

A Field Experiment on eBay. Do buyers act rationally when it comes to shipping charges?

Spring 2023 - DATASCI 241 Final Report

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Introduction

Purchasing goods on the Internet has exploded over the last decade. Sellers usually break up their prices into two components: the price of the item itself, and the cost for shipping and handling the item. Intuitively, buyers wouldn't care much about the split but the total cost.

Morwitz, Greenleaf and Johnson¹, test hypotheses on how consumers process division of prices and how it affects their purchase intention. Empirically, consumers pay attention only to the list price, disregarding the cost associated with shipping and handling. Moreover, according to Morwitz, Greenleaf and Johnson, the results of their experiment suggest that partitioned prices decrease consumers' recalled total costs and increase their demand.

Background

A research on buyers behavior reacting to price split on goods offered through eBay was exerted in 2006 by Hossain and Morgan².

Hossain and Morgan[†] tested the hypothesis of buyers rational, offering matched pairs of CDs and XBox video games for the experiment, expecting that the ending auction price

¹ Morwitz, V., Eric Greenleaf, and [Eric Johnson](#). "Divide and Prosper: Why Firms Divide Prices Instead of Charging a Single Price." *Journal of Marketing Research* vol. 35, (January 01, 1998): 453-63

² Hossain, Tanjim & Morgan, John. (2006). ...Plus Shipping and Handling: Revenue (Non) Equivalence in Field Experiments on eBay. *Advances in Economic Analysis & Policy*. 6. 1429-1429.
10.2202/1538-0637.1429.

should vary inversely with the shipping charge to leave the total price paid constant. They supported their hypothesis in the theory of separate mental accounts by Kahneman and Tversky (1984) and Thaler (1985), which postulated that consumers have separate mental accounts for different aspects of a purchase decision.

We decided to test the hypothesis again under conditions which evolved during the past few years. For instance, there are now sellers offering free shipping charges; music CDs are almost extinct; more e-commerce retailers emerged, applications on mobile phones exploded, and others.

Dividing the price that consumers pay in two parts is a common marketing strategy with some e-commerce companies offering annual flat fees to cover for shipping costs during a year, like Amazon; while others offering a range of options, depending on the buyer's urgency to get their items, literally from next day up to weeks, presenting alternatives of shipping costs.

We also decided to continue with the use of the eBay platform to run the experiment, not only because we wanted to corroborate if Hossain and Morgan's hypothesis persists over the years, but because it is a vast buyers and sellers platform, offering a very attractive place to test price variations for identical products. According to Orbelo's³ website, eBay ranks as the second most visited online marketplace in 2022, just below Amazon.

The eBay shopping app for mobile devices was launched in 2008 with as many as 3.67 million shoppers using it every single month (Statista⁴, 2021), making the eBay app more popular than its competitors.

³ www.orbelo.com - 10 eBay Statistics

⁴ www.statista.com - eBay Inc. statistics & facts

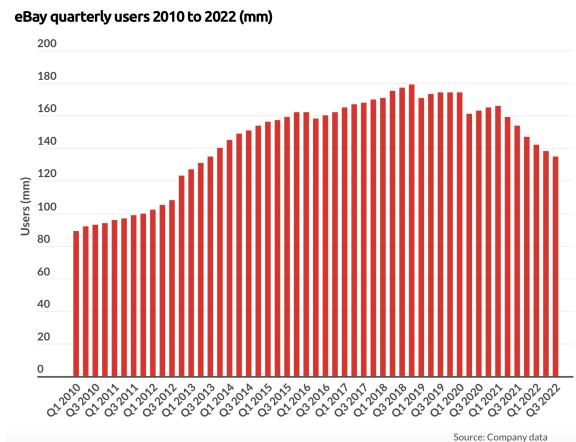


Figure 1. eBay users from Q1-2010 to Q3-2022

As of Q3 2022, there were 135 million eBay users worldwide, which can easily be correlated with a massive number of transactions.

Even though eBay's total number of users shrank in 2022, it continues to be a very powerful internet retailer and an excellent platform to run the experiment.

Different from the original experiment, we chose books as the items to offer on eBay because, (a) they are simple items that do not require any special care for shipping and handling; (b) nowadays, books are common goods purchased online; (c) there are many new book titles available each year. According to Chilkibo Publishing⁵ The United States publishes between 600,000 to 1,000,000 new books each year. We, however, decided to limit ourselves to bestseller lists from the New York Times and Barnes and Noble; and (d) budget as a constraint to run the experiment.

Hypothesis

Our hypothesis states that **on eBay auctions, for a fixed total reserve price (opening bid + shipping and handling), charging a high shipping cost and starting with a low opening bid leads to more revenues.**

In other words, we want to test if buyers at the eBay platform do care about high shipping costs, through auctions.

The sharp-null hypothesis is that two identical book titles with a cost split inverted, that is, opening price low, shipping cost high versus opening price high, shipping cost low, where both totals the same reserve price, will lead to the same conclusion, that is, will render the same revenue.

⁵ Chilkibo Publishing - [How Many Books Are Published Each Year in the US](#)

Experimental Details

In this section, we describe the logistics of implementing the experiment. This includes the details on how we implemented Treatment A and Treatment B, the randomization process, our outcomes, and how we used a power analysis to pick our sample size.

Treatment. The treatments are selling a pair of books, at the same time, under two different pricing regimes in two separate seven-day auctions. The auction is a standard ebay English-style auction where the highest bidder wins. As shown in Table 1 below, Treatment A has a high opening bid amount of \$4 and a low shipping cost of \$1. Treatment B has a low opening bid amount of \$1.35 and a high shipping cost of \$3.65. Importantly, the total reserve price is \$5. As such, with an equivalent reserve price, a rational buyer should view both treatment options to be the same.

Treatment A: High Opening Bid		Treatment B: Low Opening Bid	
Opening Bid	S&H	Opening Bid	S&H
\$4.00	\$1.00	\$1.35	\$3.65

Table 1. Pricing Regimes for Treatment A and Treatment B

Figure 2 shows a screenshot of Treatment A for one book, "The Seven Husbands of Evelyn Hugo." This is the screen the potential buyer sees before they place a bid. The starting bid price of \$4 is prominent in the middle. The shipping cost of \$1 is in a smaller font below it. One potential concern with this treatment design is that the shipping cost is not as prominent as the bid amount. It is possible that many potential buyers did not even see the shipping cost so it could not factor into the mental calculation in their head. In addition, Treatment B used a price of \$3.65, which is the standard media mail shipping charge for USPS that sellers tend to use for all books on ebay. Buyers may just treat the \$3.65 as a sunk cost of buying a book on ebay and not think about the shipping cost beyond that. If either of these conditions held, this would bias the treatment effect to be larger than it actually is.

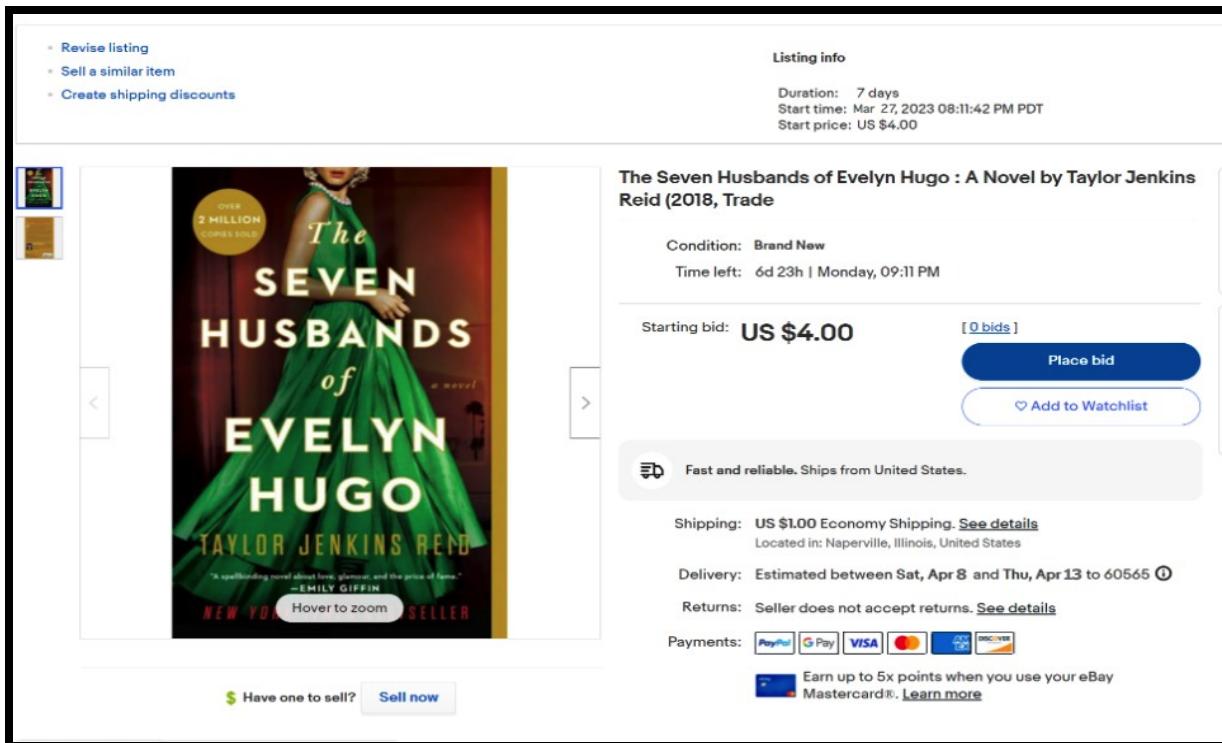


Figure 2. Screenshot of Treatment A for “The Seven Husbands of Evelyn Hugo” Book

Two researchers administered the treatments. Each researcher had their own sample of books to sell, administering both Treatment A and Treatment B for each book in their sample. Each researcher managed two different seller accounts, so they could sell the same book under 2 different pricing structures at the same time without raising suspicion. Each researcher alternated the treatment conditional applied across their two user accounts. For example, Researcher 1 sold “The Seven Husbands of Evelyn Hugo” from his own personal account for Treatment A and from his friend’s ebay account for Treatment B. For the next book he sold, he used his friend’s ebay account for Treatment A and his own personal account for Treatment B. Notably, seller reputation is an important factor in the ebay marketplace. We attempted to provide an equal playing field for all four seller accounts we used in the experiment. Three of the four seller accounts had a reputation score of zero and one account that had a low score of 23.

Randomization Process. The ebay platform takes care of the randomization process for us, as an auction platform with over 100,000 million active users⁶. The unit of randomization is at the individual ebay buyer account level. We ran the 7-day auctions for Treatment A vs Treatment B on the same days, so all potential buyers received both

⁶ <https://www.oberlo.com/blog/ebay-statistics>

treatment options at the same time, i.e., they could buy the same book under either treatment regime. We purposefully selected high-demand books for the treatment so that there is a “thick market,” meaning our experiment is not affecting the market price. We picked top rated books from New York Times, the New Yorker, and the Washington Post.⁷

Like the original 2006 experiment that sold video games and music CDs, books can be found readily at retail stores nationwide. As described in the original 2006 paper, the thickness of market (eBay) disguises that were running an experiment. We do not have any reason to doubt that the randomization was not conducted according to plan. However, we believe there are systematic differences in implementation that we should control for in our regression analysis as follows. We detail how we incorporate these controls into our statistical modeling in the Analysis Section.

1. Book fixed effects. Every book has a different level of demand and audience base.
2. Seller fixed effects. Each of the researchers started their auction pairs at different times of day. There may have also been small differences that we are unaware of in the way they set up their auctions.
3. Reputation. We created a binary variable to represent if the seller account had a reputation score at baseline or not. Only one seller account had a reputation score. The others started at zero.

Outcomes. The primary outcome of interest is revenue for each book, which is the maximum (“winning”) bid amount plus the shipping cost to the buyer.

For illustration, for Treatment A, if the winning bid for a given book is \$10 and the shipping cost is \$1, the revenue is \$11 ($\$10 + \1). For the same book, for Treatment B, if the winning bid is \$8 and the shipping cost is \$3.65, the revenue is \$11.65 ($\$8 + \3.65). The revenue effect is therefore the difference between Treatment B and Treatment A ($\$11.65 - \11), which is \$0.65. We use statistical methods in the Analysis Section to more formally calculate this effect.

We also examined secondary outcomes of the number of bidders and the number of bids for each book. The number of bidders is the number of unique users who bid on a single book in a given treatment condition. The number of bids is the total number of bids for a single book in a given treatment condition, which may include the same bidder multiple times. Just as described for the revenue outcome, we subtract Treatment B from Treatment A for each book to arrive at the number of bidders effect and the number of bids effect.

⁷ The original 2006 paper sold music CDs. We considered selling Blue Ray movies but ultimately selected books because they are more affordable for our limited experiment budget.

These outcomes are secondary in nature to help us to better understand how the treatment affected our main outcome of revenue.

Figure 3 shows the Flow Diagram for the matched-pair design, starting from 16 book titles initially, but due to issues with the eBay platform, in fact auctioning 12 titles under each treatment for a total of 24 observations (auctions).

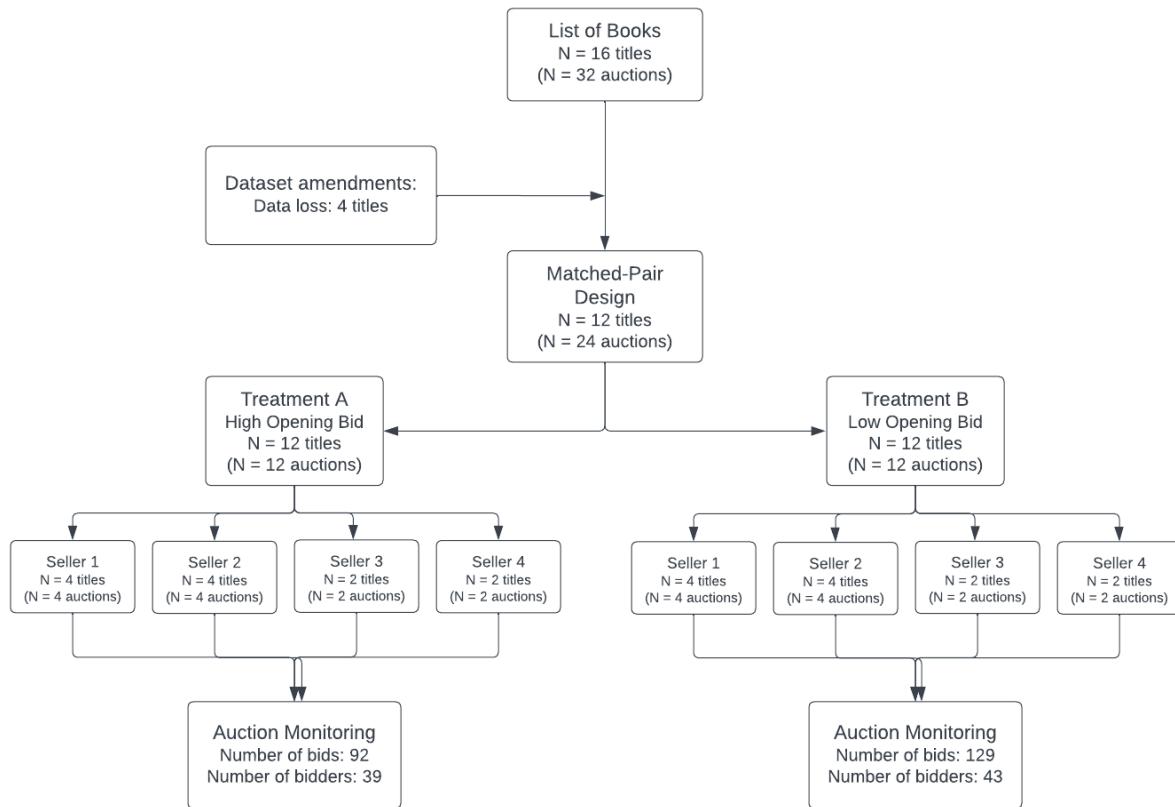


Figure 3. Experiment flow diagram

Power Calculation. Our power analysis helped us to determine the appropriate sample size for our experiment. We based the power calculation off of the experimental results from the original 2006 paper, which includes the results for 10 pairs of music CDs and 10 pairs of video games. The paper used a Wilcoxon Signed Rank test for paired samples to calculate their treatment effects. The Wilcoxon test is appropriate for small sample sizes when the difference between treatments A and B is approximately symmetrical about the mean. The experimental results on the revenue outcome from the original paper met this criteria. Therefore, we employed the same methodology.

At the time of our power analysis, we planned to auction off Blue Rays (rather than music CDs) and video games. We expected the average revenue for blue rays in Treatment A would be \$20 and that the standard deviation of both treatment revenue outcomes would be \$4 (similar to the original paper). We simulated the power we would have from revenue treatment effects (Treatment B - Treatment A) of \$4, \$5, and \$6 as in Figure 4 below. The original experiment had a sample size of 10 pairs, for which we estimate a power of only about 50% if the effect size is \$4. However, the power increases to about 80% if we sell 20 pairs.

We conducted the same power simulation with video games, assuming an average revenue for video games in Treatment A is \$50 and the standard deviation of both the treatment revenue outcomes would be \$4. We estimated the power for effect sizes for video games of \$1, \$1.5, and \$2. We found that we had practically no statistical power until the sample size got to about 100 pairs. For this reason, we removed video games from our experiment.

Based on our Blue Ray power analysis, we planned to sell 20 pairs of Blue Rays. However, due to our limited \$500 budget, we changed the good we would sell to a cheaper item, books, averaging around \$12-\$15 each (rather than \$20 Blue Rays). We further reduced to 16 pairs of books after realizing we needed to account for the cost of packing supplies. However, 4 of the pairs of books did not sell under either treatment condition (Treatment A or Treatment B). Therefore, our effective sample size was 12 pairs of books (24 auctions).

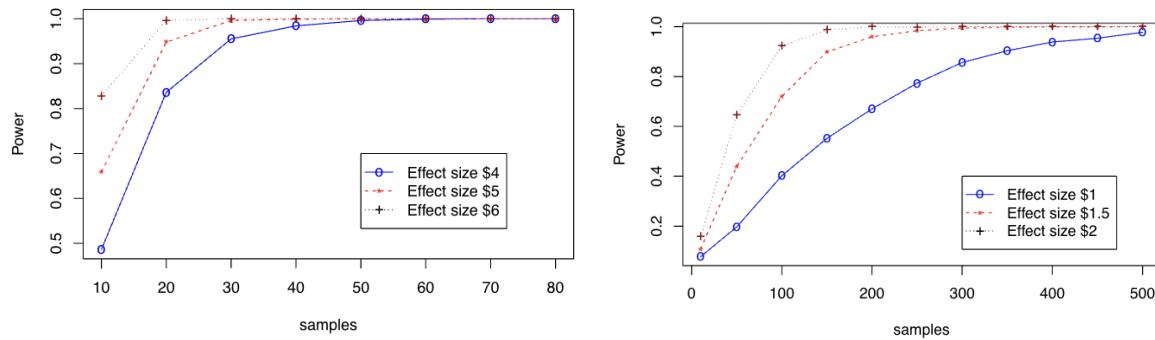


Figure 4: Power Simulation for Blue Rays (Left) and Video Games (Right)

Analysis

Once the auctions ended, we collected the data and analyzed it as described in this section. We explored the data, ran statistical tests and models to find out if our hypothesis is consistent with the experimental data.

Data Collection

We used the eBay API to collect the data in an efficient way (Appendix includes the auctions data collected). We then reorganized the data and organized it as shown below in Table 2. Table 2 shows the following columns:

- Auction number (two auctions were conducted in parallel, one for each Treatment)
- Book title (covariate)
- Treatment: A or B, as explained above
- Seller for each auction (covariate). We used four sellers, randomly allocated to books and treatments
- Reputation (covariate): ebay seller score previous to the auction. Only one of the four sellers had a non-zero reputation score.
- OpenBid: opening item price show from the start of the auction (first part of the "reserve price")
- SH: Shipping & Handling shown from the start of the auction (second part of the "reserve price")
- MaxBid: maximum bid that was submitted when the auction ended (7-day duration)
- Rev (outcome): revenue of the auction. If book sold, the revenue is calculated as follows:

$$\text{Revenue} = \text{Maximum bid} + \text{Shipping \& Handling} = \text{MaxBid} + \text{SH}$$

- Bids (outcome): number of distinct bids that were submitted by the end of the auction, including the automatic ones.
- Bidders (outcome): number of distinct bidders for each auction.

The main outcome that we measured and intend to reason about is Revenue. Bidders and Bids are secondary outcomes, correlated to Revenue.

Overview of experiment results

Auction	Book	Treatment	Seller	Reputation	OpenBid	SH	MaxBid	Rev	Bids	Bidders
1	A COURT OF FROST AND STARLIGHT	A	Alejandro	0	4.00	1.00	9.00	10.00	8	4
2	A COURT OF FROST AND STARLIGHT	B	Oswaldo	23	1.35	3.65	6.59	10.24	9	3
3	A COURT OF MIST AND FURY	A	Alejandro	0	4.00	1.00	12.50	13.50	20	5
4	A COURT OF MIST AND FURY	B	Oswaldo	23	1.35	3.65	7.73	11.38	18	5
5	A COURT OF THORNS AND ROSES	A	Oswaldo	23	4.00	1.00	10.00	11.00	9	4
6	A COURT OF THORNS AND ROSES	B	Alejandro	0	1.35	3.65	7.50	11.15	12	3
7	A COURT OF WINGS AND RUINS	A	Oswaldo	23	4.00	1.00	9.75	10.75	11	3
8	A COURT OF WINGS AND RUINS	B	Alejandro	0	1.35	3.65	12.50	16.15	26	5
9	ALL ABOUT LOVE	A	Erik	0	4.00	1.00	7.25	8.25	6	3
10	ALL ABOUT LOVE	B	Jess	0	1.35	3.65	2.10	5.75	3	2
11	HEART BONES	A	Jess	0	4.00	1.00	7.00	8.00	6	4
12	HEART BONES	B	Erik	0	1.35	3.65	6.50	10.15	11	3
13	HEIR OF FIRE	A	Oswaldo	23	4.00	1.00	0.00	0.00	0	0
14	HEIR OF FIRE	B	Alejandro	0	1.35	3.65	3.00	6.65	5	3
15	IT ENDS WITH US	A	Alejandro	0	4.00	1.00	4.50	5.50	3	2
16	IT ENDS WITH US	B	Oswaldo	23	1.35	3.65	2.00	5.65	3	2
17	THE SEVEN HUSBANDS OF EVELYN HUGO	A	Oswaldo	23	4.00	1.00	5.00	6.00	4	3
18	THE SEVEN HUSBANDS OF EVELYN HUGO	B	Alejandro	0	1.35	3.65	4.75	8.40	11	5
19	THINGS WE HIDE FROM THE LIGHT	A	Erik	0	4.00	1.00	11.00	12.00	12	6
20	THINGS WE HIDE FROM THE LIGHT	B	Jess	0	1.35	3.65	9.50	13.15	13	6
21	THINGS WE NEVER GOT OVER	A	Jess	0	4.00	1.00	6.00	7.00	4	3
22	THINGS WE NEVER GOT OVER	B	Erik	0	1.35	3.65	3.25	6.90	4	2
23	THRONE OF GLASS	A	Alejandro	0	4.00	1.00	8.50	9.50	9	2
24	THRONE OF GLASS	B	Oswaldo	23	1.35	3.65	5.15	8.80	14	4

Table 2. Experimental data with outcomes

Table 3 summarizes the data organized in pairs of auctions by book title. Here, each row represents a pair of auction data for the same title. The last three columns show the differences B-A for the three outcomes we consider (Revenues, Bidders and Bids). We also added two averages rows, one that takes into consideration all auctions and another one that excludes the pair of auctions for the book that went unsold under Treatment A.

Overview of experiment results: paired data

Book	Revenue		Bidders		Bids		Differences B-A		
	RevA	RevB	BiddersA	BiddersB	BidsA	BidsB	DiffRev	DiffBidders	DiffBids
A COURT OF FROST AND STARLIGHT	10	10.24	4	3	8	9	0.24	-1	1
A COURT OF MIST AND FURY	13.5	11.38	5	5	20	18	-2.12	0	-2
A COURT OF THORNS AND ROSES	11	11.15	4	3	9	12	0.15	-1	3
A COURT OF WINGS AND RUINS	10.75	16.15	3	5	11	26	5.4	2	15
ALL ABOUT LOVE	8.25	5.75	3	2	6	3	-2.5	-1	-3
HEART BONES	8	10.15	4	3	6	11	2.15	-1	5
HEIR OF FIRE	0	6.65	0	3	0	5	6.65	3	5
IT ENDS WITH US	5.5	5.65	2	2	3	3	0.15	0	0
THE SEVEN HUSBANDS OF EVELYN HUGO	6	8.4	3	5	4	11	2.4	2	7
THINGS WE HIDE FROM THE LIGHT	12	13.15	6	6	12	13	1.15	0	1
THINGS WE NEVER GOT OVER	7	6.9	3	2	4	4	-0.1	-1	0
THRONE OF GLASS	9.5	8.8	2	4	9	14	-0.7	2	5
Average	8.5	9.5	3.2	3.6	7.7	11	1.1	0.33	3.1
<i>Average (sold books only)</i>	9.2	9.8	3.5	3.6	8.4	11	0.57	0.091	2.9

Table 3. Paired experimental data

We make some first observations on the data results shown on Table 2:

1. Revenue under Treatment B was higher than under Treatment A in 8 out of 12 auctions. Number of bids under B was higher than under A in 8 out of 12 auctions too, and was a tie in 2 other auctions. Number of bidders under B was higher than A only in 4 auctions, and there was a tie in 3 other auctions.
2. One of the books did not sell ("Heir of Fire") under Treatment A. We will analyze the data with and without the auction that includes this book. In the former case, we will have 24 auctions. In the latter, 22 auctions (in that case, we exclude the book altogether, both treatments).
3. The averages for differences between B and A are positive, in line with the hypothesis:
 - a. \$1.1 higher average revenue under B vs A (13% of revenue A)
 - b. 0.33 more bidders in average under B vs A
 - c. 3.1 more bids in average under B vs A
4. When we exclude the pair of auctions for the book that went unsold under A, all differences averages (B-A) remain positive, although the margin is smaller.

Figure 5 shows that average revenue under Treatment B are higher (in the experimental data) than under Treatment A, both when we consider all auctions and when we only exclude the unsold auction pair.

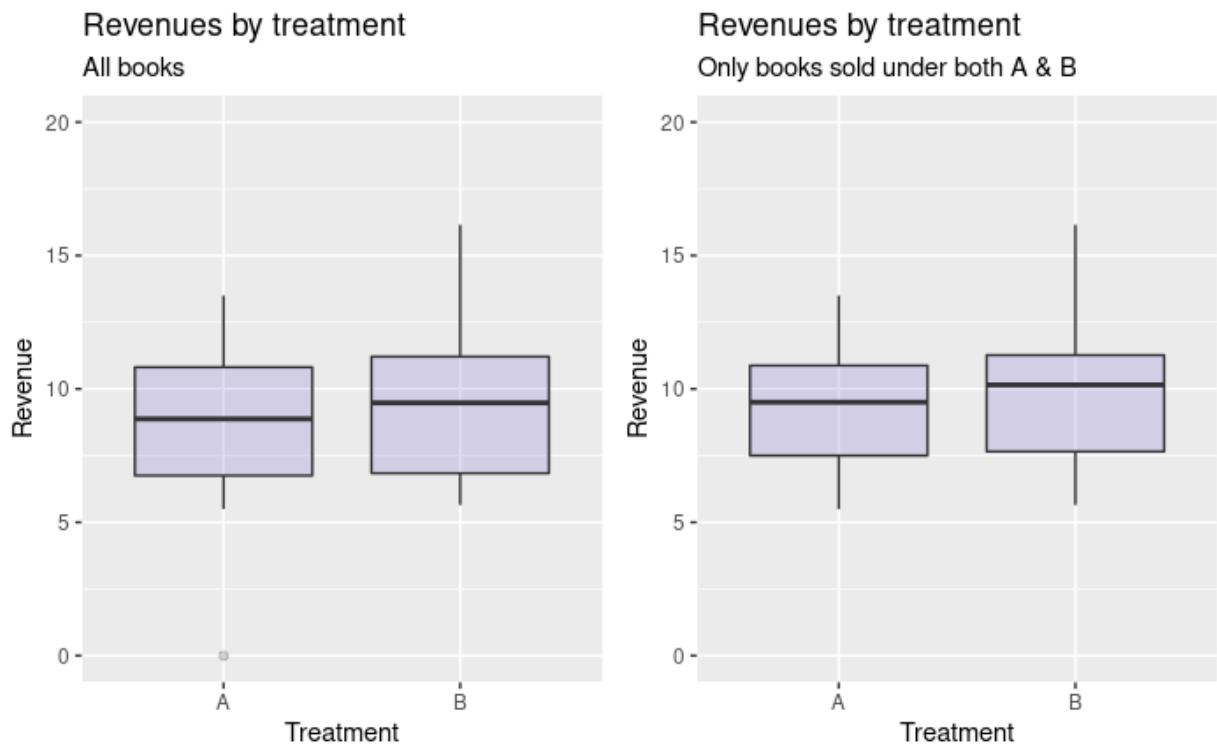


Figure 5. Boxplots for revenues of auctions under treatments A and B

Figure 6 shows that the average number of bids under Treatment B are higher (in the experimental data) than under Treatment A, both when we consider all auctions and when we only exclude the unsold auction pair. For the number of bidders, the difference is smaller but there are slightly more bidders under B vs. A.

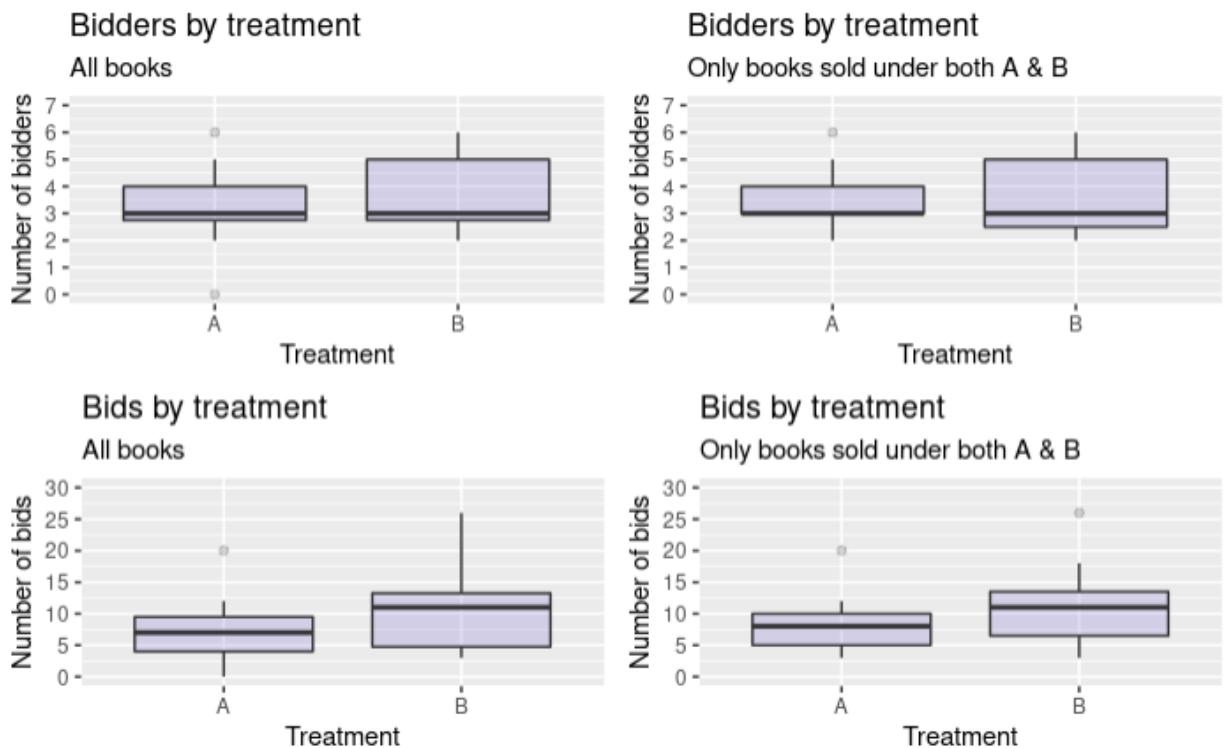


Figure 6. Boxplots for number of bidders and number of bids under treatments A and B

Figures 7 to 9 show revenues, bidders and bids pairs of data (A vs B) by book. In cases of ties, we observe only one single dot. We observe that the treatment attracting the higher number of bidders obtained the higher revenue in 5 out of 12 auctions (including those auctions in which the higher revenue was Treatment A). This result is not in line with the theory referenced in Hossain and Morgan (2006) that the auctions attracting a larger number of bidders will have higher expected revenues. We also observe that the treatment attracting the higher number of bids obtained the higher revenue in 9 out of 12 auctions (in 7 of these 9 auction pairs, Treatment A got higher revenue). This observation is more aligned with the expected behavior, and it brings a more nuanced explanation for the higher revenues: holding the overall reserve price fixed, auctions with lower opening bid prices attract more interest (more bids), which ultimately results in higher revenues.



Figure 7. Revenues under Treatments A and B

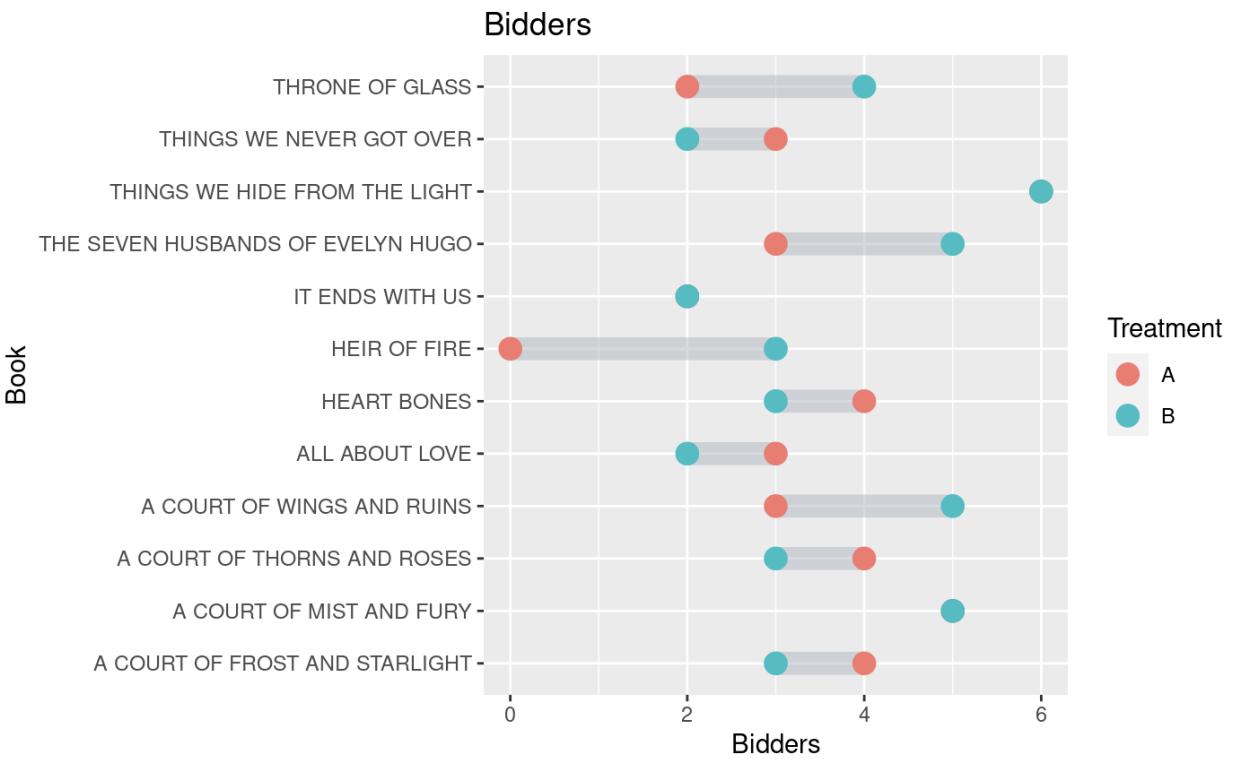


Figure 8. Number of bidders under Treatments A and B

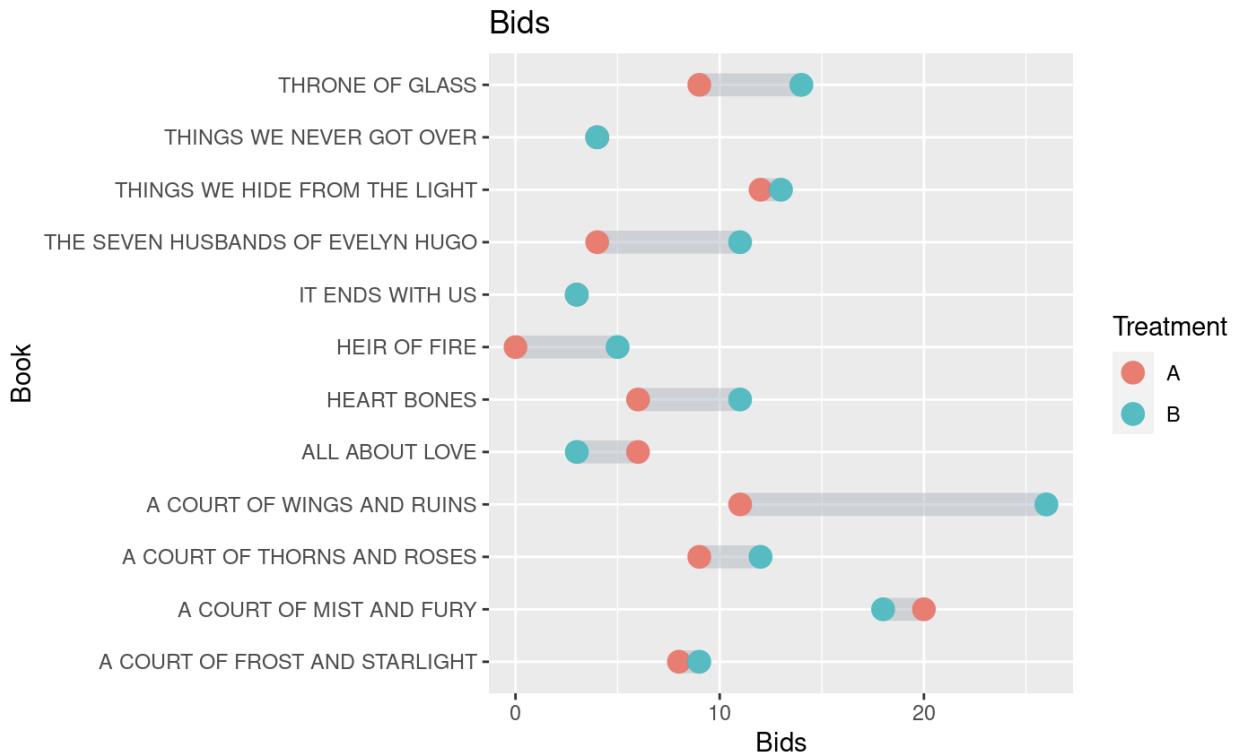


Figure 9. Number of bids under Treatments A and B

In the next section, we test the hypotheses more formally with statistical tests and models.

Statistical Tests and Models

In order to formally test the hypothesis, since we have a matched pairs treatment where we primarily want to study the effect of treatments on revenue differences, we need diagnostic tests.

Since we are studying the event that revenue under B is higher than revenue under A, one possibility would be using a binomial test. Essentially, this involves counting the number of auctions in which Treatment B gave higher revenues than Treatment A. In 8 out of 12 auctions, this was the case (7 of 11 auctions conditional that both books were sold). But the sample size is small (only 12 trials, and 11 if we exclude the one where one book went unsold), so we cannot trust this test.

We have other diagnostics available; paired dependent samples and metric scale (revenue), so applicable tests are:

- Paired t-test
- Wilcoxon Signed rank test

In order to choose one, we observe the density function of the difference in revenue between Treatments A and B. If the difference is approximately symmetric around the mean, we choose Wilcoxon. If the difference looks approximately normal, we can use paired t-test.

Figure 10 represents the density functions for the revenue (B-A) differences, for both cases in which we consider all auctions (on the left) and when we exclude the auction for which one book went unsold (on the right). The dotted line marks the mean difference.

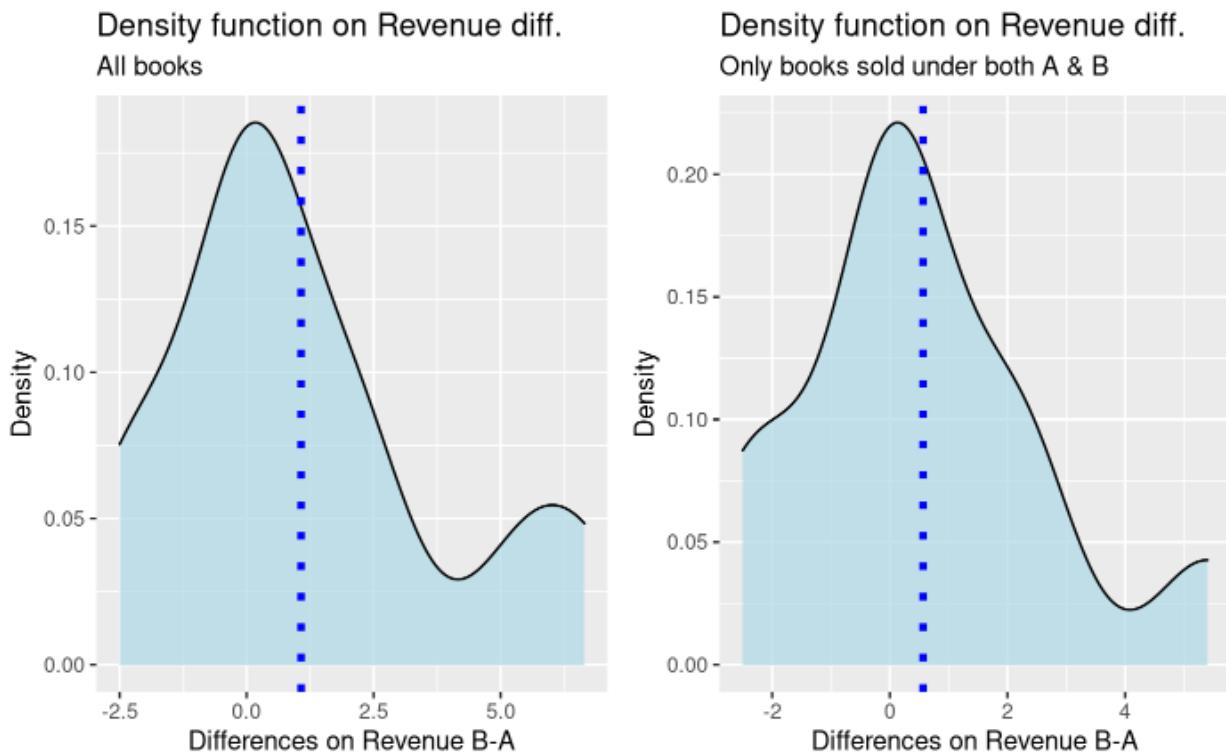


Figure 10. Density functions for revenue differences B-A

We observe that the density function is not symmetrical around the mean, so we decide not to use the Wilcoxon test. For the same reason, a t-test is not an option either (the distribution does not look approximately symmetric, therefore not approximately normal either).

Since we have the data distribution mentioned above, in particular non-normality, and given the reduced sample size of 24 observations, we took a Randomization Inference (RI) approach. RI does not assume any particular distribution to calculate p-values. It assumes the Sharp Null hypothesis, that for every treated unit, there is no effect. Because we want to incorporate controls into our statistical modeling (seller and book fixed effects, reputation), we adopt a 2-step approach for Randomization Inference, described below.

The analysis has two steps:

1. Regression analysis: revenue on controls (covariates, not the Treatment); we obtain the residuals that capture the variance that is not due to these controls.
2. Randomization inference on the residuals, trying to predict the unexplained variance by using our treatment (A vs B).

The regression on controls is expressed in this equation:

$$Revenue_i = \alpha + \beta Seller_i + \gamma Reputation_i + \theta Book_i + e_i$$

The controls are variables Seller, Reputation and Book. All of them are categorical variables (and therefore coded as “factor” in R) except for Reputation. However, Reputation only takes two values in our data (0 and 23), so in practice it is also a factor type.

The stargazer output of the regression from step 1 is shown in Figure 11:

Dependent variable: ----- Rev	
factor(Seller)Erik	-3.809 (2.340)
factor(Seller)Jess	-4.659** (2.340)
factor(Seller)Oswaldo	-2.129 (1.399)
factor(Reputation)23	
factor(Book)A COURT OF MIST AND FURY	2.320 (1.914)
factor(Book)A COURT OF THORNS AND ROSES	0.955 (2.494)
factor(Book)A COURT OF WINGS AND RUINS	3.330* (3.264)
factor(Book)ALL ABOUT LOVE	0.050 (1.795)
factor(Book)HEART BONES	2.125 (1.518)
factor(Book)HEIR OF FIRE	-6.795** (4.125)
factor(Book)IT ENDS WITH US	-4.545** (2.656)
factor(Book)THE SEVEN HUSBANDS OF EVELYN HUGO	-2.920 (1.927)
factor(Book)THINGS WE HIDE FROM THE LIGHT	5.625** (2.088)
factor(Book)THINGS WE NEVER GOT OVER	
factor(Book)THRONE OF GLASS	-0.970 (2.235)
Constant	11.184*** (2.038)
Observations	24
R2	0.889
Adjusted R2	0.746
Residual Std. Error	1.693 (df = 10)
F Statistic	6.185*** (df = 13; 10)

Note: *p<0.1; **p<0.05; ***p<0.01

Figure 11. Regression output: revenue on covariates

In Figure 11 we observe a relatively high R^2 of 0.889 (adjusted R^2 of 0.746), which means that these controls explain a fair amount of variance in the outcome.

The residuals from the regression capture the variability that is not explained by the controls, therefore they capture the “clean” variance caused by the treatment. We use these residuals as outcome in step 2 of the Randomization Inference process.

Table 4 shows the residuals for each observation.

Residuals for each book and treatment

Auction	Book	Treatment	residuals
1	A COURT OF FROST AND STARLIGHT	A	-1.184375
2	A COURT OF FROST AND STARLIGHT	B	1.184375
3	A COURT OF MIST AND FURY	A	-0.004375
4	A COURT OF MIST AND FURY	B	0.004375
5	A COURT OF THORNS AND ROSES	A	0.989375
6	A COURT OF THORNS AND ROSES	B	-0.989375
7	A COURT OF WINGS AND RUINS	A	-1.635625
8	A COURT OF WINGS AND RUINS	B	1.635625
9	ALL ABOUT LOVE	A	0.825000
10	ALL ABOUT LOVE	B	-0.825000
11	HEART BONES	A	-0.650000
12	HEART BONES	B	0.650000
13	HEIR OF FIRE	A	-2.260625
14	HEIR OF FIRE	B	2.260625
15	IT ENDS WITH US	A	-1.139375
16	IT ENDS WITH US	B	1.139375
17	THE SEVEN HUSBANDS OF EVELYN HUGO	A	-0.135625
18	THE SEVEN HUSBANDS OF EVELYN HUGO	B	0.135625
19	THINGS WE HIDE FROM THE LIGHT	A	-1.000000
20	THINGS WE HIDE FROM THE LIGHT	B	1.000000
21	THINGS WE NEVER GOT OVER	A	0.475000
22	THINGS WE NEVER GOT OVER	B	-0.475000
23	THRONE OF GLASS	A	-0.714375
24	THRONE OF GLASS	B	0.714375

Table 4. Residuals for the revenues’ regression on covariates

From these residuals data, we obtain the experimental ATE = (the average of residuals under Treatment B) - (the average of residuals under Treatment A) = 1.07

We randomize Treatments A and B across observation rows and run 5,000 simulations of the difference between residuals in B minus A, assuming sharp null hypothesis: there is no treatment effect between A and B.

The 5,000 simulations generate a distribution of treatment effects under the sharp null. We plot this distribution and add a vertical line at the observed experimental ATE, and we observe whether the observed ATE is consistent with the sharp null hypothesis or not.

The result of the randomization inference we just described is in Figure 12.

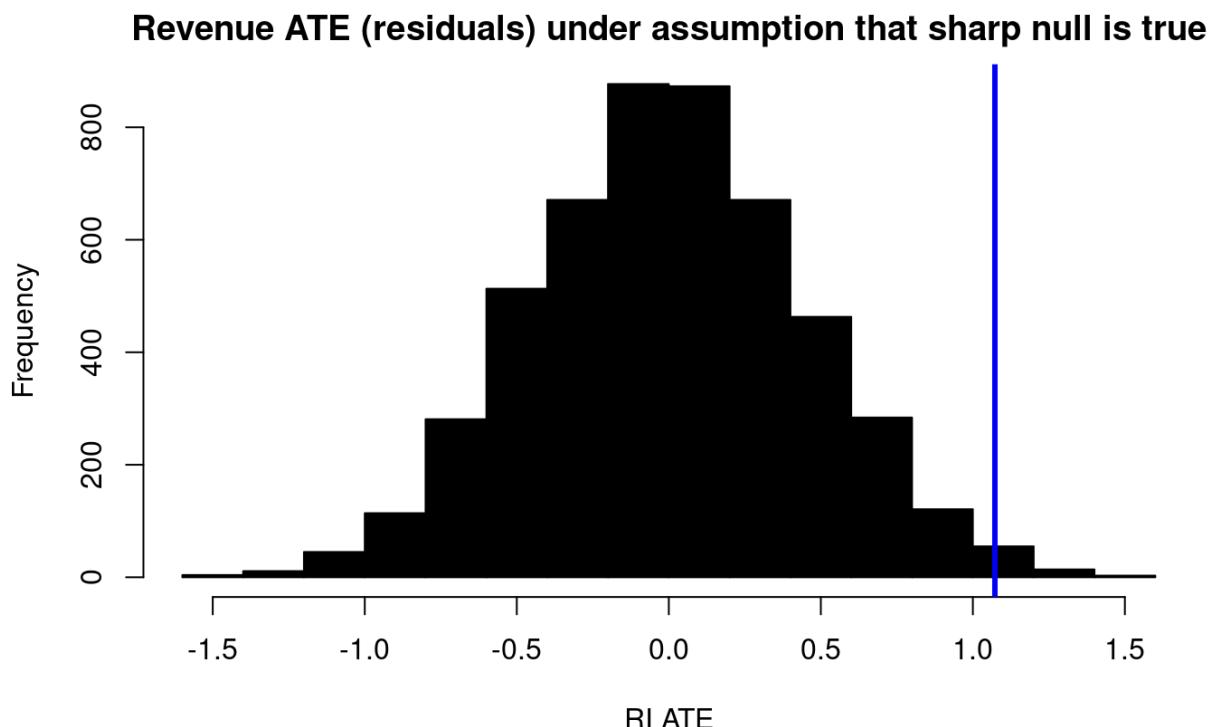


Figure 12. Distribution of residual differences (B-A) in revenues under sharp null hypothesis

We observe in Figure 12 and we see that the experimental ATE value is extreme under the sharp null hypothesis; the p-value (one sided) is the area to the right of the blue line: 0.92%, which allows us to reject the null hypothesis that there is no difference between the revenues under Treatments A and B. Therefore, we have evidence in the direction of the

hypothesis formulated at the start of our study: revenue under Treatment B is higher than under Treatment A on average.

We ran the RI process again excluding the auction pair that included one book that went unsold under one of the treatments ("HEIR OF FIRE"). For these 22 observations, the experimental observed ATE with residuals equals 0.7 (lower than when we included all auction pairs). We ran the RI for residuals on Treatments A and B under the sharp null hypothesis for 5,000 simulations and we observed the distribution in Figure 13.

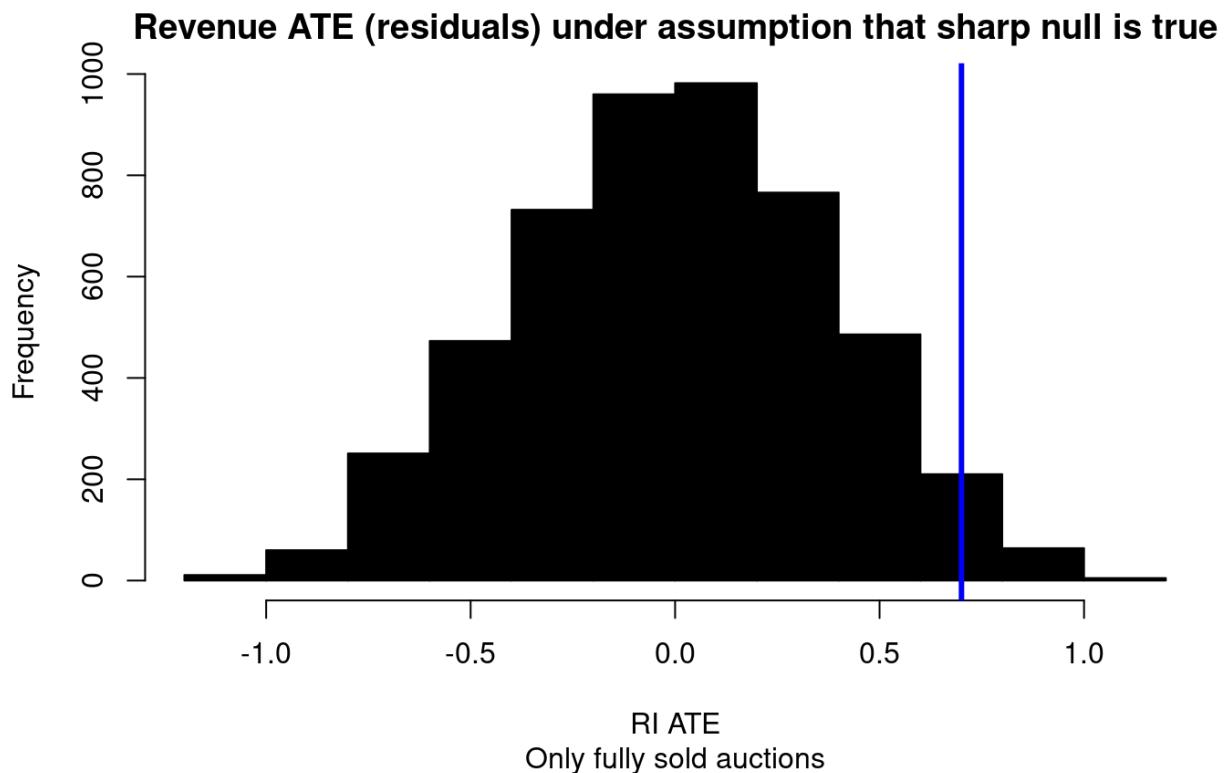


Figure 13. Distribution of residual differences (B-A) in revenues under sharp null hypothesis, only with sold books auctions data

In this scenario the one-sided p-value is 2.6%, so we can still reject the null hypothesis that there was no effect difference between treatments A and B.

Next, we repeated the process for the other two (secondary) outcomes measured: number of bids and number of unique bidders.

We checked the density functions as we did for the Revenue outcome (Figure 14), and we found again a non-symmetry around the mean, which justified using the RI on residuals approach.

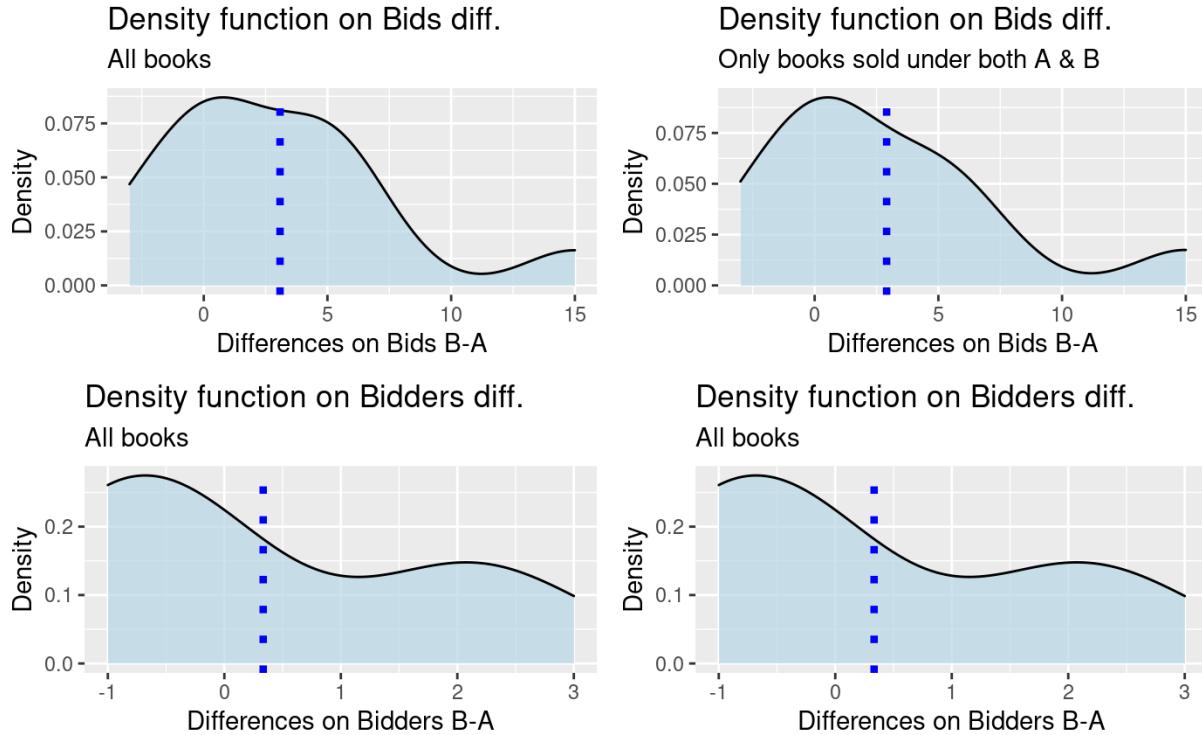


Figure 14. Density functions of differences (B-A) of number of bidders and bids

The regression equation for Bidders on covariates (all of them coded as factors in R, as was the case with the Revenue study) is:

$$Bidders_i = \alpha + \beta Seller_i + \gamma Reputation_i + \theta Book_i + e_i$$

The experimental ATE with residuals generated by this is 0.33.

Figure 15 shows the distribution of ATE of residuals under the sharp null hypothesis after 5,000 simulations.

Bidders ATE (residuals) under assumption that sharp null is true

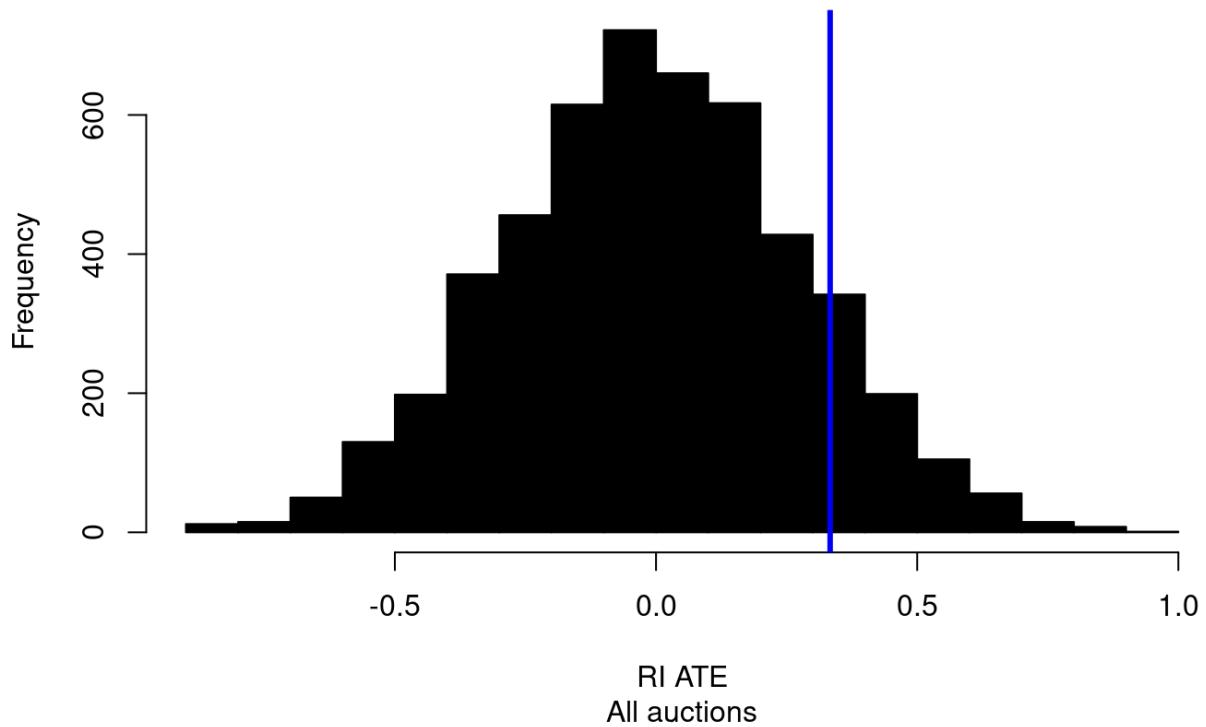


Figure 15. Distribution of residual differences (B-A) in number of bidders under sharp null hypothesis

In this case, one-sided p-value is 11.9%, higher than 5%, so we do not reject the null hypothesis of no treatment effect between A and B. There is no statistically significant difference between the number of distinct bidders between both treatments.

We analyze the number of Bids next.

The regression equation for Bids on covariates (all of them coded as factors in R again) is:

$$Bids_i = \alpha + \beta Seller_i + \gamma Reputation_i + \theta Book_i + e_i$$

The experimental ATE (B-A) with residuals generated by this is 3.08.

Figure 16 shows the distribution of ATE of residuals under the sharp null hypothesis after 5,000 simulations.

Bids ATE (residuals) under assumption that sharp null is true

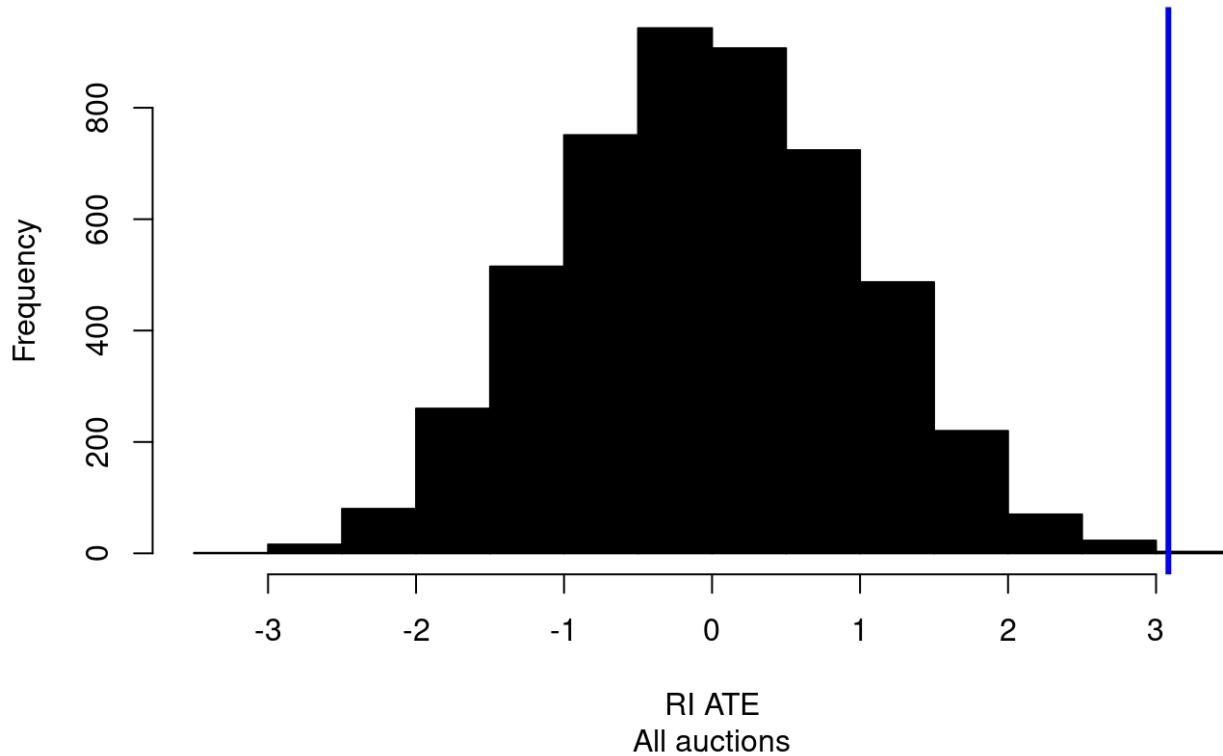


Figure 16. Distribution of residual differences (B-A) in number of bids under sharp null hypothesis

For the number of bids, p-value is practically zero, so we reject the null hypothesis of no treatment effect between A and B. We found a similar result when we excluded the auction pair that included the unsold book. Therefore, we find a statistically significant difference between the number of bids between both treatments; Treatment B generates more bids than Treatment A, on average.

Conclusion

Overall, we found results on revenue that are consistent with the Hossain & Morgan[†] (2006) study: revenues (our most important outcome) are higher, for a fixed reserve price, when opening bid is lower. Bidders appear to have separate mental accounts for the item price and the shipping and handling costs. For a fixed total cost, charging a high shipping cost and starting with a low opening bid leads to more revenues.

Just as we observed a higher revenue under Treatment B vs Treatment A, we also observed a higher number of bids, but not a higher number of bidders. This dynamic provides greater insight into the auction dynamics. It suggests that bidders felt more impassioned to keep bidding up the prices with the low starting bid than they did with a higher opening bid amount. The auction with the lower opening bid, for a fixed overall reserve price, attracted more interest (ultimately more bids), although the interest did not come from more bidders.

Our results imply that perhaps customers are willing to bear shipping costs even in the modern era of Amazon Prime. Retailers may be able to maintain better profit margins if they can fully unload shipping costs on to the consumer. As noted in our Experimental Details section, we also have some concern that our estimate could be upwardly biased because shipping costs are not as prominently displayed on the bidder's screen as the opening bid. In addition, bidders may just expect to pay \$3.65 in media mail shipping costs, as that seems to be the norm for eBay books.

Some limitations of our study are the reduced sample size and the fact that we only used one type of good and one reserve price. This would have allowed us to test whether the hypothesis still holds when the reserve price is a smaller or larger fraction of the retail price of the item. The books we bought to then be auctioned had a retail price of around \$11-12, so the reserve price of \$5 was 45-50% of the retail price.

Further research is necessary to confirm our results to understand if this result can generalize outside of books, with different levels of shipping costs, and on other sales channels outside of eBay auctions.

Appendix: Output from eBay auctions API

The figure below shows the data we ingested for our analysis. It includes the output of the API that provides the bids information for our auctions, augmented with information we needed for the analysis. The data includes book titles, bidders, bidder time, seller, and pre-auction reputation.

Type	Title	Bidder	Bid Amount	Bid Time	Location	BidderF	Score	Automatic	Seller	Pre_Reputation
A	THE SEVEN HUSBANDS OF EVELYN HUGO	norskie1986Feedback ScoreE(\$4.75	29 Mar 2023 at 12:04:35am PDT	90501	norskie1986	275	N	Alejandro	0
A	THE SEVEN HUSBANDS OF EVELYN HUGO	aclen01Feedback ScoreE(2)	\$4.50	3 Apr 2023 at 6:07:16pm PDT	40004	aclen01	2	N	Alejandro	0
A	THE SEVEN HUSBANDS OF EVELYN HUGO	This is an automatic bid (proxy	\$3.80	29 Mar 2023 at 12:04:35am PDT	90501	norskie1986	275	Y	Alejandro	0
A	THE SEVEN HUSBANDS OF EVELYN HUGO	aclen01Feedback ScoreE(2)	\$3.55	3 Apr 2023 at 6:06:39pm PDT	40004	aclen01	2	N	Alejandro	0
A	THE SEVEN HUSBANDS OF EVELYN HUGO	This is an automatic bid (proxy	\$3.25	29 Mar 2023 at 12:04:35am PDT	90501	norskie1986	275	Y	Alejandro	0
A	THE SEVEN HUSBANDS OF EVELYN HUGO	jrl161483nwFeedback ScoreE(1	\$3.00	3 Apr 2023 at 5:35:21pm PDT	14580	jrl161483nw	114	N	Alejandro	0
A	THE SEVEN HUSBANDS OF EVELYN HUGO	This is an automatic bid (proxy	\$2.25	29 Mar 2023 at 12:04:35am PDT	90501	norskie1986	275	Y	Alejandro	0
A	THE SEVEN HUSBANDS OF EVELYN HUGO	anne3408Feedback ScoreE(3	\$2.00	31 Mar 2023 at 5:05:01pm PDT	21217	anne3408	318	N	Alejandro	0
A	THE SEVEN HUSBANDS OF EVELYN HUGO	This is an automatic bid (proxy	\$1.60	29 Mar 2023 at 12:04:35am PDT	90501	norskie1986	275	Y	Alejandro	0
A	THE SEVEN HUSBANDS OF EVELYN HUGO	omgmorganFeedback ScoreE(\$1.35	28 Mar 2023 at 4:26:46pm PDT	43213	omgmorgan	510	N	Alejandro	0
A	THE SEVEN HUSBANDS OF EVELYN HUGO	This is an automatic bid (proxy	\$1.35	28 Mar 2023 at 4:26:46pm PDT	43213	omgmorgan	510	Y	Alejandro	0
A	THE SEVEN HUSBANDS OF EVELYN HUGO	Starting price	\$1.35	27 Mar 2023 at 7:24:59pm PDT			0	N	Alejandro	0
B	THE SEVEN HUSBANDS OF EVELYN HUGO	anne3408Feedback ScoreE(3	\$5.00	31 Mar 2023 at 5:05:21pm PDT	21217	anne3408	318	N	Oswaldo	23
B	THE SEVEN HUSBANDS OF EVELYN HUGO	footbalflankFeedback ScoreE	\$5.00	3 Apr 2023 at 2:53:10pm PDT	67502	footbalflank	147	N	Oswaldo	23
B	THE SEVEN HUSBANDS OF EVELYN HUGO	lilly65feedback ScoreE(186	\$4.30	30 Mar 2023 at 7:01:08am PDT	30022	lilly65	186	N	Oswaldo	23
B	THE SEVEN HUSBANDS OF EVELYN HUGO	lilly65feedback ScoreE(186	\$4.00	29 Mar 2023 at 6:56:47pm PDT	30022	lilly65	186	N	Oswaldo	23
B	THE SEVEN HUSBANDS OF EVELYN HUGO	Starting price	\$4.00	27 Mar 2023 at 9:11:53pm PDT			23	N	Oswaldo	23
B	THRONE OF GLASS	northstarbu_1Feedback Score	\$8.50	30 Mar 2023 at 2:01:42am PDT	32669	northstarbu_1	38	N	Alejandro	0
B	THRONE OF GLASS	beca4269Feedback ScoreE(38	\$8.00	30 Mar 2023 at 2:00:55am PDT	92545	beca4269	385	N	Alejandro	0
B	THRONE OF GLASS	This is an automatic bid (proxy	\$7.50	30 Mar 2023 at 2:00:55am PDT	92545	beca4269	385	Y	Alejandro	0
B	THRONE OF GLASS	northstarbu_1Feedback Score	\$7.00	28 Mar 2023 at 6:18:47pm PDT	32669	northstarbu_1	38	N	Alejandro	0
B	THRONE OF GLASS	This is an automatic bid (proxy	\$6.50	28 Mar 2023 at 6:18:47pm PDT	32669	northstarbu_1	38	Y	Alejandro	0
B	THRONE OF GLASS	beca4269Feedback ScoreE(38	\$6.00	30 Mar 2023 at 2:00:49am PDT	92545	beca4269	385	N	Alejandro	0
B	THRONE OF GLASS	This is an automatic bid (proxy	\$5.50	28 Mar 2023 at 6:18:47pm PDT	32669	northstarbu_1	38	Y	Alejandro	0
B	THRONE OF GLASS	beca4269Feedback ScoreE(38	\$5.00	30 Mar 2023 at 2:00:45am PDT	92545	beca4269	385	N	Alejandro	0
B	THRONE OF GLASS	This is an automatic bid (proxy	\$4.00	30 Mar 2023 at 2:00:45am PDT	92545	beca4269	385	Y	Alejandro	0
B	THRONE OF GLASS	Starting price	\$4.00	27 Mar 2023 at 7:20:14pm PDT			0	N	Alejandro	0
A	THRONE OF GLASS	mkelisblFeedback ScoreE(539	\$5.15	3 Apr 2023 at 6:41:55am PDT	43920	mkelisbl	539	N	Oswaldo	23
A	THRONE OF GLASS	trnie_54Feedback ScoreE(48	\$4.90	3 Apr 2023 at 9:08:01pm PDT	99218-2020	trnie_54	48	N	Oswaldo	23
A	THRONE OF GLASS	This is an automatic bid (proxy	\$4.55	3 Apr 2023 at 6:41:55am PDT	43920	mkelisbl	539	Y	Oswaldo	23
A	THRONE OF GLASS	trnie_54Feedback ScoreE(48	\$4.30	3 Apr 2023 at 9:07:53pm PDT	99218-2020	trnie_54	48	N	Oswaldo	23
A	THRONE OF GLASS	This is an automatic bid (proxy	\$4.25	3 Apr 2023 at 9:07:53pm PDT	99218-2020	trnie_54	48	Y	Oswaldo	23
A	THRONE OF GLASS	mkelisblFeedback ScoreE(539	\$4.00	2 Apr 2023 at 8:21:49pm PDT	43920	mkelisbl	539	N	Oswaldo	23
A	THRONE OF GLASS	dammfaustFeedback ScoreE(1	\$4.00	3 Apr 2023 at 8:25:16pm PDT	99206	dammfaust	103	N	Oswaldo	23
A	THRONE OF GLASS	This is an automatic bid (proxy	\$2.60	2 Apr 2023 at 8:21:49pm PDT	43920	mkelisbl	539	Y	Oswaldo	23
A	THRONE OF GLASS	andersonk19Feedback ScoreE	\$2.35	31 Mar 2023 at 8:25:41pm PDT	97006	andersonk19	85	N	Oswaldo	23
A	THRONE OF GLASS	This is an automatic bid (proxy	\$2.00	31 Mar 2023 at 8:25:41pm PDT	97006	andersonk19	85	Y	Oswaldo	23
A	THRONE OF GLASS	trnie_54Feedback ScoreE(48)	\$1.75	31 Mar 2023 at 8:17:16pm PDT	99218-2020	trnie_54	48	N	Oswaldo	23
A	THRONE OF GLASS	This is an automatic bid (proxy	\$1.60	31 Mar 2023 at 8:17:16pm PDT	99218-2020	trnie_54	48	Y	Oswaldo	23
A	THRONE OF GLASS	andersonk19Feedback ScoreE	\$1.35	29 Mar 2023 at 3:08:00pm PDT	97006	andersonk19	85	N	Oswaldo	23
A	THRONE OF GLASS	This is an automatic bid (proxy	\$1.35	29 Mar 2023 at 3:08:00pm PDT	97006	andersonk19	85	Y	Oswaldo	23
A	THRONE OF GLASS	Starting price	\$1.35	27 Mar 2023 at 2:00:15am PDT			23	N	Oswaldo	23
A	HEIR OF FIRE	beca4269Feedback ScoreE(38	\$3.00	30 Mar 2023 at 2:00:15am PDT	92545	beca4269	385	N	Alejandro	0
A	HEIR OF FIRE	instagoodFeedback ScoreE(16	\$3.00	3 Apr 2023 at 12:32:46pm PDT	34275	instagood	672	N	Alejandro	0
A	HEIR OF FIRE	This is an automatic bid (proxy	\$2.25	30 Mar 2023 at 2:00:15am PDT	92545	beca4269	385	Y	Alejandro	0
A	HEIR OF FIRE	mariyahfox18Feedback ScoreE(\$2.00	29 Mar 2023 at 2:19:26pm PDT	92345	mariyahfox18	37	N	Alejandro	0
A	HEIR OF FIRE	This is an automatic bid (proxy	\$1.35	29 Mar 2023 at 2:19:26pm PDT	92345	mariyahfox18	37	Y	Alejandro	0
A	HEIR OF FIRE	Starting price	\$1.35	27 Mar 2023 at 7:15:23pm PDT			0	N	Alejandro	0

B	A COURT OF FROST AND STARLIGHT	rissnue5Feedback ScoreE(10C	\$9.00	3 Apr 2023 at 3:49:30pm PDT	98580 rissnue5	100 N	Alejandro	0
B	A COURT OF FROST AND STARLIGHT	chad2896Feedback ScoreE(95	\$8.50	1 Apr 2023 at 8:59:08am PDT	80260 chad2896	950 N	Alejandro	0
B	A COURT OF FROST AND STARLIGHT	This is an automatic bid (proxy	\$6.71	1 Apr 2023 at 8:59:08am PDT	80260 chad2896	950 Y	Alejandro	0
B	A COURT OF FROST AND STARLIGHT	beca4269Feedback ScoreE(3t	\$6.21	31 Mar 2023 at 4:56:53pm PDT	92545 beca4269	385 N	Alejandro	0
B	A COURT OF FROST AND STARLIGHT	kgar777Feedback ScoreE(31	\$6.00	31 Mar 2023 at 7:10:32am PDT	77515 kgar777	31 N	Alejandro	0
B	A COURT OF FROST AND STARLIGHT	This is an automatic bid (proxy	\$5.50	31 Mar 2023 at 7:10:32am PDT	77515 kgar777	31 Y	Alejandro	0
B	A COURT OF FROST AND STARLIGHT	beca4269Feedback ScoreE(3t	\$5.00	30 Mar 2023 at 2:00:26am PDT	92545 beca4269	385 N	Alejandro	0
B	A COURT OF FROST AND STARLIGHT	This is an automatic bid (proxy	\$4.00	30 Mar 2023 at 2:00:26am PDT	92545 beca4269	385 Y	Alejandro	0
B	A COURT OF FROST AND STARLIGHT	Starting price	\$4.00	27 Mar 2023 at 7:09:07pm PDT	0 N	Alejandro	0	
A	A COURT OF FROST AND STARLIGHT	dammfaustFeedback ScoreE(1	\$6.59	3 Apr 2023 at 8:23:27pm PDT	99206 dannmfaust	103 N	Oswaldo	23
A	A COURT OF FROST AND STARLIGHT	eg101956Feedback ScoreE(6t	\$6.09	31 Mar 2023 at 5:03:36pm PDT	12095 eg101956	652 N	Oswaldo	23
A	A COURT OF FROST AND STARLIGHT	beca4269Feedback ScoreE(3t	\$5.71	1 Apr 2023 at 3:00:51am PDT	92545 beca4269	385 N	Oswaldo	23
A	A COURT OF FROST AND STARLIGHT	This is an automatic bid (proxy	\$3.97	31 Mar 2023 at 5:03:36pm PDT	12095 eg101956	652 Y	Oswaldo	23
A	A COURT OF FROST AND STARLIGHT	beca4269Feedback ScoreE(3t	\$3.72	31 Mar 2023 at 5:00:05pm PDT	92545 beca4269	385 N	Oswaldo	23
A	A COURT OF FROST AND STARLIGHT	eg101956Feedback ScoreE(6t	\$3.65	31 Mar 2023 at 5:00:45am PDT	12095 eg101956	652 N	Oswaldo	23
A	A COURT OF FROST AND STARLIGHT	This is an automatic bid (proxy	\$2.97	31 Mar 2023 at 3:57:45am PDT	12095 eg101956	652 Y	Oswaldo	23
A	A COURT OF FROST AND STARLIGHT	beca4269Feedback ScoreE(3t	\$2.72	31 Mar 2023 at 4:59:55pm PDT	92545 beca4269	385 N	Oswaldo	23
A	A COURT OF FROST AND STARLIGHT	This is an automatic bid (proxy	\$1.35	31 Mar 2023 at 4:59:55pm PDT	92545 beca4269	385 Y	Oswaldo	23
A	A COURT OF FROST AND STARLIGHT	Starting price	\$1.35	27 Mar 2023 at 9:01:47pm PDT	23 N	Oswaldo	23	
A	A COURT OF WINGS AND RUINS	hensk_79Feedback ScoreE(4	\$12.50	3 Apr 2023 at 6:51:59pm PDT	84321 hensk_79	4 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	resyru5Feedback ScoreE(10C	\$12.00	3 Apr 2023 at 3:48:50pm PDT	99850 resyru5	100 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	hensk_79Feedback ScoreE(4	\$12.00	3 Apr 2023 at 6:51:59pm PDT	84321 hensk_79	4 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$11.50	3 Apr 2023 at 3:48:50pm PDT	99850 resyru5	100 Y	Alejandro	0
A	A COURT OF WINGS AND RUINS	hensk_79Feedback ScoreE(4	\$11.00	3 Apr 2023 at 6:51:45pm PDT	84321 hensk_79	4 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$10.50	3 Apr 2023 at 3:48:50pm PDT	99850 resyru5	100 Y	Alejandro	0
A	A COURT OF WINGS AND RUINS	hensk_79Feedback ScoreE(4	\$10.00	30 Mar 2023 at 10:09:47pm PDT	84321 hensk_79	4 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$9.71	30 Mar 2023 at 10:09:47pm PDT	84321 hensk_79	4 Y	Alejandro	0
A	A COURT OF WINGS AND RUINS	beca4269Feedback ScoreE(3t	\$9.21	31 Mar 2023 at 4:57:56pm PDT	92545 beca4269	385 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$7.92	30 Mar 2023 at 10:09:47pm PDT	84321 hensk_79	4 Y	Alejandro	0
A	A COURT OF WINGS AND RUINS	beca4269Feedback ScoreE(3t	\$7.42	31 Mar 2023 at 4:57:43pm PDT	92545 beca4269	385 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$6.75	30 Mar 2023 at 10:09:47pm PDT	84321 hensk_79	4 Y	Alejandro	0
A	A COURT OF WINGS AND RUINS	beca4269Feedback ScoreE(3t	\$6.25	31 Mar 2023 at 4:57:31pm PDT	92545 beca4269	385 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$5.50	31 Mar 2023 at 4:57:31pm PDT	92545 beca4269	385 Y	Alejandro	0
A	A COURT OF WINGS AND RUINS	hemsk_79Feedback ScoreE(4	\$5.00	30 Mar 2023 at 10:09:35pm PDT	84321 hensk_79	4 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$4.50	30 Mar 2023 at 10:09:35pm PDT	84321 hensk_79	4 Y	Alejandro	0
A	A COURT OF WINGS AND RUINS	beca4269Feedback ScoreE(3t	\$4.25	31 Mar 2023 at 4:57:13pm PDT	92545 beca4269	385 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$3.25	30 Mar 2023 at 10:09:35pm PDT	84321 hensk_79	4 Y	Alejandro	0
A	A COURT OF WINGS AND RUINS	beca4269Feedback ScoreE(3t	\$3.00	30 Mar 2023 at 1:59:47am PDT	92545 beca4269	385 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	emhan49Feedback ScoreE(19	\$3.00	30 Mar 2023 at 2:23:51pm PDT	77084 emhan49	192 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$2.75	30 Mar 2023 at 1:59:47am PDT	92545 beca4269	385 Y	Alejandro	0
A	A COURT OF WINGS AND RUINS	emhan49Feedback ScoreE(19	\$2.50	30 Mar 2023 at 2:23:44pm PDT	77084 emhan49	192 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$2.25	30 Mar 2023 at 1:59:47am PDT	92545 beca4269	385 Y	Alejandro	0
A	A COURT OF WINGS AND RUINS	rewilshopFeedback ScoreE(8t	\$2.00	28 Mar 2023 at 7:20:37pm PDT	48375 rewilshop	89 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	beca4269Feedback ScoreE(3t	\$1.75	30 Mar 2023 at 1:59:39am PDT	92545 beca4269	385 N	Alejandro	0
A	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$1.35	30 Mar 2023 at 1:59:39am PDT	92545 beca4269	385 Y	Alejandro	0
B	A COURT OF WINGS AND RUINS	elizcou63Feedback ScoreE(0)	\$9.75	1 Apr 2023 at 8:42:50pm PDT	33138 elizcou63	0 N	Oswaldo	23
B	A COURT OF WINGS AND RUINS	beca4269Feedback ScoreE(3t	\$9.72	31 Mar 2023 at 5:06:05pm PDT	92545 beca4269	385 N	Oswaldo	23
B	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$8.52	31 Mar 2023 at 5:06:05pm PDT	92545 beca4269	385 Y	Oswaldo	23
B	A COURT OF WINGS AND RUINS	eg101956Feedback ScoreE(6t	\$8.02	31 Mar 2023 at 5:03:08pm PDT	12095 eg101956	652 N	Oswaldo	23
B	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$7.75	31 Mar 2023 at 5:03:08pm PDT	12095 eg101956	652 Y	Oswaldo	23
B	A COURT OF WINGS AND RUINS	beca4269Feedback ScoreE(3t	\$7.25	31 Mar 2023 at 5:05:54pm PDT	92545 beca4269	385 N	Oswaldo	23
B	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$5.50	31 Mar 2023 at 5:03:08pm PDT	12095 eg101956	652 Y	Oswaldo	23
B	A COURT OF WINGS AND RUINS	beca4269Feedback ScoreE(3t	\$5.00	31 Mar 2023 at 4:58:27pm PDT	92545 beca4269	385 N	Oswaldo	23
B	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$4.90	31 Mar 2023 at 4:58:27pm PDT	92545 beca4269	385 Y	Oswaldo	23
B	A COURT OF WINGS AND RUINS	eg101956Feedback ScoreE(6t	\$4.65	31 Mar 2023 at 3:57:21am PDT	12095 eg101956	652 N	Oswaldo	23
B	A COURT OF WINGS AND RUINS	This is an automatic bid (proxy	\$4.00	31 Mar 2023 at 3:57:21am PDT	12095 eg101956	652 Y	Oswaldo	23
B	A COURT OF WINGS AND RUINS	Starting price	\$4.27	27 Mar 2023 at 8:59:03pm PDT	23 N	Oswaldo	23	
B	A COURT OF MIST AND FURY	rissnue5Feedback ScoreE(10C	\$12.50	3 Apr 2023 at 3:49:07pm PDT	98580 rissnue5	100 N	Alejandro	0
B	A COURT OF MIST AND FURY	stopquinn5Feedback ScoreE(3t	\$12.00	3 Apr 2023 at 1:29:28pm PDT	92143 stopquinn5	102 N	Alejandro	0
B	A COURT OF MIST AND FURY	rissnue5Feedback ScoreE(10C	\$12.00	3 Apr 2023 at 3:48:13pm PDT	98580 rissnue5	100 N	Alejandro	0
B	A COURT OF MIST AND FURY	This is an automatic bid (proxy	\$10.00	3 Apr 2023 at 1:29:28pm PDT	92143 stopquinn5	102 Y	Alejandro	0
B	A COURT OF MIST AND FURY	rissnue5Feedback ScoreE(10C	\$9.50	3 Apr 2023 at 3:48:07pm PDT	98580 rissnue5	100 N	Alejandro	0
B	A COURT OF MIST AND FURY	This is an automatic bid (proxy	\$8.50	3 Apr 2023 at 1:29:28pm PDT	92143 stopquinn5	102 Y	Alejandro	0
B	A COURT OF MIST AND FURY	rodilameveFeedback ScoreE(1t	\$8.00	3 Apr 2023 at 9:49:52am PDT	7666 rodilameve	160 N	Alejandro	0
B	A COURT OF MIST AND FURY	This is an automatic bid (proxy	\$7.70	3 Apr 2023 at 9:49:52am PDT	7666 rodilameve	160 Y	Alejandro	0
B	A COURT OF MIST AND FURY	beca4269Feedback ScoreE(3t	\$7.20	31 Mar 2023 at 4:58:50pm PDT	92545 beca4269	385 N	Alejandro	0
B	A COURT OF MIST AND FURY	kendall88Feedback ScoreE(5	\$7.00	31 Mar 2023 at 12:43:39pm PDT	34120 kendall88	582 N	Alejandro	0
B	A COURT OF MIST AND FURY	This is an automatic bid (proxy	\$6.50	31 Mar 2023 at 12:43:39pm PDT	34120 kendall88	582 Y	Alejandro	0
B	A COURT OF MIST AND FURY	beca4269Feedback ScoreE(3t	\$6.00	31 Mar 2023 at 4:58:44pm PDT	92545 beca4269	385 N	Alejandro	0
B	A COURT OF MIST AND FURY	This is an automatic bid (proxy	\$5.50	31 Mar 2023 at 12:43:39pm PDT	34120 kendall88	582 Y	Alejandro	0
B	A COURT OF MIST AND FURY	beca4269Feedback ScoreE(3t	\$5.00	30 Mar 2023 at 1:59:26am PDT	92545 beca4269	385 N	Alejandro	0
B	A COURT OF MIST AND FURY	rodilameveFeedback ScoreE(1t	\$5.00	30 Mar 2023 at 9:58:58am PDT	7666 rodilameve	160 N	Alejandro	0
B	A COURT OF MIST AND FURY	This is an automatic bid (proxy	\$4.75	30 Mar 2023 at 1:59:26am PDT	92545 beca4269	385 Y	Alejandro	0
B	A COURT OF MIST AND FURY	rodilameveFeedback ScoreE(1t	\$4.50	30 Mar 2023 at 9:58:08am PDT	7666 rodilameve	160 N	Alejandro	0
B	A COURT OF MIST AND FURY	This is an automatic bid (proxy	\$4.25	30 Mar 2023 at 1:59:26am PDT	92545 beca4269	385 Y	Alejandro	0
B	A COURT OF MIST AND FURY	rodrigomeFeedback ScoreE(1t	\$4.00	29 Mar 2023 at 5:26:08am PDT	7666 rodilameve	160 N	Alejandro	0
B	A COURT OF MIST AND FURY	This is an automatic bid (proxy	\$4.00	29 Mar 2023 at 5:26:08am PDT	7666 rodilameve	160 Y	Alejandro	0
B	A COURT OF MIST AND FURY	Starting price	\$4.00	27 Mar 2023 at 6:49:00pm PDT	0 N	Alejandro	0	
A	A COURT OF MIST AND FURY	kjmai_1Feedback ScoreE(16	\$7.73	2 Apr 2023 at 2:46:01pm PDT	6405 kjmai_1	16 N	Oswaldo	23
A	A COURT OF MIST AND FURY	kyleigkacz0Feedback ScoreE	\$7.30	1 Apr 2023 at 6:15:40pm PDT	14063 kyleigkacz0	71 N	Oswaldo	23
A	A COURT OF MIST AND FURY	This is an automatic bid (proxy	\$7.23	1 Apr 2023 at 6:15:40pm PDT	14063 kyleigkacz0	71 Y	Oswaldo	23
A	A COURT OF MIST AND FURY	kjmai_1Feedback ScoreE(16	\$6.73	31 Mar 2023 at 9:04:10am PDT	6405 kjmai_1	16 N	Oswaldo	23
A	A COURT OF MIST AND FURY	eg101956Feedback ScoreE(6t	\$6.23	31 Mar 2023 at 9:02:06am PDT	12095 eg101956	652 N	Oswaldo	23
A	A COURT OF MIST AND FURY	kjmai_1Feedback ScoreE(16	\$6.00	31 Mar 2023 at 9:03:18am PDT	6405 kjmai_1	16 N	Oswaldo	23
A	A COURT OF MIST AND FURY	This is an automatic bid (proxy	\$5.50	31 Mar 2023 at 9:02:06am PDT	12095 eg101956	652 Y	Oswaldo	23
A	A COURT OF MIST AND FURY	kjmai_1Feedback ScoreE(16	\$5.00	31 Mar 2023 at 9:02:41am PDT	6405 kjmai_1	16 N	Oswaldo	23
A	A COURT OF MIST AND FURY	This is an automatic bid (proxy	\$4.25	31 Mar 2023 at 9:02:06am PDT	12095 eg101956	652 Y	Oswaldo	23
A	A COURT OF MIST AND FURY	kjmai_1Feedback ScoreE(16	\$4.00	28 Mar 2023 at 9:44:01pm PDT	6405 kjmai_1	16 N	Oswaldo	23
A	A COURT OF MIST AND FURY	This is an automatic bid (proxy	\$3.25	28 Mar 2023 at 9:44:01pm PDT	6405 kjmai_1	16 Y	Oswaldo	23
A	A COURT OF MIST AND FURY	rodilameveFeedback ScoreE(1t	\$3.00	30 Mar 2023 at 5:19:45am PDT	7666 rodilameve	160 N	Oswaldo	23

A	A COURT OF MIST AND FURY	This is an automatic bid (proxy)	\$2.75	28 Mar 2023 at 9:44:01pm PDT	6405	kjma1_1	16 Y	Oswaldo	23
A	A COURT OF MIST AND FURY	rodlameweFeedback ScoreE(16)	\$2.50	30 Mar 2023 at 5:19:29am PDT	7666	rodlamewe	160 N	Oswaldo	23
A	A COURT OF MIST AND FURY	This is an automatic bid (proxy)	\$2.25	28 Mar 2023 at 9:44:01pm PDT	6405	kjma1_1	16 Y	Oswaldo	23
A	A COURT OF MIST AND FURY	rewildshopFeedback ScoreE(8)	\$2.00	28 Mar 2023 at 7:18:39pm PDT	48375	rewildshop	89 N	Oswaldo	23
A	A COURT OF MIST AND FURY	kjma1_1Feedback ScoreE(16)	\$2.00	28 Mar 2023 at 9:43:45pm PDT	6405	kjma1_1	16 N	Oswaldo	23
A	A COURT OF MIST AND FURY	This is an automatic bid (proxy)	\$1.35	28 Mar 2023 at 9:43:45pm PDT	6405	kjma1_1	16 Y	Oswaldo	23
A	A COURT OF MIST AND FURY	Starting price	\$1.35	27 Mar 2023 at 8:54:32pm PDT			23 N	Oswaldo	23
A	A COURT OF THORNS AND ROSES	rissyue5Feedback ScoreE(10C)	\$7.50	3 Apr 2023 at 3:47:46pm PDT	98580	rissyue5	100 N	Alejandro	0
A	A COURT OF THORNS AND ROSES	carothe0Feedback ScoreE(13)	\$7.00	1 Apr 2023 at 6:17:19am PDT	30519	carothe0	13 N	Alejandro	0
A	A COURT OF THORNS AND ROSES	beca4269Feedback ScoreE(38)	\$6.72	31 Mar 2023 at 4:56:36pm PDT	92545	beca4269	385 N	Alejandro	0
A	A COURT OF THORNS AND ROSES	This is an automatic bid (proxy)	\$6.50	31 Mar 2023 at 4:56:36pm PDT	92545	beca4269	385 Y	Alejandro	0
A	A COURT OF THORNS AND ROSES	carothe0Feedback ScoreE(13)	\$6.00	30 Mar 2023 at 12:05:37pm PDT	30519	carothe0	13 N	Alejandro	0
A	A COURT OF THORNS AND ROSES	This is an automatic bid (proxy)	\$5.50	30 Mar 2023 at 12:05:37pm PDT	30519	carothe0	13 Y	Alejandro	0
A	A COURT OF THORNS AND ROSES	beca4269Feedback ScoreE(38)	\$5.00	30 Mar 2023 at 2:00:00am PDT	92545	beca4269	385 N	Alejandro	0
A	A COURT OF THORNS AND ROSES	This is an automatic bid (proxy)	\$4.25	30 Mar 2023 at 2:00:00am PDT	92545	beca4269	385 Y	Alejandro	0
A	A COURT OF THORNS AND ROSES	carothe0Feedback ScoreE(13)	\$4.00	30 Mar 2023 at 12:04:46pm PDT	30519	carothe0	13 N	Alejandro	0
A	A COURT OF THORNS AND ROSES	This is an automatic bid (proxy)	\$2.25	30 Mar 2023 at 2:00:00am PDT	92545	beca4269	385 Y	Alejandro	0
A	A COURT OF THORNS AND ROSES	carothe0Feedback ScoreE(13)	\$2.00	30 Mar 2023 at 12:04:33pm PDT	30519	carothe0	13 N	Alejandro	0
A	A COURT OF THORNS AND ROSES	This is an automatic bid (proxy)	\$1.35	30 Mar 2023 at 12:04:33pm PDT	30519	carothe0	13 Y	Alejandro	0
A	A COURT OF THORNS AND ROSES	Starting price	\$1.35	27 Mar 2023 at 6:45:10pm PDT			0 N	Alejandro	0
B	A COURT OF THORNS AND ROSES	mpterodactylFeedback ScoreE	\$10.00	1 Apr 2023 at 12:43:55pm PDT	1970	mpterodactyl	7 N	Oswaldo	23
B	A COURT OF THORNS AND ROSES	This is an automatic bid (proxy)	\$9.50	1 Apr 2023 at 9:53:51am PDT	7105	oswaldandrad...	102 Y	Oswaldo	23
B	A COURT OF THORNS AND ROSES	mpterodactylFeedback ScoreE	\$9.00	1 Apr 2023 at 12:43:46pm PDT	1970	mpterodactyl	7 N	Oswaldo	23
B	A COURT OF THORNS AND ROSES	This is an automatic bid (proxy)	\$7.71	1 Apr 2023 at 9:53:51am PDT	7105	oswaldandrad...	102 Y	Oswaldo	23
B	A COURT OF THORNS AND ROSES	beca4269Feedback ScoreE(38)	\$7.21	31 Mar 2023 at 4:59:11pm PDT	92545	beca4269	385 N	Oswaldo	23
B	A COURT OF THORNS AND ROSES	This is an automatic bid (proxy)	\$6.50	31 Mar 2023 at 4:59:11pm PDT	92545	beca4269	385 Y	Oswaldo	23
B	A COURT OF THORNS AND ROSES	mpterodactylFeedback ScoreE	\$6.00	29 Mar 2023 at 7:42:18am PDT	1970	mpterodactyl	7 N	Oswaldo	23
B	A COURT OF THORNS AND ROSES	heathermandFeedback Score	\$6.00	29 Mar 2023 at 1:27:17pm PDT	21804	heathermand	905 N	Oswaldo	23
B	A COURT OF THORNS AND ROSES	This is an automatic bid (proxy)	\$4.00	29 Mar 2023 at 1:27:17pm PDT	21804	heathermand	905 Y	Oswaldo	23
B	A COURT OF THORNS AND ROSES	Starting price	\$4.00	27 Mar 2023 at 8:47:08pm PDT			23 N	Oswaldo	23
B	IT ENDS WITH US	fuzzyheffalumpFeedback Score	\$4.50	2 Apr 2023 at 6:48:47am PDT	45040	fuzzyheffalump	146 N	Alejandro	0
B	IT ENDS WITH US	ede2975Feedback ScoreE(43)	\$4.25	3 Apr 2023 at 1:55:04pm PDT	29414	ede2975	438 N	Alejandro	0
B	IT ENDS WITH US	This is an automatic bid (proxy)	\$4.00	3 Apr 2023 at 1:55:04pm PDT	29414	ede2975	438 Y	Alejandro	0
B	IT ENDS WITH US	Starting price	\$4.00	27 Mar 2023 at 6:34:31pm PDT			0 N	Alejandro	0
A	IT ENDS WITH US	tungames12388Feedback Sco	\$2.00	2 Apr 2023 at 11:05:37am PDT	7470	tungames12388	122 N	Oswaldo	23
A	IT ENDS WITH US	crybus37Feedback ScoreE(4)	\$2.00	3 Apr 2023 at 3:18:25pm PDT	93905	crybus37	4 N	Oswaldo	23
A	IT ENDS WITH US	This is an automatic bid (proxy)	\$1.35	3 Apr 2023 at 3:18:25pm PDT	93905	crybus37	4 N	Oswaldo	23
A	IT ENDS WITH US	Starting price	\$1.35	27 Mar 2023 at 8:39:36pm PDT			23	Oswaldo	23

For a few auctions, we could not access the bids information from the API in a timely manner for the analysis, so we processed the information from auction screenshots after the auction ended; one of these screenshots is shown below.

Bid History

Tell us what you think



Knockemout Ser.: Things We Never Got Over by Lucy Score (2022, Trade Paperback)

Current bid: \$6.00

Shipping: \$1.00 Economy Shipping

Item number: 185831670018

Bids: 4

Bidders: 3

Retractions: 0

Time Ended: Apr 4, 2023 at 1:00AM PDT

Duration: 7 days

Hide automatic bids

Show automatic bids

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Bidder	Bid Amount	Bid Time	Location	Action
beckjenjenn (4)	\$6.00	28 Mar 2023 at 9:53:12pm PDT	83843	Leave feedback More actions ▾
mskris4690 (662)	\$6.00	2 Apr 2023 at 1:22:55pm PDT	39046	Send Second Chance Offer
mskris4690 (662)	\$5.00	2 Apr 2023 at 1:22:51pm PDT	39046	
rockshaller13 (1303)	\$4.25	29 Mar 2023 at 5:43:53am PDT	17050	Send Second Chance Offer
Starting price	\$4.00	28 Mar 2023 at 1:00:01am PDT		