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Article

THE CONSIDERATION AND EVALUATION OF INDIVIDUAL AND COLLECTIVE HUMAN BEHAVIOR WITHIN BEHAVIORAL ECONOMICS INCORPORATING PSYCHOLOGY, SOCIAL PSYCHOLOGY, NEUROECONOMICS, AND ECONOMICS TO EXPLAIN ECONOMIC DECISION-MAKING SITUATIONS

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Abstract. This paper shows which factors play a central role in the subjective valuation of possessions. It relates these to a specific behavior that individuals exhibit in decision-making situations in which only limited information is available and a high degree of complexity prevails. Behavioral economics uses these findings as an opportunity to relativize the image of the rational utility maximizer, also known as homo oeconomicus, and to take greater account of psychological and social-psychological factors within economic considerations. Furthermore, the connection between Prospect Theory and the systematic distortions of perception will be shown. Prospect Theory states that decisions are not made on rational grounds alone. One of the so-called systematic perception distortions is the endowment effect. This describes that a good, which one already has in possession, is considered to be more valuable than if one did not have the corresponding good in possession. Furthermore, perception distortions such as the status quo preference and loss aversion are described.

Keywords: behavioral economics, utility maximizers, endowment effect, behavioral anomalies, expected utility theory.

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Introduction

"I can't tell you how to get rich quick; but I can tell you how to get poor quick: namely, by trying to get rich quick." - André Kostolany. Many people are subject to the distorted misconceptions described by Kostolany.

By the middle of the 20th century, psychology had largely disappeared from the economic discussion. Many factors revived this discussion and contributed to the development of the theory of behavioral economics. Theoretical models and their experimental testing on expected utility and utility after cost deduction achieved widespread recognition by providing testable hypotheses taking into account uncertainty and intermediate consumption, respectively. A number of observed and repeated anomalies challenged these hypotheses. Furthermore, in the 1960s, cognitive psychology began to view the brain as an information processing device, in contrast to models of behaviorism. Behavioral economics is a branch of economics concerned with the behavior of people in economic decision-making situations. The following discussion addresses the overarching scientific field of behavioral economics, which includes the endowment effect. Here, the questions of what decisions are and what role the reward and punishment system plays in the selection of alternatives are addressed. Subsequently, Beck (2009) states that behavioral economics brings together different views of human beings. He links the view of human beings from economics with that from psychology and social psychology. The task of behavioral economics is to investigate the reasons

why people systematically make wrong decisions, under which conditions this happens and what influence this behavior has on their economic decisions (Beck, 2009).

Classical economics considers humans as rational beings the so-called homo oeconomicus, who are fully aware of their needs, constantly calculating and weighing benefits and costs. This homo oeconomicus is an essential element of classical economics and facilitates the development of statements and models about human behavior based on mathematical and statistical foundations (Beck, 2009). From this perspective, the individual is a utility maximizer who is not influenced by his or her cognitive abilities, perceptual weaknesses, or even emotions. Weakness of will, self-control problems, or irrational behavior hardly find consideration within this thought construct. Moreover, altruistic behaviors are not taken into account. The individual strives above all to maximize his own benefit. Motives such as cooperation or fair play are only taken into account to the extent that they might be useful for self-interest. Behavioral economics contradicts these assumptions and postulates that although homo oeconomicus functions in the world of mathematical and statistical models, in reality decision-making processes are more multilayered and complex (Beck, 2009).

Literature Review

The decision process, the behavior as well as the explanatory approaches

Decision can be described as the selection of a specific option from a set of alternatives. According to Hubert & Kenning (2011), depending on the situation, the utility and potential value of the option are considered in the selection process. Decisions play a central role in economics, as every purchase of a product or brand is preceded by a decision-making process. First, the stimulus is evaluated, which is followed by rational weighing and emotional evaluation. In terms of brain physiology, the decision takes place in the prefrontal cortex. This part of the brain is connected to the organism's reward and punishment system. Therefore, both emotional factors and cognitive factors are active in decision-making. Especially in the case of branded products, it can be seen that emotional factors often trump cognitive factors (cortical discharge), which is why advertising usually focuses less on presenting facts and more on triggering feelings (Hubert & Kenning, 2011).

In particular, neuroeconomics sheds light on irrational behavior of individuals in the marketplace. The basic assumption of Bürger and Weber (2011, p. 222.) is: *"Humans are incapable of rational thought and action due to our evolutionary psychophysiological makeup."* The brain developed in an evolutionary process that took many millions of years. In the process, mutations resulted in corresponding adaptations of the brain structure to the respective living conditions. Neural networks have therefore evolved for an environment in which there were no international financial markets or complex purchasing decisions (Bürger & Weber, 2011). Rather, our brains are still geared to Stone Age situations that often involved fight or flight. Rational and logical examination of the situation at hand could quickly become life-threatening here. A large part of our behavior is therefore still dependent on automatic, partly unconscious, processes. Especially the handling of money is a relatively new invention compared to the evolution of the human brain. It is therefore necessary to be constantly aware that not only rational motives influence financial events, but that a whole range of other factors are active in decision-making processes (Bürger & Weber, 2011).

Prospect Theory, also called New Expectancy Theory, is an alternative to the classical model, Expectancy Utility Theory, and takes into account that people's decisions are often influenced by perceptual biases and irrational behavior (Miller, 2003). Expectancy utility theory serves as the architecture of rational decision-making in situations of uncertainty or lack of information. The basic assumption is that an individual forms a kind of hierarchy with respect to his or her preferred goods. Accordingly, certain goods have a higher ranking and are thus evaluated as better. The individual expects a higher utility from the better valued good and strives to maximize its utility (Miller, 2003).

Prospect Theory was introduced by Kahneman and Tversky (1979) and claims to be a more realistic assessment of human behavior because it also takes into account cognitive biases in human behavior and thus can explain irrational behavior (Forbes, 2009). Analysis of how individuals value

gains and losses shows that the resulting value function is asymmetric, as losses are generally valued more than gains. This leads to a number of effects. These include the endowment effect, status quo preference, the security effect, and loss aversion (Forbes, 2009). Prospect Theory postulates a number of perceptual biases that influence decision behavior in complex and uncertain situations. These include the presumption bias, which leads to overestimating one's own capabilities and influence. Also, the competitor's capabilities are often underestimated, while one's own insights and knowledge are overestimated. Proximity bias leads to a preference for things one is familiar with while ignoring alternative options (Budde, 2011). People also often set wrong priorities and spend a lot of energy on unimportant decisions. They expend less energy on important decisions. In addition, individuals stick with a decision once it has been made for a long time and have great problems distancing themselves from positions they have taken. At the same time, a lot of time and energy is spent on losses (Budde, 2011). Behavioral economics can explain consumer behavior much better than previous models could. So if you combine the findings from behavioral economics with the tried-and-tested methods from marketing, much stronger effects can be achieved and the efficiency of marketing increases. Some approaches may seem a little strange at first glance, but this is mainly due to the widespread, rational view of buying and consumer behavior. Once you have internalized the fact that decisions are often not made rationally, behavioral economics opens up completely new marketing opportunities (Akerlof & Shiller, 2010).

Methods

The endowment effect and experimental evidence of human behavior

The endowment effect explains certain behaviors of people and shows that the possession of a good influences the value we attach to it. The following explanations illustrate this relationship using selected experiments on the endowment effect.

Kahneman, Knetsch and Thaler (1991) give an interesting and at the same time illustrative example for the explanation of the endowment effect. A wine lover buys Bordeaux wine at a time when the prices for the bottles are relatively low. He has to pay just 10 dollars per bottle. However, the wines he buys increase greatly in value over time. After some time, the wines cost over $200 per bottle at wine auctions. The wine lover does drink from his wine now and then. However, he is not willing to sell his wine even if he could get far more for his bottles. This behavior pattern is called the endowment effect. The endowment effect states that individuals value a good they already own as more valuable by the mere fact that they own it than goods they do not own. As a result, individuals find it difficult to part with goods once they have acquired them (Kahneman, Knetsch & Thaler, 1991).

The endowment effect was first demonstrated by a lottery experiment. Participants in this study were given either the amount of $2 or a lottery ticket. Some time later, the subjects were given the opportunity to exchange the money, or the ticket respectively. Those who had received money could exchange it for a lottery ticket. The ticket holders, on the other hand, could receive the amount of money. It turned out that only very few participants accepted the offer. In particular, the lottery ticket holders seemed to value the ticket more than the money and did not want to exchange it again (Kahneman et al., 1991).

Knetsch (1989) conducted an important experiment on the endowment effect. He formed three groups for this purpose. The members of the first group were each given a coffee cup at the beginning of the experiment and were then asked to fill out questionnaires. After the group had completed the questionnaires, the study leader offered them a trade. They could now exchange the coffee cup for a chocolate bar. However, they had to choose between keeping the coffee cup or giving up the cup and receiving the chocolate in return (Knetsch, 1989). The second group did not receive a coffee cup at the beginning of the experiment, but received a chocolate bar. All other experimental conditions remained the same. The second group was also given a chance to trade at the end of the experiment. They were offered to trade their candy bar for a coffee cup. The third group, on the other hand, received neither a cup nor chocolate. Rather, they were given a completely free choice between a cup or a chocolate bar (Knetsch, 1989). The result of the study shows that if the subjects can decide freely between a coffee cup and a chocolate bar, as happened

with the third group, the preferences are relatively balanced. 56% of the subjects chose the cup, 44% of the subjects chose the chocolate. However, the result for the other two groups is quite different. The first group, which had received the coffee cup, chose the cup 89% of the time and the chocolate only 11% of the time. In contrast, the second group, which had received the chocolate, chose the chocolate 90% of the time and the cup only 10% of the time (Knetsch, 1989). The coffee cup experiment shows that subjects who were in possession of a specific good rated it higher and were more likely to want to keep it. If the subjects did not have a specific good in their possession, the evaluation was correspondingly more neutral. The possession of a good thus exerts a particular influence on its valuation. A good that is already in one's possession is valued more highly (Davis, 2011).

In addition to real experiments, telephone surveys were also conducted on the endowment effect, in which respondents were given certain choices and asked to decide on one option at a time. Subjects were asked to answer questions about a hypothetical annual change in income associated with an increased risk of becoming a victim of an accident. The first group was asked whether they would be willing to accept a $700 increase in their income in exchange for a 0.5% doubling of their accident risk (from 0.5% to 1%). They owned the low accident risk good and could trade it in return for a hypothetical $700 annual income increase. 61% of the subjects rejected this offer. They were not willing to give up their good low accident risk. The second group was asked whether they would be willing to give up $700 per year if it meant a 0.5% decrease in the probability of an accident, from 1% to 0.5%. This group already possessed the good of money and had the chance to obtain the good of lower accident risk by giving it up. Only 27% of the respondents answered that they would be willing to give up the $700. Again, this shows that whether or not you already own something has an impact on your decision. Only 39% preferred the money if it meant losing some of their good risk, while 73% preferred the money if they already had the money in their possession (Knetsch, 1989). The money-or-vacation experiment also underscores what has already been said about the topic. This result corresponds to the cups versus chocolate experiment. The good that is already owned is considered more valuable. The results were also comparable in another situation. If subjects were offered to give up a week of their vacation in order to receive $500 more income, 66% rated the vacation as more valuable. If subjects were offered to give up $500 of salary in order to receive one week more vacation, only 29% chose vacation (Knetsch, 1989).

The status quo preference is a decision heuristic. Heuristics represent simple rules according to which decisions are made. Hering and Olbrich (2003, p. 73.) define heuristics as: *"A procedural technique in the sense of a special calculation rule or algorithm that finds application in dealing with problems for which no efficient, optimizing solution paths are known."* The status quo preference can be described as a manifestation of the endowment effect. In the following, the relevant aspects of this preference are illustrated by an example and an outlook on its effects on everyday life is given. In status quo preference or status quo bias, a significant bias in decision making towards the status quo takes place. Status quo preference was tested using a series of questionnaires that required subjects to make decisions. This involved manipulating the surveys so that subjects had to make decisions under an experimental condition in which the options were neutral with respect to each other (neutral framing) and another time an alternative was framed in the status quo position (status quo framing) (Samuelson & Zeckhauser, 1988). For example, one study of status quo preference consisted of decision making in a political election. If subjects were to choose a candidate under the condition that a candidate already held office, 59% of subjects chose the incumbent. Under the neutral condition, in which the same candidate was not in office, only 39% would vote for him. The status quo preference is more pronounced the more alternatives are available. For example, if four candidates are running for election, each of the candidates receives 25% of the approval under the neutral arrangement. However, if one of them already holds office (status quo framing), that candidate receives 38.5% of the vote. From this, we can conclude that people prefer the status quo in the decision-making process, even if, as the example points out, the number of options (co-candidates) increases. We base a decision on what already exists (Samuelson & Zeckhauser, 1988).

Results

Effects in economic processes and in everyday life

Samuelson and Zeckhauser (1989) also recognize the status quo preference in immediate everyday situations. As a first example, the two authors mentioned a situation from Germany. Due to coal mining operations, a small town had to be relocated. The inhabitants were therefore supposed to move to a town close to their previous town. However, although the government developed a whole range of proposals to redesign the future town, the residents insisted that the town should be rebuilt exactly as the old town looked (Samuelson & Zeckhauser, 1989).

Samuel and Zeckhauser cite a brewery's creative advertising idea as another everyday example of status quo preference. The Schlitz beer company had convinced beer drinkers of the brewery test Budweiser beer in live broadcasts. The Budweiser fans did not know which of the two beers came from which company. Many Budweiser fans preferred the beer of the competitor Schlitz, which they thought was the original Budweiser. Since the majority preferred the competitor's product, the irrational decision to reach for the alleged Budweiser product may indicate that a bias toward the status quo of the Budweiser brand is occurring here (Samuelson & Zeckhauser, 1989). Loss aversion plays a central role in the classification of the endowment effect, since individuals value losses more highly than gains. Loss aversion also includes the certainty effect and sunk costs.

Loss aversion is understood to mean that individuals value losses more highly than gains. The anger about losing 1,000 euros is greater than the joy felt when winning 1,000 euros (von Nitzsch, 2006). Loss aversion can be explained on the basis of cognitive dissonance theory. According to this theory, every decision is associated with a commitment. How strong the commitment is depending, among other things, on whether the decision was voluntary and how much has already been invested. The stronger the commitment, the greater the loss aversion. The individual uses mental accounting to calculate how great the dissonance would be in the event of a loss, and the greater the commitment, the greater the dissonance (von Nitzsch, 2006). Why the valuation of losses is more severe compared to the valuation of gains is related to the pressure to justify and psychological costs in case of loss. While gains do generate joy and pride, the cognitive dissonance is not as strong as in the case of losses. The degree of cognitive dissonance is also related to the question of whether the decision or loss was voluntary or involuntary. If one is robbed and has no opportunity to fight back, there is less cognitive dissonance and thus less loss aversion (von Nitzsch, 2006). In classical theories, such as expected utility theory, the assumption is often that utility and probability of an outcome are related. However, this assumption is regularly violated. Instead, it turns out that outcomes that are certain are overvalued compared to outcomes that are only probable (Bloss, Häcker & Eil, 2009).

If a gain is certain, it is then preferred even if the gain, which is merely probable, is higher. On the other hand, this psychologically induced effect leads to losses that are merely probable being preferred to certain losses, even when the certain loss is lower (Bloss et al., 2009). The certainty effect can also be used to explain irrational behavior in the stock market. From 1996 to 2000, the number of Germans owning stocks increased from 3.5 million to 6.3 million. During the dotcom crisis, however, only 1.2 million investors dropped out again, whereas most investors were not prepared to realize a certain loss. Instead, many were hopeful that the markets would recover, which is why the majority of stockholders accepted the higher, but merely more likely, loss. When stock prices rose again, the number of stock investors did not grow, but decreased. Many investors now wanted to focus on safe investments such as life insurance and government bonds. They thus preferred the safe but lower profit to the larger but merely more probable profit (Bloss et al., 2009). Situations can always arise in which it turns out in the end that the costs or energies already invested have to be finally written off. The costs incurred for this purpose are also referred to as irreversible costs or sunk costs (Zayer, 2007).

It shows that people tend to stick to a particular decision if they have already invested a lot in that decision, be it energy, money or time. Thus, the past is factored into the decision-making of the future. However, a systematic evaluation error can occur here, which leads to disadvantageous investments or projects being abandoned too late. This also contradicts the classical expected utility

theory, which assumes that only future payments are included in the decision (Zayer, 2007). Valuation based on irreversible costs is mainly used when there is otherwise little or no information about the future course of the investment. The valuation of future payments is not relevant here, as the valuation is purely based on the costs already invested. In this context, the more uncertain the situation is, the stronger the valuation based on sunk costs will be. Zayer (2007, p. 136.) states: *"This positive bias in valuation can tempt decision-makers to continue projects because the distorted valuation makes further investment seem worthwhile, even though a rational valuation would require abandonment."* The sunk-cost effect has been proven time and again by studies and states that the decision to abandon a bad investment means the certain realization of a loss. Further investments open up the chance of compensating for the losses, but are associated with the risk of an even greater loss. For example, when subjects received information about certain projects and were asked which were particularly valuable, they were strongly oriented toward the information about how much had already been invested in the project.

The lower the sunk costs were, the less the value of the project was estimated. In another experiment, subjects were presented with a choice of two different vacations. In this example, the vacations had already been paid for; all that was needed was to choose a location. The subjects knew that vacation spot A had cost twice as much as vacation spot B. However, they were told by the project leaders that vacation spot B would offer more advantages. Nevertheless, the majority of subjects chose resort A because they knew that higher irreversible costs had been incurred here, which made this alternative more valuable to them (Zayer, 2007).

Conclusion

Behavioral economics examines and models human behavior in economically relevant situations. In our view, economically relevant is everything that has an impact on human well-being, and behavioral economics tries to understand and mathematically model deviations from rational behavior. This is done primarily through extensions of the classical models of utility maximization and equilibrium behavior. Behavioral economics has already noticed the human behavioral anomalies and is in the process of revising the classical models. The behavior described by Prospect Theory can also be observed in financial decisions. The fact that people do not always make rational decisions is not a bad thing and is clear to most people anyway. But knowing why and how far we do not decide rationally can help us to better understand ourselves and our decisions.

Collaboration between the disciplines of psychology, social psychology, neuroeconomics, and economics has proven fruitful here, allowing social psychology to gain a better understanding of individual and collective human behavior. Continuously, psychological aspects of human action are coming more intensively into the focus of economic business practice. The established and traditional economic science, which usually only speaks of anomalies when observable behavior deviates from its own model world, is increasingly supplemented, expanded as well as modified by the findings of behavioral research and neuroeconomics (Bénabou & Tirole, 2011).

We humans do not behave rationally, as the classical model assumes about homo oeconomicus, but systematically commit wrong decisions because we are guided by perceptual errors. People associate emotional attachment with possessions, which in turn affect their decisions to act. The emotional attachment to possessions is not only reflected in the endowment effect. Status quo preference, loss aversion, the security effect, and dealing with irreversible costs also prove that people are not rational decision makers. The endowment effect provides us with the insight that we value things we already own more highly than things we don't.

Dan Arielly addresses the issue of behavioral economics in his book Predictably Irrational. In it, experiments are described that once again shake up the image of homo oeconomicus. The list of such experiments can be extended at will. The results are always the same. People behave irrationally because they are subject to behavioral anomalies in their decisions.

Emotions determine what happens on the economic markets. André Kostolany, a stock market and financial expert and business journalist, was aware of this. Kostolany was convinced that the stock market only reacted to ten percent of the facts. But how much psychology is really

involved in share prices? The most consequential example of the endowment effect comes from the stock market. Despite falling prices, a great many shareholders hold on to their shareholdings for far too long. The fear of losing ownership - of the shares - is greater than the fear of the actual loss in value. The rational thing to do would be to sell the shares quickly and thus minimize the losses.

Brain researchers have long been able to prove that we feel real pain when we lose or have to give away something that was previously in our possession. Even when we sell the precious good - in other words, when we actually receive something in return. That's why, for example, many people mourn the loss of their old and rickety car, even though they got a good price when they sold the rust bucket. The possession effect is also regularly used in marketing - with coupons or loyalty points, for example. With each new point in possession, the perceived value increases. But this is only intended to entice people to spend more. This trap works even more effectively with test drives, trial months or trial subscriptions for products. Once touched or once used the probability increases that the alleged product is not given no more from the hand (Hunt, 2011). The psychologist Fishbach was able to prove in experiments that the extent of the possession effect depends on the mood of the people: Those who are in a good mood succumb to the endowment effect to a lesser extent than people who are in an emotional bad mood (Fishbach, Zhang & Koo, 2009).

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