

Explaining Aspects of Economic Behavior with the Help of Quantitative Methods

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Abstract

When we make judgments and decisions about our lives, we like to think that we are objective, logical, and capable of evaluating all the information we have. In reality, however, our judgments and decisions are often full of errors and are influenced by a wide variety of prejudices. Today's economy has many exciting topics. Since economic agents are likely to make decisional errors, it is absolutely necessary to pay attention to and examine the cognitive, emotional and subjective factors that can influence our decision-making process. In this paper, the authors present a test case study (prospectus) that claims that people value gains and losses differently. Also, the authors of this paper want to study how individuals think and act on how to distribute income for the present and for the future, and how much the herd behavior, prospect theory, excessive optimism, mental accounting, in these different situations, matters. The field of behavioral economics uses as methods for predicting results not only mathematical models but also real-world data on consumer behavior so that the choices can be truly understood.

Key words

Herd behavior, excessive optimism, mental accounting, prospect theory, behavior, consumer, bias, decision-making process, behavioral economics

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1. Introduction

In the beginning, behavioral economics has relied heavily on evidence generated by experiments. More recently, behavioral economists have moved beyond experimentation and have embraced a whole range of methods. A number of recent contributions were made on the basis of statistical data and on the answers to some questionnaires. Other recent research uses methods such as field experiments, computer simulations and even brain scans. Research bias, also called experimenter bias, is a process where the scientists performing the research influence the results, in order to portray a certain outcome.

Some bias in research arises from experimental error and failure to take into accounts all of the possible variables. Other bias arises when researchers select subjects that are more likely to generate the desired results, a reversal of the normal processes governing science. Bias is the one factor that makes qualitative research much more dependent upon experience and judgment than quantitative research. Any experimental design process involves understanding the inherent biases and minimizing the effects. In quantitative research, the researcher tries to eliminate bias completely whereas, in qualitative research, it is all about understanding that it will happen.

Mental accounting refers to the people's tendency to separate their money into separate parts, based on a variety of subjective criteria, such as the source of money and the intent to use it. According to the theory, "individuals assign different functions to each group of assets, but as an effect this theory can generate a kind of irrational behavior" (Kahneman, 2011). *Optimism bias* (also known as *unrealistic or comparative optimism*) is a cognitive bias that causes a person to believe that they are at a lesser risk of experiencing a negative event compared to others. Optimism bias is quite common and transcends gender, race, nationality and age. Although the optimism bias occurs for both positive events, such as believing

oneself to be more financially successful than others, and negative events, such as being less likely to have a drinking problem, there is more research and evidence suggesting that the bias is stronger for negative events. *Prospect theory* assumes that losses and gains are valued differently, and thus individuals make decisions based on perceived gains instead of perceived losses. Also known as "loss-aversion" theory, the general concept is that if two choices are put before an individual, both equal, with one presented in terms of potential gains and the other in terms of possible losses, the former option will be chosen.

A strong herd mentality can even affect financial professionals. The ultimate goal of a money manager is to follow an investment strategy to maximize a client's invested wealth. The problem lies in the amount of scrutiny that money managers receive from their clients whenever a new investment fad pops up. For example, a wealthy client may have heard about an investment gimmick that's gaining notoriety and inquires about whether the money manager employs a similar "strategy". The distribution of earned earnings is essentially purely personal. Of course, there are manifold factors influencing the decision, more or less perceived, but in the end we can assume that each of us will make different decisions under the same conditions.

2. Literature review

Behavioral economists are trying to correlate certain aspects of personality with financial decisions. The results of the studies show that people who act impulsively and who are thinking rather than prospective tend to get more indebted, especially through account breaks and loan cards.

Limitations: Behavioral economy can not rely equally on mathematical models to predict results. Instead, real-world data on consumer behavior is being used and experiments can be created to measure how consumers behave in future situations. Although not as accurate as science, compared to the use of mathematical equations, behavioral economics often manages to make surprisingly accurate economic forecasts. Starting from the prospect theory, Kahneman and Tverski have shown that decisions are strongly influenced by the fact that people have asymmetric attitudes towards risk and that when losses are directly compared, they always seem higher than potential gains. Different cultures, the different types of education received, can impact on consumer behavior and saving (Akerlof, 2009).

Most people think the best way to motivate is to use rewards like money - the "reward and punishment" approach. It is a mistake (Pink, 2011) one of the most challenging and persuasive books of recent years, he claims that the secret of satisfaction and superior performance - at work, at school and at home - is the deeply human need to direct our own lives, learn and create new things to become better and make the world a better place. Dan Ariely's studies based on questionnaires at his university, Duke University, concluded: "People find it hard to think about the amounts spent" (Ariely, 2009).

A cognitive bias that actually refers to the systematic error that can occur in the thinking process and this can affect decisions and decisions that people take. Sometimes these cognitive distortions are related to attention problems. Subtle distortions can slip and influence how we see things and how we choose (Kahneman, 2011). It is said the demand for illusory certainty is satisfied by two popular types of economic writings: histories of ascension (usually) and decay (rarely) Individuals and companies, as well as analyzes of the differences between firms that are more or less successful. Success stories and failures consistently overstate the impact of management style and managerial practices on company results and, as a result, their message is rarely helpful (Rosenzweig, 2008).

3. Methodology of research

The questionnaire was designed to test the influence of some of the biases upon our choices, so that we could generate some conclusion regarding the financial behavior of the respondents. We tested the biases: hyperbolic discount, exaggerated optimism, mental accounting, prospect theory, herd behavior.

Behavioral research combines the psychological perspective with traditional economic theory and models. Psychological factors such as overconfidence, exaggerated optimism, emotions, intuition, the way we perceive the present and the future, etc. Influence the financial decision-making process. These influences and effects are studied and investigated by behavioral economics and behavioral finances to generate conclusions on the implications of human psychology and social sciences in financial decision-

making. In addition to the theoretical research of decision-making, behavioral economists are interested in the evidence supported by the findings and experimental results.

Traditionally, *“it is believed that the net effect of the gains and losses involved in each election is balanced in order to generate an overall view, an overall assessment of the profitability of the choice”* (Ciobanu, 2015). We use the term useful to describe the degree of satisfaction we have when choosing and with each decision we take, we aim to maximize our usefulness.

However, research in the field has shown that we are not processing the information in such a rational way. In 1979, Kahneman and Tversky presented an idea called prospect theory, which claims that people appreciate gains and losses in a different way. Thus, *if a person has to choose between two equal alternatives as a result, one expressed in terms of possible gains and the other in possible losses, people would choose the first option - even if both variants have the same final economic outcome* (Ariely, 2010).

According to the prospect theory, losses have a more emotional impact than earnings. For example, in a traditional way of thinking, the value of the utility gained from receiving 50 RON should be equal to a situation where we won 100 RON and then we lost 50 RON. In both situations, the final result is a net win of 50 RON. Nevertheless, despite the fact that in the end we still have 50 RON won, in both variants, most people perceive that the more favorable winning option, where one can win 50 RON compared to the final one, where you can win 100 RON and lose 50 RON.

Kahneman and Tversky conducted a series of studies in which the subjects responded to questions involving judgments between two monetary decisions, variants involving both losses and potential gains.

The following questions in my study are aimed at testing **the prospect theory** and analyzing the financial behavior of the respondents.

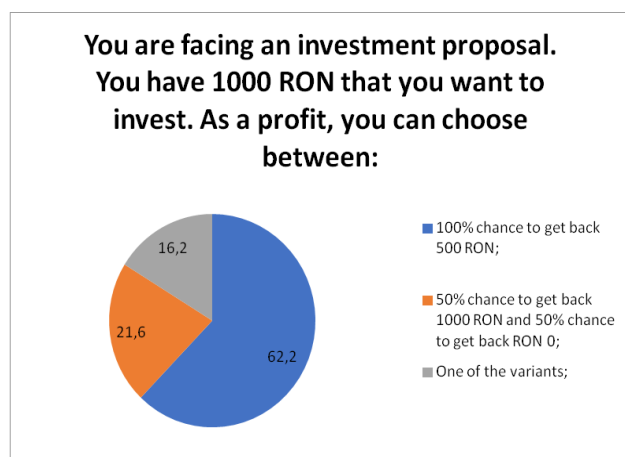


Figure 1. Financial behavior of the respondents for question 1

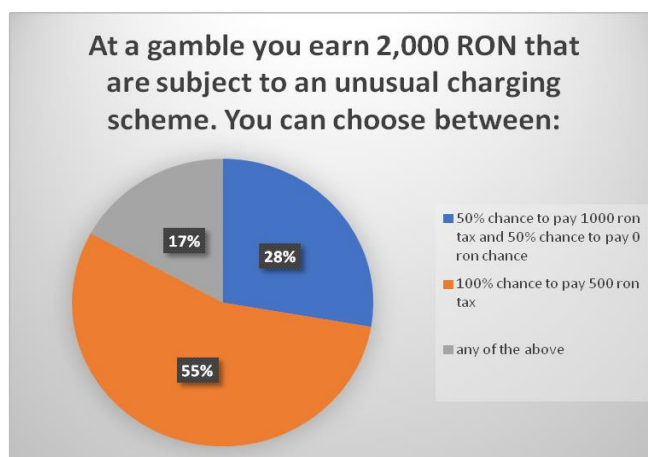


Figure 2. Financial behavior of the respondents for question 2

Regarding the first question, for those who chose variant C (any of the two variants) represent the category of respondents who logically answered (the final result is the same in both cases).

In this research, only 9.5% chose variant C for the first question and 17% for the second question. Most of the respondents chose the answer b) 100% chance to get back 500 RON; and 100% the chance to pay 500 RON tax; in proportion of 62.2% and 55.3%. They, according to the prospect theory, are more risk-averse than those who have chosen the first options A (50% chance to get back 1000 RON and 50% chance to get back RON 0 and/50% chance to pay 1000 RON tax and 50% chance to pay 0 RON tax); The implication is that people are willing to accept the idea of a reasonable level of winnings (even if they have a reasonable chance of winning more) but are willing to risk only if they can limit their losses. As a result, the respondents put more value on the money they already have than the ones they could win by risking.

It is this line of thinking that created the asymmetric value function:

This function is a representation of the difference in utility (amount of pain or joy) that is achieved as a result of a certain amount of gain or loss. It is key to note that not everyone would have a value function

that looks exactly like this; this is the general trend. The most evident feature is how a loss creates a greater feeling of pain compared to the joy created by an equivalent gain.

Consequently, when multiple gain/loss events happen, each event is valued separately and then combined to create a cumulative feeling. For example, according to the value function, if you find 50RON, but then lose it soon after, this would cause an overall effect of -40 units of utility (finding the \$50 causes +10 points of utility (joy), but losing the 50 RON causes -50 points of utility (pain). To most of us, this makes sense: it is a fair bet that you'd be kicking yourself over losing the RON50 that you just found.

Any rational investor will choose the less risky investment if two opportunities offer the same return in the end or a rational investor will want a higher return on a risky investment. Starting from these simple things, researchers have developed many models based on the cost-benefit relationship, but as we have seen throughout history, models have not been able to fully explain reality.

In order to test the bias *Mental accounting* we have formulated the following questions in order to track the balance between current and future loans and savings.

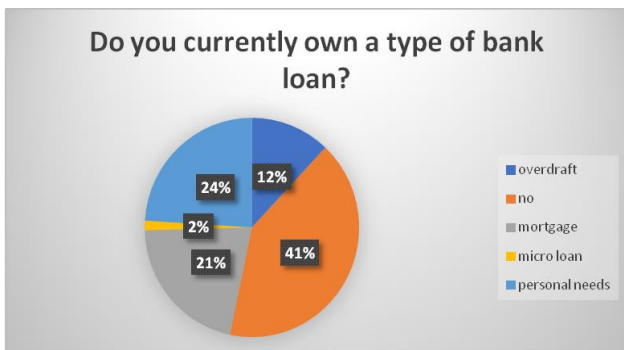


Figure 3. Financial behavior of the respondents for question 3

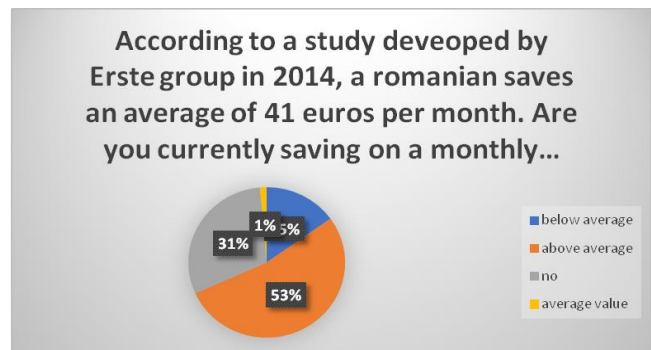


Figure 4. Financial behavior of the respondents for question 4

After applying the statistical methods we obtained the following results: 48% of the respondents have a mortgage and 46.7% of them are saving on a monthly basis, above the average. Saving money through a low-interest product is not economical if we also have overdue debts. In most cases, the interest generated by debt will exceed the interest we can earn through a savings account. Making savings is important, but sometimes it makes more sense to pay our debts first in order not to generate more total monthly costs. Here, the mental comfort weighs more than the economic rationality that could dictate the cover of loans.

Herd behavior. The ultimate goal of an individual who wants to invest is to pursue an investment strategy in order to maximize initial investment. In many cases, it is tempting for a manager to follow the choices already made by other professionals who have had positive results.

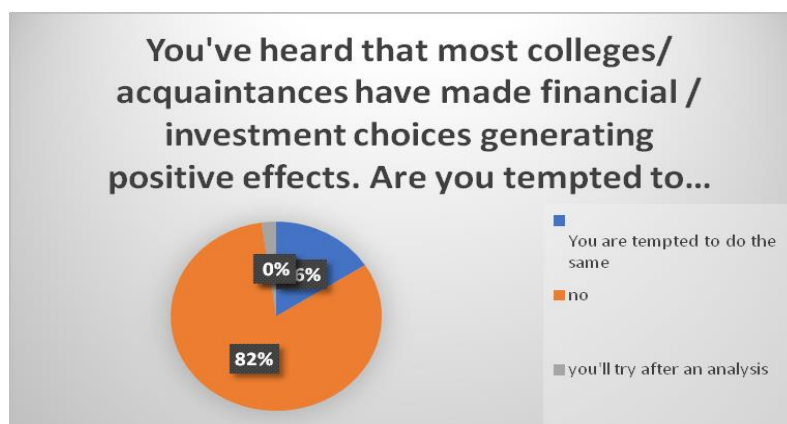


Figure 5. Financial behavior of the respondents for question 5

In the case of ordinary people, 80% of respondents would not do the same thing if they heard that other acquaintances had earned money by resorting to certain types of financial strategies. It seems that in the case, this bias does not work but rather the risk adversity. This does not mean that the influence of

herd behavior upon financial decisions does not exist. On the contrary, reality has shown that many Romanians have been subjected to this kind of bias, only if we think about the financial games like Caritas or INF. The definite answer can be related to the fact that a majority of the respondents have a master degree or MBA studies or with just the fact that the reality has shown how easily we can be manipulated.

Exaggerated optimism

This can be translated as the wrong belief that our chances of facing a negative situation are lower than those when we are faced with a positive one. Exaggerated optimism can also lead to mistaken decisions, which can sometimes have disastrous results.

Researchers have suggested various factors that lead to over-optimism, including motivational and cognitive factors. When we assess our risks, we compare our situation with that of other people, but we are egocentric. We focus on ourselves rather than look realistically on how we compare with others.

On the other hand, we are very much urged to be optimistic. Most of us think that we are less subject to failure and so we have more chances to succeed, increase our self-esteem and perhaps a lower level of stress. However, when we need to make financial decisions, we must try to look as realistically as possible on prospects and future resources.

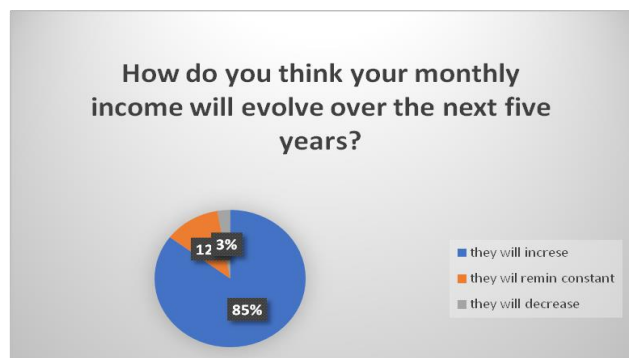


Figure 6. Financial behavior of the respondents for question 6

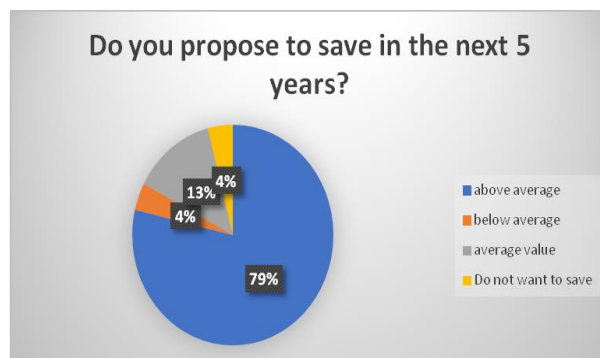


Figure 7. Financial behavior of the respondents for question 7

Just like the overconfidence in our future financial capacities, the over optimism actually refers to behavioral prejudices. 85.3% of the respondents believe that their income will increase and 78.7% want to save over the average monthly value in the future, even if only 46% currently save over the average. The excessive confidence and the over optimism can generate a higher degree of indebtedness, and these behavioral prejudices can also lead to some disappointments and the risk of collapse if the personal prognosis proves to be erroneous.

4. Conclusions

It can be concluded that the cognitive distortions are often the result of our attempt to simplify the processing of information. These prejudices often lead us to decisions made too fast and in a wrong way. When we make judgments and make decisions about our lives, we like to think that we are objective, logical, and able to evaluate all the information we have. The reality is, however, that our decisions are often full of errors and influenced by a wide variety of prejudices. Financial decisions are complex, based on a series of plans, motivations, beliefs about the future, but they are subject to a dose of over-reliance and other forms of irrationality, as choices do not always result in something profitable.

The present is more important than the future, in the future we all want to be better, to do more sports, to quit smoking, to do things by the book and in the most rational way, but when we are faced with the immediate choice, we often do not choose so rationally. The problem is that we value the present more than the future. The survey shows us that the bias of herd behavior is rather replaced with risk adversity. People are willing to accept the idea of a reasonable level of winnings (even if they have a reasonable chance of winning more) but are willing to risk only if they can limit their losses.

Exaggerated optimism can also lead to mistaken decisions, which sometimes can distort results. Excessive overconfidence and over optimism can generate a higher degree of indebtedness, and these behavioral prejudices can also lead to certain disappointments and to the risk of collapse if the personal prognosis proves to be erroneous.

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