

MODERN MODELS OF ECONOMIC DEVELOPMENT: TRANSFORMATION OF TARGETS, EVALUATION AND CLUSTER ANALYSIS

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Abstract: The key goal of the study is the formation of scientific and methodological approaches to the analysis of modern models of economic development of countries. The features of the models of economic development of countries, their types and specifics are considered, the transformation of indicators of economic development of the countries of the world in the context of global imbalances and volatility is argued. It is proved that the key factor in the sustainable development of the country is economic growth, which ensures the overall well-being of both a separate industry and the country's economy as a whole. The specificity of the transformation of key indicators of the economic development of countries is considered; this served as the basis for substantiating the scientific and methodological aspects of the multidimensional cluster analysis of the target indicators of the economic development of the countries of the world. The scientific and methodological aspects of the multidimensional analysis of the transformation of the target indicators of the economic development of countries were formed, which ensured the structuring of countries into groups of economic development, taking into account the specifics of their functioning and development strategies. The application of the developed approaches based on the economic and statistical multidimensional cluster analysis and indicators of economic development of the countries of the world can be applied in practice. The developed scientific and methodological recommendations will ensure the effectiveness of the formation of economic policies and strategies for the economic development of countries.

1 Introduction

The main goal of the study is to develop scientific prerequisites for evaluating modern models of economic development and substantiate methodological approaches to determining the features of their transformation.

The need for this study is determined by the lack of a unified approach and concept to the formation of a model of the country's economic development. The relevance of this issue is determined by the current trends of global changes in the world economy, which necessitate the

revision of existing models of economic development and their transformation in accordance with global trends.

The conceptual basis for the functioning of the world economy is the constant transformation and adaptation of models of economic development of countries under the influence of various processes of globalization and integration, on the one hand, and the basic principles of the mechanism of economic evolution, on the other hand. In modern realities, economic development models are a key link, which include a number of factors, elements and tools

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to ensure the strategic goals of both a separate industry and the country as a whole.

The main object of the study is the level of economic development of countries, and the information base is a set of specific examples of the economic development of countries, statistical materials, economic and mathematical hypotheses and forecasts that characterize trends and tendencies of economic growth. To solve the set tasks and achieve the goals of the study, special attention is paid to the peculiarities of the formation of economic models of countries depending on a number of factors, such as socio-economic and political strategies, as well as macroeconomic and global trends in the development of the world economy. In modern conditions, the choice of strategic development goals and ways to achieve them is possible on the basis of a deep study of the economy and models of economic development of countries.

Modern trends in the functioning of the world economy are characterized by the need to constantly search for new approaches, techniques, strategies and solutions in the context of the formation of sustainable economic models. In modern economic literature, there is no unified approach to the analysis and evaluation of the transformation of the target indicators of the economic development of countries, which determines the relevance and need for further research.

The presented aspects led to the need for a more detailed study and structuring of the main modern models of economic development and identification of the main aspects of the transformation of target indicators in order to develop scientific and methodological approaches for their evaluation and application in practice. In connection with the presented, it is worth noting that in order to achieve the main tasks and objectives of the study, the authors of the article will structure scientific approaches in the field of economic development of countries, conceptualize and structure the main economic models, which will allow to substantiate and form the scientific and methodological aspects of the analysis and assessment of the features of the transformation of key indicators economic development of countries. A critical analysis of scientific research in the field of economic development of countries allowed the authors to conceptually determine the lack of a unified approach to assessing modern models of economic development of countries, which requires more detailed study and research.

1.1 The theory of formation of models of economic development in the conditions of transformation of the world market

In modern conditions, the choice of strategic development goals and ways to achieve them is possible on the basis of a comprehensive study of the economy and models of economic development of countries, as well as the adaptation of the main theoretical provisions to the specific socio-economic conditions of development in the

country. In order to determine an appropriate model of economic development that reflects a specific theoretical and applied vision of the mutual influence of the economic development of individual countries, the most important task of any economic system is to ensure sustainable and balanced development. It should be noted that in the modern economic space, many scientists have many approaches to the definition of the concept of economic development, sustainable economic development, but there is no single approach, which requires a more detailed study. A critical analysis of scientific views made it possible to structure the concept of "sustainable economic development", which should be understood as economic growth, which is characterized by its intensity and does not harm the environment, and also contributes to the resolution of a number of critical socio-economic problems, finding the optimal middle between economic, environmental and social development. It is worth noting that sustainable economic development, as a concept, was first born in 1970-1980 against the backdrop of the recognition by the world community of the problems of the development of society and science in the face of limited natural resources and environmental conditions. It should be noted that the presence of many studies in the economic literature does not allow us to single out a unified approach and method of management to ensure sustainable economic development, which requires a deeper study aimed at solving a number of topical issues.

The first researchers of economic development were a group of the following economists: [1,2], who considered the relationship between the growth of total income and the total product of the country as the basis of its economic development. It should be noted that this approach is a classic of economic science and does not take into account current trends in the globalization of the world economy and its transformation. Also noteworthy is the scientific approach of a group of scientists [3,4], who considered the interdependence of the growth of the country's welfare with the growth of total income. This approach determines the key dependence of these factors within a particular country, but takes into account conceptually the entire range of factors that may have an impact on the country's economic development. Similar views are highlighted in scientific papers [5,6], which highlight the dependence of the country's economic development on domestic policy and socio-economic aspects, but this approach does not take into account macro components that can significantly change the economic development strategy, which requires more detailed study.

Of particular interest is the study of a group of scientists: [7,8], who study short-term conceptual problems that are associated with the distribution of income within the country, but this approach is not relevant in modern realities and requires significant improvement and the search for new approaches. Consideration of the features of the theory of costs and general equilibrium in the country's economy in scientific research: [9,10],

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determines the general features of managing economic policy by maintaining balance and equilibrium, without taking into account global changes, which is not entirely relevant in modern conditions and requires more detailed study, research and improvement.

Particular attention should be paid to scientific works [11-13], which are aimed at considering the population and technological progress as autonomous factors that contribute to economic development. It should be noted that this approach is fundamental in the field of the formation of economic science and the study of economic development, but takes into account a narrow list of factors in the short term, which does not correspond to modern business realities in the context of transformational processes.

A significant contribution to the study of the main aspects of economic development in the world was made by such economists and specialists as: [14,15], who single out the construction of a process of sustainable economic development as one of the strategically important aspects of the long-term growth of a separate sector of the economy. This approach is relevant in modern conditions, but is based only on a specific area, industry, which requires a wider scale and study. Scientific studies [16,17] are argued for the strategic and long-term development of the economy of the whole country, but do not take into account all global factors that can significantly affect the strategy, which requires more detailed study and improvement. Based on the presented, it is worth noting that in the absence of a unified concept of sustainable economic development, the issue of a deeper theoretical analysis and development of a methodological component of the organization of effective sustainable economic development remains relevant.

In modern economic literature, the interpretation of the essence of the concept of "model" has two meanings for understanding, namely: 1) visual reflection and description of any phenomena or processes in society; 2) a template that helps set an example for reproduction and implementation in practice.

The conceptual need to study the models of economic development of countries leads to the identification of the essential characteristics of economic development as the main driving force of progress, on the one hand, and, directly, the phase of economic evolution, on the other. According to the scientist [14], the economic interests of people associated with property relations, depending on the real forms of ownership of the means of production, are a powerful generator of development.

However, this approach cannot be implemented in modern realities, since it does not take into account global macroeconomic factors influencing sustainable economic development. A group of scientists such as: [18-20] considers the complex nature of transformations in the conditions of economic development, covering profound changes in the technical, economic, social, political, institutional spheres, in the field of infrastructure,

technology, education, as well as in the field of basic factors of production: capital, natural resources, labor. It should be noted that this approach includes a large number of factors that affect the sustainability of economic development, but does not take into account the processes of globalization and internationalization, which have a significant impact in modern conditions of functioning.

More relevant and close to modern realities is the approach of a group of scientists, such as: [21-23], economic development is seen as the emergence of something new, previously unknown. It should be noted that diverse studies in the field of economic theory and economic development allow us to conclude that today there is no single approach to understanding the model of economic development, which requires a deeper analysis and research. Economic development is efficient and a growing economy is always in the process of reducing or eliminating poverty, inequality and unemployment.

The economic growth of the economy of any country is an increase in welfare, per capita income, an increase in the quality of life and a better satisfaction of the basic needs of all members of society. Thus, economic development is a multi-vector process, including the transformation of the entire economic and social system, leading to fundamental changes in social structures, people's behavior, social institutions and, as a result, accelerating economic growth, reducing inequality and eliminating unemployment. Economic growth in the current conditions of the transformation of the world economy under the influence of the processes of globalization and internationalization is aimed at the following areas:

- 1) increasing the supply and ensuring the availability of essential goods and services (food, housing, health and safety);
- 2) raising the standard of living - increasing the income of the population;
- 3) an increase in the number of jobs - a decrease in the share of unemployment;
- 4) improving the quality of educational services in the world, as a key factor in forming a literate society;
- 5) increased attention to cultural and humanitarian values.

Ensuring the directions of economic development presented above will ensure the growth of material well-being, personal and national self-consciousness, providing individuals and society as a whole with a greater choice in the economy and the social sphere in order to reduce their influence and dependence on other people and countries and protect them from suffering. It is important to note that the uneven pace of development of individual countries of the world contributed to the identification of certain ways of their development and the formation of generalized patterns (models), which are understood as the totality of all economic processes carried out in society on the basis of existing property relations and organizational forms.

Arguing the considered theoretical aspects and studies in the field of economic development of countries, it is

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worth noting that in many studies the concepts of "economic development" and "economic model" are often equated. Based on this, it is worth defining these concepts. Economic development is a broader concept and is based on expanded reproduction and gradual structural changes in all sectors of the economy of a particular country.

In modern conditions, economic development includes the entire spectrum of social relations, including the development of economic sectors and the redistribution of public goods. An economic model is a narrower concept and is based on the formalization and description of the main economic phenomena and processes, specifying the key elements of the economic system. Based on the above, it should be argued that under the influence of a combination of heterogeneous factors, each country develops its own model of national development, which is the result of the implementation of the chosen strategy, which has a specific goal, achieved through the application of effective socio-economic policy measures.

It should be noted that the very model of economic development was formed by combining such basic areas as: economic, social and environmental. From the point of view of economic orientation: long-term economic projects that take into account the laws of nature, as a result, turn out to be more effective than projects whose implementation does not take into account possible environmental consequences. From the point of view of social orientation, it became the impetus for the formation of this concept, aimed at maintaining cultural and social stability, as well as at reducing the number of conflicts that destroy them

Economic development should be carried out taking into account many factors of the macroeconomic environment that have a direct impact on its sustainability and presented in Figure 1.

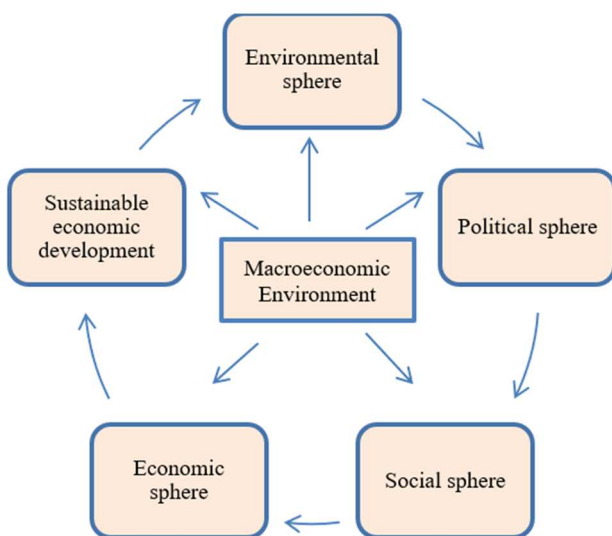


Figure 1 Modern economic development, taking into account the influence of the macroeconomic environment
Source: developed by the author

Ecological direction, the main purpose of which is to ensure the sustainability of physical and ecological systems. Ignoring environmental needs will lead to environmental degradation and threaten the existence of all mankind. However, the modern model is based on these postulates of ensuring the sustainable development of the economy, but must take into account the risks and factors that are associated with the influence of political factors that exacerbate the macroeconomic impact among the negative impacts on economic processes.

2 Methodology

2.1 Peer review process

To determine global changes and transformation of target indicators of economic development, a critical analysis of scientific research in this area was justified, which made it possible to determine the lack of a unified approach and confirmed the relevance of this study. Scientific views and studies are structured according to their significance within the framework of this topic, the main groups of studies are summarized, which made it possible to highlight the key theoretical aspects in the formation of an economic development model. The necessity of structuring and considering the economic essence of the concepts of "economic development" and "economic model" is argued; for the first time, their features are defined in the narrow and broad senses. On the basis of theoretical prerequisites, the necessity of conceptualizing and highlighting the main aspects of the transformation of key indicators of economic development is argued.

The main key indicators of economic development are classified, on the basis of which the need for economic and statistical analysis and the use of multidimensional cluster analysis tools is substantiated. The tools of economic and statistical analysis made it possible to determine the main indicators of economic development and the features of their transformation under the influence of global factors of globalization and internationalization in the context of many countries of the world.

This tool is a multidimensional statistical procedure that organizes the selection of objects into homogeneous groups, i.e., gets a set of clusters. The main objectives of multidimensional clustering are understanding the data with further simplification of processing procedures; data compression and detection of new atypical objects. Currently, the most common are about 50 clustering methods. The implementation of cluster procedures is usually associated with a number of parameters, the most important of which are: the degree of similarity between elements and clusters, the value of the equivalence threshold for this measure, based on which the assignment or non-assignment of an object to a cluster. Also important are the number of clusters and the approach related to the specific approach and the direct value of the criterion that evaluates the quality (efficiency) of clustering.

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In order to substantiate the scientific and methodological foundations of multidimensional cluster analysis of economic development of countries in the world are considered as separate, independent clusters of one element. To determine the key clusters of countries by the level of economic development in the world, it is advisable to use multidimensional cluster analysis and the method of k-means (k-means). This method k-means is an iterative procedure that divides a given set of elements into k clusters, the points of which are as close as possible to their centers, and the clustering itself is due to the displacement of these centers. The method seeks to minimize the total quadratic deviation of the cluster points from the centers of these clusters (efficiency criterion). An important step in conducting a multidimensional cluster analysis of the economic development of the world is to select the right method for calculating the distances between the studied objects (groups). Euclidean distance (1), which is the geometric distance in multidimensional space and is calculated as follows, is most often used in economic research:

$$d_{ij} = \sqrt{\sum_{k=1}^m (x_{ik} - x_{jk})^2} \quad (1)$$

where: d_{ij} is the distance between objects i and j ; x_{ik} is the value of the k -th variable for the i -th object; x_{jk} is the value of the k -th variable for the j -th object.

It should be noted that the Euclidean distance (and its square) is calculated based on the input data and is the standard way to calculate the distance between the studied objects. This method has some advantages (for example, the distance between two objects does not change when a new object is analyzed), but the distance can be greatly affected by the differences between the units of measurement on the axes on the coordinates of which these distances are calculated.

In this case, the Euclidean distance (or the square of the Euclidean distance), calculated on the basis of coordinates (2), varies significantly, and, as a result, the results of multidimensional cluster analysis may differ greatly from the previous ones.

$$dist(x, y) = \max |x_i - y_i| \quad (2)$$

where: $dist(x, y)$ is the distance between objects x and y ; x_i is the maximum value for the i -th variable for x object; y_j is the maximum value for the j -th variable for the y object.

In the scientific literature, sometimes for the progressive increase or decrease of weight related to the dimension for which the respective objects differ significantly, which can be achieved using a degree distance. When performing multidimensional cluster

analysis, the power distance is calculated by the formula (3):

$$dist(x, y) = \left(\sum_i |x_i - y_i|^p \right)^{\frac{1}{r}} \quad (3)$$

where: $dist(x, y)$ is the distance between objects x and y ; x_i is the value for the i -th variable for x object; y_j is the value for the j -th variable for the y object; p is the parameter responsible for weighing the differences in each of the coordinates. The r -parameter is responsible for weighing large distances between objects.

The main purpose of multidimensional cluster analysis of economic development of the world is to divide the multidimensional set of input data into homogeneous groups so that objects within the group are similar in terms of economic development, and objects from different groups differ from each other. The formation of the model of economic development of the country should be scientifically sound and based on the methodological and methodological level. In today's conditions of transparency and large amounts of information, the formation of an effective model of economic development in many cases is impossible without the analysis of its key objects, factors based on the use of multidimensional cluster analysis.

The developed scientific and methodological aspects of assessing the economic development of countries on the basis of a multidimensional cluster analysis, in contrast to the existing ones, take into account the maximum number of objects of the economic development model and factors of the macroeconomic environment that have a significant impact on it.

The use of all the tools and methods proposed by the author made it possible to form the theoretical prerequisites and develop methodological aspects of assessing the key indicators of the economic development of countries that can be applied in practice by the leaders of both a separate industry and the country's government in strategic management to predict, evaluate and analyze the impact of macroeconomic factors on model of economic development.

3 Result and discussion

It is important to note that the transition from an industrial society to a post-industrial one, the formation of an informational mode of production, an increase in the action of a qualitatively new factor of production - information and knowledge, the spread of a new, innovative type of development, as well as a shift in the vector of economic development to the social side, in which a person with new the qualitative characteristics of their activities, such as creativity, the desire for self-expression and self-development - to make adjustments to the model of economic development.

So, among the basic models of the development of a market economy, the American (or liberal) model, the

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model of a socially oriented market economy, the British model and the market model of newly industrialized countries stand out. It should be noted that recently the postulates of the concept of the welfare state as a desirable option for socio-economic development have been declared in economically developed countries. In this regard, the classification of three models of development of the national economy deserves attention:

1) a liberal-oriented model of the development of the national economy (the "American, Anglo-Saxon" model of capitalism) with minimal government obligations that apply only to the poorest part of the population;

2) the social democratic model ("Swedish, Scandinavian" model of capitalism), focused on equalizing the incomes of all members of society through a progressive system.

3) model of social market economy (model of capitalism "Central Europe, Rhine").

It is a corporate model with a well-developed payroll social insurance system.

Taking into account the specifics of changes in economic systems and the impossibility in some cases of applying quantitative assessment criteria, modeling of economic development cannot be determined on an empirical basis, but can be carried out by analyzing its various directions with an emphasis on certain aspects. As part of the review of this study, target indicators of economic development models.

An indicator (from the Latin. Indicator - pointer) in sociology is understood as a characteristic of the object under study, available for observation and measurement, which makes it possible to judge its other characteristics that are inaccessible for direct research. It should be noted that in the economic literature, the indicator is:

1) a tool for qualitative and quantitative interpretation of goals and performance measurement;

2) the parameters of the boundaries in which the system, including organizational mechanisms, technological connections, material and financial flows, can function and develop stably.

A specific feature of indicators is their vector orientation. Given this peculiarity, it can be stated with confidence that the target indicator of economic development models is a certain object (element) of management, acting on which, assistance is made to improve management, which ultimately contributes to the long-term stability and competitiveness of this model. The industrial development model is relevant in the face of large economic problems or the demands of economic goals. The economy is seen as the goal of public policy, and not a means of achieving the main goal - the well-being of citizens. Gross Domestic Product (GDP) in this model is the main indicator of national progress. China is an example of the successful use of the industrial development model at the present stage. The main types of models for the development of a market economy, their characteristics and features (Table 1).

Today, the Chinese model of development is becoming more and more complex, new guidelines are emerging - innovation, social and regional development, high-quality public services to the population, etc. The model of mobilization development is chosen by countries that are pursuing catch-up development. track; it can exist in any form of economy - both market, non-market, private and public. Moreover, it is characterized by a multitude of structures, when some sectors of the economy and society come in a state of mobilization, while others do not. The transformation processes of economic development models and its target indicators, which are more fully reflected in the development strategy, determine modern conditions for the functioning of the economies of countries.

Competitiveness model. This model is relevant for the development of countries and regions in the face of increasing external influences and uncertainty. Competitiveness characterizes the integral ability of a territory (country, region, city, etc.) to adequately respond to external challenges and opportunities, maintain systemic stability and provide favorable conditions for the economy and livelihoods of the population.

Competitive models are based on four economic determinants that shape the environment that promotes or inhibits development. These four determinants are: factor conditions; domestic demand conditions; related industries and services; the strategy of firms, their structure and rivalry. In addition to the above, there are two other variables that can either enhance or weaken the synergistic effect of the interaction of these four factors - random events and government actions.

The sustainable development model was ratified at the 1992 United Nations Conference on Development and Environment in Rio de Janeiro. Today this concept is the most widespread and is often referred to as the "global model of the future civilization". The application of a sustainable development model contributes to solving current problems, which should not pose a threat to future generations to satisfy their interests.

Recall that the concept of "sustainable development" includes not only environmental and resource aspects, but also socio-economic and political aspects, which has actualized the need for more active use of intersectional and territorial approaches in public policy. Many states have accepted this as necessary for further development.

Smart development model. The smart sustainable development model seeks to ensure that information and communication technologies are used for both development and disaster management to improve the lives of millions of people around the world, which is a resource challenge. Constraints, international and interregional competition, emerging new technologies, etc. It is based on a combination of innovation and rational solutions for the use of available resources, as well as on the possibilities of increasing productivity without harming the environment and at the same time improving the quality of life.

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Smart development model. The smart sustainable development model aims to ensure that information and communication technologies are used for both development and disaster management to improve the lives of millions of people around the world, which requires resources.

Table 1 The main types of models for the development of a market economy, their characteristics and features

Model	Countries	Characteristic and features of the model
American (liberal) model	USA	<ul style="list-style-type: none"> - emphasis on freedom of enterprise and the power of competition; - the state regulates those aspects of production that are not amenable to effective regulation on the basis of free competition; - a higher level of private investment in relation to the state; - low proportion of state ownership; - a sharp differentiation of the population between rich and poor; - a big difference in the level of wages; - an acceptable standard of living for low-income groups.
Model of a socially oriented market economy	Germany, Sweden, Japan	<p>German model – “Social market economy”</p> <ul style="list-style-type: none"> - Creation of equal conditions for self-realization of a free, independent, state-abiding, law-abiding and creative person; - Presence of a “mixed economy” with a large share of state ownership; - Macroeconomic regulation is carried out by such levers as monetary, tax and budgetary policy and structural policy. <p>Swedish model – “Democratic socialism”</p> <ul style="list-style-type: none"> - Preservation of a market economy based on private property; - Powerful socialization of the distribution of national income through the use of the tax transfer mechanism; - Development of a system of social support for the population (the expenses for social support of the population are borne by the state; these expenses constitute a significant part of the state budget). <p>Japanese model – “Japanese miracle”</p> <ul style="list-style-type: none"> - The state contributes to the creation of superpower corporations formed around the bank, which became the center of such a group; - Concentration of state efforts on the restructuring of the national economy (policy for the development of new industries, labor-intensive and knowledge-intensive production); - Important mission of the state to collect and communicate to entrepreneurs a large amount of information necessary for successful business.
English or European-Keynesian model	Great Britain, France, Italy	<ul style="list-style-type: none"> - Presence of a significant scale and share of state property (state property for enterprises of capital-intensive and low-profit industries, whose products significantly affect the level of costs in other industries, especially export); - Implementation of public procurement in large amounts; significant public investment to maintain employment and accomplishment of social tasks.
Market model of new and newly industrialized countries	Republic of Korea, Singapore, Taiwan, Hong Kong, Argentina, Brazil, Mexico, Newly industrialized countries: Malaysia, Thailand, etc.	<p>Asian model</p> <ul style="list-style-type: none"> - Rapid break-up of patriarchal, feudal structures and the formation of capitalist relations based on the creation of enterprises of the newest high technologies; - Direction of entrepreneurial capital mainly in the manufacturing industry and primary industries; - Creation of labor-intensive enterprises for the production of mass consumer products; - Export-oriented economy; - Great attention is paid to education. <p>Latin American model</p> <ul style="list-style-type: none"> - Balanced combination of import substitution policy; - Preferential orientation to the external market

Source: Compiled by the author based on [10,15]

Restrictions, international and inter-regional use of available resources, as well as the possibility of competition, emerging technologies, etc. It is based on a increasing productivity without compromising the combination of innovation and rational solutions for the environment and at the same time improving the quality of

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life. The model of inclusive development, the rapid growth of income inequality, both in developing and economically developed countries, led to the formation of this model, in which it is necessary to ensure employment and high social standards based on a harmonious combination of high economic growth rates. along with the principles of sustainability. Income inequality poses a threat of social tension and a danger of slowing down economic development.

The recognition by the authorities of many countries that an economy based only on material well-being is no longer efficient has led to an increase in the number of studies aimed at finding other non-material factors that affect the patterns of economic development. It is important to note that, depending on the specific use, social indicators should determine certain properties. Social indicators should reflect a specific social perception, be reliable and meaningful, be sensitive to the main phenomenon, be generalizable, be available in the form of time series, be disaggregated, be understandable and easily interpretable and, if necessary, be linked to other indicators. Conceptualizing the main results of the presented models of economic development, it is worth noting that the main indicators of well-being in the world are: the level of GDP per capita, life expectancy, civil liberties, a sense of security and confidence in the future,

family stability, job security, the level of corruption, as well as categories such as trust in society, generosity and generosity. All presented indicators will serve as the information base of the study for the application of multivariate cluster analysis tools.

However, before structuring data for analysis, it is worth considering the economic essence of the concept of "economic indicators". Economic indicators are macroeconomic indicators published in the form of reports by the government or independent organizations and reflecting the state of the national economy. However, each indicator serves a specific purpose and is useful in its own way. The main economic indicators include the following: GDP, inflation, foreign exchange reserves, refinancing rate, public debt, balance of payments, unemployment and a number of monetary indicators. It should be noted that the totality of all presented indices, indicators and indicators is a modern model of economic development. In subsequent years, the Human Development Index, with an expanded interpretation of its constituent elements, began to be considered as the Human Development Index. Based on this, it is worth considering the features of the transformation of key indicators of economic development in the current conditions of volatility and uncertainty, which are presented in Figure 2.

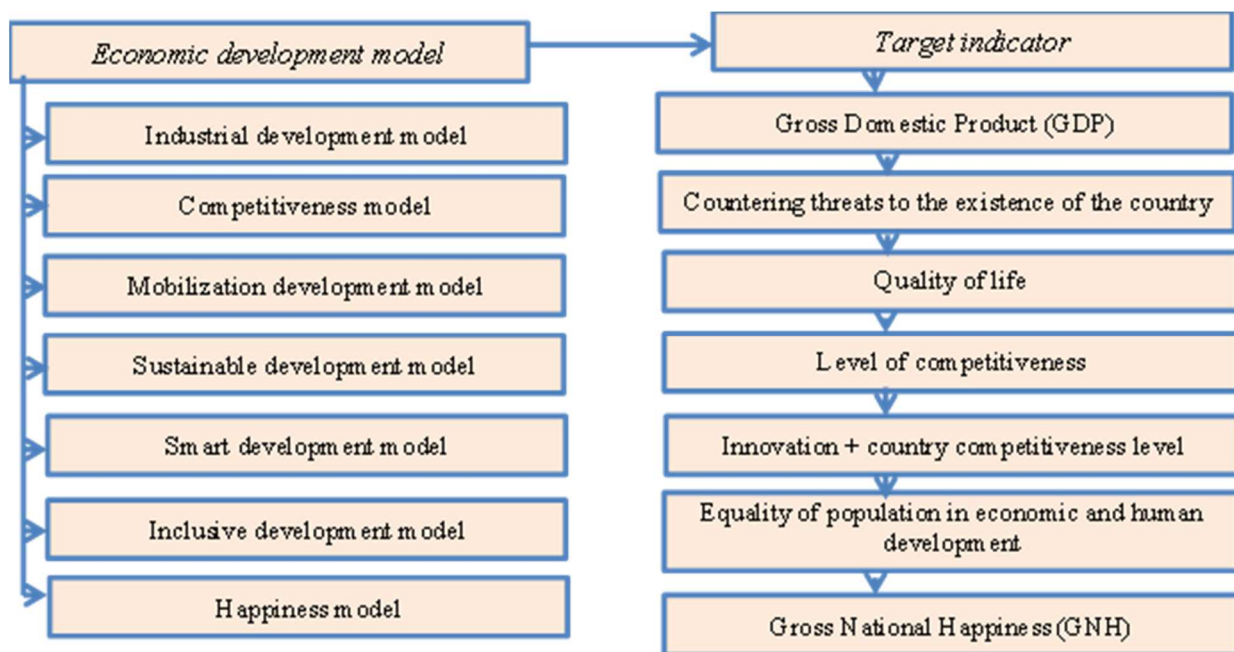


Figure 2 Features of the transformation of key indicators of economic development in the current conditions of volatility and uncertainty

Sources: compiled by the author

To argue and highlight the main results of the study, it is worthwhile to conduct a multidimensional cluster analysis of the main indicators of the economic development of countries. To analyze and determine the main conceptual aspects of the transformation of indicators

of economic development of countries in the world, the following indicators have been selected: dynamics of indicators of the global ranking of countries in terms of GDP, GDP per capita, social progress index and the global index of happiness for people in the world. It should be

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noted that Gross National Income (GNI) / Gross National Income (GNI) is the total value of all goods and services produced during the year in a state (i.e. gross domestic product, GDP), plus income received by citizens and organizations of countries from abroad, less income taken out of the country by foreign citizens and organizations. One of the key indicators of economic development.

Another important indicator of economic development is the Social Progress Index, a composite indicator of an international research project. The Social Progress Imperative, which measures the achievements of countries around the world in terms of their social development. It is important to note that the relative efficiency with which countries use economic growth and natural resources to ensure the happiness of their citizens is characterized by the Global Happiness Index.

The quality of life is a very real calculated statistical value and, of course, should be expressed in absolute terms and reflect the real spread of the quality of life between developed and underdeveloped countries and contribute to the development of a real policy of the UN and world development institutions to harmonize the dynamics of the global world economy. Urgent and political campaigns are needed to reduce the risks to the global economy and lay the foundations for stable and sustainable economic growth. The dynamism and inclusiveness of the global

economy are key to meeting the ambitious targets set by the Sustainable Development Agenda for the coming periods. Policy makers must consider scaling up cases to prevent rising risks of disability, take into account historical and escalating major disputes, and set economic, social and environmental goals as part of a long-term development strategy. Decisive policy visions are based on multi-stakeholder, gathering-based action and are designed to take a long-term approach to global outreach in gatherings such as climate action, sustainable finance, sustainable production and consumption, and addressing inequality. It also requires a move towards a more inclusive, flexible and flexible multi-stakeholder game.

A growing, open and competitive economy is a key means of ensuring continued growth in income and living standards. Without economic growth, the standard of living, or the quality of life that society aspires to, will not improve. Public perceptions of improved welfare have been closely linked to quantitative economic growth for many years. To obtain correct and reliable results of a multidimensional analysis of the economic development of countries, the following theoretical prerequisites are put forward for structuring the countries of the world into clusters according to the following limiting criteria, which are presented in Table 2.

Table 2 Basic limiting criteria for the economic development of countries for multivariate cluster analysis

Economic Development Index	Range of criteria within a cluster	Cluster characteristic
Global ranking of countries and territories of the world in terms of gross domestic product	300-200 billion US dollars	1.Cluster with countries with high gross domestic product
	200-100 billion US dollars	2.Cluster with countries with an average level of gross domestic product
	100-50 billion US dollars	3.Cluster with low gross domestic product countries
World ranking of economies by gross national income per capita	1500-1000 US dollars	1.Cluster with high gross national income countries
	1000-500 US dollars	2.Cluster with countries with average non-gross national income
	500-250 US dollars	3.Cluster with low gross national income countries
Ranking of countries in the level of social development	100-90	1.Cluster with countries with a high level of social development
	90-80	2.Cluster with countries with an average level of social development
	80-70	3.Cluster with low gross of social development
Ranking of happiness countries	50-45	1.Cluster with countries with a high level of happiness
	45-35	2.Cluster with countries with an average level of happiness
	35-30	3.Cluster with low happiness countries

Developed by the author based on the use of tools for multidimensional cluster analysis of the economic development of countries

The main results of the multidimensional analysis of economic development of 25 key countries of the world as

of 01.01.2021 are presented in Table. 3. and represent the structuring of countries into clusters according to the level of key indicators.

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Table 3 The main results of a multidimensional analysis of the economic development of 25 key countries of the world and their structuring into clusters according to key indicators as of 01.01.2021

Economic Development Index	Cluster by limiting criteria indicators	List of countries of Cluster
Global ranking of countries and territories of the world in terms of gross domestic product	1. High level of GDP	USA, China, Japan
	2. Average level of GDP	Germany, Great Britain, France, India, Italy, Brazil, Canada, Russia, South Korea, Australia, Spain, Mexico.
	3. Low GDP	Indonesia, The Netherlands, Saudi Arabia, Turkey, Switzerland, Poland, Sweden, Belgium, Argentina, Thailand.
World ranking of economies by gross national income per capita	1.High GNP	Liechtenstein, Bermuda, Switzerland, Norway, Macau, Luxembourg,
	2. Average GNP	Iceland, USA, Qatar, Denmark, Ireland, Singapore, Sweden, Australia, The Netherlands.
	3. Low GNP	Hong Kong, Austria, Finland, Germany, Canada, Belgium, Great Britain, Japan, France.
Ranking of countries in the level of social development	1.High level of social development	Norway, Denmark, Switzerland, Finland, Iceland, Sweden.
	2. Average level of social development	New Zealand, Germany, Canada, Japan, The Netherlands, Australia, Great Britain, Ireland, France, Luxembourg, Spain, Portugal, Belgium, Austria.
	3. Low level of social development	Slovenia, Italy, South Korea, Czech, Estonia.
Ranking of happiness countries	1.High happiness	Costa Rica, Mexico, Colombia, Vanuatu, Vietnam, Panama, Nicaragua.
	2. Average happiness	Bangladesh, Thailand, Ecuador, Jamaica, Norway, Albania, Uruguay, Spain, Indonesia, Salvador, Netherlands, Argentina.
	3.Low happiness	Peru, Palestine, Brazil, Switzerland, Tajikistan.

Sources: developed by the author based on data [24]

The main results indicate that in the world global society, countries are divided into 3 main clusters: 1. a high level of economic development and well-being; 2. average level of economic development with prospects for improving the situation; 3. low level of economic development and socio-economic security of the population of the countries.

Based on this, it is worth noting that economic growth can occur without any improvement in well-being, and, conversely, improving the quality of life, without any economic growth, is now increasingly accepted by society in various options and scenarios for economic development. From this point of view, the subjective well-being of a citizen is seen as the ultimate goal of the development of society and, accordingly, the economic development of the state, which ensure the well-being of its citizens and increase prospects. Well-being and quality of life should be subjectively perceived by a person who is the best expert in assessing the quality of his life in terms of subjective well-being. This means that the most important indicators of subjective well-being are in fact the indicators of satisfaction and happiness, which are provided by the effective economic growth of the country and the optimal economic model.

4 Conclusions

In the study, the author highlights the conceptual need to study the features of the economic development of countries in the current conditions of globalization processes. Theoretical aspects of the formation of economic models are considered and the existence of many scientific studies in this area is argued, however, the lack of a single approach to determining the economic essence of the concepts of "sustainable economic development", "economic development" and "economic model" is highlighted. The proposed interpretation of these concepts is based on a critical analysis and generalization of scientific works in this field.

The features of the formation of a model of economic development of countries are considered, their transformation and constant modernization of key indicators of economic development are determined. The author structured the main indicators and models of economic development. It is proved that ensuring the effective functioning of the world economy is impossible without economic growth and constant transformation of economic development models.

The main types of modern economic and economic models are structured, their features and specifics of application in different countries are highlighted. The conceptual necessity of including macro-components in

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the country's economic development strategy is argued. The specificity of the transformation of key indicators of economic development of countries is considered, which made it possible to form scientific and methodological aspects of conducting a multidimensional cluster analysis of target indicators of economic development of the countries of the world. The developed scientific and methodological aspects of the multidimensional analysis of the transformation of the target indicators of the economic development of countries made it possible to structure the countries into groups of economic development, taking into account the specifics of their functioning and development strategies.

Three key clusters of countries have been identified and structured according to the level of economic development according to key indicators, namely: 1. high level of economic development and well-being; 2. average level of economic development with the prospect of improving the situation; 3. low level of economic development and socio-economic security of the population of the countries. Based on this, it is worth noting that economic growth can occur without any improvement in well-being, and, conversely, an increase in the quality of life, without any economic growth, is now increasingly accepted by society in various options and scenarios of economic development.

The use of tools of economic and statistical multidimensional cluster analysis of indicators of economic development of the countries of the world in practical activities will ensure the effectiveness of management at the global level.

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