

Research on Typical Models Used in Traditional Economics And Behavioral Economics

Yueran Zhou^{1,*}

¹*Nanjing Jinling High School, Nanjing, China, 210036*

^{*}*Corresponding author. Email: 3265852498@qq.com*

ABSTRACT

People often hold conflicting opinions on behavioral economics and traditional economics. So comparing the history and the availability of the two types of economics is necessary. The research is to investigate their similarities and differences, and how people evaluate these two kinds of economic systems in different times in history. Moreover, The development of the two kinds of economics in history will be discussed and to investigate which economic phenomenon can be interpreted well by behavioral economics and which can use traditional economics to interpret. This passage is going to clearly investigate the relationship between the two types of economics and find out their advantages and disadvantages. Models in different kinds of economic investigation methods need to be discussed consistently. The research will discuss different typical models and effects of economic phenomena.

Keywords: *endowment, rational, irrational certainty reflection deterministic*

1. INTRODUCTION

Behavioral economics, including the study of opportunity cost and making choices. Quite a few anomalies, such as preference reversal, isolation effect and sunk cost fallacy, do not exist. This is not to say that people always make rational choices. History and development of traditional economics and experimental economics. Some typical theories have been already discussed by scholars around the world, however, people still need some effort to work on the economic events happen in their daily lives since they are lack of samples to evaluate the effects in reality. The passage will discuss some possible effects happened in reality and briefly introduce them. Some simple games are carried out to find the possible outcomes when writing the passage. It can make the findings more solid and convincing.

2. BRIEF DISCUSSION OF THE TWO KINDS OF ECONOMICS

As a practical economics, behavioral economics organically combines behavioral analysis theory with economic science to find errors in economic models, and then correct the faults such as how to maximize utility in traditional economics.

Psychologist Daniel Kahneman (hereinafter referred to as Kahneman) and economist Vernon L. Smith shared that year's Alfred Nobel Prize for economic science commemorated by the Swedish central bank [1]. This is the first time that the award is given to psychologists and the second time to scholars without formal economic training. (it was given to the mathematician Nash last time, see the film "beautiful mind") .After wining the war, behavioral economics was more and more popular for people to discuss. Research of psychological economics, has also changed into behavioral economics in combination with the content of economics. Five years later, behavioral economics developed more and its research results directly link with business branches such as marketing.

When it comes to behavioral economics, we have to mention two people, one is Daniel Kahneman mentioned above, and the other is his old countryman (all Jews) Amos Tversky. Kaniman and Amos are old alumni (undergraduates of Hebrew University) and old comrades in arms (it is said that they joined the IDF and carried guns together). Finally, they were both teachers in Stanford University and became colleagues.

Amos and Kahneman have worked together for a long time and published many articles But why didn't Amos

win the prize? Amos didn't win the prize mainly because he died in 1996. Coase (the winner of the 1991 Nobel Prize in economics, as Zhang Wuchang must say, died of illness on September 2, 2013 at the age of 102) and Vickery (who died without receiving the prize) who left at the age of 84 are really jealous of talents.

The third figure, Richard Thaler, was born in 1945. Look at the heroes of behavior. Kaniman, the No. 1 character, has won the prize, Amos, the No. 2 character, has passed away, and Lao Rui, the No. 3 character, should also win a prize (won the Nobel Prize in economics in 2017).

Unlike Kahneman and Amos, Taylor is a serious doctor of Economics (74 Rochester). But after graduation, he turned around and dug up the corner of traditional economics. After many efforts, Taylor is considered to be the most important founder of behavioral finance.

Taylor is one of the proponents of the role of endowments. He also made some small contributions to the prospect theory, but these achievements are not enough to make him ranked as No. 3. Taylor's contribution is that in the early 1980s, he founded the mental accounting theory, which is comparable to the prospect theory, that is, the psychological account theory

Traditional economics refers to the science that takes "economic man" as the theoretical subject to study all kinds of economic activities and economic relations of human society. The traditional economics mostly bases on the economic theories.

The hypothesis of "economic man" is regarded as an important cornerstone for the establishment and improvement of the traditional economic theoretical system. It has two connotations: first, people only care for their own interests, meaning that everyone is selfish; Second, people are rational while making choices and have a clear understanding of their own behavior. Economists almost agree that this hypothesis is derived from and attributed to Adam Smith, but in fact Adam Smith did not directly put forward the concept of "economic man", but included the idea of "economic man" in the theoretical discussion of "invisible hand" in the wealth of nations. The core of the theory is the assumption that all people making an economic choice is rational and selfish. However, nowadays traditional economics is not useful as before because the global economy is becoming a more and more complicated situation for economist to analyze.

3. THE ADVANTAGE OF BEHAVIORAL ECONOMICS

3.1 The applications of behavioral economics in reality.

It is more generously used in the daily life since it assumes that not all people in reality is rational and selfish, which is the main limitation of traditional economics for the simple reason that people need to consider more issues when making an economic decision in reality. It can also predict your rival's economic decision when you are competing.

Here is one example of behavioral economics used in reality that most people will choose to earn something that they can surely get it, which is called the certainty effect [2].

Certainty effect is to choose or select between certain benefits (benefits) and "gambling" when in a certain situation, and most people will choose certain benefits. It is described in one word as "close when you see the good". In one sentence, it is like "two birds in the forest, not like one bird in the hand". It is the so-called falling bag for peace.

Here is an experiment.

A. You can make 30000 yuan.

B. You are 80% likely to earn 40000 yuan and 20% likely to get nothing.

Which choice would you think that in reality most people will tend to choose?

The result is that most people choose a.

In traditional economics which assumes that all people are rational and selfish people would claim that choosing a is wrong, since $40000 \times 80\% = 32000$, as a result the expected value would be greater than 30000.

This experimental result is a confirmation of "principle 1": when most people are choosing different types of profits they can gain, they are often cautious and tend not to lose their existing profits. Kahneman and Tversky call it the "certainty effect", that is, when they are in the state of income, most people are risk averse.

The "certainty effect" is most frequently used by investors and financing agents, which is that people will have a strong sense that they tend to gain more profit.

When investing, most people's performance is "loss will delay, win will go". In the stock market, there is a "sell effect", that is, investors' intention to sell profitable stocks is greater than their intention to sell loss stocks. This proves that people will be more willing to hold the right ones which they have invested and tend to sell the wrong ones.

Another problem to be concerned:

In the face of two kinds of damage, will you tend to avoid it or move forward?

When a person is faced with the choice of two different kinds of losses, he will tend to choose to take some adventure and choose the one that has fewer losses.

When making a choice between the determined disadvantages (losses) and "gambling", most people will choose "gambling", which is called "reflection effect".

Let's do such an experiment.

A. You will lose 30000 yuan.

B. 80% of you may lose 40000 yuan and 20% may not lose money.

Which one would you choose? The voting result is that only a few people are willing to "spend money to eliminate disasters" to choose a, and most people are willing to fight against fate and choose B.

The "rational man" in traditional economics will jump out and say that the lesser of the two losses is the right, so it is unreasonable to choose B, because the risk is greater than - 30000 yuan.

The reality is that when most people are in a state of loss, they will be more willing to gamble, which is for the one that has fewer losses. Meaning that when they are in the expectation of loss, most people become willing to take risks. Kahneman and Teveski call it the "reflection effect".

The "reflection effect" is irrational, which is reflected in the fact that investors like to continue to hold stocks that lose money[3]. Statistics show that investors hold loss stocks for much longer than profit-making stocks. Most of the stocks held by investors for a long time are "hold on" stocks that are unwilling to "cut meat".

This is widely used in commercial industry for investors to bravely gamble the choice that is with less opportunity cost and it can be used to determine others' reactions

3.2 Behavioral economics can help to optimize the renewable energy storage

In order to study the users' consumption tendency of battery, a user incentive model with three components is established. Based on behavioral economics principles such as present bias, and intrinsic motivation relating to the people's behaviors in reality, the model tests the influence on user motivation. The intention of consumption based on behavioral economics was researched. The above variable control experiments are tested by a scale questionnaire, which is commonly adopted in the behavioral economics and psychophysics experiments of Nobel Prize winners Daniel Kahneman and Vernon Smith[4]. This form of doing researches can transfer the theories that were not tested before into clear data, which is referred to as statistical evidence. The questionnaire was distributed in China, with underdeveloped areas such as Tibet and Xinjiang

excluded for their potentially poor access to the state-of-the-art technologies. Repeated answers were automatically rejected by online technologies. The survey time was from 20 December 2020 to 27 December 2020, and a total of 381 questionnaires were collected.

3.3 Ways behavioral economics are used in medical treatment

Behavioral economics can contribute to the solution of some medical events and to the medical policies, which is of great importance in evaluating the problem of COVID-19.

For example, when people made a wrong decision, they tend not to change their decision but to stick to their former decision. This is called status quo bias in behavioral economics[5]. To use it on doing the prevention on economics, some officials have wrongly evaluated the fast spreading of the virus but they tend not change their idea since they have status quo bias. They may not allow people to largely donate their organs to help those who are positive in the COVID test. Then others can notice this problem and solve it.

Also, another term called the framing effect is that people may react differently to the messages of the same meaning but different forms of expression. For example, if the government said to the citizens that they must wear masks just because it's the country's policy, which is compulsory, then people may not feel pleasant of the way expressing this and may not support the government's work. However, if the message is expressed in this form: please wear masks to ensure you and others' health, which is beneficial to the whole society. Then people will be happier when noting this information and they will instinctively wear masks when going out in the future.

3.4 The use of behavioral economics in government intervention

Behavioral economics is also capable of helping the government to adjust the price system, considering those who buy stocks.

Prospect theory points out that people's "heart is biased" when evaluating the possible effects of balance when facing a loss and a return. People tend to rely more on risks when evaluating the possibilities of return. However, on the other side, risks are not favored when facing a loss.

For events are of little probability, people's manner towards risks changes a lot. Therefore, people are not loving to risk. They tend to gamble when appropriate.

In the final analysis, people definitely hate loss, instead of risks.

3.5 Behavioral economics can also help to deal the people's relationships

When you are facing with such a choice with the cost of buying a good or service is identical.

A. When other people earn 60000 yuan per year, your annual income is 70000 yuan.

B. When others earn 90000 yuan per year, you have 80000 yuan a year.

Kahneman's findings were beyond his imagination: most people tend to choose a.

In fact, what motivates us most to earn money is peer envy and comparison[6].

Our standard of gain and loss originates from comparison.

Envy always comes from comparing yourself with others. Bacon once said that an emperor is usually not envied unless the other party is also an emperor. In this regard, American writer Mencken has long had a wonderful Theory: "as long as you earn 1000 yuan more than your sister-in-law's husband (brother-in-law) a year, you are rich."

Traditional economics proves that the utility of money is somewhat absolute, while behavioral economics tells us that the utility of money is relative, which is the evaluation between wealth and happiness.

So when deciding how much salaries a worker can get, the boss needs to consider their emotional change when seeing others of the same capability but with different amount of salaries paid.

4. CONCLUSION

If people get benefits in their experiment, then they should list them separately as possible and when they face some drawbacks, they should combine them if possible to minimize their loss. Moreover, traditional economics is not practical in today's economy world since it is more complicated than 50 to 100 years ago. However, some limitations might occur. Although prospect theory are more capable of explaining more events in reality than the classical model, it still cannot explain stochastic dominance Then, in order to improve prospect theory, cumulative prospect theory and hierarchical dependent utility theory are proposed respectively to solve the phenomena of random advantage. Hierarchical dependent utility theory is also suitable for explaining the results of continuity and infinity (for example, the results are arbitrary real numbers). During different periods in

the history, the two kinds of investigation methods have been used alternatively for many times because of the complexity of the society and the way a country operates the economy. So in traditional economics, the basic assumption is that everyone is rational and selfish, which means that they only cares about their own benefit and interest get. This was high intensively discussed in the 20th century. On the contrary, behavioral economics was discussed since economist found out that people may not be always rational and selfish as they suggested in traditional economics, so they began to discuss people's reactions to different economic situations in reality. And as a result, behavioral economics occurred. It organically combines the economic basic theories and laws with real situations. A significant number of possible effects have been discovered, for example, certainty effect, deterministic effect, as well as the reflection effect. The certainty effect effectively concludes that people tend to maximize their profit while trading with others, so they tend to sell the goods that are profitable. Also in reality when people facing two kinds of losses, people will choose "the lesser of the two evils", which is an example of reflection effect.

REFERENCES

- [1] Greg Pogarsky, S. Roche, Justin T. Pickett. (Published 2018), Economics.
- [2] Justin t. Picket, J. barnes, Theodore Wilson, Sean Patrick Roche, Economics, Justice Quarterly, (2019).
- [3] Jan-Erik Vahlne, J. Johanson, Economics, (11 August 2014).
- [4] H. Bleichrodt, Paul van Bruggen, (Published 30 October 2020), Economics, Review Of Economics and Statistics.
- [5] S. Cerreia-Vioglio, David Dillenberger, Pietro Ortoleva, (Published 9 July 2013), ERN:Uncertainly & Risk Modeling (Topic).
- [6] Tao, S., Zhang, Y., Yuan, M., Zhang, R., Xu, Z., Sun, Y., Behavioral Economics Optimized Renewable Power Grid: A Case Study of Household Energy Storage. Energies 2021,14.