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## THEORETICAL ASPECTS OF MODERN UKRAINIAN SOCIETY ECONOMIC BEHAVIOR MODELING

## ТЕОРЕТИЧНІ АСПЕКТИ МОДЕЛЮВАННЯ ЕКОНОМІЧНОЇ ПОВЕДІНКИ СУЧАСНОГО УКРАЇНСЬКОГО СОЦІУМУ

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*Фоміна О.О., Оленцевич Н.В. Теоретичні аспекти моделювання економічної поведінки сучасного українського соціуму. Науково-методична стаття.*

Економічна поведінка, як цілераціональна діяльність суб'єкта, що мешкає у певних умовах, залежить від багатьох факторів, зокрема потреб, інтересів, цінностей, морально-етичних норм, економічної свідомості, рівня економічного мислення тощо. Висунуто гіпотезу про існування природного, соціального та духовного типу економічної поведінки та надано характеристику кожного через мету, форму, характеристику економічності, результат діяльності. Доведено, що економічна поведінка будь-якого типу несе в собі певні ознаки раціональності, прагматичності мотивації і прагнення еквівалентності. Застосовано метод моделювання для оцінки економічної поведінки українського соціуму на основі аналізу індексів людського розвитку і економічної свободи. Запропоновано індекс економічної поведінки та надана інтерпретація його кількісних значень.

*Ключові слова:* економічна поведінка, тип економічної поведінки, індекс економічної поведінки, ієрархічна модель, багатфакторна модель, однофакторна регресійна модель

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Economic behavior, as a goal-rational activity of an entity living in certain conditions, depends on many factors, namely the needs, interests, values, moral and ethical norms, economic consciousness, the level of economic thinking, etc. It was hypothesized the existence of the natural, social and mental type of economic behavior. The characteristic of each type of economic behavior through its purpose, form, characteristic of economy, result activity is given. It is proved that economic behavior of any type has certain signs of rationality, pragmatism of motivation and the desire for equivalence. The modeling method is used to assess the economic behavior of Ukrainian society based on the analysis of indices of human development and economic freedom. An Index of Economic Behavior is proposed and an interpretation of its quantitative values is provided.

*Keywords:* economic behavior, type of economic behavior, index of economic behavior, hierarchical model of economic behavior, multifactor model of economic behavior, one-factor regression model of economic behavior

**A**t the beginning of the XXI century human development takes place against the background of many socio-economic processes and phenomena significant intensification, social relations flow from micro to mega-level, they are increasingly influenced by globalization factors, and there is an intertwining of economic, political, social and cultural life. The intensification of human activity exacerbates global problems, requires the implementation of a balanced socio-economic policy, the involvement of an increasing number of people to prevent and solve such problems. This requires the study of society economic behavior, identification of key factors in its formation and theoretical foundations of modeling for the possibility of influence and consideration in the socio-economic policy development and implementation.

Human economic behavior is an interesting and complex problem to study, because each person has a dual nature – is both a biological and social being, and therefore, his behavior bears the imprint of both natural and social influences. Economic behavior, as a goal-rational activity of the subject living in certain conditions, depends on many factors, including needs, interests, values, prevailing moral and ethical norms in society, economic consciousness, level of economic thinking and culture, the society stratification depth, socio-economic policy quality in the country, etc.

*The aim of the article is* to determine the theoretical foundations of modeling the economic behavior of Ukrainian society, taking into account existing in international research approaches to assessing the state of human development and economic freedom in the world countries.

The study objectives:

- to identify the types of economic behavior determined by the level of society socio-economic development and the typical composition of needs that are satisfied by individuals;
- identify the typical characteristics of each behavior type from the standpoint of economic rationality, pragmatism, equivalence;
- identify the main aspects of modeling and form a model of economic behavior;
- substantiate the index of economic behavior and provide an interpretation of its quantitative values.

### **Analysis of recent researches and publications**

Modern economic theory operates in several models and approaches to determining the human economic behavior. The REMM model "Resourceful, Evaluating, Maximizing Man" proposed by the American economists K. Brunner and W. Meckling and its improved version taking into account socio-cultural factors – the model RREEMM "Resourceful, Restricted, Expecting, Evaluating, Maximizing Man" – are quite popular [3; 12]. This model is perceived by many economists and sociologists almost as a reference, although its principles remain the subject of lively scientific debate and are often criticized by opponents [8]. It is expedient to single out scientists whose subject of scientific analysis is various aspects of the functioning of behavioral economics in the context of changes in the economic behavior of individuals. In particular, E. Bolotina proposes a multifactorial model of economic behavior based on the study of the evolution of the "economic human" model, from classical political economy, within marginalism, Marxism, economic and psychological direction to institutionalism and some concepts within modern sociological and psychological theories [2]. R. Thaler focuses on the psychological and emotional factors of economic behaviour [14]; R. Sheremeta explores questions of experimental behavioral economics [13]; V. Palekhova studies different models of human, determined by the peculiarities of society's behavior in different types of economic systems [11]; R. Kapelyushnikov [5] clarifies the essence of "economic human" and substantiates methodological references to human behavior; N. Karachina provides a definition of "model of economic behavior" through a retrospective analysis of the behavioral provisions of economic theory [6]; K. Udachina clarifies the issue of modeling the economic entities economic behavior in the context of the economy overall efficiency increasing [16]. At the same time, the need to study the key factors, principles, motives, forms of economic behavior in specific conditions of society, which creates a theoretical basis for the development of optimal socio-economic policy remains relevant.

Research methods. Based on the methods of analysis and synthesis, induction and deduction, the peculiarities of the biological, social and spiritual spheres of economic behavior are clarified. Using the statistical method and the method of system analysis, the assessment of external and internal factors influencing the society economic behavior is identified and assessed. The modeling method is used to build a theoretical model of Ukrainian society economic behavior based on the assessment of social development, human development and economic freedom indices.

Research limitations. Economic behavior is considered as a goal-rational activity of the subject, which has signs of rational decision-making, pragmatism of motivation to work, the exchange equivalence. Economic behavior is guided by economic needs, interests, values of economic entities. The process of behavior depends on the economic condition of the subjects, due to internal and external factors. Internal factors are conditioned by the needs of the subject and its economic activity level, are considered through the summary indicator Human Development Index. External factors are conditioned by to the peculiarities of intersubjective interaction, guided by economic status, moral, ethical and legal constraints, the sphere of social interaction, the environment state, socio-economic policy, etc., and are most fully reflected through the Economic Freedom Index.

Logic of research. The first part of the study is purely theoretical, which hypothesizes the feasibility of distinguishing natural, social and spiritual economic behavior types that are carried out in relevant areas of economic activity, provided that the needs are met according to the logic of the A. Maslow pyramid. A description of each economic behavior type was given through its purpose, form, economic essence characteristics, performance result; and it has been proved that economic behavior of any type has certain features of rationality, pragmatism of motivation and the desire for equivalence. The second part of the study is devoted to modeling the economic behavior process through the assessment of the economic subjects socio-economic status. To determine the type of economic behavior, it is proposed to use the Economic Behavior Index and the approach to the interpretation of its quantitative values is substantiated. It is proposed to assess the economic behavior of Ukrainian society through the analysis of the Human Development Index and Index of Economic Freedom dynamics. Based on the comparison of the Economic Behavior Index in Ukraine and some world countries, it is concluded that over the past five years there has been a reorientation of the Ukrainian society behavior from the natural type to the social one.

### **The main part**

Types of economic behavior: natural, social, mental.

For human, as for every living things, the initial impulse of life are needs. Needs determine the activity of people, shape economic behavior and determine the directions and intensity of their activities. The needs change over time and stimulate the social production development. It is clear that the human basic need is the need for existence, the satisfaction of which involves obtaining material benefits and achieving a certain level of social protection, which corresponds to the current state of society socio-economic development. According to the logic of A. Maslow's pyramid, the satisfaction of basic needs (physiological and security) depends on the ability

and desire to meet the needs of a higher order, to receive benefits of socio-economic content, to strive to meet the needs of creativity, self-realization and transcendency. Accordingly, the higher the society needs and the ability to meet them, the more mature and economically developed the country is. Human evolution is taking place, economic interests and activities are changing, and the basics of behavior are being transformed from instinctive to clever, rational, pragmatic and equivalent.

It is advisable to analyze economic behavior by areas of its implementation - in the natural, social and mental spheres. This analysis corresponds to the evolution of human, the development of human interaction, changes in the economic principles of motivation, the nature of the satisfaction and needs. In these areas, economic behavior differs in the economic activity of the subjects, due to various external and internal factors, including the level of material security of individuals, cultural and value priorities, moral norms, social interaction forms, the social development degree [6]. Analysis of the needs structure and the consumption nature for different combinations of these factors allows us to establish a correspondence between the needs hierarchy in the A. Maslow pyramid and selected areas of economic behavior, each of which forms a corresponding behavior type (see Table 1).

Table 1. Economic behavior through the prism of the needs in the A. Maslow pyramid

Needs according to the hierarchy		Economic behavior type	The purpose of behavior
Non-material	Social/product of social life	Self-realization and transcendency	Development/achievements
		Creativity, aesthetic	
		Cognition	Existence
		Respect, status	
		Communication, affiliation	
Material	Biological	Security	Survival
		Physiological needs	

*Source: authors' own development*

Economic behavior of the natural type is essentially biological, instinctive. It's aim is the survival of the individual – ensuring existence, protection and security. Such behavior is inherent in all living beings. Behavior of the natural type has a mostly collectivist orientation, human activity is focused on meeting vital needs and the production of appropriate material and non-material goods. This behavior is characterized by a tendency to act together, willingness to selfless help, free provision of goods and services to others. It is the goal of survival that encourages the system of rules formation that facilitate social interaction and contribute to the survival of human in nature, that is its subordination to natural conditions. Economic activity of natural behavior is mainly concerned with areas of activity that contribute to the preservation of life and health. Within this type of behavior, the needs of society are reduced mainly to material consumption. Economic behavior of the natural type is based on the essence of human, is based on motives that contribute to the realization of the individual in the chosen field of activity, whether hired, freelance, start your own business, and provide the individual with a place in the social hierarchy [4].

Economic behavior of the social type is aimed to ensure the comfortable existence of the individual in society, so it involves a certain conformism, adaptability and imitation of social standards and ideals. Due to this, the social structure of society is formed and maintained. Behavior of the social type is focused not just on the survival of the individual; it ensures the survival and existence of the human race, society. Economic activities are conditioned not so much with the instinct of survival, as with intelligence, rationality, sequence of actions, coordinated in time and space. Economic activity of the social type is intended to satisfy human needs in socially significant goods, the possession of which allows someone to identify himself (herself) as a part of society; the transition to satisfying a higher level of needs in this area becomes a prerequisite for increasing welfare for themselves (as a priority) and for society. Economic activity of social behavior is aimed to choose the types and forms of activity that form a stable positive reputation of the subject in the environment. Behavior of the social type is characterized by the choice of activities in accordance with the values and needs of society; it must be significant for the social environment, its perceptions of the prestige or humiliation of economic activity various forms. Economic behavior of a social type can be voluntary (voluntary selfless socially useful activity) [20], auxiliary, equivalent, or non-equivalent, rent-oriented, opportunistic, caused by selfish motives. Concepts of business social responsibility and sustainable development, preservation of ecosystems, monitoring and prevention of natural and man-made ecological catastrophes systems, introduction of resource-saving technologies as guarantees of preservation and development of society are formed in the context of social behavior.

Behavior of the mental type is a behavior that is intended to develop the individual, it's aim is knowledge and self-improvement, the search for novelty, development and realization of human potential, creativity, it a priori is intellectual and moral [10]. Economic activity of the mental type is guided by individual and social values, it is accompanied by invention, innovative solutions aimed to increase their own and social welfare. Mental economic behavior satisfies the socio-cultural, scientific, technological and information needs of people. It is proposed to consider the behavior of the spiritual type in two aspects – religious and secular, non-religious. At

the core of this division is the adherence to traditional social norms of morality, values and principles. Religious behavior is formed under the influence of spiritual traditions and norms, the desire for self-improvement and imitation of the "creator". The "economic context" of religious behavior can be traced in relation to property, the principles of participation in social, labor and commodity-money relations. Religious teachings "operate as basic economic concepts (labor, property, land, money, etc.) and derivatives (loan, interest, debt, duty, etc.), which in everyday life are the realities of economic relations". [15]. The economic activity of religious behavior occurs in accordance with the particular denomination members values and is based on the idea of righteous living and fear of sin, which limits or stimulates human activity. Religion in combination with social ethical and cultural traditions forms the values of social interaction, motivation for productive honest work, the nature of consumption, creates standards and principles, according to which both the individual and the society as a whole make choices and decisions about future existence and development.

Secular behavior is devoid of religious restrictions, resulting in more space for the development of knowledge-intensive and high-tech industries; the activity is based on the desire to learn about the universe, self-improvement, finding ways to realize personal creative potential, expanding human capabilities etc. Economic activities of secular behavior of the mental type are based on humanistic and democratic principles, implemented through charity and philanthropy, aimed at maintaining culture and art, development of science, introduction of innovations that improve the quality of life. Within the framework of secular behavior arises and spreads "inspired mind", "aimed at the constant search for meaning and purpose, focused on nourishing the creative impulse and raising humanity to a new collective and moral consciousness, based on a common sense of destiny". [17]. The idea of joint responsibility for the further development of society, "economic altruism" is formed, when the goal is to be as useful as possible for society, and not to increase own profits.

A hierarchical model is proposed that corresponds to the given characteristics of economic behavior. The model groups different types of economic behavior by a set of features (Table 2).

Each type of economic behavior contains certain features of rationality, pragmatism of motivation and the desire for equivalence. Rationality of economic behavior is understood as an activity based on the constructive assimilation of the experience of both the individuals and the society in general. It presupposes their reasonableness, consciousness of decision-making in the conditions of infinite human needs and limited resources. Pragmatic motivation involves evaluation of the causes and consequences of economic actions, the desire to obtain the most favorable outcome activities. Pragmatism of motivation is inherent in economic behavior in any field, of any type and form, as it is a continuation of its rationality. In particular, the economic behavior of human of the natural type has as the most beneficial result – survival, as it is directed to the satisfaction of the natural needs due to the biological essence of human. Social behavior intends to ensure a comfortable existence in society, because it involves the transition from biological to social essence, which determines the place of human in the social environment. Behavior of the mental type is aimed to develop the individual, the relevant social group and society as a whole. Equivalence of economic behavior of any type involves the exchange of results of activities in accordance with the mutual orientations and expectations of the individuals; it is determined by the institutional distribution of power, by the system of distributive relations, by morality and social interaction. Accordingly, the exchange can be both equivalent and non-equivalent. However, the latter does not provide motivation to maintain the status quo, carries risks of social resistance, and therefore it poses a threat to the stability of society socio-economic development.

The economic state of society: aspects of modeling behavior.

In a democratic society, which Ukraine strive to create, it is fundamentally important to study various aspects of economic behavior, to study public opinion on the transformation of economic relations, because on this basis should be formed effective and adequate socio-economic policy, taking into account rationality, pragmatism, equivalence. These circumstances necessitate the formalization of economic behavior of different types (natural, social, mental) in a certain model.

It should be noted that today there is no single model of economic behavior that would allow to take into account the interdependence of market environment indicators, goals, criteria and alternatives to achieve maximum effect from economic activity. This is due to the incompleteness of input-output information, its constant change, transformation and development of the socio-economic system, which requires constant refinement to be able to predict and study a particular entity [1]. However, if we agree with N. Karachina, the model of economic behavior can be considered as a formalized description of the logical connection of motives and priorities of entity economic behavior in certain conditions and circumstances [6]. This is an algorithm of economic entity actions, which are predicted with a sufficient degree of probability due to the laws of systemic relationships of causal content [7]. The model, built on such principles, takes into account the factors influencing the economic condition of the subjects, allows to model economic behavior and direct it towards positive changes in relation to the goals of sustainable development and national priorities. Behavior modeling, according to our approach, should be based on the economic behavior types assessment and areas of their implementation (natural, social, mental), and take into account the level of satisfaction of needs, which corresponds to the achieved level of social development.

Table 2. Hierarchical model of economic behavior of society

Economic behavior			Economic essence characteristics of the behavior			The result of the activity
Type	Goal	Form	Rationality	Pragmatism	Equivalency	
Mental	Development	Secular (according to the concept of value development (theory of modernization by R. Inglehard [18])	Subordination of one's own interests to social values Optimal benefit from the activity	Balanced development Maximum benefit through the creation and implementation of the benefits needed by society ("satisfaction" of aspirations-drives by G. Simon) [19]	Charity, philanthropy, "economic altruism"	Creating the benefits necessary for the development of society
		Religious	Subordination of interests to religious canons Getting moderate benefits in consumption	A righteous sinless life aims for maximum benefit after death (Christianity)	"Economic altruism" – charity; restriction of consumption according to religious norms	Charity according to religious beliefs
Social	The existence/life	Non-equivalent volunteer	Subordination of interests to the needs of other members of society Public benefit from activity outweighs individual benefit	Waiver of remuneration if there are expenses	charity; free non-profit activity (according to [20])	Increasing social utility (Voluntary selfless supporting action)
		Equivalent	Alignment of interests in accordance with the mutual orientations and expectations Individual benefit approaches public benefit	Remuneration according to expenses = Comfortable existence	Equality of interaction conditions	Satisfaction of own needs
		Non-equivalent opportunistic	Ignoring public interests, values and needs in favor of their own individual needs  Individual benefit from activity outweighs public benefit	Maximum effect at minimum expenses	Opportunism, "economic selfishness"	The increase in their welfare
Natural (biological)	Survival	Ancillary action (mutual assistance)	Subordination to natural conditions	Survival	Partnership with nature	Creating benefits to sustain life

Source: authors' own development

The general view of the model of the entity economic behavior can be represented as follows [16]:

$$\begin{cases} Y = F(y) \\ y = F(f) \\ f = F(\vec{x}_1, \vec{x}_2) \end{cases} \quad Y = F_3(F_2(F_1(\vec{x}_1, \vec{x}_2))), \quad (1)$$

where Y is the entity economic behavior, which is determined by the scope of its implementation (F) under the influence of external ( $\vec{x}_1$ ) and internal ( $\vec{x}_2$ ) factors;

y – the process of human development, which involves changes of the entity conditions over time;

f – the economic condition of the entity, due to the level of needs satisfaction, realization of interests, values

Given that economic behavior is carried out by its specific type in the natural, social and mental spheres, the model of behavior can be written as follows:

$$\begin{cases} Y_n = F_1 \\ Y_n + Y_s = F_2 \\ Y_n + Y_s + Y_m = F_3 \end{cases}, \quad (2)$$

where  $Y_n$  – natural behavior type

$Y_s$  – social behavior type

$Y_m$  – mental behavior type

It should also be noted that the behavior is caused by a number of internal and external factors and is defined as an integral index:

$$Y = \sqrt{\vec{x}_1 * \vec{x}_2}, \quad (3)$$

where  $\vec{x}_1$  – internal factors influencing the economic condition of the subject

$\vec{x}_2$  – external factors influencing the economic condition of the subject

Obviously, such modeling is characterized by subjectivity, which cannot be eliminated, because each subject has its own needs, interests, values, motivation and ability to act independently. According to the concept of expected utility and given that in the economic environment most solutions are multivariate, a person must not only be able to compare the usefulness of goods from the standpoint of equivalence and pragmatism, but also be able to assess the probability of obtaining them due to certain actions, otherwise its behavior loses its rationality [5]. All this complicates the modeling process and leads to the creation of simplified, so-called, "basic" mathematical and theoretical models. An adequate model allows you to assess the functional characteristics of the object under study, to build effective recommendations for the mechanism of action to obtain benefits and to satisfy needs.

The proposed model needs to be refined and specified, namely, the factors influencing the economic condition of the entity need to be determined, and the parameters of the condition can be considered as a generalizing indicator of the economic behavior results. In addition, the model should be adapted to Ukrainian society and its features. The internal factors of the model are determined by the needs of the entity and the level of its economic activity. External factors of the model are due to the peculiarities of intersubjective interaction, guided by economic status, moral, ethical and legal constraints, the social interaction sphere, the environment condition, the state socio-economic policy, etc.

The impact of internal factors on the economic condition of the entity should be considered through a summary indicator - Human Development Index. Human Development Index was developed in 1990 by Pakistani economist Mahbub ul Haq and has been used by the UN since 1993 in annual reports to compare countries' achievements in human development. Today, this index measures 189 countries. It is the result of assessing long-term progress in three main areas of human development: long-term and healthy living, access to knowledge and a decent standard of living [21]. Life expectancy and health are measured by the average life expectancy of a country's population. The level of education is measured by the average length of schooling of the adult population; access to education and knowledge is measured by the total number of years of schooling that a school-age child can count on. The standard of living is measured by the gross national income per capita in dollars of constant purchasing power at the level of 2011, convertible by the coefficients of transition to purchasing power parity. The income indicator calculated in this way characterizes the social status of individuals and is an indicator of their material welfare. It should be noted that in order to obtain a broader picture of global human development throughout the period of application to the index, some refinements and modifications were made. Currently, the Human Development Index includes an assessment of social inequality in terms of income, education, life expectancy, and through gross national income it reflects the level of social welfare of the country. The dynamics of the main (primary) components of the Human Development Index of Ukraine for the last 5 years are presented in Table 3. It should be noted that the components of the Human Development Index mostly assess economic behavior of natural and social type, aimed at meeting the needs of existence and obtaining socially significant benefits. It is clear that the higher the value of the index, the more developed the society, the higher the level of satisfaction of material and social needs of human.

Table 3. Human Development Index in Ukraine

Year	Human Development Index	Gross national income (GNI) per capita (2011 PPP \$)	GNI Index	Expected years of schooling (years)	Mean years of schooling (years)	Education Index	Life expectancy at birth (years)	Life expectancy Index	Inequality-adjusted HDI	Rank
1	2	3	4	5	6	7	8	9	10	11
2019*	0.750	7994	0.662	15.1	11.3	0.797	72.0	0.799	0.701	88
2018	0.747	7670	0.656	15.1	11.3	0.797	71.8	0.798	0.698	

Continuation of Table 3

1	2	3	4	5	6	7	8	9	10	11
2017	0.746	7601	0.654	15.1	11.3	0.797	71.7	0.796	0.695	
2016	0.742	7373	0.650	14.9	11.3	0.793	71.5	0.793	0.688	84
2015	0.747	8145	0.665	15.0	11.3	0.794	71.3	0.789	0.689	81

*\*The index of a certain year estimates human development according to the previous year*

*Source: compiled by authors on materials [21-23].*

Quantitative assessment of the human development index is based on fixed limit values of the index, which come from the quartiles of the distribution of components. According to the UN methodology, the following intervals are used to determine the level of human development: an indicator less than 0.550 refers to the low level of human development; 0.550-0.699 – to the average level; 0.700-0.799 – high level; 0.800 and more – a very high level [23]. According to this scale, by the Human Development Index, Ukraine belongs to the countries with a high level of human development, as the value of the index falls in the range of 0.700-0.799.

Table 4. Index of Economic Freedom in Ukraine

Year*	World Rank	Overall Score	Rule of Law				Government Size				Regulatory Efficiency			Open Markets		
			Property Rights	Judicial Effectiveness	Government Integrity	**Freedom from Corruption	Tax Burden	Government Spending	Fiscal Health	**Fiscal Freedom	Business Freedom	Labor Freedom	Monetary Freedom	Trade Freedom	Investment Freedom	Financial Freedom
2020	134	54.9	47.5	42.2	37.9	N/A	81.1	47.2	83.9	N/A	61.3	48.3	63.0	81.2	35.0	30
2019	147	52.3	43.9	31.5	29.6	N/A	81.8	46.9	82.6	N/A	66.1	46.7	58.6	75.0	35.0	30
2018	150	51.8	41.0	29.5	29.0	N/A	80.2	45.0	75.9	N/A	62.7	52.8	60.1	81.1	35	30
2017	166	48.1	41.4	22.6	29.2	N/A	78.6	38.2	67.9	N/A	62.1	48.8	47.4	85.9	25	30
2016	162	46.8	25.0	N/A	N/A	26.0	N/A	30.6	N/A	78.6	56.8	47.9	66.9	85.8	20	30
2015	162	46.9	20	N/A	N/A	25.0	N/A	28.0	N/A	78.7	59.3	48.2	78.6	85.8	15	30

*\*For the 2020 index, most data cover the second half of 2018 and the first half of 2019. Information on each factor is current as of June 30, 2019. Relevant data for 2015-2019.*

*\*\*Since 2017, the methodology for calculating the index has been improved*

*Source: compiled by authors on materials [26-30].*

According to the hypothesis of our study, the impact on economic behavior of external factors should be studied on the basis of the dynamics of the Economic Freedom Index, an indicator that is calculated annually by the Wall Street Journal and the Heritage Foundation for most countries. Economic freedom in its essence is a fundamental right of everyone to manage their own labor and property. In economically free societies, individuals are free to choose work, produce goods, incur costs, and invest. All these freedoms are supported and protected by the state. Also in economically free societies, the government refrains from coercion and pressure on freedoms, allows labor, capital and goods to move freely and intervenes only if it is necessary to maintain the itself functioning. The index of economic freedom is currently calculated for 186 countries, while only 180 of them are fully assessed and included in the ranking. The index includes an assessment of 12 factors influencing economic freedom, which are grouped into 4 categories: Rule of Law (Property Rights, Judicial Effectiveness, Government Integrity), Government Size (Tax Burden, Government Spending, Fiscal Health), Regulatory Efficiency (Business Freedom, Labor Freedom, Monetary Freedom), Open Markets (Trade Freedom, Investment Freedom, Financial Freedom) [24]. Each of the twelve freedoms is evaluated on a scale from 0 to 100 points, where the mark of 100 reflects the maximum level of freedom. A score of 100 evaluates the economic environment or government policy measures that are most conducive to economic freedom. Most of the evaluations of the components of the twelve freedoms are based on quantitative data that are converted directly into scores. In essence, economic freedom is the independence of the individual, which relates mainly to the freedom of choice regarding the acquisition and use of economic goods and resources. Independence and self-esteem come from the ability and responsibility to care for oneself and one's family and are an invaluable contribution to human dignity and equality [25]. Theoretical and empirical research suggests that the link between economic freedom and human development is clear: people in economically free societies live longer, have better health, better manage the environment and use resources more efficiently, and they expand human boundaries. achievements in science and technology due to greater innovation of its activities [25]. The value of the index of economic freedom for Ukraine by its components is presented in Table 4.

According to the Economic Freedom Index, during the analyzed period, economic freedom in Ukraine was improving, there was a shift from 162 places to 134; over the past three years, the country has moved from a group of repressive to a group of mostly unfree countries (the level of moderately free starts at 60, mostly free – 70, free – 80; countries with freedom scores below 50 are classified as repressed)

The generalized result of economic behavior, which reflects the influence of internal and external factors and determines a certain type of economic behavior in the relevant areas, can be calculated by the formula:

$$Y = \sqrt[2]{HDI * IEF}, \quad (4)$$

where HDI – Human Development Index

IEF – Index of Economic Freedom

Table 5. Economic Behavior Index in Ukraine

№	Year	Human Development Index	Index of Economic Freedom *	Economic Behavior Index
1	2015	0.747	0.468	0.591
2	2016	0.742	0.481	0.597
3	2017	0.746	0.518	0.622
4	2018	0.747	0.523	0.625
5	2019	0.750	0.549	0.642

\*For a correct comparison, the Index of Economic Freedom has been converted to decimal

Source: compiled by authors on materials [23; 25].

The Economic Behavior Index shows the prevailing type of economic behavior in society, which corresponds to certain conditions of socio-economic development, the nature and volume of consumption, the degree of satisfaction of tangible and intangible needs.

To substantiate the intervals of fluctuations in the Economic Behavior Index, the authors analyzed data on indices of Human Development and Economic Freedom, based on which the corresponding indicators of indices of economic behavior for a set of countries representing different groups of the Index of Economic Freedom, respectively, repressed, mostly unfree, moderately free, free. For this purpose, six countries were randomly selected from each group, including Ukraine, which according to the Index of Economic Freedom is in the second group – mostly unfree. The results of the calculations are presented in table 6.

Table 6. Ukraine in the World of the Type of Economic Behavior, 2020

Country	Characteristic of freedom	Index of Economic Freedom	World Rank from 180	Human Development Index	World Rank from 189	Economic Behavior Index
1	2	3	4	5	6	7
Venezuela	Repressed	0.252	179	0.726	96	0.428
Eritrea	Repressed	0.385	177	0.434	182	0.409
Sudan	Repressed	0.450	173	0.507	168	0.478
Turkmenistan	Repressed	0.465	170	0.710	108	0.575
Algeria	Repressed	0.469	169	0.759	82	0.597
Sierra Leone	Repressed	0.480	168	0.438	181	0.459
Chad	Mostly Unfree	0.502	161	0.401	187	0.449
Argentina	Mostly Unfree	0.531	149	0.830	48	0.664
Afghanistan	Mostly Unfree	0.547	136	0.496	170	0.521
Ukraine	Mostly Unfree	0.549	134	0.750	88	0.642
India	Mostly Unfree	0.565	120	0.647	129	0.605
South Africa	Mostly Unfree	0.588	106	0.705	113	0.644
Madagascar	Moderately Free	0.605	99	0.521	162	0.561
Russia	Moderately Free	0.610	94	0.824	49	0.709
Belarus	Moderately Free	0.617	88	0.817	50	0.710
France	Moderately Free	0.660	64	0.891	26	0.767
Belgium	Moderately Free	0.689	48	0.919	17	0.796
Poland	Moderately Free	0.691	46	0.872	32	0.776
Armenia	Mostly Free	0.706	34	0.760	81	0.733
Norway	Mostly Free	0.734	28	0.954	1	0.837
Finland	Mostly Free	0.757	20	0.925	12	0.837
USA	Mostly Free	0.766	17	0.920	15	0.839
Denmark	Mostly Free	0.783	8	0.930	11	0.853
United Kingdom	Mostly Free	0.793	7	0.920	15	0.854
Ireland	Free	0.809	6	0.942	3	0.873
Switzerland	Free	0.820	5	0.946	2	0.881



Continuation of Table 6

1	2	3	4	5	6	7
Australia	Free	0.826	4	0.938	6	0.880
New Zealand	Free	0.841	3	0.921	14	0.880
Hong Kong	Free	0.891	2	0.939	4	0.915
Singapore	Free	0.894	1	0.935	9	0.914

Source: compiled by authors on materials [22; 25].

The obtained indicators of the implementation of economic behavior allow us to formulate the following parameters of the Economic Behavior Index: the absolute value of the index is always positive; minimum and maximum values range from [0; 1]. Interval values of the index can be interpreted as follows: economic behavior is carried out by natural type, if the value of the index is in the range [0-0.599]; economic behavior is carried out by social type with index indicators [0.6- 0.799]; economic behavior is carried out according to the spiritual type, if the index of economic behavior exceeds 0.8.

Countries repressed and mostly unfree, which are characterized by low HDI, repressed and mostly unfree, which have high HDI, countries mostly unfree with medium HDI fell in the range from 0 to 0.599, the economic behavior of the population of these countries tends to the natural type. Countries mostly unfree and moderately free with a high level of HDI fell in the range of 0.6-0.799, indicating the predominance of social type of economic behavior. Countries are moderately free and free and have very high HDI levels in the range of 0.8-1, and this corresponds to the mental type of economic behavior. For a more representative analysis of the index of economic behavior, it is advisable to calculate it for all countries analyzed by the UN and the Heritage Foundation in determining the Human Development Index and the Index of Economic Freedom; this will reveal the patterns of implementation of economic behavior different types in the global dimension.

Given that behavior is a process, the results of which are evaluated by the condition of the system at a certain point in time under the influence of external and internal factors, the dynamics of change or trends in economic behavior can be represented as functional dependence. For Ukrainian society, the dynamics of economic behavior for the period from 2015 to 2019 can be written as follows:

$$Y = 0,0128X + 0,5769 \quad (5)$$

$$R^2 = 0,9547,$$

The coefficient of determination is close to one, which indicates the quality of the model; the recorded model by 95.47% is statistically significant and can be used for further analysis of economic behavior.

Conclusions on the patterns and trends of changes in economic behavior are the basis for the development and implementation of economic policy at certain stages of socio-economic development of the country.

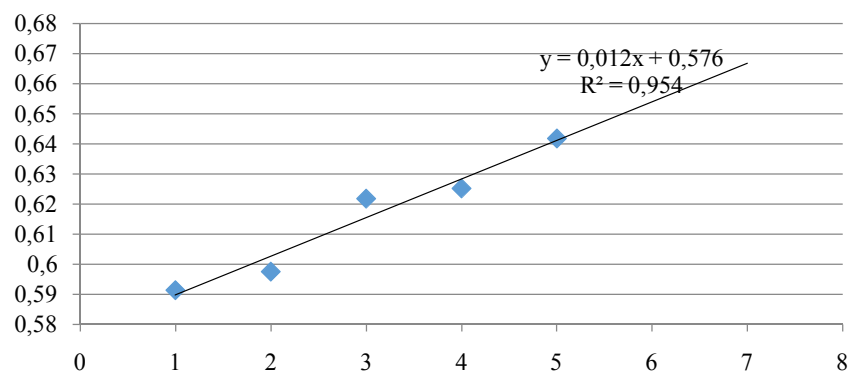


Figure 1. Dynamics of economic behavior of Ukrainian society

Source: authors' own development

Regarding the dynamics presented in the graph, it can be noted that the Economic Behavior Index is determined by the state of socio-economic development of the country. After the fall in GDP in 2014-2015 due to the beginning of the armed conflict, in 2016 the economy began to recover, it is during this period that economic growth gradually began to recover, incomes and consumption increased, HDI and IEF indices increased, reorientation of behavior from the natural type to the social one occurred.

## Conclusion

Economic behavior is a complex process that is formed under the influence of a number of internal and external factors, preconditions of objective and subjective nature. Any behavior is characterized by expediency and a certain level of activity, which from the point of view of economic theory are caused by the rationality,

pragmatism and equivalence of exchange. When modeling economic behavior, it is necessary to take into account different types of economic behavior – natural, social, mental – and their characteristics. Types of economic behavior evolve in accordance with the general law of development, stages of socio-economic progress of society, moral and ethical norms, culture of economic thinking and acceptable to society forms of economic activity. In addition, the psychological and social aspects of an individual's existence in society need to be taken into account. The general strategy of modeling economic behavior should take into account that the activities of the entity must take into account their needs satisfying in the context of the achieved level of society needs satisfying. Given these circumstances, the general nonlinear society economic behavior model was proposed. Modeling the economic behavior of society allows us to take into account the patterns and trends of its changes as a basis for developing and implementing economic policy of the country, which would contribute to solving tactical and strategic challenges of social development and economic growth.

Formulation and implementation of society economic behavior models at different levels of the formation of socio-economic relations will provide an opportunity to obtain new results and to formulate approaches to organize the strategic interaction of subjects in order to optimize the state economic policy.

### Abstract

Human economic behavior is an interesting and complex problem to study, because each person has a dual nature – is both a biological and social being, and therefore, his behavior bears the imprint of both natural and social influences. Economic behavior, as a goal-rational activity of the subject living in certain conditions, depends on many factors, including needs, interests, values, prevailing moral and ethical norms in society, economic consciousness, level of economic thinking and culture, the society stratification depth, socio-economic policy quality in the country, etc.

The purpose of the study is to determine the theoretical foundations of modeling the economic behavior of Ukrainian society, taking into account existing in international research approaches to assessing the state of human development and economic freedom in the world countries.

Based on the methods of analysis and synthesis, induction and deduction, the peculiarities of the biological, social and spiritual spheres of economic behavior are clarified. Using the statistical method and the method of system analysis, the assessment of external and internal factors influencing the society economic behavior is identified and assessed. The modeling method is used to build a theoretical model of Ukrainian society economic behavior based on the assessment of social development, human development and economic freedom indices.

The Economic Behavior Index is determined by the state of socio-economic development of the country. After the fall in GDP in 2014-2015 due to the beginning of the armed conflict, in 2016 the economy began to recover, it is during this period that economic growth gradually began to recover, incomes and consumption increased, HDI and IEF indices increased, reorientation of behavior from the natural type to the social one occurred.

Economic behavior is a complex process that is formed under the influence of a number of internal and external factors, preconditions of objective and subjective nature. Any behavior is characterized by expediency and a certain level of activity, which from the point of view of economic theory are caused by the rationality, pragmatism and equivalence of exchange. When modeling economic behavior, it is necessary to take into account different types of economic behavior - natural, social, mental - and their characteristics. Types of economic behavior evolve in accordance with the general law of development, stages of socio-economic progress of society, moral and ethical norms, culture of economic thinking and acceptable to society forms of economic activity. In addition, the psychological and social aspects of an individual's existence in society need to be taken into account. The general strategy of modeling economic behavior should take into account that the activities of the entity must take into account their needs satisfying in the context of the achieved level of society needs satisfying. Given these circumstances, the general nonlinear society economic behavior model was proposed. Modeling the economic behavior of society allows us to take into account the patterns and trends of its changes as a basis for developing and implementing economic policy of the country, which would contribute to solving tactical and strategic challenges of social development and economic growth.

Formulation and implementation of society economic behavior models at different levels of the formation of socio-economic relations will provide an opportunity to obtain new results and to formulate approaches to organize the strategic interaction of subjects in order to optimize the state economic policy.

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