



Theoretical Perspective of Behavioral Economics: The Research on the Internal Mechanism and Consumer Behavior of Blind-Box Economy

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Abstract. Blind box refers to a toy box in which consumers cannot know the specific product style in advance, and has random properties. In recent years, the development of China's blind box market has entered a peak period, and the consumption of blind boxes is very hot both among celebrities and ordinary youngsters. This paper uses the theory of behavioral economics to explore the internal mechanisms of the blind-box economy and consumer behavior. The main theories applied in this paper include Social Identity Theory, Prospect Theory, Reflecting Effect, Availability heuristic, Endowment Effect and Gambler's Fallacy. These theories are used in this paper to reflect the behavioral economics mechanism of consumer psychological factors affecting consumer behavior, and to dig deep into the source of consumers' irrational consumption motivation, providing a new theoretical explanation for the study of blind-box economy. Finally, this paper puts forward relevant development suggestions based on the development status of China's blind box market, including guiding consumers to establish consumption values, urging merchants to enrich product categories, and ensuring effective management by government regulatory authorities, so as to provide guarantee and support for the long-term healthy development of China's blind box market.

Keywords: Blind box economy · Social Identity Theory · Prospect Theory · Reflecting Effect · Availability heuristic · Endowment Effect · Gambler's Fallacy · Chinese market

1 Introduction

“Life is like a box of chocolates that you will never know what you gonna get.” In recent years, people seem not to be satisfied with the surprise of life itself and fall in love with blind box, a new kind of toys full of mystery and uncertainty.

Blind box is a general term for the uncertain goods sold on the market. When you are lucky, you may gain a “hidden version” with only 1 / 100 probability. In recent years, collecting blind boxes and chasing “hidden version” have become a new decompression method for urban youngsters [1]. Nowadays, blind boxes usually contain some small

dolls, figurines, etc., but more than 10 years ago, when the concept of blind boxes is not fully clear, and the blind box industry is not fully market-oriented, there are marketing behaviors like giving away uncertain kinds of cards for buying snacks. At that time, many children tended to buy excessive snacks just for the cards, hoping to collect a whole set. With the development of the blind box industry, blind boxes are sold by more diversified ways. Like the selling method of Japanese egg twist machine, people can try to grab blind boxes in the doll grab machines. There are also marketing methods that allow customers to draw prizes of blind boxes after their consumption reaches a certain amount, or just give them away[2]. Of course, the most common way is that people can buy blind box in stores.

The modern “blind box” first appeared in Japan. In the 1980s, Dreams released the first-generation mini-doll figure “Sony Angel” and sold it in a blind box. Since then, blind boxes and gashapon machines have become popular in Japan[3]. And “Sony Angel” only started to be sold in 2015 in China’s current leader in the blind box industry, POP Mart, and achieved hot sales shortly after its first appearance, bringing confidence to the domestic blind box market. In July 2016, POP Mart’s first Molly Constellation series blind box successfully won the game-breaking battle in China’s blind box market. Since then, China’s blind box market has entered a development climax, and research on the blind box economy has also begun to appear. From the perspective of behavioral economics, this paper analyzes existing research, understands, analyzes, and summarizes the internal mechanism behind the blind-box economy, uses relevant theories to reflect the relevant factors that affect consumer behavioral motivation. Finally this paper applies these research results to the Chinese blind-box economic market and put forward proposals for long-term and healthy market development.

2 Analyze the Internal Mechanism and Consumer Behavior of Blind Box Economy From the Perspective of Behavioral Economics

2.1 Social Identity Theory

Social Identity Theory is a theory proposed and defined by Tajfel (1978). Tajfel defines social identity as the “ that part of an individual’s self-concept which derives from his knowledge of his membership of a group (or groups) together with the value and emotional significance attached to the membership”[4].

This theory holds that human beings, as a social animal, need social identity. The social identity here includes three processes: cognition, affection and evaluation (Bergami and Bagozzi, 2000) [5]. First, cognition refers to the willingness of people to program themselves into a group,; secondly, affection is that people think they should have general characteristics of members of the group they belong to; finally, evaluation refers to the tendency of people comparing their own group with other groups in terms of status, reputation, etc.

In a study on the consumption of Chinese cultural and creative products (Zhang and Li, 2022), the author used Social Identity Theory to explain the influence of individual psychological characteristics on their consumption behavior[6]. This psychological and

behavioral theory may also be used to explain part of the reason why Chinese consumers are now keen to buy blind boxes. Because people need cognition and affection as social identity, people need to obtain evidence that psychologically supports that they belong to this group, they will irrationally behave in ways that classical economics cannot explain. People would also develop a peculiar idea called herd mentality, so that their behavioral motivations are influenced by the majority of those around them. In terms of consumption behavior, this effect can be manifested in that consumers have a stronger purchasing motivation for things that many people are buying, because people want to share the feature of buying the same products with other group members. In the blind box market, this consumption refers to the purchase of blind boxes.

Especially when the blind box market in China became hot, blind box merchants cooperated with stars, celebrities and trendy IP to connect blind boxes with trendy market, setting off a nationwide blind box boom and making consumers feel that many people are chasing this trend both online and offline[7]. This connection between blind boxes and trends also makes consumers realize that if they join the group of buying blind boxes, it will mean that they are more fashionable than others who do not have blind boxes. This superior results from this evaluation will give consumers more social identity proof and give them more incentive to buy blind boxes. However, the mechanism of using evaluation to obtain social identity to stimulate blind-box consumption has also caused some bad behaviors in this market, such as excessive consumption and comparison consumption (Han, 2019) [8]. Because the current blind box merchants sometimes launch some limited editions or unique blind box styles in special selling ways, such as VIP sales, lottery, private customization, etc. People will judge whether a person is rich, powerful, or trendy enough by the their possession of some hard-to-get blind box styles. When some people get these rare blind boxes and show them off on the Internet, or someone around them gets similar rare blind boxes, it will make consumers feel a pressure of being behind others. This will make consumers feel a pressure of being behind others, they will continue to buy, hoping to get a similar blind box, so there will be comparison consumption and excessive consumption.

2.2 Prospect Theory and Reflecting Effect

Prospect theory is a theory that applies psychology to economics to predict the judgments and decisions people are more likely to make under different risks (Kahneman et al., 1979) [9]. This theory is based on a series of assumptions, experiments and observations from people's psychological characteristics and behavioral characteristics. According to the exposition and summary of Prospect theory in Kahneman's book "Thinking, fast and slow"(2011), the main points of the theory include Certainty Effect, Reflecting Effect, loss aversion and reference-dependency principle [10].

Certainty Effect refers to the fact that people tend to choose a certain return rather than a gamble when the expected return is the same. More people will choose the former among the choice of "get \$900 for sure OR 90% chance to get \$1,000" rather than risk it. The Reflecting Effect refers to the fact that people tend to choose a gamble rather than a certain loss when the expected losses are equal. This means that most people will choose the latter when faced with the choice of "Lose \$900 for sure OR 90% chance to lose \$1,000", because people will hope to have this luck to avoid bad fortune (Kahneman,

2011) [10]. Loss aversion argues that people feel differently about gaining and losing the same amount of money, and that the pain of losing \$100 is far greater than the joy of getting \$100. But Loss aversion also believes that when a person has more wealth, the pain of loss will be reduced accordingly, that is to say, when a person has \$10,000, the pain of losing \$100 is much less than the pain of losing \$100 when one has \$200. The Reference-dependency principle holds that people need to have a referring point to measure their utility changes. Professor Xi Kaiyuan's ice cream experiment has shown that people are more willing to pay more for a 7-oz glass of ice cream in a 5-oz cup that looks like it's overflowing, rather than an 8-oz glass of ice cream in a 10-oz glass that looks empty. In this example, although the first cup has less ice cream than the latter, people would choose this one because the it looks more than the reference point for the cup, i.e. the ice cream looked fuller. This is the embodiment of the Reference-dependency principle.

For the consumption behavior of blind boxes, we can relate it to the reflecting effect in prospect theory. For consumption, on the one hand, blind boxes are clearly priced like other commodities, and the amount that consumers need to pay to obtain blind boxes is clear, so the losses faced by consumers are certain. But on the other hand, the style of the goods in the blind box is uncertain, and the contents may be of little value to the buyer, but there may also be precious hidden version, therefore, the loss of consumers buying blind boxes is uncertain. We can know from the reflecting effect theory that when faced with losses, people are likely to become risk-lovers and adventurers, so the uncertain loss brought by blind box products is more attractive to people than ordinary products. People look forward to obtaining valuable high-quality blind box products, so that their gains can make up for the losses they have already paid, so they are willing to take the risk of consumption losses. This is another behavioral economics mechanism behind the behavior of consumers buying blind boxes.

2.3 Availability Heuristic

“Availability is a judgemental heuristic in which a person evaluates the frequency of classes or the probability of events by availability, i.e. by the ease with which relevant instances come to mind.” (Tversky and Kahneman, 1973) [11]. This theory holds that because people have a limited ability to process information, people draw conclusions based on the availability of information. Please think about this: How many hippos are there in the world? How many people are killed by hippos every year? How many sharks are there in the world? How many people are killed by sharks each year? People's answers may vary widely, but most people will definitely agree that more people are killed by sharks each year than by hippos because people have learned about the danger and lethality of sharks through many documentaries and film and television works, such as “The Meg”, “Jaws” and so on. But the reality is that the number of hippos in the world is slightly less than 150,000, about 500 people are killed by hippos every year. There are more than one billion sharks in the world, with an average of only 6 people killed by sharks each year between 2007–2017. The probability that a hippo might kill a person in its lifetime is far greater than the probability that a shark will kill a person in its lifetime. This is a classic example of availability heuristic, which shows that this

kind of heuristic is very common in our lives and affects how accurately we think about problems and draw conclusions..

People are also often influenced by availability heuristics when making decisions about blind box consumption. Trend-loving and trend-following stars and celebrities have money and access to some special, limited-edition blind-box styles. And they share the news that they own these styles on the Internet, which can lead to a kind of cognitive error that these precious blind boxes are still obtainable (Zhou, 2021) [12]. The phenomenon that ordinary people draw rare blind box styles by luck and display them on social platforms has aggravated people's cognitive bias, making people have the illusion that they can also get rare kings by their own luck as long as they keep trying. But in fact, only those who have obtained rare blind boxes will show off their earnings on social platforms, and only the display of rare blind boxes will attract the attention of netizens. Therefore, availability heuristic plays a role in people's psychological mechanism, making consumers misunderstand the probability of obtaining hidden versions of blind boxes, get overconfident and continue to buy blind boxes, hoping that they can also get precious blind boxes like those lucky ones they know.

2.4 Endowment Effect

In the behavioral economics book *Thinking, fast and slow* (Kahneman, 2011), the author describes the endowment effect as "She didn't care which of the two offices she would get, but a day after the announcement was made, she was no longer willing to trade. Endowment effect!". This is a classic example of the endowment effect [10].

This theory holds that when people own a thing, people's evaluation of it will be much higher than before owning it. It is based on loss aversion, a theory proposed by Richard Thaler (1980). People tend to put a premium on selling what they own because they worry about bearing the loss. In Kahneman's study (1990) on experimental tests of the endowment effect, the author proved the existence of the endowment effect through the difference in pricing between buyers and sellers in the market of tokens and mugs [13].

In the blind box economy, there is a high probability that the products obtained by people are not worth the price of the blind box, which is also the way for blind box merchants to profit. However, because of the existence of endowment effect, consumers will overestimate the value of this product after getting their own blind box. Thus, they ignore the losses they may have suffered. This mechanism also works for Taobao's "free refund in 7 days" marketing strategy. After people get the goods, the probability of being dissatisfied or returning the goods will be reduced, which helps merchants sell more goods. Therefore, the endowment effect helps blind box merchants to profit from the hidden losses of consumers, makes consumers psychologically overestimate the value of the obtained goods, and also increases the possibility of consumers' repurchase of blind boxes.

2.5 Gambler's Fallacy

Gambler's Fallacy is a common fallacy of reasoning, such as a gambler who has a bad night often assumes that he will be lucky after a few more games. The reason gamblers

think this way is that the small probability event of losing streak is unlikely to happen, and Tversky and Kahneman (1978) therefore described Gambler's Fallacy as the law of small numbers [14]. The reader can think of it this way, on a coin toss, people have a 50% chance of getting heads or tails, since the probability of getting heads 5 times in a row is $1/32$, a person who commits Gambler's Fallacy would think that after getting the coin four times in a row, the probability of getting another head is $1/32$. In fact, the events of each coin toss occur independently and do not affect each other, so the probability of getting heads or tails for each coin toss is always 50%, and this probability does not change because of the results of previous coin tosses.

Gambler's Fallacy comes into play in the consumer experience of buying a blind box and the item from blind box is not good. Consumers who make this mistake will think that if they buy the blind box again, the probability of getting a bad quality blind box will be relatively small, because the probability of getting a series of bad products is very low. But in fact, in the next blind box purchase, the probability of consumers getting a blind box of poor quality does not change because of their previous shopping experience, but only depends on the quality composition of the products issued by the merchant. So Gambler's Fallacy changes consumers' expectations about the quality of the product they're about to get, makes them more likely to think they're getting a quality product, and encourages them to buy again.

3 Conclusion

The blind box market in China is now at its peak. According to the Development Status and Market Research Analysis Report of China's Blind Box Industry in 2020 (2021), the market size of China's trendy toys industry was 8.38 billion yuan in 2017, and reached 29.48 billion yuan in 2020. In this year, the size of the blind box market reached 9.3 billion yuan, even exceeding the size of the entire Chinese trendy game market in 2017 [15]. Thus we can argue that blind box market is very important to the entire Chinese fashion play market nowadays.

The development of the blind box economic market is not only affected by China's economic development and changes in consumers' consumption concepts, but also by the consumption environment and consumers' psychological factors. Based on Social Identity Theory, Prospect Theory, Reflecting Effect, Availability heuristic, Endowment Effect, Gambler's Fallacy, we can conclude that these behavioral economic mechanisms explain part of the intrinsic mechanism of blind-box economic markets, and in some scenarios, these mechanisms also create incentives for consumers to buy and repurchase blind boxes, even if those incentives are irrational consumption choices.

In the current Chinese blind box market, several big companies still dominate the market, such as POP MART, LEGO, Hasbro and so on. Because of this market structure similar to monopolistic competition, blind box merchants will use their market power and consumers' comparison psychology to charge excessive prices for goods. At the same time, a large number of scalpers and speculators enter the market, using intermediaries to deliberately buy and stock up, artificially create scarcity, and hype blind boxes into financial products similar to limited-edition sneakers, resulting in a distorted second-hand trading market, threatening the health of the market (Zhang, 2019) [16]. These

behaviors ultimately damage the interests of consumers, and are also not conducive to the long-term development of the blind box market.

For the long-term and healthy development of China's blind box market, we first need to reasonably guide blind box consumers to establish a correct consumption concept to avoid bad behaviors such as comparing consumption and showing off consumption. In addition, merchants need to enrich the connotation of product design and diversify product types, which is the foundation for ensuring long-term vitality and market for cultural products such as blind boxes. Finally, the relevant government supervision departments should regulate the development of the industry, promptly clean up and combat the vicious investment behavior in the blind box market, and ensure the healthy development of this industry [17].

The shortcoming of this study is that it mainly focuses on theoretical discussion and lacks empirical test. In future research, researchers should conduct research on consumer psychology based on existing theoretical assumptions, collect extensive data, build theoretical models, make mathematical analysis, and clarify the effect of various behavioral economic mechanisms on the consumers' blind-box purchase behavior.

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