Measuring the Benefits to Sniping on eBay: Evidence from a Field Experiment

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Abstract

Bidders on eBay frequently engage in sniping: submitting a bid seconds before the end of the auction. In this paper, we use a field experiment to measure the size of the benefit obtained by a bidder who snipes rather than bidding early. Previous research by Roth and Ockenfels (2002) documents the extent of this sniping. We identified pairs of identical items sold by the same seller and ending near the same time. In half the auctions, we submitted our maximum bid several days before the end of the auction, and in the other half, we submitted the same bid just 10 seconds before the end of the auction, using automated sniping software. Items included Playstation 2 games, movie DVDs, coin proof sets, Xbox games, die cast Hot Wheels cars, and Game Boy Advance games. Our results, from a set of 70 pairs of items, indicate no benefit to sniping. We found evidence of 2.54% lower prices for the sniped auction, but we did not find this benefit to be statistically significant.

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1. Introduction

The use of online auction sites, such as eBay, for selling goods between consumers has been around since the mid 1990s. Ebay began in September 1995 and has grown since then to include tens of millions of registered members from around the world. The scale of such a large online auction operation encourages its use for the economic study of auction theory. For some more history of online auctions, see Lucking-Reiley (2000).

Some frequent users of the eBay auction site believe they can gain an advantage by "sniping:" submitting a bid a matter of seconds before the close of an auction. This procedure is thought to be advantageous because it does not allow other bidders time to counter your bid and drive the price of the item to higher levels.

The default process for bidding in eBay is the proxy bidding procedure, see Lucking-Reiley (2000). Proxy bidding requires a bidder submit the maximum value he is willing to pay for an item. EBay then automatically increases the price of the auction just enough to make your bid be the winning bid up until the amount you have submitted for your maximum value. eBay encourages the use of their proxy bidding process and each bidder submitting the maximum amount they are willing to pay for an item by posting the following notice regarding sniping:

> One way to help avoid disappointment is to ensure that the maximum bid you enter on the item page is the highest price that you're willing to pay. The eBay system automatically increases your bid up to the maximum price you specify, so entering a higher maximum may help prevent you from being outbid in the closing seconds of a listing.

"Sniping" has become so popular that businesses have been created to target these specific users of eBay. ESnipe is one example of an online service that allows a bidder to submit a snipe bid for an auction and the time they would like to submit the bid long before the auction actually ends. This service has 50,000 registered users to eBay's 65,000,000 users and places

more than 10,000 bids a day that average about $16 million per month. Compare this to eBay's

$20 billion value of goods sold in 2003 and you see that the users of eSnipe software are a very

small percentage. Keep in mind that the $16 million figure from eSnipe is not the value of

winning bids, but all bids. This makes the proportion of eBay users that use eSnipe even smaller.

When using the eSnipe service, I could tell eSnipe to put in a bid for me while there is only 3

seconds left in the auction. This would allow me to be offline when the auction ends to place my

bid and places my bid at the last possible second, which may not have been possible if I

submitted the bid myself. The ease of use of this service as well as the policy to only charge the

service fee to customers that actually win the items on which they bid has spurred the use of

sniping in the late 90s to the levels noted above.

When consumers misunderstand how proxy bidding works, it can contribute to the

popularity of sniping. EBay has the following description of this bidding process on their

website:

1. When you place a bid, you enter the maximum amount you'd be willing to pay for the item. Your maximum amount is kept confidential from other bidders and the seller.
2. The eBay system compares your bid to those of the other bidders.
3. The system places bids on your behalf, using only as much of your bid as is necessary to maintain your high bid position (or to meet the reserve price). The system will bid up to your maximum amount.
4. If another bidder has a higher maximum, you'll be outbid. BUT, if no other bidder has a higher maximum, you win the item. And you could pay significantly less than your maximum price!

If everyone in the eBay marketplace decided to follow this bidding strategy, there would be no

reason to snipe. Upon review of Roth & Ockenfels (2002), we found a large incidence of

sniping and we can therefore conclude that the proxy bidding method is not used by all bidders.

Roth & Ockenfels found that in two categories of items (computers and antiques):

20 percent of all last bids on eBay were submitted within the last hour. Furthermore, the figures reveal that, on eBay, a considerable share of bidders submit their bid in the last five minutes (9 percent in Computers and 16 percent in Antiques). At the auction level: 40 percent of all eBay-Computers auctions and 59 percent of all eBay-Antiques auctions have last bids in the last 5 minutes. In the 240 eBay-auctions, 89 have bids in the last minute and 29 in the last ten seconds.

Also, despite the excellent description of the proxy bidding process, some bidders may still treat the auction as a live English auction. In particular, they may believe that whatever bid they submit is the full value of the bid that will be posted. Therefore, bidders tend not to bid their maximum value for the item, but instead place repeated bids of increasing value to try to maximize the surplus they obtain from the auction. Bidders also place multiple bids in a row when a bidder places a bid and then immediately gets outbid by another bidder's proxy bid.

In this experiment we will attempt to measure if there is an actual benefit to sniping as opposed to proxy bidding as suggested by Ariely, Ockenfels, and Roth (2003). These researchers conducted an experiment in a laboratory setting to analyze the sniping behavior on eBay and their research suggested that there may be a measurable benefit to sniping. They found that as bidders gain more experience in the online bidding marketplace, they are more likely to place late bids (snipes). They also came up with a few explanations of why late bidding occurs: "Sniping may also be a best response to incremental bidding that is observed both in the field (see Ockenfels and Roth, 2001 and 2002) and in our experimental setting. An incremental bidder starts with a bid below his value and is then prepared to raise his bid when he is outbid. Bidding late on eBay may be a best reply to incremental bidding, because this strategy would not give the incremental bidder any opportunity to respond to being outbid." This research implies that a measurable benefit to sniping may exist because experience and the incidence of late bids are correlated. Our research is a field study attempting to measure this effect by bidding on pairs of identical items using the two different bidding methods.

2. Experimental Method

Our experiment was designed to measure the benefit of sniping by comparing the winning bids on two identical items where one item is sniped while the other has an early bid. By using pairs of identical items, we control for many other variables such as seller, shipping cost, and starting bid that may influence our results. Since the only factor we are varying between auctions is the type of bidding strategies, we can assume that any change in the value of the winning bid is due to this difference in bidding strategies.

The experiment consisted of bidding on pairs of auctions on the eBay auction web site. Each set of data consisted of six types of goods of which 10 pairs of items were purchased from five types and 20 pairs of items purchased from the one type. This brought the entire set of data to include a total of 70 pairs of items. These pairs were for identical items and had the same seller, shipping cost, length of auction, and ended at nearly the same time. This allowed us to control for as many variables as possible when purchasing the items.

To find these pairs of items, we had to browse through a specific category of newly listed goods until we found two items with identical names listed near each other. If the names of the items were the same, including punctuation and use of capitalization, this would usually indicate that the items were being sold by the same seller. The seller could be called the most important variable when attempting to find identical items for convenience when searching for items. When one seller sells multiple identical items, they almost always list each item at approximately the same time, for the same number of days, the same starting bid, and identical item display pages. We also found that sellers that list a few pairs of items are also likely to list other pairs of items. Therefore, another useful method to find identical items was to look at all the other items

a seller has up for auction once we have confirmed that that seller is auctioning at least one pair of identical items.

In choosing the types of items to purchase, there had to be a high availability of identical items for which a uniform value could be established. The types chosen were: Playstation 2 video games, US coin proof sets, DVDs, Xbox video games, Hot Wheels die cast cars, and Game Boy Advance video games. These items were more likely to be identical because most of the goods were new, in the same condition. If some goods were not new, they were at least of a measurable condition to which a value can be attached such as collectible auctions.

We also had to determine what value we were willing to place on these items (i.e. what would be our bid). We knew we had to bid high enough to win the auctions and compare bidding strategies, but we did not want to place an unreasonably high bid. We did not place an infinitely high price on the items because we did not want to assume the large monetary risk. Choosing the price to bid was a balance between bidding high enough to win the auction, but not so high as the monetary commitment would be too great.

Playstation 2 video games, DVDs, Xbox video games, and Game Boy Advance video games were all valued at the Wal-Mart retail price found on the walmart.com website. We did this because these items were in new condition and Wal-Mart prices are usually the lowest price at which a consumer can buy a product at an easily accessible "brick-and-mortar" store. We were assuming based on the widespread availability of Wal-Mart stores and the cost of shipping items on eBay that consumers were not likely to bid above this level. The US coin proof sets and Hot Wheels die cast cars were all in mint condition and could be priced at their mint condition price guide value. The coin proof sets were valued by the Professional Coin Grading Service (http://www.pcgs.com/prices/). The Hot Wheels cars were priced by Hallsguide.com online

price guide (). The authority and widespread availability of these pricing guides gave us confidence that we would win these auctions without having to bid an amount that would cause a significant loss of money if we won.

In choosing what specific items to bid on in each category, I browsed through each category I selected on eBay, sorted by auctions that have just been listed. This was essential because there needed to be enough time left in the auction for me to place an "early bid" as opposed to a snipe. Browsing through the categories, I identified items that had identical item names and that were listed at near the same time through the process described earlier. The difference in the times of each pair of auctions was distributed as follows:

Item	Time Difference			
	Mean	**Max**	**Min**	**Median**
Playstation 2 Games	14:04:45	23:59:34	3:03:35	23:59:26
Game Boy Advance Games	0:00:48	0:02:07	0:00:00	0:00:37
Xbox Games	3:05:13	3:12:20	2:58:24	3:01:48
Coin Proof Sets	0:21:09	0:25:02	0:04:50	0:23:35
Hot Wheels Cars	0:00:57	0:02:04	0:00:26	0:00:34
DVDs	0:09:16	1:00:00	0:00:25	0:01:49
AVERAGE TOTAL	2:57:01	4:46:51	1:01:17	4:34:38

Once I identified these pairs of item, I examined the details of each of the items in order to insure that they had the same seller, shipping cost and auction length.

The categories used were also useful in that they ranged from relatively small bidder pools (Xbox video games) to relatively large bidder pools (DVDs). This allowed us to also look at the effects when different amounts of bidders are taking part in the auction.

We also collected data on both the snipe versus the early bid as well as the comparison of the first versus the second auction ending in order to control for a "declining price anomaly" researched in Ashenfelter (1989). The "declining price anomaly" theory is based upon research conducted at wine auctions which involved multiple sales of identical lots of wine. Ashenfelter

found that prices are more likely to decline than to increase with later lots of identical wine in the 1st versus the 6th lot offered.

In half of the auctions (one item in each pair) we submitted our bid several days before the auction was to end. In the other half of the auctions, we used automated sniping software to place an identical bid exactly 10 seconds before the auction concluded. The time interval of 10 seconds was chosen to be as close as possible to the end of the auction while still allowing enough time to make sure our bid would get through and be processed. The value placed as our bid was selected as if we had a high willingness to win the auction and as a result, we tended to win both items in each pair of auctions. The important data we gained from this experiment was the differences in price between the snipe and early bid in each pair. We can then statistically analyze if there are any price advantages to sniping or bidding early. If there is a benefit to sniping, then we should win auctions in which we snipe at lower prices than the auctions in which we place an early bid.

Descriptive statistics of the bid that won and the bid we placed in auctions in each category are available in Appendix A.

3. Description of the Data Sample

For each of the 70 pairs of items on which we bid, we copied both the auction page and the bidding page. Clicking for a description of the item and viewing the auction page allowed us to obtain the most basic information about an auction. This information includes:

-Item name
-Item number
-Starting bid
-Winning bid
-Auction length
-Number of bidders
-Time ended
-Seller

Clicking on the number of bids on the auction page allows us to view the bidding page where each bid made on the item and at what time they occurred is recorded. These two pages provided all of the necessary data for our analysis.

We bid on six types of items, 10 pairs of items of each type and 20 pairs of items in Playstation 2 games, in four different eBay categories:

Item	Category
Playstation 2 Games	Video Games > **Games**
Game Boy Advance Games	Video Games > **Games**
Xbox Games	Video Games > **Games**
Coin Proof Sets	Coins > Coins: US > **Proof Sets**
Hot Wheels Cars	Toys & Hobbies > Diecast, Toy Vehicles > **Cars, Trucks-Diecast**
DVDs	DVDs & Movies > **DVD**

Although our raw data contained 70 pairs of data, we eliminated some of the pairs of items for the following reasons: We were outbid on one or both of the items or eBay administrators removed the auction from the eBay site. We were outbid on eight items, encompassing 6 pairs of items. Three pairs of US coin proof sets, one pair of Playstation 2 games, and two pairs of DVD movies were eliminated for the purposes of our analysis. Of these eight items, we were outbid on three items that we sniped and five items where we placed an early bid. We removed the items on which we were outbid because we would have to win the auction to measure the benefit of sniping. The auctions in which we were outbid were interesting in that the winners of those auctions paid more than retail price for the Playstation 2 games and DVDs, and more than the "book value" for the coin proof sets. The behavior observed in these auctions is not seen to be normal, unless the bidder places a high value in having the good delivered to his doorstep as opposed to transporting himself to obtain the good.

EBay administrators removed five of the ten pairs of Game Boy Advance games because of suspicion of piracy after we had placed our bids. The final number of pairs of items we had for statistical analysis was 59 pairs of items distributed among the types in the following way:

Item	Original # of Pairs	Final # of Pairs	Pairs Removed
Playstation 2 Games	20	19	1
Game Boy Advance Games	10	5	5
Xbox Games	10	10	0
Coin Proof Sets	10	7	3
Hot Wheels Cars	10	10	0
DVDs	10	8	2

It is also important to note that there were some individual auctions where we were the only bidder and some pairs of auctions where we were the only bidder. Five complete pairs of items had no other bidders and would therefore contribute slightly to bringing a possible benefit to sniping closer to zero. Seven individual items also had only one bidder, but because they were part of a bidding pair where there was more than one bidder bidding on the other item, these individual items did not have the same effect on the possible benefit to sniping as the pairs of items where both have no other bidders.

4. Data Analysis

In the analysis of our data, we conducted a test of means and a test of proportions on several sets of data. The test of means was conducted on both the average percentage difference and average absolute difference between the snipe and the early bid auction to measure if there is a benefit to sniping. The same statistical test was done on the average difference between the auction ending first and the auction ending second. This was to insure that a "declining price anomaly" would not affect our results. We found no evidence of a "declining price anomaly." On average, the second item being sold in each pair sold for $0.62 more than the first item. This can also be translated into the second item selling for an average of 3.90% more than the first

item. As we can already see from our means, there is definitely not a "declining price anomaly" because the second item is selling for more than the first item. We still have to conduct a test of means to determine if this difference in values is statistically significant. Our test of means produces a test statistic of 1.35 for the absolute value of the auctions. Meaning, we fail to reject the null hypothesis (the ending price of the auction ending first is the same as the ending price of the auction ending second) at a 5% significance level because the test statistic lies within 1.96 standard deviations from the mean. We also fail to reject the null hypothesis for the test of means on the average percentage difference between the second and first items. The test of means produces a test statistic of 1.15, meaning that once again, we fail to reject the null hypothesis at a 5% significance level. We fail to reject the null hypothesis for both the test of means on the percentage difference and the test of means on the absolute difference meaning that there is no difference in the final selling price of the second and the first auctions ending in each pair.

We also conducted a test of proportions to determine if the proportion of auctions where the second item sold for more than the first item is equal to 50% and if the proportion of auctions where the first item sold for more than the second item is equal to 50%. Our test of proportions on whether the second item sold for more than the first item produced a test statistic of –0.13, therefore we failed to reject the null hypothesis that the proportion was equal to 50% at a 5% significance level. Testing if the first item sold for more than the second item produced a test statistic of –3.25, therefore we failed to reject the null and concluded that the proportion was less than 50% at a significance level of 5%. It was important that we conduct both these tests of proportions because there were some pairs of items that ended at the same value. We could not just set the two proportions equal to each other, but had to set them equal to 50% for our null

hypothesis. Through our statistical tests, we have ensured that the "declining price anomaly" theory does not occur in our data and there is no statistically significant difference in the selling price of the auction ending first and the auction ending second in each pair. We can now move on to our analysis of measuring the benefit of sniping.

First, we conducted a test of means to determine if there is a significant difference between the final value of an item that has been sniped and an item where the bid has been placed early. We found a -2.54% mean difference, with a 95% confidence interval of [-9.25%, 4.17%] between the snipe and the early bid meaning that the snipe caused us to win the auction at a slightly lower price than the early bid. But the test of means at the 5% significance level showed that there was not a statistically significant difference between the amount paid for the bid early and the sniped items with a test statistic of –0.74. We found the same result using the test of means on the mean of the absolute difference between the value at which the snipe and early bid items were won. The mean absolute difference was -$0.50, with a 95% confidence interval of [-$1.41, $0.41] also showing a possible benefit to sniping, but once again there was determined to not be a statistical difference at the 5% significance level with a test statistic of –1.09.

We also conducted the same test of proportions on the snipe and early bid as we did on the first and second ending bids in each pair. Our null hypothesis assumed that the proportion of sniped items sold for more than the early bid items equaled 50%. Our test of proportions produced a test statistic of –1.17, therefore we failed to reject the null hypothesis that the proportion was equal to 50% at a 5% significance level. Testing the proportion of items when the early bid item sold for more than the sniped item produced a test statistic of –2.21, therefore we rejected the null hypothesis and concluded that the proportion was less than 50% at a

significance level of 5%. Through these statistical tests, we have thus far concluded that there is

no statistically significant benefit to sniping at a 5% significance level.

        We now move on to analyzing the difference between the sniped auctions and the

auctions where a bid was placed early for each subgroup. For the low number of bidders, we

found that early bidders were able to obtain the good for an average of 4.19% or $0.72 cheaper

than the sniping person. But the test of means gave us test statistics of -0.74 and -1.23, meaning

that we fail to reject the null hypothesis on both scales at the 5% significance level. In the low

number of bidders, there is not a significant difference between the sniping win price and the

early win price. For the high number of bidders, the early bidder also obtained the auctioned

items for a bit cheaper than the sniping person though not as much as the low bidders. The early

bidder received, on average, the item for 1.91% or -$0.50 cheaper than the sniping person.

Conducting a test of means allowed us to get test statistics of -0.48 and -0.69. We fail to reject

the null hypothesis in both situations at the 5% significance level. There is also not a significant

difference between the price the sniping person obtains the good and the price the early bidder

obtains the good for the high number of bidders. We obtain the same results when splitting our

data into two subgroups sorted by average number of bidders in each pair as with our original,

complete dataset. So apparently, the number of bidders participating in the auction does not

cause a significant change in the relationship between the sniping price and the early bid price.

        These results were surprising because the research conducted by Roth & Ockenfels (2002)

led us to believe that there may be a benefit to sniping. So, we took our analysis another step

further and attempted to determine if a statistically significant benefit to sniping may be

influenced by the number of bidders participating in each auction. We sorted our data by the

average number of bidders in each pair of auctions and split our data down the middle into two

data sets ensuring that the pairs of items stayed together. Since we had an odd number of items, we removed the middle pair so each half would have an equal number of pairs of items. We now had two groups of 29 pairs of auctions: The low number of bidders and the high number of bidders. The average number of bidders in the low bidders dataset was 2.62. The average number of bidders in the high bidders dataset was 6.28 bidders. We then conducted the same statistical tests we conducted on the large dataset of auction pairs on each of the two sub-datasets we have created.

As previously, the order in which auctions take place does not influence the price of the auction. For the low number of bidders, the auction ending second in each pair of items sold for an average of 2.25% higher and $0.36 more than the auction that ended first. This produced test statistics of 0.39 for the percentage difference and 0.60 for the absolute difference. At these test statistics, we fail to reject the null hypothesis that there is no statistically significant difference between the amount the second and first ending auctions sold. The same conclusion can be drawn from the high number of bidders dataset, although the averages are a little higher. For the high number of bidders, the auction ending second in each pair of items sold for an average of 4.75% higher and $0.72 more than the auction that ended first. From this data we had test statistics of 1.21 and 1.01. For both of these values, we fail to reject the null at the 5% significance level, there is no difference in the selling prices of the first and second ending auction in each pair.

5. Incidence of Sniping

Our next attempt to clarify our results was to determine if sniping still exists as compared to the rates documented by Roth & Ockenfels (2002). This clarification needs to be made because we were surprised to get no measurable benefit to sniping. One possible reason this may

have occurred was that there was less sniping on eBay as a whole or there was no sniping in the categories we chose. We chose the category of Laptops as chosen by Roth & Ockenfels and we recorded the difference between the last bid and the end of the auction for 60 items. These 60 items were selected by randomly choosing two time points in the Laptops category of completed auctions. From these points we counted 30 items forward in time (i.e. thirty consecutive times after our chosen points when auctions ended). Items were chosen where the reserve price was met and the Buy It Now option was not exercised. The one major difference in which our data collection differed from Roth & Ockenfels was that we took data from auctions where there was only one bidder while they only recorded data where two or more bidders participated in the auction. We then categorized the sniping behavior into 4 categories: Bids in the last hour, last 5 minutes, last minute, and last 10 seconds. Our results were that there 70% of the bids were in the last hour, 46.7% in the last 5 minutes, 36.7% in the last minute, and 11.7% in the last 10 seconds. Roth & Ockenfels found about 84% of bids occurred in the last hour, 9% in the last 5 minutes, 5% in the last minute, and 2% in the last 10 seconds. In our data, a bit less sniping occurs within the last hour of the auction than when Roth & Ockenfels completed their study, but more of our recorded bids took place in the last few minutes of an auction.

We also measured the sniping that occurred in two of the types of items in which we attempted to measure the benefit to sniping, Playstation 2 games and US Coin Proof Sets. Taking the difference between the end of the auction and the last bid for 30 items of Playstation 2 games, we found the following results: 90% of bids took place in the last hour, 50% in the last 5 minutes, 33.3% in the last minute, and 7% in the last 10 seconds. We can reasonably conclude that sniping does occur for this type of item. For 30 items of US Coin Proof Sets, we found the

following results: 70% of bids took place in the last hour, 36.7% in the last 5 minutes, 6.7% in the last minute, and 0% in the last 10 seconds.

To insure that sniping was actually occurring in the categories we have chosen to measure the benefit of sniping, we did the same sniping analysis on 10 pairs of coin proof sets, DVDs and Playstation 2 games as we did on Laptops. Our findings are:

For the pairs of items on which we bid:

Item Type	snipe 1 hr?	snipe 5 min?	snipe 1 min?	snipe 10 sec?	# of Items
US Coin Proof Sets	25.00%	20.00%	5.00%	0.00%	20
DVDs	50.00%	20.00%	10.00%	0.00%	20
Playstation 2 Games	60.00%	45.00%	30.00%	5.00%	20

For the single items' information on eBay:

Item Type	snipe 1 hr?	snipe 5 min?	snipe 1 min?	snipe 10 sec?	# of Items
Laptops	70.00%	46.70%	36.70%	11.70%	60
Playstation 2 Games	90.00%	50.00%	33.30%	7.00%	30
US Coin Proof Sets	70.00%	36.70%	6.70%	0.00%	30

6. Conclusion

Previous research has implied that there may be a measurable benefit to sniping. Since experience on eBay as measured by feedback ratings is positively correlated to sniping, Roth & Ockenfels (2002), we would think that people who snipe must be able to get the item for a cheaper price. We have found that there is actually no statistically significant benefit to sniping although there is an absolute benefit to sniping of 2.54% of the selling price of the item being sold. There is also the possibility that we just do not have enough data to find a statistically significant benefit to sniping on eBay. About the same percentage of bidders are sniping as a few years ago. We also found that sniping might matter more when there are fewer of bidders participating in a given auction. Further research can be done on other categories of items to determine if the experimental results can be applied to a wider range of items on eBay.

Appendix A

Item	Winning Price			
	Mean	**Max**	**Min**	**Median**
Playstation 2 Games	$13.70	$33.07	$4.95	$11.50
Game Boy Advance Games	$20.19	$26.91	$11.53	$21.04
Xbox Games	$19.99	$36.00	$3.95	$20.01
Coin Proof Sets	$17.91	$32.03	$10.50	$15.50
Hot Wheels Cars	$8.83	$11.57	$6.99	$8.55
DVDs	$13.25	$18.50	$8.10	$13.05
AVERAGE TOTAL	$15.64	$26.35	$7.67	$14.94

Item	Our Bid			
	Mean	**Max**	**Min**	**Median**
Playstation 2 Games	$27.12	$49.82	$14.85	$19.82
Game Boy Advance Games	$30.81	$34.82	$29.79	$29.82
Xbox Games	$35.88	$47.72	$19.72	$44.82
Coin Proof Sets	$32.62	$45.00	$16.00	$25.00
Hot Wheels Cars	$17.19	$30.00	$10.00	$15.00
DVDs	$18.02	$19.98	$15.87	$17.98
AVERAGE TOTAL	$26.94	$37.89	$17.71	$25.41

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