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Practical Application of Anchoring Effect Based on Different Mechanisms

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Abstract: In behavioral economics, scholars have found that both biases and heuristics affect people's individual or group behavior, and the heuristics also referred to as the shortcuts. Based on this, this article will research and discuss the anchoring effect and its impacts in economically relevant decision making. In addition, the article will explain a few applications in terms of several conditions under which anchoring is generated. It is the numerical priming paradigm, the "comparison-judgment" start paradigm, and the subthreshold priming paradigm. To be specific, the anchoring impact on people's economics outcomes and individual behavior through the three different mechanisms in stock market, asking price in the real property negotiation, a classical experiment about estimating temperature by using association and hint and so on. In this report, it is going to go through these three mechanisms and focusing on the applications and practical significance of them. They reveal that when people make decisions under various uncertain conditions, the decision makers will approximate the estimated results to the anchor value, resulting in estimation bias.

Keywords: anchoring effect, behavioral economics, cognitive efficiency

1. Introduction

For a long time, people have never stopped studying the economy. Starting from the study of economic phenomena and results in the society, and then the study of the causes of economic phenomena. The feedback effect formed by individual irrationality, group irrationality and irrationality inhibition mechanism will make the market price fluctuate greatly. Anchoring effect and other psychology can produce individual irrationality, which is transmitted through herding effect [1]. Irrationality will be enhanced by feedback when irrationality suppression mechanisms such as arbitrage mechanism and wealth constraint fail. In this context, the impact of human behavior on the economy cannot be ignored, so psychology is introduced. The field of behavioral economics has also attracted many scholars. Kahneman, an important figure in this field, explained that the human brain can be divided into system 1 and system 2. System 1 works unconsciously and quickly, effortlessly and without feeling. System 2, on the other hand, is often associated with subjective experiences of behavior, choice, and focus. The biases and heuristics that the behavioral Economics Institute focuses on are mainly related to the operation of system 1, which always plays a big role because of the nature of people to seek cognitive efficiency [1]. The anchoring effect discussed in this paper is one of the heuristics produced by system 1. Moreover, there are a lot of different ways in which this can create

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anchoring and bias evidenced by extensive experiments For the first example, Kahneman asked the students to operate turntables that could only go to 10 and 65, and then asked them what percentage of the United Nations was most likely to be African. The results are always high or low and close to these two numbers. For the second example, students were first asked to judge whether Gandhi was older than 114 when he died, and then to estimate how old he was when he died. The final estimates are generally higher than the real figures [1]. The third example is an experiment about different initial values of air temperature led to selective stimulation of memory, and seasonally related associations and hints influenced the estimation of average air temperature. It is an empirical study on the role of hypothesis-consistent in anchoring effect by the German psychologist Tomas Mussweiler and Fritz Strack [2].

The above three examples work through the numerical anchoring, the "comparison-judgment", and the Subthreshold initiation paradigm. Therefore, many people further classified the generation of anchoring effect based on these experiments and studies and summarized three mechanisms. The first is the numerical priming paradigm, which means that using concrete numbers as anchors affects people's feelings and judgments. The comparison of the numerical difference between a target initial value and an anchor value leads to a bias in judgment. For example, if the price of a piece of clothing is $200, but a "0" is added to the price to make it $2000, and the promotion is sold at a 20% discount. With the anchor value of “2000”, consumers will feel that the clothes are very affordable. This is the principle of the "number initiation paradigm". The second is the comparison-judgment start paradigm. It is believed that the anchoring effect is generated in two steps.The first step is to ask the other party to estimate an unknown target value and to judge whether it is below or above a certain anchor value. The second step is to ask for an estimate of the absolute value of the target. Finally, there is the Subthreshold initiation paradigm, which is based on people's long-term past experience as an anchor to influence judgment by means of hint and induced association. This paper will discuss the application of the above mechanism in the stock market and real estate market as well as the related experiments of association and hint.

2. The Performance of the Anchoring Effect in the Stock Market under the Role of the Numerical Priming Paradigm

2.1. The Anchoring Effect on Investment Strategy of the Average Investor in the Stock Market

Since its establishment, the stock market has made remarkable achievements after many years of development. As a result, the stock exchange market has attracted a large number of investors to enter to pursue excess returns. At the same time, most investors trade as small and medium investors or individuals, what we call "retail investors." These dominant and ordinary investors usually do not master a lot of investment expertise, so how to avoid risk and other aspects of the consideration is not enough. Therefore, for all of these reasons, it is necessary to understand the basic problems before looking at how anchoring plays out in the stock market.

First of all, the intrinsic value of the stock must be paid attention to, which can also be called the true value. It can be simply understood as an expectation of a stock's future dividend income and long-term development. The price of a stock tends to fluctuate according to its intrinsic value [1]. When the stock is on the rise in the market, people tend to buy it, and this purchasing power usually pushes the share price higher than the true price. When a stock price rises to a certain level or far above its true price, people tend to sell it. However, in fact, due to the large amount of information asymmetry, it is difficult for people to make an accurate judgment on the intrinsic value of stocks. This will create a phenomenon that people will choose to buy the stock when they think the price of the stock is low, and they will choose to sell the stock when they think the price of the stock is too

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high. Therefore, the past price of a stock becomes an important basis for people to make relevant decisions.

For example, a scenario can be imagined like this. When an investor buys a stock priced at £2 each, people expect to sell it at £2.2 .However, if the stock keeps falling, they will want to sell it when the price returns to £1.9 .At this time, they have ignored the expected £2.2 ,and the cost of £2 affects them like an anchor. In this case, price as a concrete number affects our brains and governs our behavior. This is a visual representation of the anchoring effect generated by the numerical priming paradigm on consumers.

2.2. Listed Companies Using the Principle of Anchoring Effect to Cater to the Preferences of Investors

In the stock market, managers of some listed companies are well versed in the psychology of investors and the principles behind their economic behavior. Therefore, in order to maximize their benefits, listed companies usually take many measures to make their stock price rise in the short term and increase their market value in the long term. Among them, it is the most common and easiest way to influence investors' cognition and decision through the change of numbers.

Similarly, another scenario can be imagined again. When the price of a stock is too high, the listed company will split the stock, for example, dividing one 100 yuan stock into five 20 yuan stocks. Some investors will use the pre-split stock's price as an anchor and think that the price has been lowered so much that they should rush to buy. This will cause the stock price to rise in the short term. However, if people think about it, the value of the stock and the actual price are not changing. This simple application is a good example of how companies can use changes in numbers and their anchoring effects to influence the economic behavior of investors.

2.3. Other Research on the Stock Market

As for the stock market, a question to explore is whether people with professional ability and normal students will react in the same way in the face of the above decisions, and whether sufficient professional knowledge can help people avoid the bias caused by heuristics such as anchoring effect.

Previous studies comparing the decision making of financial market professionals and students find that whether or not professionals are less biased depends on the context. Kaustia, M., Alho, E. and Puttonen, V. got the result that rich experience and relevant theoretical knowledge could help people avoid some bias, but this is not a certainty. There are even situations in which an abundance of experience induces other errors of judgment [2]. In addition, low investor attention, high uncertainty, high information complexity and low decision cost will aggravate the investor anchoring effect. Unlike these individual investors, institutional investors are relatively rational, with almost no anchoring effect [3]. To sum up, anchor manipulation in this application involves the combination of numerical facts and historical stock market development.

3. Anchoring Effect under the Action of "Comparison–Judgment " Start Paradigm in the Real Property Negotiation Process

3.1. Research of Real Estate Prices

Many literatures point out that real estate has multiple properties of investment goods, consumer goods and public goods. The real estate industry plays an important role in the national economy. It not only provides opportunities and guarantees for the development of manufacturing industry and construction industry, but also drives the development of other industries of the national economy.

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However, in China, with the continuous acceleration of urbanization, the scarcity of land resources is prominent. Real estate prices have been rising and showing abnormal increases. Therefore, the real estate price has always been the focus of scholars. Usually, researchers are used to analyzing it through the relationship between supply and demand, but often ignore the impact of micro-theme economic behavior in the real estate market [4]. In fact, in many experiments and daily life, the interaction and communication between micro subjects in the real estate market and the cognitive deviation of consumers will have an effect on the asking price of real estate.

Real estate as a necessary consumer goods or investment goods with elasticity, so its price fluctuation range is large. In the process of investment goods trading, the scarcity of resources and information asymmetry make the real estate market behave as bounded rationality. In other words, investors have irrational judgment or cognitive bias [5]. This also corresponds to the doubts about the hypothesis of economic man that people are perfectly rational in the theory of behavioral economics, so behavioral economics has been widely applied in the study of real estate prices. Anchoring effect is the most common. In many past empirical studies, it is not difficult to find that numerical priming paradigm and semantic priming paradigm often play a role in the process of real estate asking price. Since the application of the numerical priming paradigm has a similar process and performance to the stock market application described above, the issue will be mainly discussed the role of the semantic priming paradigm (i.e., the comparison–judgment start) here.

3.2. Experiments on Real Estate Transaction Negotiation and Asking Price

After discovering the important role of behavioral economics in real estate purchase or transaction, many scholars have carried out targeted researches and experiments. Lots of data are gathered through a series of experiments revealed that the manipulation of asking price led to the manipulation of both buyer opening offer and eventual settlement prices [6].

In the experiment by Black and Diaz, some participants were divided into two groups from different sources: 70 graduate students with real estate industry experience from Georgia State University's College of Business Administration, 72 mid-to-upper-level real estate executives. Members of the student group were randomly paired off, everyone of each group was randomly assigned the role of buyer or seller. A completely random design employed one treatment fixed at four levels (high asking price, low asking price, actual asking price, and no asking price) [7]. Four experimental cases were designed by using actual information from five single-family homes offered for sale in suburban north Atlanta, Georgia, USA. Subjects were asked to negotiate a sale price based on the information provided. The case rules allowed the subjects to reach an impasse, although they were encouraged to make every effort to reach agreement [8].

By summarizing statistics, introducing standard deviation and coefficient of variation, the rule is summarized according to the results. That is, high asking prices will lead to high selling prices, and vice versa. Professional workers are just as affected by anchoring as students, though perhaps to a lesser extent. Interestingly, however, students often admit that they may have been influenced by anchoring values, while professionals do not.

3.3. The Role of "Comparison-Judgment" Start Paradigm in Real Estate Asking Price Process

The anchoring effect of the "comparison-judgment" start paradigm is very common in everyday life, even outside the field of economics. In Kahneman's classic experiment, students were asked if Gandhi was older than 114, and then asked to estimate his age. The result was generally too high [1]. This is the mechanism by which "comparison-judgment" start paradigm affect the brain and bias results. By setting an anchor value that is much higher or lower than the true value, and letting people

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judge, people always tend to adjust based on the anchor value. However, this adjustment is always incomplete, resulting in estimates that deviate significantly from the true value.

In addition to its daily application, it has also played a role in the real estate market. This has been proved by many empirical studies and statistical summaries made by many researchers. Although most of the students and practitioners participating in the experiment clearly know from a rational perspective that product value and market information are the information that must be paid attention to in the process of real estate asking price, negotiation and transaction. Because the human brain always tends to pursue cognitive efficiency and shortcuts, the anchoring heuristic causes people to often overlook this important information.

As Newell and Simon and Simon point out, the limited amount of processing capacity in human short-term memory unconsciously compels the human problem solver to seek cognitive shortcuts [9]. Because of that, the research hypothesized that real estate negotiators will be strongly influenced by asking prices with seeking cognitive shortcuts even when such prices are incongruous in the face of conflicting market information, and then these shortcuts will influence settlement price results.

4. The Application of Subthreshold Initiation Paradigm

4.1. Applications and Experiments of Association and Hint

The subthreshold initiation paradigm is what we call association plus hint. This is also extremely common in people's life, and is reflected in many places such as shopping malls. The shelves in the supermarket always put together several seemingly unrelated items like expensive brands mixed with something ordinary to guide and hint customers that many of them are cheap. To give another small example, when people go to Starbucks, the salesperson will always ask them "large or medium". They do have a "small cup" in a lot of cases, but they leave that out when they ask. In general, it is easy for customers to think that there might be small cups in the store. But the salesperson's inquiry also acts as an invisible anchor that makes them ignore the "small cup" option at that moment.

Another application is a classical experiment by Tomas Mussweiler and Fritz Strack. They asked an anchor question about temperature, "Is the average annual temperature in Germany 20 degrees Celsius above or below," or "Is the average annual temperature in Germany 5 degrees Celsius above or below". Then they asked the subjects to scan and identify the words. Subjects who heard 20 degrees Celsius were more likely to identify some summer words like "sun" and "beach", while those who heard 5 degrees Celsius were more likely to identify some winter words like "icy" and "skiing" [2]. In this experiment, the temperature and the corresponding associative words acted as anchors to the subjects' brains. They entice people's minds to follow a certain path through suggestion, which makes them associated with the corresponding objects based on experience and memory, and affects their judgment. This was a selective stimulation of the corresponding memory, which biased the subjects' estimates of the average temperature. This is where the anchoring effect of the subthreshold initiation paradigm.

4.2. The Effect and Influence of Association and Hint on the Brain

Our perception of reality occurs when the brain receives information from the eyes and ears. This phenomenon is what scientists call "bottom-up processing". Part of what we understand as "reality" is often a product of the brain under the action of delusions, hallucinations, psychological suggestions, etc [10]. At the same time, people are also vulnerable to the influence of past experience, and the way of thinking through experience association is what people call a cognitive shortcut.

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In fact, associations can be thought of as empirical judgments made by the brain in seeking cognitive efficiency, which is called heuristic The hints are like an anchor that affects people's perception and biases the result.

5. Conclusion

This article reviews the basic content and mechanisms of anchoring effect. Through three applications above, it explains three different mechanisms and helps understand the principles of the generation, action and classification of anchoring effect. This article also has a rudimentary understanding of how it works in economic and financial cases. In short, anchoring works by taking advantage of the human brain's pursuit of cognitive efficiency and shortcuts. Thus it can seriously affect transaction prices and economic behavior. By studying the anchoring effect, people can have a clearer understanding of the impact with different behaviors on economic outcomes, so as to predict them. In addition, people can avoid some mistakes in actual decision-making.

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