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BEHAVIORAL ECONOMICS IN MODERN RESEARCH OF REGIONAL AND LOCAL DEVELOPMENT: THEORETICAL ASPECTS

Abstract. In terms (conditions) of socio-economic crisis, there are changes in the algorithms of acceptance of the investment, financial, management, and other decisions at various levels, which requires the emphasis on the patterns of behavior of participants in financial and economic processes in conditions of risk and uncertainty. The article aims to review the key postulates of behavioral economics, substantiate the possibility and feasibility of applying the theoretical foundations of behavioral economics as the latest model of the irrational behavior of financial and economic relations in practice management at regional and local levels.

The theoretical foundations of behavioral economics are revealed, the preconditions of origin (scientific bases, technological level, socio-economic bases) and stages of formation are determined. The interdisciplinary nature of behavioral economics as a science-based on the provisions of economics, psychology, sociology, neurobiology, and studies of socio-economic problems using non-traditional methods and approaches is proved. The study found that the growing trend of the practical application of behavioral economics at the regional and local levels is associated with the possibility of taking into account, except objective factors, irrational behavior of participants in financial and economic processes in conditions of risk and uncertainty. Behavioral differences between «economic man» and Humans are substantiated. It is established that people have such behavioral features as presumed irrationality; limited cognitive skills, emotions, morals, and social norms; limited selfishness; inconsistency (variability) of preferences. The expediency of studying economic relations at the regional and local levels on the basis of behavioral economics is justified by the possibility of explaining the abnormal behavior of economic agents in conditions of uncertainty and risk, which encourages the search for new behavioral strategies of financial and economic relations.

***Keywords*:** behavioral economy, regional development, local development, behavioral effects, behavioral patterns.

JEL Classification A 11, A12, B5

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ПОВЕДІНКОВА ЕКОНОМІКА В СУЧАСНИХ ДОСЛІДЖЕННЯХ РЕГІОНАЛЬНОГО І МІСЦЕВОГО РОЗВИТКУ: ТЕОРЕТИЧНІ АСПЕКТИ

Анотація. В умовах соціально-економічної кризи спостерігаються зміни в алгоритмах ухвалення інвестиційних, фінансових, управлінських та інших рішень на різних рівнях, що вимагає акценту на питанні закономірностей поведінки учасників фінансово-економічних процесів в умовах невизначеності та ризику. Метою статті є огляд ключових постулатів поведінкової економіки, обґрунтування можливості та доцільності застосування теоретичних засад поведінкової економіки як новітньої моделі ірраціональної поведінки суб'єктів фінансово-економічних відносин у практиці управління на регіональному і місцевому рівнях.

Розкрито теоретичні основи поведінкової економіки, визначено передумови виникнення (наукові основи, технологічний рівень, соціально-економічні основи) та етапи становлення. Доведено міждисциплінарний характер поведінкової економіки як науки, яка базується на положеннях економіки, психології, соціології, нейробіології та досліджує соціально-економічні проблеми із застосуванням нетрадиційних методів і підходів. У процесі дослідження виявлено, що зростаюча тенденція практичного застосування поведінкової економіки на регіональному і місцевому рівнях пов'язана з можливістю врахування, окрім об'єктивних факторів, ірраціональної поведінки учасників фінансово-економічних процесів в умовах невизначеності та ризику. Обґрунтовано поведінкові розбіжності між «людиною економічною» і Humans. Установлено, що людям притаманні такі поведінкові особливості, як: передбачувана ірраціональність; обмежені когнітивні навички, емоції, мораль і соціальні норми; обмежений егоїзм; непостійність (змінність) уподобань. Доцільність дослідження економічних відносин на регіональному і місцевому рівнях на засадах поведінкової економіки обґрунтована можливістю пояснення аномальної поведінки економічних агентів в умовах невизначеності та ризику, що спонукає до пошуку нових стратегій поведінки суб'єктів фінансово-економічних відносин.

***Ключові слова*:** поведінкова економіка, регіональний розвиток, місцевий розвиток, поведінкові ефекти, поведінкові закономірності.

Формул: 0; рис.: 2; табл.: 0; бібл.: 17.

Introduction. The crisis caused by the global pandemic has led to negative consequences in all spheres of socio-economic systems of different levels, not only in Ukraine but also far beyond its borders. Current troubles in all spheres of life focus on the anomalies of investment, financial, managerial, and other decisions and can indicate both a liquidity crisis and a crisis of confidence. Today there is no clear answer to the question: how do the decisions made on different swords of power effect (or non-effect) the dynamics of economic growth (both regions and local communities)? How many investment decisions are made that meet the existing conditions? Are they rational or irrational? To what extent is the budget, as the basis of socio-economic development of territories, an effective regulator of financial flows between sectors of the economy? It should be emphasized that in recent years in the scientific and scientific community there have been discussions about another important issue of economic policy, namely: the extent to

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which there should be (or should be) state intervention in the economy of macro, microsystems in general and in the lives of residents in particular.

In this sense, more attention needs to be paid to revising the classical and neoclassical provisions of economic theory, as those that are not able to fully identify and explain financial and economic problems, especially in conditions of uncertainty (crisis).

Analysis of research and statement of the problem. Over the last decade, there has been an expansion of the theoretical and practical foundations of behavioral economics for the development of stock and financial markets and solving specific problems within individual social groups to the formation of integrated economic and social policies at the state level [1] and even international organizations.

Global problems of mankind [2]. For example, in 2014, the OECD conducted a study on the specifics of regulatory policy in member countries [3], which, based on an analysis of 60 individual cases, identified the application of behavioral economics to public policy. It was found that the introduction of behavioral economics in the development of their state is Great Britain, Australia, Ireland, Italy, Canada, the Netherlands, USA [3], and at the supranational level — the European Commission [4]; study and search for ways to implement the principles of behaviorism to the formation of a policy of state regulation — Norway and France [4].

The formation of state development a policy in these countries is based on the experience and experience of experts in the fields of psychology, neurology, and cognitive sciences.

This makes it possible to identify deviations of people's behavior from the behavior justified in the context of the theory of rational choice, and contributes to more effective forecasting of their actions, which, accordingly, allows the formation of more effective public policy in various areas.

The growing trend of the practical application of behavioral economics at the regional and local level, especially in an unstable economy (which we now have the opportunity to observe) is relevant since it allows in addition to objective factors (despite discussions on their quantification) to take into account irrational behavior of participants in financial and economic processes in conditions of uncertainty and risk. It is known that in conditions of risk, people's behavior changes: they try to avoid risks in various ways (including business and consumer), they reconsider strategies for the future, tend to save more and invest less, in the end, they choose the wrong course of action. Will be able to bring maximum benefit in conditions of uncertainty, etc.

In other words, this concept justifies the divergence between neoclassical economic theory and real human behavior through the prism of the socio-psychological content of their decisions and subjectivist characteristics.

This necessitates the deepening of theoretical and methodological and applied principles of behavioral economics as the latest model of the irrational behavior of the subjects of financial and economic relations at the regional and local levels.

The paper aims to review the key postulates of behavioral economics, justify the possibility and feasibility of applying the theoretical foundations of behavioral economics (as the latest model of the irrational behavior of financial and economic relations) in management practice at the regional and local levels.

Research results. Behavioral economics (BE) is a «young» field of modern economics based on economics, psychology, sociology, neurobiology, explores socio-economic issues using non-traditional methods and approaches (or studies the impact of social, cognitive, and emotional factors on acceptance of economic decisions by individuals and institutions, as well as the consequences of this impact on market components (prices, profits, allocation of resources, etc.) [5]. The emergence of PE, as research has shown, was preceded by several preconditions, which can be divided into: and socio-economic foundations (*Fig. 1*).

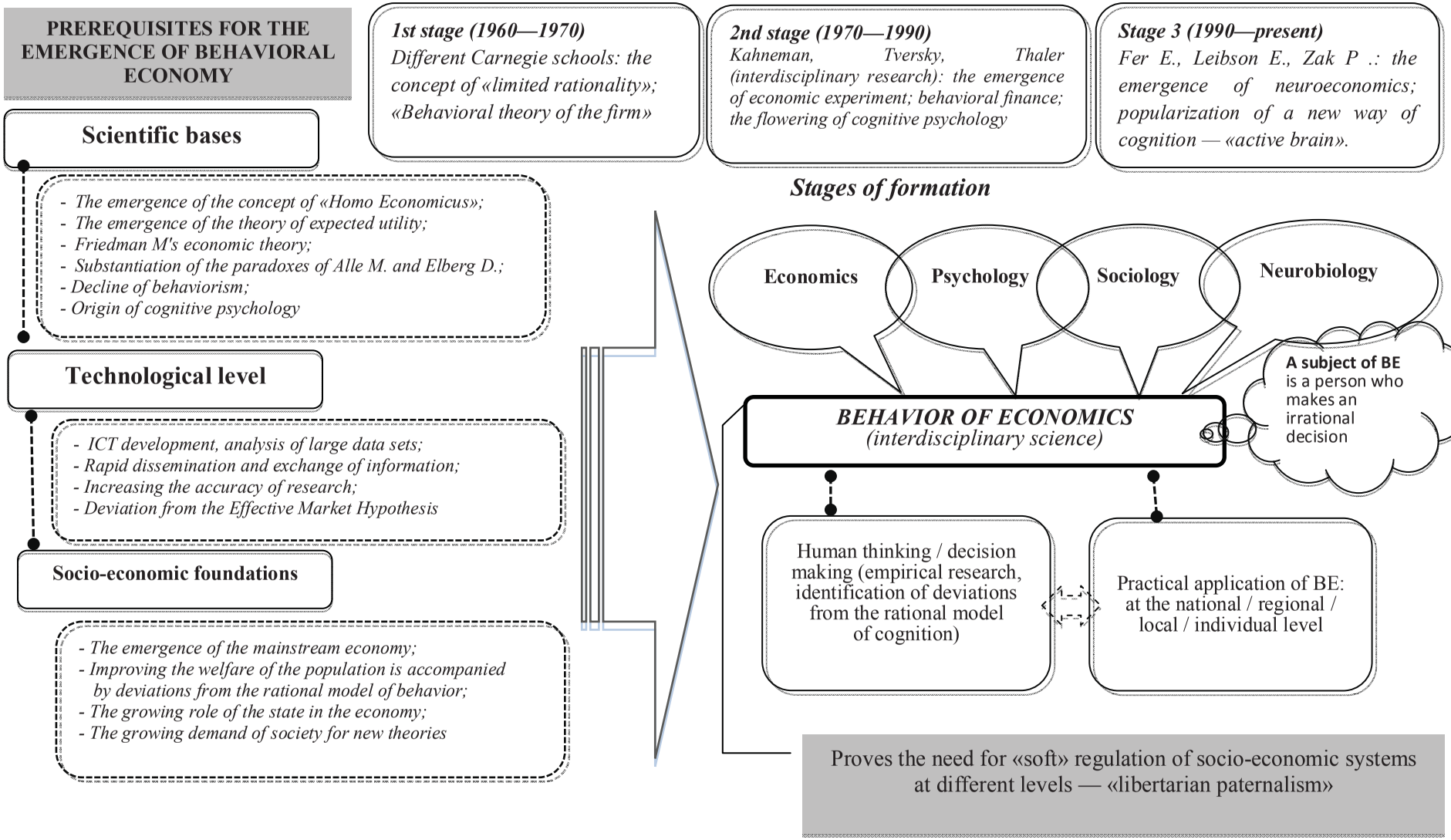

Fig. 1. **Theoretical conceptualization of behavioral economics: prerequisites and possibilities of application**

Source: author's development.

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This theory is credited to D. Kahneman (Nobel Laureate, 2002) and A. Tversky (Nobel Laureate, 2017), who, by joining forces, were able to justify the behavior of individuals in conditions of uncertainty and risk. Based on the key tenets of cognitive psychology, which in the 60s of last century supplanted behaviorism, scientists began to consider the human brain not only as a device for obtaining information but also as a mechanism for its constant processing. In their fundamental work «Theory of Perspectives: Analysis of Decision-Making in Risk» [6] (which was an alternative to the well-known theory of the expected utility of F. Neumann, O. Morgenstern [7], based on probability theory), researchers were able to prove that in contrast from the «rational man», the average person who makes decisions in the languages of uncertainty, can not think rationally, because he sees only a part of the whole (i.e., the estimate of the probability of occurrence of the event is incorrect). The limited number of heuristic approaches to cognition of the object in decision-making in the conditions of risk used by a person reduces complex tasks to simple judgments, which, in turn, generates systematic errors. D. Kahneman and A. Tversky proved in practice that in conditions of uncertainty a person is not able to conduct a comprehensive analysis of the problem he faces. Risk can be avoided, but at the same time, you can tend to it. In other words, under such conditions, a person behaves irrationally in his actions.

People, depending on whether they lose or gain something, react differently to these situations, there is a so-called asymmetric reaction to changes in well-being. Various behavioral effects (definiteness, reflection, isolation, etc.) that accompany such actions, according to the developers of the theory of perspectives, it is advisable to take into account a specially constructed function that does not comply with the laws of probability theory. Scientists have argued that the concepts of «profitability / usefulness» and «value» are not identical. Benefits from the standpoint of rationality — is «income-expenditure», while «value», reflecting the characteristics of the human psyche, considers these two parameters independently: «income» — an increase in welfare, «costs — a decrease in welfare». Based on the experiment, D. Kahneman and A. Tversky proved that if a person makes a sequence of decisions in conditions of risk and uncertainty, he evaluates the benefits and losses at each step and never integrates them into a single benefit or loss and never evaluates the impact of the whole, a sequence of decisions for your well-being. Future income in terms of risk a person is not able to estimate in absolute terms. It evaluates them only in comparison: either with the existing level of income or with the reference. The authors also experimentally confirmed the manifestation of irrational decisions of people as a consequence of incorrect perception and processing of information [7].

Another conclusion from an experimental study by D. Kahneman and A. Tversky is that people are more willing to take more risks to avoid losses than to receive an additional premium for greater risk.

This, incidentally, explains the position of investors not to sell shares that fall in price, but to sell those that rise in price.

The discovery of stereotypes of the behavior of people who have never noticed the supporters of rational decisions — another conclusion of the theory of prospects. These include excessive emotions that interfere with self-control and misunderstanding of the problem they are dealing with (cognitive dissonance). Hence the behavioral phenomena that accompany human behavior [8]:

- reassessment of probable losses and benefits — a common practice of purchasing lottery tickets or insurance policies, the average cost of which exceeds income;
- placement effect (disposition) — the desire to keep securities that fall in price and sell those whose value increases;
- asymmetric price elasticity — the elasticity of price growth is higher than its reduction by the same amount;
- rejection of bad news — ignoring news about the expectation of adverse changes and permanent consumption.

To illustrate the difference between an ordinary person (who is characterized by numerous behavioral prejudices, changing preferences, acquiring new skills and learning, social influence,

etc.) and an «economic person», BE representatives deliberately introduced the concept of Humans into scientific circulation.

1) alleged irrationality — in 1955 Simon G. presents the concept of limited rationality, which justifies the lack of consistent rationality in human decision-making, due to lack of full access to information, limited cognitive skills, and the influence of time; and in 2010 Arieli D. [9] introduced the concept of «predictable irrationality», arguing that people in their actions, although irrational, but their actions are quite predictable;

2) limited cognitive skills, emotions, morals, and social norms;

3) limited selfishness — a person does not always make decisions based on their interests, and behavioral economics emphasizes the existence of restrictions on selfish interests of man, which leads to the introduction of the concept of «unselfish behavior»;

4) inconsistency (variability) of people's preferences.

Instead, the traditional economic model is based on the behavior of the so-called «economic man» (Homo Economicus), which has the following features:

1) rationality in decision-making, aimed at achieving maximum benefit from their actions;

2) complete self-control and unlimited cognitive skills;

3) self-interest (selfishness);

4) stability of preferences.

Behavioral differences between Homo Economicus and Humans concerning life, the world around them, making choices, etc. are illustrated in *Fig. 2*.

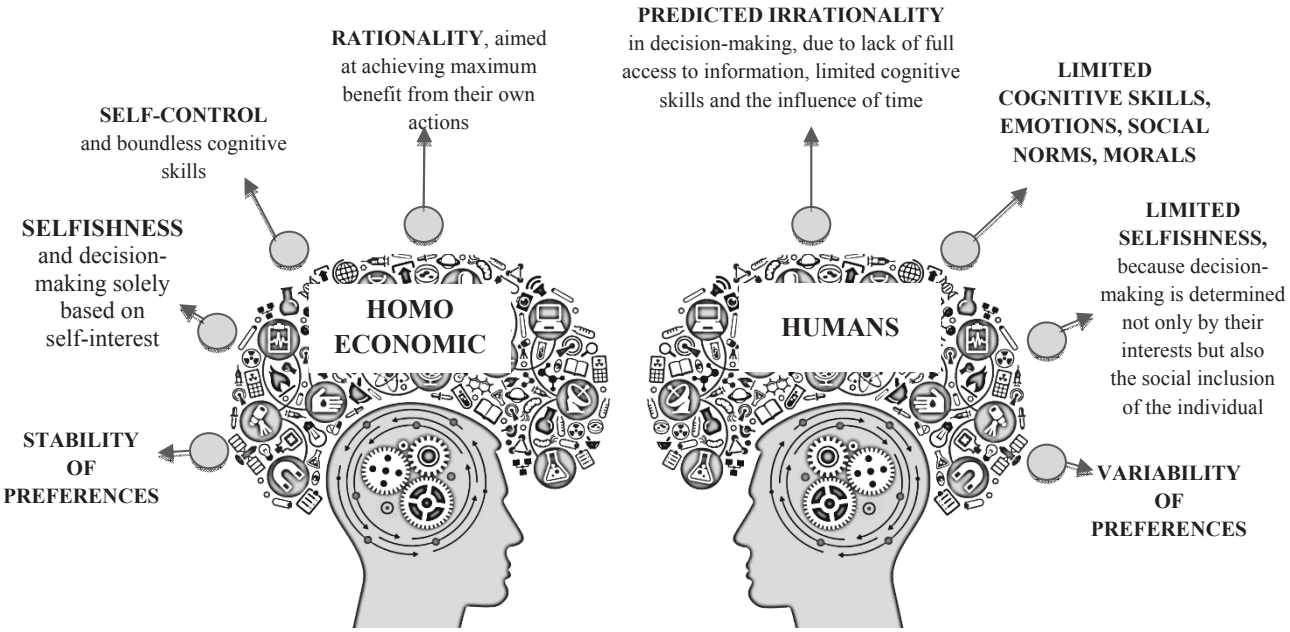

Fig. 2. **Behavioral differences between Homo Economicus and Humans**

Source: Compiled by the authors based on [10; 11].

It is worth agreeing with D. Kahneman that: «traditional economics and behavioral economics describe two different types of man… The only test for rationality is not whether a person's beliefs and preferences are justified, but whether they correspond to his inner conviction. Rationality is logical coherence — reasonable or not» [12]. E. Downey and G. Shah emphasize the differences between Humans and «economic man», highlighting seven principles of human behavior, including 1) social influence; 2) the influence of habits; 3) the desire to do the right thing; 4) self-expectations or self-established «control points»; 5) aversion to losses; 6) inefficient comparison of information when making a decision; 7) the need to be involved in certain social groups [13].

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Given the scientific achievements and developments of behavioral economists, it is appropriate to identify three types of factors that underlie behavioral patterns in the context of Humans decision-making:

- cognitive biases — trends that underlie systematic deviations from the standard of rationality in decision-making and human behavior;

- Heuristics are mental labels that allow people to make quick decisions and solve problems. Such labels are distinguished by D. Kahneman in his proposed idea of two brain systems: System 1 and System 2. According to his research, System 1 is fast, unconscious, automatic, useful for everyday decisions, but also prone to errors. System 2, on the contrary, is slow, conscious, stressful, and useful for making important decisions, because it is likely to lead to better results [12; 14; 15];

- choice architecture — assumes that each factor of the environment in which the decision is made affects such a choice. That is, changing the way a problem is presented can force a person to make different choices about things that are essentially the same [16].

Another fundamental concept, the ideas of which are of great interest in the context of our study and on which PE is based, is the Nudge theory, developed by Nobel Laureate (2017) R. Thaler, and it gained public recognition through close collaboration with Sunstein K. In his In the famous work [16], the authors defined the meaning of «push» as follows: «push is any aspect of the decision-making process that motivates people to change their behavior in a certain way, without imposing any restrictions on the choice. Pushing is called simple if it can be easily avoided. Pushing is not a ban. For example, teaching fruit at eye level is considered a boost; and the ban on unhealthy food — no» [16]. In other words, with the help of positive reinforcement and indirect instructions, you can influence the process of group and individual decisions. By slightly changing the wording of the requirement, you can influence human behavior, that is, using the means of «pushing» you can adjust human behavior in the right direction, and thus achieve the desired result. There are the following types of pushing: bias, «default», heuristics of social evidence. If public institutions use such technologies for their purposes, the phenomenon is interpreted as «libertarian paternalism» — the recognition of the legitimate influence of «architects of choice» on people's behavior so as not to restrict their freedom to make decisions, but at the same time direct their actions to the right direction [17]. The behavioral technologies proposed in this theory are appropriate for improving business management processes, cooperation with consumers, business partners, authorities at various levels, and so on.

An important achievement of PE theory was the study of D. Soman «The Last Mile: the creation of social and economic values based on behavioral ideas» [14], in which the author emphasizes aspects of the practical application of the principles of behavioral economics and introduces the concept of «the last mile». It identifies problems and obstacles that arise in the implementation of certain solutions and, despite the effective implementation mechanism, levels their effectiveness. As an example, the scientist cites the situation with the implementation of the Canadian government's program in the field of social security on financial support for low-income families. The program provided $ 500 in financial assistance. The United States to direct them to provide children from such families with quality education. According to forecasts, the utilization rate of such financial assistance should be 100%; however, in a few years, the program has benefited less than 16% of low-income families. Analysis of the reasons for the ineffectiveness of the program revealed that the deterrent was the need to open a bank account to receive funds. It turned out that people with low incomes, despite the desire to take advantage of the opportunities provided, did not want or could not open a bank account (the problem of financial inclusion of all segments of the population). The author called this obstacle «the last mile» and stressed the need to study human behavior to form a quality mechanism for financial support at the state level. At the same time, Soman D. emphasized the need to form the principles of behavioral economics and practical algorithms for implementing theoretical developments in behaviorism in practice.

In fairness, there is no consensus in scientific opinion on the recognition of this concept: some researchers consider behavioral economics (PE) as a set of theories/ hypotheses that have no practical value (because the human behavior described in this way is not optimal, so this theory

cannot be a «standard», but only an attempt to explain the deviation of real behavior from the model of expected utility); instead, supporters see it as a «revolutionary» direction that has changed the meaning of economics because the models used in PE can explain behavioral reactions other than classical theory. The key disadvantages of PE, according to critics, are the methods of obtaining new data, namely: experiments that are the basis of PE are not always realistic, the idea of the experiment is often hypothetical, and the consequences of the irrational behavior of individuals for the economy are not always clear.

Conclusions. Thus, we believe that research on economic relations at the regional and local levels based on behavioral economics is justified given that, in contrast to the neoclassical theory of expected utility, it allows us to logically explain different types of abnormal behavior of economic agents uncertainty and risk. For example, it is difficult to disagree with the idea that the rapid economic decline of Ukraine's regions in early 2020 is due to global quarantine due to the effects of the pandemic, but is it appropriate to recognize this as a key factor in the financial and economic crisis? It seems that the government's information campaign (especially in the first wave of the pandemic) on restrictive measures, which provoked panic among economic decision-makers, weakening economic activity in the business sector, and thus the outflow of resources from the capital market, played a significant role. If in the language of behavioral economics, this situation can be regarded as manipulation without change and concealment of real facts — «framing effect» — the effect of limiting the framework, according to which any decision is influenced not only by the initial data on the task but also a significant emotional colouring (positive or negative) of the proposed situation (it is better to stay at home and be healthy than going to work and getting sick). This is on the one hand. On the other hand, in the context of a several of institutional reforms (for example, as in Ukraine now), it is possible to observe a reassessment of the values of individuals, which leads to a change in the behavioral activity of either local self-government or government or government. In other words, such behavior is not always rational. The reasons can be different: from misunderstanding and inability to assess the essence of the problem to the inability to predict its consequences. This situation encourages the search for new strategies of the behavior of the subjects of financial and economic relations, and the best of them (strategies) will «take root» in management practice, and the worst — will leave. Therefore, it would be wrong not to take the opportunity and not to apply in further research on the scientific basis of behavioral economics to the problems of economic decision-making at the regional and local levels. These questions will be the subject of further scientific research.

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