The Linn-Mathews Service Auction: An Analysis

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It is a capital mistake to theorize before one has data.

Insensibly one begins to twist facts to suit theories,

instead of theories to suit facts.

--- Sherlock Holmes (Sir Arthur Conan Doyle)

To Maria,

whose two JEQ articles
nearly surpass the quality
of this one.

Acknowledgements

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Most of all, thank you to all the residents of Linn-Mathews, who have made my first year at the University of Chicago not only tolerable, but wonderful.

Contents

Chapter 1

Introduction

1.1 What is the Linn-Mathews Service Auction?

1.1.1 What is Linn-Mathews?

Before performing analysis on data gathered from the Linn-Mathews Service Auction, we must ask ourselves the following question: what is the Linn-Mathews Service Auction? However, the astute (or hopelessly confused) reader may realize that such a question overflows with hidden prerequisite knowledge. A more pertinent question to ask, then, is perhaps the following: what is Linn-Mathews?

To answer this question, we must first understanding the housing system of The University of Chicago, located in Chicago, Illinois (as the name may imply). Every incoming first-year is placed into a dormitory, such as "Snell-Hitchock Hall" or "International House." Of particular interest to this paper is the charming castle-dorm known as "Burton-Judson Courts." Within Burton-Judson Courts (as with the other dormitories) resides several further subdivisions into which students are placed termed "houses." One of these such houses is none other than Linn-Mathews. With this, we arrive at an answer to our current question: Linn-Mathews is a house in Burton-Judson Courts, a dormitory in the University of Chicago.

1.1.2 What is a service auction?

A service auction is much the same as a normal auction, but *services* rather than *goods* are sold. Typically, service auctions are used to raise money for a

cause. As we will see, this certainly holds true for the Linn-Mathews Service Auction.

Equipped with a satisfactory definition of both *Linn-Mathews* and a *service auction*, we are ready to answer the question of this eponymous section.

1.1.3 The Linn-Mathews Service Auction

The Linn-Mathews Service Auction is, quite simply, a service auction for Linn-Mathews residents (and former residents) to raise money for the Linn-Mathews house fund. However, as with all simple definitions of natural phenomena, such a definition is inherently insufficient. As we will see in our analysis of the data, this definition is not entirely sufficient; many true *goods* are, in fact, sold at the Linn-Mathews *Service* Auction.

So why call it a service auction when more than services are sold? There are two primary reasons. First, the spirit of the auction is to provide low-cost and possibly unique/quirky talents or skills to other Linn-Mathews residents. As such, the *service* nature of the auction is emphasized over goods in order to provide a much more personable and friendly atmosphere that places homemade objects, talents, and services above all else. The second reason why the Linn-Mathews Service Auction is named as such is due to a much more general: it has always been that way. Time and entities may change, but humans are wont to deem a single entity a single name throughout its trajectory in space-time. Such is the case with the Linn-Mathews Service Auction, presumably.

With a thorough understanding of the semantic, historical, sociological, and economic properties of the Linn-Mathews Service Auction, we may now begin with our data analysis.

Chapter 2

Data Analysis

And now, we arrive at the heart of this report.

2.1 The Dataset

The dataset used for this analysis can be found at the following address:

https://docs.google.com/spreadsheets/d/1Ptm2dDmn-DVB
LePhbiL0I-KETA1ZloKrsnRg6TANee0/edit?usp=sharing

2.2 Privacy

No data analysis will be released in this report that betray the privacy of the participants of the Linn-Mathews auction. The author of this paper encourages readers to follow the same practice, should they choose to do their own data analysis. In particular, it is recommended not to give out any names or other information that can be used to identify a single person unambiguously. Such measures are simply courteous, but of utmost importance.

2.3 Analysis

2.3.1 Efficacy

Immediately, the first aspect of the Linn-Mathews Service Auction that comes to mind to analyze is its efficacy. In all, $1106 were raised for the house—an

outstanding number, surpassing all other house fundraisers by a large margin. The answer to any question regarding whether or not the service auction is effective in raising house funds should be met with a resounding *yes*. As such, any attempts to disband the auction should be immediately discarded.

2.3.2 Participation

In all, 39 people bought something in the auction. Considering that the size of the entire population of Linn-Mathews is approximately 80, a near 50% participation rate is superb. It is important to note, however, that the definition of "participation" is ambiguous; while 39 people bought something in the auction, it is unclear whether or not more people bid for items and simply did not outbid their competitors. The author was present at the auction and suspects that there were, in fact, more than 39 people in attendance, but such claims cannot be corroborated by data, as the data does not keep track of this metric.

2.3.3 Distribution of Spending

Figure 2.1 is a histogram of the number of people whose total money spent is in each designated pricing range. One particularly interesting statistic about this dataset is that, ranked by amount spent, the top 30% of buyers in the auction spent more money combined than the bottom 70% combined. This tells us that relatively few heavy spenders contributed the most to the auction.

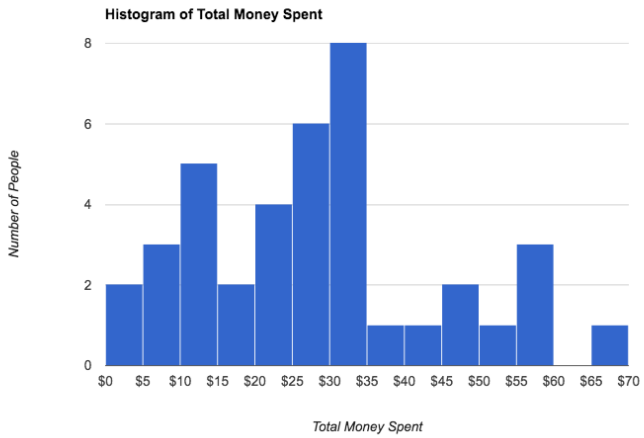

Figure 2.1: A histogram of the total money spent by each participant.

2.3.4 A Mildly Interesting Pattern

Of the people who are in the top 20% with regards to their amount spent, 75% have a last name beginning with P.

2.3.5 Starting Bids and Ending Bids

Is it better to price an item low at an auction so that the people will competitive bid for it, or is it better to start at a high price? This is the eternal, age-old question of auctioning. For some insight into this problem, consider **Figure 2.2** and **Figure 2.3**. **Figure 2.2** shows the raw amount of money earned on each item (by starting bid), whereas **Figure 2.3** shows the difference between the final bid and starting bid—a somewhat useful metric for comparing which is more effective.

Figure 2.2 has a general upward trend; people will pay more for more expensive items. This is rather obvious, so we will turn to **Figure 2.3** for some more elucidation. There was the most variation in differences with low starting bids, indicating that they were the most volatile. Interestingly, large starting bids led to a consistently large difference in the final price. This is indicative that people value expensive items very highly, and (because they are already so expensive) are willing to pay much more than the original bid. A possible explanation for this is that relative to the original bid, this additional spending does not feel as "bad."

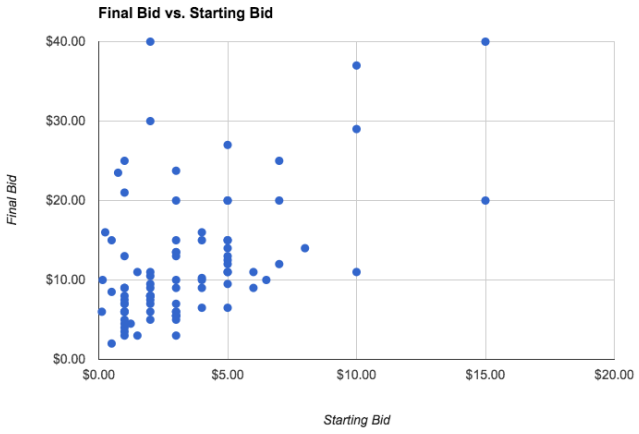

Figure 2.2: A comparison of the final bids vs. starting bids for each category.

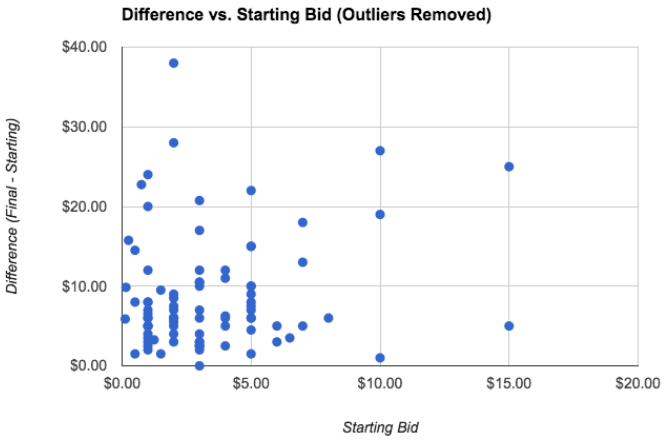

Figure 2.3: A comparison of the differences between final bids and starting bids vs. starting bids for each category, with an outlier removed.

2.3.6 Categorical Distribution

An enhancement was added to this dataset to include a "category" that each entry falls under. **Figure 2.4** includes a pie chart of this distribution. Each entry was sorted into a category by the categorical definitions in **Table 2.1**, which also include the total count for each item.

Furthermore, a comparison of the average starting and final bids for each category can be found in **Figure 2.2**, and ratios between these values can be found in **Figure 2.6**. Of particular note, the lowest average starting bid was for memes and the highest was for food; as for the average final bid, the lowest was for academic utilities and the highest was for instructional services. Most interestingly is the nearly 33x final/start multiplier for memes.

Category	Count	Description
Food	17	Anything concerning food or drink.
Art	14	A work of art (visual, musical, performance, etc.).
Friend	14	Anything involving a friend, such as dates, tours, and high-fives.
Miscellaneous	13	Everything else. This is where all the quirky stuff goes.
Instructional	12	Lessons or other information.
Fashion	5	Anything concerning fashion.
Academic Utility	4	Anything that is helpful academically, such as proofreading.
Item	4	An actual item, such as a mug.
Massage	4	A massage.
Memes	2	Memes.

Table 2.1: A table of the data about each category.

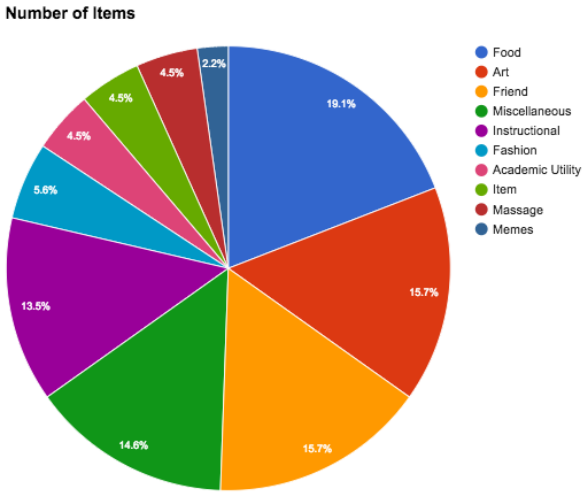

Figure 2.4: A pie chart of the distribution of categories. *Note for the color-blind: the categories have been listed on the left in decreasing frequency (clockwise).*

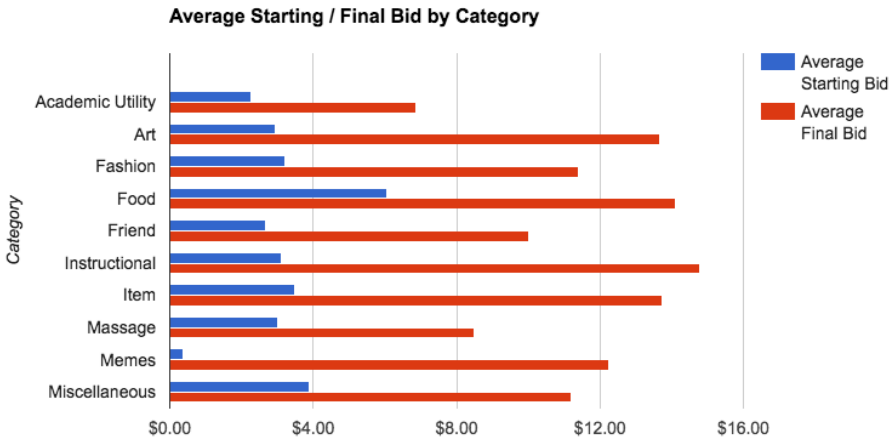

Figure 2.5: A comparison of the average starting / final bids for each category.

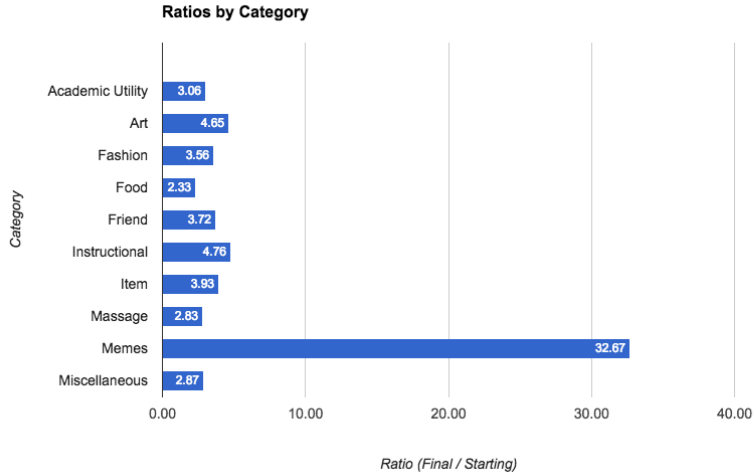

Figure 2.6: A comparison of the ratios between the final bid and the starting bid for each category.

Chapter 3

Conclusion

The Linn-Mathews Service Auction fulfills its purpose extremely well; without it, house funds would almost certainly dwindle. However, the service auction is must more than a simple fundraiser. Just as there are services being sold in auction itself, so too does the service auction serve us. From the service auction, we bond as a house. We gain a shared experience.

And, most importantly, we get data.