

# A Review of Auction Fever in Auction Theory

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**Abstract.** This paper summarizes the phenomenon of auction heat in auction theory, and mainly analyzes two different effects of auction heat: adversary effect and pseudo-endowment effect. In the pseudo-endowment effect, we have to understand that giving up something is much more painful than not getting the same thing. Thus, when an item is part of a person's endowment when the bidder forgoes the opportunity, it is considered a loss, and forgoing the opportunity to obtain the same item is considered a foregone gain. In the adversary effect, it creates a sense of competition and a desire to win. In addition, this paper also introduces the process of auction fever and discusses the positive or negative effects of auction fever on people in real life.

**Keywords:** Auction Fever, pseudo-endowment, opponent effect.

## 1. Introduction

At 4 minutes to 7:00 on January 5, a 7-day eBay auction for an Olympus SLR IS-3 DLX camera ended. This was a typical auction with 10 different bidders, each placing between one and five bids. The person with the user name Belab submitted five proxy bids starting with one for \$50.00 on the second day of the auction and culminating with a final bid of \$306.00 placed 15 seconds before the end of the auction (a pattern of bidding called sniping) [1]. This case is not unique, the sniping happens all the time in real life. That makes us wonder, why bidders like Belab tend to change their bid at the end of the auction, what happened during the whole process of the auction.

In our opinion, this phenomenon has something to do with psychology. Bidders in the real world are not always rational as the theory assumes. At the same time, the auction is a dynamic and competitive process.

But what exactly influences the bidding strategy of the bidder? Is it the environment of the auction? Or the competitiveness of the goods? Or is it the bidder's inner uncertainty about winning the goods? Existing papers generalize this phenomenon as auction fever.

This paper summarizes the literature research on auction fever through. Through two cases, *The online auction experiment in UC Berkely*, *The Hearst estate auction*, we show that the auction fever also exists in daily life from the perspective of the quasi-endowment effect and opponent effect. In this paper, we first introduce the definition of auction fever and its framework of it, then we do the case study. In the end, we have our discussions about the positive and negative effects of auction fever and we made a conclusion. Also, the shortcomings of this paper and the future research direction are also mentioned.

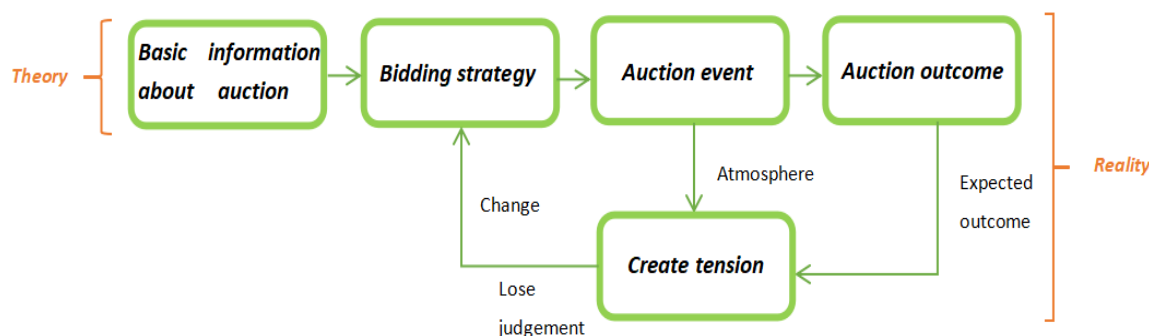
The remainder of the article is organized as follows. In section 2, the article conducts a literature review of the auction fever. In Section 3, a series of case studies are proposed to introduce the implication of the auction. Finally, the paper concludes the conclusion in the last section.

## 2. Literature review

As we all know, auction theory is quite a successful theory in microeconomics, but still, there are many different situations exist that interfere with it working in reality. Auction fever is one of the

most interesting ones. The definition of auction fever is "an emotional state elicited in the course of one or more auctions that causes a bidder to deviate from an initially chosen bidding strategy". It is an emotional bidding framework [2], this framework combines the traditional microeconomic perspective with the emotional aspects of the dynamic bidding process. In other words, it is kind of a framework for emotional bidding said in a paper written by *T.P. Marc et Al., Understanding auction fever*[3].

The upper part of Fig.1 looks at the whole process of the auction from the perspective of the microeconomy, which reflects the high unity of a rational person's behavior, and strategies. This process is what we traditionally know as auction theory which is the completely rational bidding process of rational people.



**Figure 1.** The framework of emotional bidding

But this is not how auction theory worked in real life because people in real life are not completely rational. The second part of Fig.1 is an extension of the traditional bidding framework. Both the context of the auction and the expected outcome of the auction can create tension among bidders, leading them to lose their judgment and change their strategy.

The theory represents the most rational choice, and people's emotions tend to bias this choice. The existence of the auction fever phenomenon shows that the bidding process is dynamic rather than fixed. In addition, another topic worth discussing is the real applicability of Auction Fever, which was published by Karl-Martin Ehrhart in 2015. In this experiment, auction fever is expected to show up in lottery auctions, but not in fixed-value auctions. When values are uncertain, they expect the final auction price to rise from auction format A1 to A4. In our control, they expected no difference between auction formats. The assumption of rising prices is based on the pseudo-endowment effect, Pseudo-endowments refer to an increased attachment to an auction item if the bidder feels that he or she already owns the item in some way or with some likelihood. It assumes that the strength of this effect varies between different types of auctions. This experiment shows that auction fever will not appear when the value is fixed. So actually, the applicability of the auction fever is limited. Also, there is no endowment effect when buyers buy goods with a view to reselling them at a higher price, rather using themselves, and there is a clear measure of losses and gains, as when they buy stock. The irrational behavior manifested by the endowment effect often leads to a decrease in market efficiency, and this phenomenon will not be eliminated with the increase in traders' trading experience.

### 3. Case study

The following case studies help to examine the application of the theoretical auction fever phenomenon in real life, with reference to the existence of the pseudo-endowment effects and the opponent effects throughout the English auctions and the second price – sealed-bid auctions carried out by both experiment outcomes and real-life auction cases.

### **3.1 English auction & second price -sealed bid**

In the English auctions and the second price sealed bid, the bidders who bid the highest win; thus, the dominating technique is to bid the true value. As the bid indicates the most you are ready to pay, any divergence from the true value does not raise the bidder's payoff. If the second-highest bidder has the option of raising their price and chooses to do so, the new bid will exceed their initial bid, resulting in a loss of their excess.

### **3.2 Case 1- The online auction experiment in UC Berkeley.**

The auction fever phenomenon can also be examined throughout the experiment that professor James Heyman conducted with the students in the UC Berkeley.

Students were introduced to the scenario of the second-price auction for a new watch they wanted badly with a cost of 75\$. There is no limit to the number of bids that can be submitted; envelopes are placed in a huge glass bowl. The auction will begin on Monday morning, with all envelopes being unsealed on Friday evening. The highest bidder's name will be put on the glass bowl at the conclusion of each day. One set of subjects was asked to submit their last bid by assuming that they had bid on Monday and they were informed that on Monday evening, they were listed as the leading bidder, however, when the same group of students passed by the store next time during Thursday's evening, they were no longer listed the leading bidder and they were told there are lots of bids left.

According to the analysis of variance conducted by Professor James Heyman, In result, Respondents who did not engage early in the auction provided an average of \$68.31 as their Friday price, "whereas subjects who were told they were in the lead after their Monday bids offered \$72.77" [9] A subsequent examination of the opposite effect and the pseudo -endowment revealed that higher-competition auctions cause bidders to raise their bids. On Friday, subjects in high-competition settings bid an extra \$5.66 on average. Perhaps more remarkable is that the " average low-competition bid (\$67.64) would only be in the 20th percentile" [9] of high-competition bids. The existence of the pseudo-endowment effect and the opposite effect was disclosed in this situation. According to the result that the average bid in high competition is relatively higher than the bid in lower competition auction, as the bidder's name was posted as the leading bidder, it illustrated the existence of pseudo -endowment effect where the bidders tend to recognize the watch as their own ownership, which would raise their valuations in order to get the object. The sense of competition also increases as they don't see their name the day before, as they would like to win the auction, the bidders would increase their bids due to nervousness, the feeling of uncertainty, and time constraints, which would also lead to the overbidding. Despite the fact that bidders might know the exact private value of the object, they may nonetheless bid many times since subjective valuations shift as the auction atmosphere changes.

### **3.3 Case 2–The Hearst estate auction**

1926 built mansion designed by Gordon Kaufman at the Beverley Hills is well known as John Franklin Kennedy's honeymoon destination and the setting for the scene in the movie "The Godfather". As it once was the home of the newspaper scion William Randolph Hearst, it was sold for \$ \$63.1 million to billionaire Nicolas Berggruen throughout the court auction / English auction. Berggruen beat out the other twenty-three bidders interested in the Hearst estate mansion during the heated 45-minute auctions at the Los Angeles federal courthouse and won the English Auction. Although, according to Yahoo Finance, Berggruen's first valuation of the mansion is \$47 million. As it was one million smallest than his valuation, the bidding began at \$48 million, which the sellers accepted as the auction proceeds. The price tag for the mansion increment was set to be 100 million. As the Auction continued, all but two bidders, the Berggruen and MBRG investors were left around their 52 million dollars, and thus, as Berggruen became the highest bidder with \$63.1, he won the Auction. However, a winner's curse might be witnessed. [10]

### 3.4 Winner's curse

A winner's curse occurs when the winning bid is greater than the item's true value, where the bidder would not gain profit instead of a loss of the object. In the case of the Hearst estate, it is prudent to bid less than the actual value and at the price bid by the second-highest bidder. The bidding, however, began at \$48 million, which was \$1 million higher than Berggruen's initial offer. Assuming the property was worth \$47 million to Berggruen, he opted to pay \$15 million more. As zero payoffs are better than a negative payoff, Berggruen would have been better off not purchasing the property for \$52 million. [11][12] This also exhibits the "Winner's Curse," which occurs when the winning bid surpasses the true value of an item in a first-price auction.

### 3.5 The pseudo-endowment effect

With the sense of increasing ownership, the pseudo-endowment effect is one factor leading to overbidding in the Auction. We must understand that it is more painful to let go of a thing than it is to not receive the same item. As a result, when an object is part of one's endowment, it is considered a loss when the bidder gives up the chance, whereas passing up the chance to get the same item is considered a foregone gain. By linking the sense of ownership with its impact on valuations with online bidding behavior, it is possible that high bidders may develop a sense of ownership in their cognition when they are listed as the leading bidders, resulting in an unnoticeable increase in valuation estimation similar to that caused by actual ownership. In the case study, as Berggruen sees, the chance of purchasing the mansion increases as he raises his valuation. Throughout the period where he competes with the other 23 competitors in the Auction, with bidders getting out of the Auction, the sense of ownership of the mansion increases. As Berggruen recognized the mansion's ownership, there will be an unnoticeable rise in valuations up to 14 million, which leads to an overbidding in the Auction.[9] [14]

### 3.6 The opponent effect

Furthermore, the opposite effect would also lead to overbidding as it creates a sense of competition with the desire to win. Auctions are, by definition, situations in which bidders compete with one another, and the outcome of who receives the item and the price they pay has determined by the actions of the many other bidders. There are social occasions with many individuals present, which raises your physiological arousal, a phenomenon known as social facilitation. The sensation of competition and time limits causes an adrenaline rush, your pulse to race, and your reactions to quicken, heightening your anxiousness and competitiveness. The pseudo-endowment effect becomes increasingly significant as the number of players increases in higher tournaments. The desire to win the Auction will lead to an overestimation of the product's value, and therefore the winner's curse may occur. By referring to the case study, as there are 24 people at the Auction physically bidding for the mansion, the large number of competitors has raised Berggruen's valuation of the mansion as he considered it was highly competitive. When there were only two bidders left in the Auction, with a sense of ownership, Berggruen would consider the high possibility of him winning the Auction. Due to the time limits and the anxiousness of owing the item increases as the competition was under a fierce condition, the desire to win led to the overvaluation of the object, and thus by overbidding it, there was an existence of the winner's curse.[9] [14]

The important discovery here is that buyers' subjective assessments for winning the item may fluctuate across auction encounters, resulting in differing maximum bids. Similarly, if the characteristics of the change over the auction experiences, the objective valuation may alter as well, resulting in different bids.

## 4. Discussion

The aforesaid analysis of the two case studies, as the pseudo-endowment and opponent effect was observed, it examined the application of the auction fever phenomenon in real-life auctions. It has

also led to the conclusion of the auction fever phenomenon as the cause of overbidding in real-life auctions. In this section, the advantages and disadvantages of auction fever will be analyzed.

With the promotion and development of science and technology, the online auction has been gradually applied to people's life. Auction fever, in most cases, refers to the irrational behavior of buyers (consumers) that is inconsistent with their expectations. Most of the time, the behavior is higher than their expected valuation. That is to say, dealing with the potential emotional trade-offs of choice is a factor affecting consumers' selection strategy. Therefore, auction fever's impact on consumers' emotions is also one of the important auction factors that buyers and sellers need to consider and weigh in order to control their transaction prices.

#### **4.1 The benefits of auction fever**

The effect of Auction fever on Auction results cannot be underestimated. An enthusiastic auction site can increase buyers' attention to goods, which will attract more consumers to bid. When the increased number of biddings, goods will become more popular in the live auction may change some buyers for goods in the heart of the valuation (live auction only, especially the English auction), if it is online public bidding, auction (English auction), past buyers bid situation may also affect consumers' rational judgment. At the same time, the enthusiastic auction scene will also reduce consumers' sensitivity to the price of the commodities at auction, which also means that the demand curve in the SD image (supply & demand curve) of the commodities will become more inelastic (more vertical). In real auctions, consumers will be insensitive to price increases (British auctions), which means that the fluctuation of prices will be blurred in their eyes. When auction fever occurs, a change in the price of a unit is often seen by consumers as "less" than the value of a unit. This is why auction fever often occurs when the transaction price is higher than the highest consumer expected price.

Auction fever has a positive impact not only on consumers but also on the government and the country. Once the transaction price is higher than expected, it means that the seller of the auction goods will get more profit, at least higher than expected profit. Therefore, sellers, they will certainly hope that there will be auction fever in their auction process, so as to obtain more profits. Of course, this profit will not be confined to the seller of the goods, which will also increase the government's revenue. Governments often regulate prices and profits at auctions to set different tax rates. Auction fever will also increase government revenue to a certain extent.

#### **4.2 The downside of auction fever**

In addition to the few positive effects described above, Auction Fever also has many negative effects, and they are even more well-known than the positive ones. Auction Fever is the result of excessive consumption. Auction fever means consumers overspend (spend more than they are expected to), and the dangers of overspending are well known. For example, excessive consumption often leads to long-term financial problems, slow progress toward financial goals, and Tying up future income. This is what happens when consumers are ordinary people, but what if auction fever happens to people with more money? Will it also cause negative effects? The answer is yes.

At this point, we have to mention the "winner's curse", which means it is possible for only the "winner" to lose money in an auction. (That is, the winner pays more than an item is worth. This results when the value of an item is initially uncertain and each bidder has an estimate (the "noise signal") of the item's true value. This situation is still applicable to Auction Fever because the irrationality brought by Auction Fever to consumers will lead to the purchase of goods at a price beyond their expectations. In most cases, there is only one consumer who finally makes a deal, so there is only one consumer who really pays money. As a result, losses only happen to winners. However, there are qualitative differences between auction fever and the traditional winner's curse. The "winner's curse" occurs when buyers misjudge the true value of an item and are perfectly sane during the auction. The excessive consumption caused by "auction fever" is mostly due to the

irrational behavior of buyers. Gillian Ku, 2004, also mentioned this in his paper *Towards a Competitive arousal Model of Decision: A Study of Auction Fever in Live and Internet Auctions*.

## 5. Conclusion

This paper evaluates and summarizes the research results and discussion of the existing literature. We studied the application of auction theory and why auction theory differs from reality. As this dissertation concluded, one of the most crucial factors might be the irrationality auction fever phenomenon that has led to a psychological impact that resulted in overbidding. However, there are also other factors, such as the consideration of the bidder's credibility and overall strength.

Our article illustrates the real application and use of the phenomenon of Auction fever in the auction, and studies and summarizes the real impact of emotion on auctions and subsequent results. In the vast majority of cases, the people in the auction are not perfectly rational, and their emotions will drive the outcome of their auction. The result of auction fever is a phenomenon of overheated auction directly caused by human emotion, which means that the price is too high.

In this paper, we study two different effects that cause auction fever, the opposite effect, and pseudo endowment. In The pseudo -endowment effect, the authors must understand that it is more painful to let go of a thing than it is to not receive the same item. As a result, when an object is part of one's endowment, it is considered a loss when the bidder gives up the chance, what is considered a foregone gain is to pass up the chance to get the same item. In the opponent effect, it creates a sense of competition with the desire to win.

In addition, we also discussed the positive and negative effects of Auction fever, which can be divided into four parts: 1) increasing consumers' interest in consumption, 2) reducing consumers' sensitivity to price, 3) making sellers more profitable, and 4) increasing national income. The negative effects also mentioned two different points. Winner's curse and overspending.

To evaluate the quality of the paper, one limitation is that the paper does not use very specific cases and specific data, especially the transaction data and information of auction cases or bidding cases in reality. Because consumer information cannot be disclosed, we cannot put others' real transaction cases and transaction information into paper. At the same time, our paper is more about information integration and explanation, but there are not too many realistic actions and emotional reactions of buyers in the auction process. In fact, auction fever is a kind of emotional reaction on the spot and the influence of buyers' psychological emotions on real decisions. We don't have a complete and accurate understanding of the thoughts and psychology of others. If we have the opportunity to experiment and expand our discussion in the future, we will use a realistic auction simulation method to demonstrate and demonstrate the process of Auction Fever. We will conduct preset analysis and interview analysis on buyers' reactions under different circumstances to verify whether our analysis and discussion are correct, which will also be our experimental goal in the future.

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