842	(1.764) **	-7.527	(1.806) **	-0.224	(0.289)
Week41	-5.517	(1.627) **	-5.163	(1.674) **	0.132	(0.280)
Week42	-5.099	(1.600) **	-4.776	(1.643) **	0.047	(0.283)
Week43	-4.797	(1.756) **	-4.501	(1.793) *	0.342	(0.369)
Week44	-5.898	(1.540) **	-5.652	(1.577) **	-0.075	(0.277)
Week45	-3.411	(1.938)	-3.038	(1.934)	-0.008	(0.282)
Week46	-3.897	(1.681) *	-3.594	(1.706) *	0.049	(0.276)
Week47	-1.820	(1.674)	-1.536	(1.704)	0.236	(0.342)
Week48	-5.125	(1.612) **	-4.785	(1.671) **	-0.141	(0.297)
Week49	-3.201	(1.726)	-2.799	(1.802)	-0.198	(0.292)
Week50	-3.726	(1.559) *	-3.485	(1.602) *	0.042	(0.282)
Week51	-4.638	(1.646) **	-4.315	(1.681) **	-0.098	(0.279)
Week52	-2.034	(1.750)	-1.621	(1.796)	0.125	(0.302)
Week53		(dropped)		(dropped)		(dropped)
Constant	5.258	(2.909)	5.387	(2.944)	2.390	(0.410) **
R-squared	0.909		0.909		0.081	
N	920		920		951	

(d) = dummy variable
 * = 5% significance
 ** = 1% significance

Table 6B: Bidder Entry in Force of Will Auctions

Dependent Variable:	(1)		(2)	
	Number of Bidders		No Bids (d)	
	OLS, robust s.e.		logistic, robust s.e.	
	coeff	s.e.	odds ratio	s.e.
Conditional on:	non-BIN			
Shipping/Reserve Factors				
Shipping	-0.140	(0.068)	*	(Not Run Due To
Starting Bid	-0.136	(0.005)	**	
Secret Reserve (d)	-1.465	(0.447)	**	Insufficient Misses)
Item-Specific Factors				
2 Cards (d)	1.997	(0.405)	**	
3 Cards (d)	2.928	(0.469)	**	
4 Cards (d)	3.557	(0.296)	**	
Excellent Condition (d)	-0.042	(0.439)		
2 Cards x Exc. Cond. (d)	-0.343	(0.787)		
3 Cards x Exc. Cond. (d)	-1.829	(0.850)	*	
4 Cards x Exc. Cond. (d)	0.300	(0.544)		
Mint Condition (d)	0.000	(0.283)		
2 Cards x Mint Cond. (d)	0.011	(0.495)		
3 Cards x Mint Cond. (d)	-0.284	(0.835)		
4 Cards x Mint Cond. (d)	-0.287	(0.372)		
Seller Reputation				
In(Feedback Rating + 1)	0.283	(0.046)	**	
Negative Feedback	-0.003	(0.003)		
Other Factors				
PayPal (d)	0.190	(0.493)		
Credit Card & no PayPal (d)	-2.408	(1.013)	*	
Picture (d)	0.055	(0.182)		
In(Number of Words)	0.029	(0.074)		
Length of Auction - 1 Day (d)		(dropped)		
3 Days (d)	-0.224	(0.521)		
5 Days (d)	0.434	(0.501)		
7 Days (d)	0.451	(0.490)		
10 Days (d)	0.400	(0.728)		
Week36	-0.920	(0.737)		
Week37	-1.138	(0.635)		
Week38	-1.641	(0.671)	*	
Week39		(no data)		
Week40	-0.703	(0.668)		
Week41	-0.884	(0.643)		
Week42	-0.833	(0.653)		
Week43	-0.962	(0.716)		
Week44	-1.024	(0.640)		
Week45	-0.741	(0.640)		
Week46	-1.053	(0.656)		
Week47	-0.877	(0.689)		
Week48	-1.124	(0.629)		
Week49	-0.311	(0.685)		
Week50	-0.842	(0.632)		
Week51	-1.033	(0.635)		
Week52	-0.669	(0.697)		
Week53		(dropped)		
Constant	4.431	(0.944)	**	
R-squared	0.547			
N	730			

(d) = dummy variable

* = 5% significance

** = 1% significance

Table 7A: Total Price and Shipping in ThinkPad Auctions

Dependent Variable:	(1)		(2)		(3)	
	Total Price		Total Price		Shipping	
	OLS, robust s.e.		OLS, robust s.e.		OLS, robust s.e.	
	coeff	s.e.	coeff	s.e.	coeff	s.e.
Conditional on:	sale		sale			
Shipping/Reserve Factors						
Shipping	2.471	(0.813) **	2.371	(0.948) *		
Starting Bid	0.042	(0.015) **	0.041	(0.015) **	-0.003	(0.001) **
Secret Reserve (d)	58.658	(39.831)	57.321	(39.560)	-6.500	(2.484) **
Buy-it-now (d)	224.878	(42.124) **	59.968	(93.835)	-8.602	(2.282) **
BIN x Secret Reserve (d)	-237.949	(85.010) **	-235.313	(82.972) **		
BIN x Shipping			0.292	(1.554)		
Item-Specific Factors						
Bluetooth (d)	135.342	(33.542) **	135.215	(33.588) **	-0.256	(1.308)
Fingerprint (d)	189.037	(65.974) **	189.285	(66.028) **	3.243	(3.741)
XGA (d)	184.797	(47.855) **	184.054	(47.859) **	-8.209	(3.592) *
SXGA (d)	297.395	(52.593) **	296.834	(52.610) **	-12.517	(3.719) **
UXGA (d)	680.435	(73.983) **	679.318	(74.423) **	-16.108	(4.093) **
RAM - 256 MB (d)	-220.057	(75.649) **	-221.094	(76.143) **	0.447	(3.738)
RAM - 512 MB (d)	-83.263	(68.308)	-84.221	(68.815)	1.131	(3.785)
RAM - 768 MB (d)	17.055	(88.487)	16.366	(88.623)		(dropped)
RAM - 1 GB (d)	-77.988	(66.939)	-78.284	(67.160)	2.774	(3.845)
RAM - 2 GB (d)		(dropped)		(dropped)	7.588	(4.375)
CPU - 1.5 GHz (d)	40.109	(93.178)	40.693	(93.336)	-4.357	(5.481)
CPU - 1.6 GHz (d)		(dropped)		(dropped)		(dropped)
CPU - 1.7 GHz (d)	213.860	(91.574) *	213.877	(91.840) *	-4.023	(5.356)
CPU - 1.8 GHz (d)	363.962	(98.775) **	364.650	(99.081) **	-1.786	(5.430)
CPU - 2.0 GHz (d)	1047.156	(113.787) **	1047.048	(114.088) **	1.007	(5.811)
CPU - 2.1 GHz (d)	1325.249	(121.481) **	1324.954	(121.713) **	-14.175	(8.296)
Hard Disk - 30 GB (d)		(dropped)		(dropped)		(dropped)
Hard Disk - 40 GB (d)	114.267	(36.253) **	114.699	(36.440) **	-1.586	(2.079)
Hard Disk - 60 GB (d)	302.907	(46.760) **	303.406	(46.873) **	3.266	(2.459)
Hard Disk - 80 GB (d)	368.559	(49.686) **	368.936	(49.681) **	4.213	(2.302)
Seller Reputation						
In(Feedback Rating + 1)	33.888	(8.500) **	33.756	(8.466) **	0.831	(0.322) **
Negative Feedback	-1.845	(0.544) **	-1.839	(0.539) **	-0.111	(0.026) **
Other Factors						
PayPal (d)	112.317	(41.241) **	112.837	(41.841) **	-8.473	(2.475) **
Credit Card & no PayPal (d)	281.251	(59.440) **	282.757	(61.547) **	3.016	(3.504)
Picture (d)	-100.705	(31.651) **	-100.400	(31.435) **	5.050	(2.144)
In(Number of Words)	-8.361	(11.088)	-8.192	(11.163)	-1.426	(0.488) **
Length of Auction - 1 Day (d)		(dropped)	-152.719	(71.892) *	-4.575	(2.956)
3 Days (d)	-3.969	(39.900)	-157.251	(63.748) *	-10.944	(2.135) **
5 Days (d)	77.138	(41.006)	-75.462	(65.021)	-5.871	(2.142) **
7 Days (d)	129.698	(41.693) **	-22.336	(65.516)	-4.693	(2.225) *
10 Days (d)	152.559	(71.910) *		(dropped)		(dropped)
Week36		(dropped)		(dropped)		(dropped)
Week37	-207.404	(95.451) *	-206.814	(95.084) *	4.556	(3.668)
Week38	-203.549	(97.956) *	-203.344	(97.566) *	5.745	(3.681)
Week39	-135.346	(103.430)	-133.712	(103.341)	-0.985	(4.521)
Week40	-199.259	(95.241) *	-198.813	(94.884) *	4.643	(3.702)
Week41	-309.182	(88.003) **	-308.827	(87.388) **	4.618	(3.374)
Week42	-346.843	(87.799) **	-346.730	(87.280) **	7.825	(3.488) *
Week43	-389.495	(87.343) **	-389.417	(86.808) **	3.024	(3.370)
Week44	-412.824	(87.301) **	-413.003	(86.846) **	4.166	(3.458)
Week45	-399.130	(86.169) **	-398.530	(85.705) **	4.643	(3.377)
Week46	-431.842	(85.552) **	-431.472	(85.055) **	3.021	(3.420)
Week47	-516.835	(88.699) **	-516.672	(88.164) **	2.289	(3.367)
Week48	-548.178	(89.149) **	-547.829	(88.634) **	3.997	(3.492)
Week49	-479.636	(86.337) **	-479.415	(85.798) **	2.126	(3.426)
Week50	-464.827	(85.336) **	-464.831	(84.796) **	3.444	(3.362)
Week51	-514.612	(87.656) **	-514.382	(87.141) **	4.643	(3.402)
Constant	1204.790	(174.263) **	1361.567	(178.050) **	64.340	(8.711) **
R-squared	0.899		0.899		0.462	
N	645		645		1052	

(d) = dummy variable
 * = 5% significance
 ** = 1% significance

Table 7B: Bidder Entry in ThinkPad Auction

Dependent Variable:	(1)		(2)	
	Number of Bidders		No Bids (d)	
	OLS, robust s.e. coeff	s.e.	logistic, robust s.e. odds ratio	s.e.
Conditional on:	non-BIN		non-BIN	
Shipping/Reserve Factors				
Shipping	0.012	(0.015)	1.005	(0.017)
Starting Bid	-0.007	(0.000)	**	1.013 (0.002) **
Secret Reserve (d)	-0.417	(0.589)		(prediction)
Item-Specific Factors				
Bluetooth (d)	1.268	(0.543)	*	0.320 (0.207)
Fingerprint (d)	-1.425	(1.467)		0.033 (0.040) **
XGA (d)	2.416	(0.873)	**	9.732 (13.734)
SXGA (d)	3.197	(0.903)	**	2.330 (3.504)
UXGA (d)	4.864	(1.180)	**	0.015 (0.030) *
RAM - 256 MB (d)	0.288	(0.717)		(dropped)
RAM - 512 MB (d)	0.680	(0.690)		0.122 (0.056) **
RAM - 768 MB (d)		(dropped)		0.020 (0.019) **
RAM - 1 GB (d)	0.414	(0.737)		0.023 (0.014) **
RAM - 2 GB (d)	2.834	(1.293)	*	(prediction)
CPU - 1.5 GHz (d)	-7.796	(2.128)	**	3.91E-04 1.35E-03 *
CPU - 1.6 GHz (d)	-5.820	(2.408)	*	1.01E-05 3.69E-05 **
CPU - 1.7 GHz (d)	-6.708	(2.056)	**	6.78E-05 2.36E-04 **
CPU - 1.8 GHz (d)	-6.043	(2.000)	**	1.65E-05 6.02E-05 **
CPU - 2.0 GHz (d)	-7.896	(2.448)	**	3.70E-10 1.49E-09 **
CPU - 2.1 GHz (d)		(dropped)		(dropped)
Hard Disk - 30 GB (d)	-1.072	(0.903)		56.222 (83.243) **
Hard Disk - 40 GB (d)	-0.874	(0.354)	*	14.391 (9.261) **
Hard Disk - 60 GB (d)	0.269	(0.371)		0.707 (0.374)
Hard Disk - 80 GB (d)		(dropped)		(dropped)
Seller Reputation				
In(Feedback Rating + 1)	0.412	(0.120)	**	0.572 (0.098) **
Negative Feedback	-0.051	(0.009)	**	1.017 (0.013)
Other Factors				
PayPal (d)	2.869	(0.715)	**	0.240 (0.481)
Credit Card & no PayPal (d)	4.958	(1.276)	**	0.909 (2.010)
Picture (d)	-2.041	(0.606)	**	0.617 (0.665)
In(Number of Words)	-0.240	(0.202)		0.849 (0.239)
Length of Auction - 1 Day (d)	-0.212	(0.745)		(dropped)
3 Days (d)	-0.437	(0.619)		2.286 (1.644)
5 Days (d)	-0.600	(0.609)		2.161 (1.530)
7 Days (d)	0.232	(0.628)		0.695 (0.490)
10 Days (d)		(dropped)		0.703 (0.593)
Week36		(dropped)		(dropped)
Week37	-1.289	(2.381)		0.001 (0.001) **
Week38	-0.636	(2.441)		0.002 (0.002) **
Week39	0.931	(2.421)		0.007 (0.013) **
Week40	0.389	(2.401)		0.001 (0.001) **
Week41	-1.130	(2.334)		0.053 (0.057) **
Week42	-1.717	(2.311)		0.619 (0.781)
Week43	-0.467	(2.304)		0.847 (0.845)
Week44	-1.760	(2.286)		1.192 (1.254)
Week45	-0.825	(2.307)		0.491 (0.488)
Week46	-1.080	(2.303)		1.016 (0.989)
Week47	-1.390	(2.317)		1.769 (1.737)
Week48	-1.382	(2.291)		3.327 (3.248)
Week49	-0.745	(2.298)		1.262 (1.222)
Week50	-1.545	(2.288)		1.047 (1.003)
Week51	-1.763	(2.302)		2.605 (2.573)
Constant	16.134	(3.609)	**	
R-squared	0.774			0.565 (pseudo)
N	836			810

(d) = dummy variable
 (prediction) = dropped due to perfect prediction
 * = 5% significance
 ** = 1% significance

Table 8: Effect of Free Shipping on Total Price and Number of Bidders

Dependent Variable = Total Price, OLS Regression

	Gold Eagle			Silver Proof			Passion DVD			Force of Will			ThinkPad		
	coeff	s.e.		coeff	s.e.		coeff	s.e.		coeff	s.e.		coeff	s.e.	
Shipping	0.992	(0.490)	*	0.232	(0.287)		0.448	(0.040)	**	0.640	(0.289)	*	2.475	(1.007)	*
Free Shipping (d)	-6.466	(4.510)		5.236	(2.020)	**	0.771	(0.222)	**	-2.086	(1.637)		18.624	(91.859)	
Starting Bid	0.053	(0.036)		0.133	(0.053)	*	0.066	(0.013)	**	-0.078	(0.026)	**	0.041	(0.015)	**
Secret Reserve (d)	-14.500	(7.036)	*	3.360	(2.466)		-0.440	(0.427)		-2.604	(1.963)		58.947	(39.811)	
Buy-it-now (d)	-26.259	(10.934)	*	2.190	(2.018)		-1.924	(0.428)	**	0.728	(2.696)		60.855	(93.973)	
BIN x Secret Reserve (d)	-5.111	(12.734)		53.079	(6.983)	**	1.978	(0.453)	**	5.465	(3.342)		-235.062	(82.955)	**
BIN x Shipping	5.907	(2.069)	**	1.031	(0.265)	**	0.556	(0.117)	**	0.532	(0.756)		0.282	(1.551)	
Other Control Variables Included But Not Shown															
R-squared	0.775			0.889			0.367			0.909			0.899		
N	378			804			2904			920			645		

(d) = dummy variable

* = 5% significance

** = 1% significance

robust standard errors in parentheses

Dependent Variable = Number of Bidders, OLS Regression

	Gold Eagle			Silver Proof			Passion DVD			Force of Will			ThinkPad		
	coeff	s.e.		coeff	s.e.		coeff	s.e.		coeff	s.e.		coeff	s.e.	
Shipping	0.244	(0.122)	*	-0.147	(0.079)		-0.072	(0.032)	*	-0.127	(0.073)		0.015	(0.018)	
Free Shipping (d)	0.986	(1.992)		-0.718	(0.722)		0.829	(0.167)	**	0.264	(0.453)		0.466	(1.172)	
Starting Bid	-0.069	(0.005)	**	-0.128	(0.016)	**	-0.445	(0.008)	**	-0.136	(0.005)	**	-0.007	(0.000)	**
Secret Reserve (d)	0.191	(1.237)		-0.574	(0.689)		-2.077	(0.484)	**	-1.468	(0.448)	**	-0.420	(0.594)	
Other Control Variables Included But Not Shown															
R-squared	0.655			0.700			0.667			0.547			0.775		
N	402			884			2825			730			836		

(d) = dummy variable

* = 5% significance

** = 1% significance

robust standard errors in parentheses

Table 9: Summary of Regressions

Dependent Variable = Total Price, OLS Regression

	Gold Eagle			Silver Proof			Passion DVD			Force of Will			ThinkPad		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Shipping	1.40 (0.436) **	1.11 (0.438) *	0.99 (0.490) *	0.37 (0.148) *	0.06 (0.270)	0.23 (0.287)	0.45 (0.030) **	0.38 (0.032) **	0.45 (0.040) **	0.81 (0.254) **	0.71 (0.282) *	0.64 (0.289) *	2.32 (0.820) **	2.12 (0.954) *	2.48 (1.007) *
Different from 1? (95% C.I.)	N	N	N	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Free Shipping			-6.47 (4.510)			5.24 (2.020) **			0.77 (0.222) **			-2.09 (1.637)			18.62 (91.859)
BIN * Shipping		5.80 (2.055) **	5.91 (2.069) **		0.92 (0.383) *	1.03 (0.265) **		0.57 (0.117) **	0.56 (0.117) **		1.02 (0.685)	0.53 (0.756)		0.72 (1.601)	0.28 (1.551)
Starting Bid	0.05 (0.036)	0.05 (0.036)	0.05 (0.036)	0.15 (0.050) **	0.16 (0.050) **	0.13 (0.053) *	0.08 (0.013) **	0.07 (0.013) **	0.07 (0.013) **	-0.08 (0.026) **	-0.08 (0.026) **	-0.08 (0.026) **	0.04 (0.015) **	0.04 (0.015) **	0.04 (0.015) **

(d) = dummy variable
 * = 5% significance
 ** = 1% significance
 robust standard errors in parentheses

Dependent Variable = (1)-(2): Number of Bidders, OLS Regression; (3): No Bids, Logistic Regression (odds ratio)

	Gold Eagle			Silver Proof			Passion DVD			Force of Will			ThinkPad		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Shipping	0.232 (0.118) *	0.244 (0.122) *	0.385 (0.136) **	-0.137 (0.069) *	-0.147 (0.079)	0.385 (0.136) **	-0.162 (0.024) **	-0.072 (0.032) *	0.385 (0.136) **	-0.140 (0.068) *	-0.127 (0.073)	0.385 (0.136) **	0.012 (0.015)	0.015 (0.018)	0.385 (0.136) **
Free Shipping		0.986 (1.992)			-0.718 (0.722)			0.829 (0.167) **			0.264 (0.453)			0.466 (1.172)	
Starting Bid	-0.069 (0.005) **	-0.069 (0.005) **	1.187 (0.046) **	-0.128 (0.016) **	-0.128 (0.016) **	1.187 (0.046) **	-0.443 (0.008) **	-0.445 (0.008) **	1.187 (0.046) **	-0.136 (0.005) **	-0.136 (0.005) **	1.187 (0.046) **	-0.007 (0.000) **	-0.007 (0.000) **	1.187 (0.046) **

(d) = dummy variable
 * = 5% significance
 ** = 1% significance
 robust standard errors in parentheses

References

- Bajari, Patrick and Ali Hortaçsu. 2003. "The Winner's Curse, Reserve Prices, and Endogenous Entry: Empirical Insights from eBay Auctions." *RAND Journal of Economics*, Summer 34(2): pp. 329-55.
- Bajari, Patrick and Ali Hortaçsu. 2004. "Economic Insights from Internet Auctions." *Journal of Economic Literature*, June 42: pp. 457-86.
- Cabral, Luis and Ali Hortaçsu. 2004. "The Dynamics of Seller Reputation: Theory and Evidence from eBay." National Bureau of Economic Research (Cambridge, MA) Working Paper No. 10363, March.
- Hossain, Tanjim and John Morgan. 2002. "A Test of the Revenue Equivalence Theorem using Field Experiments on eBay." Working paper, Princeton University, November.
- Kahneman, Daniel and Amos Tversky. 1984. "Choices, Values, and Frames." *American Psychologist*, April 39(4): pp. 341-50.
- Katkar, Rama and David Lucking-Reiley. 2001. "Public Versus Secret Reserve Prices in eBay Auctions: Results from a Pokémon Field Experiment." National Bureau of Economic Research (Cambridge, MA) Working Paper No. 8183, March.
- Levin, Dan and James L. Smith. 1994. "Equilibrium in Auctions with Entry." *The American Economic Review*, June 54: pp. 585-99.
- Lucking-Reiley, David, Doug Bryan, Naghi Prasad, and Daniel Reeves. 2000. "Pennies from eBay: the Determinants of Price in Online Auctions." Working paper, Vanderbilt University.
- Lucking-Reiley, David. 2000. "Field Experiments on the Effects of Reserve Prices in Auctions: More Magic on the Internet." Working paper, Vanderbilt University, December.
- Mathews, Timothy. 2004. "The Impact of Discounting on an Auction with a Buyout Option: a Theoretical Analysis Motivated by eBay's Buy-It-Now Feature." *Journal of Economics – Zeitschrift für Nationalökonomie*, 81(1): pp. 25-52.
- Melnik, Mikhail I. and James Alm. 2002. "Does A Seller's Ecommerce Reputation Matter? Evidence from Ebay Auctions." *The Journal of Industrial Economics*, September 50(3): pp. 337-49.
- Milgrom, Paul R. and Robert J. Weber. 1982. "A Theory of Auctions and Competitive Bidding." *Econometrica*, September 50(5): pp. 1089-1122.
- Myerson, Roger B. 1981. "Optimal Auction Design." *Mathematics of Operations Research*, February 6(1): pp. 58-73.

Reiley, David H. 2004. "Experimental Evidence on the Endogenous Entry of Bidders in Internet Auctions." Working paper, University of Arizona, September.

Resnick, Paul, Richard Zeckhauser, John Swanson, and Kate Lockwood. 2004. "The Value of Reputation on eBay: A Controlled Experiment." Working paper, University of Michigan, March.

Riley, John G. and William F. Samuelson. 1981. "Optimal Auctions." *The American Economic Review*, June 71(3): pp. 381-92.

Thaler, Richard. 1985. "Mental Accounting and Consumer Choice." *Marketing Science*, Summer, 4(3): 199-214.

Vickrey, William. 1961. "Counterspeculation, Auctions, and Competitive Sealed Tenders." *The Journal of Finance*, March 16(1): 8-37.

Vincent, Daniel R. 1995. "Bidding Off the Wall: Why Reserve Prices May Be Kept Secret." *Journal of Economic Theory*, 65: pp. 575-84.