

# Analysis of the Importance of Modeling Socio-Economic Processes in the Management System

<sup>1</sup>Burliyev Abdulla Ubaydullayevich and <sup>2</sup>Yetmishov Khojamberdi

<sup>1</sup>Department of Automation and Control of Production Processes  
<sup>1</sup>Jizzakh Republic of Uzbekistan  
<sup>1</sup> a.burliyev@gmail.com

<sup>2</sup>Department of Automation and Control of Production Processes  
<sup>2</sup>Jizzakh Republic of Uzbekistan  
<sup>2</sup> [xujamberdi.yetmishov@gmail.com](mailto:xujamberdi.yetmishov@gmail.com)

**Abstract:** This article discusses the analysis of the importance of modeling social and economic processes, which is one of the current topics today. In management systems, it is important to make important management decisions by forecasting social and economic processes. Of course, this requires the construction of multi-factor predictive models. Below you will find ideas on how to solve these three tasks.

**Keywords**— mathematical model; forecasting; expert system; nominal and real income indices

## INTRODUCTION

Criteria for analysis and evaluation are of great importance in assessing the social environment and living standards of the population, its management, forecasting of economic processes and production. Analysis of the development and application of various models for forecasting system management will be considered. The use of mathematical models, economic mathematical models, the method of extrapolation, the method of expert evaluation of forecasting, the method of modeling and adequate models played an important role in this.

**Relevance of the topic:** One of the most pressing issues is the construction of various models in the management of production processes, economic systems, living standards and social systems, forecasting future plans using structured models. The introduction of investment projects in this socio-economic system poses a number of problems and requirements. The main task of modeling and forecasting of socio-economic processes is to make a realistic assessment of the ways of economic and social development of society, to identify priority options for the scientific substantiation of optimal management solutions for this development. In addition, it analyzes the directions of economic development in quantitative and qualitative terms, studies the new processes and situations of problems, identifies possible directions of economic and social development, assesses opportunities, socio-economic, scientific and technical and other measures applies to life, determines its effectiveness, substantiates the main socio-economic and scientific-technical directions. In this article, we will analyze the above questions.

### 1.1. The importance of modeling socio-economic processes in the management system

The current developing national economy is a complex socio-economic system. The processes of globalization, the acceleration of investment flows, the financial crisis, the

growing competitive environment are affecting the sustainable development of the national economy. In such circumstances, economic-mathematical modeling is a practical tool that systematically represents real processes in the national economy, which allows to identify and study the development options of small systems in accordance with the ultimate goal of system development, is to increase economic efficiency.

For the economies of developing countries, there is a growing need for specialists in economic and mathematical modeling, who can not only analyze complex socio-economic processes, but also use computer technology based on modern economic-mathematical methods and models to find multivariate solutions to these processes. This allows us to apply the trends in the economy, the state of the objects under study, forecast their development and, on this basis, to make scientifically based decisions for the effective use of limited resources in the national economy.

The variety of tasks of modeling and forecasting socio-economic processes in the management system requires the use of forecasting methods and various systems. Each forecast is based on the acquisition, reliability, validity, evaluation, and processing of the required information. What information to obtain for the forecast depends on the choice of the media, the methods of obtaining it, the special calculations that assess the development of the object under analysis.

In practice, there are 130 different methods of forecasting. The methods of forecasting socio-economic processes can be divided into 3 main groups:

- extrapolation method;
- expert assessment method of forecasting;
- modeling method.

The main and only development factor in a dynamic task is the time factor. In this case, the predicted parameter is based on the analysis of time series showing time series that show changes over time. For example, changes in the capacity, flow, potential of labor resources over time are

analyzed. The dynamic function of forecasting is to interpret the development of the forecasting process as an evolutionary process, a one-way change in key parameters. In this case, in predicting changes in the parameters of the object, its future development is built on retrospective practice

The main stages of the modeling process will have their own characteristics in different areas, including the economy. Let us analyze the sequence and content of the stages of a single cycle of economic-mathematical modeling.

**The first step** is the formulation of the economic problem and its theoretical and qualitative analysis. At this stage, the economic process is studied in detail, its main parameters such as internal and external information relations, production resources, planning period are determined. At this stage, the essence of the problem is mainly expressed. You need to figure out what questions need to be answered.

**The second step** is to create a mathematical model. The economic mathematical model of the modeling process is expressed in the form of equations, systems of inequalities, functions. First the type of the model, then its variables, parameters, forms of communication are defined.

**The third step** is a mathematical analysis of the model. The purpose of this step is to determine the general characteristics of the model. Here the model is tested by mathematical methods. Most importantly, it is necessary to prove that the model has a solution. If the model does not have a mathematical solution, then the next steps will not be possible. Therefore, it is necessary either to change the economic formulation of the problem or to make the mathematical expression more precise.

**The fourth step** is to prepare economic data on the object being modeled. The importance of this stage in modeling is very important. Real data retrieval limits the use of models. Then you need to consider the cost of preparing the data. These costs should be less than the benefits of modeling. All the economic data needed to solve the problem is processed statistically. The coefficients involved in the model are determined. To solve the problem, its initial matrix is created.

**The fifth step** is to create an algorithm for solving the problem, prepare computer programs and calculate the problem based on them, get a solution. The complexity of this stage is due to the large size of the problem and the processing of very large data sets. The problem matrix is filled with economic information and entered into a special program on the computer.

**The sixth step** is the quantitative analysis of the solution and its application in practice. In recent years, the expert method of forecasting has been widely developed. Using this method, it is possible to solve some of the major problems that arise during the processing of forecasting.

The degree of accuracy and scientific validity of any forecast should largely take into account the views of experts in the field of forecasting on the problem under study.

Developed economic-mathematical models can be converted into ready-made software products using modern programming languages.

“At the present stage, software products of programming languages of information communication technologies (ICT) are widely used in the education system of our country”. [five]

## 1.2. Models for analyzing the living standards of the population

Several systems of models are used to improve the living standards of the population in a market economy. They are used to forecast various aspects of living standards. These include the structure of the population's income, individual consumption patterns, and so on.

Determining the prospects for the development of living standards requires the identification of various indicators and the calculation of many complex interdependencies in the economy in several copies. Such a complex task can be done only with the help of economic mathematical methods, more precisely, with the modeling of regional development processes, which is one of its directions.

Modeling of living standards means the creation of a model of real macroeconomic processes, living standards using mathematical expressions, equations, functions, etc., and their study in both statics and dynamics.

These models are:

- growth rates and composition of the level of consumption and demand of the population;
- the cost of efficient growth of consumption and their efficient use;
- sources of income generation;
- optimal balance of income and expenditure of the population;
- Relationships for the development of living standards are used to determine effective public policy in the field, etc.

## 1.3. The impact of investment projects in the management of socio-economic systems

At present, the problem of economic justification of investment projects is particularly relevant, which is the basis for making investment decisions, calculating the efficiency and risk indicators of investment projects.

The enterprises participating in the investment project have special features. It is important to take into account the differences in the goals of your investment activities. Investment decisions should be reflected in the various criteria set by the participants of the investment project, as well as in the methods of assessing the performance of the investment.

Numerous guidelines and recommendations have been developed in the field of economic justification of investment decisions. The effectiveness of the investment project is defined as "a category that reflects the suitability of the goals and interests of project participants." Analysis of the formulas of efficiency indicators shows that they do not have parameters that define the goals of the participants of

the investment project, and therefore they do not reflect the level of "compliance with the goals and interests of the participants of the investment project."

Whether there is an investment project that can be considered as a complex system, taking into account the developments to assess the effectiveness of complex systems, we need to determine the effectiveness of the investment project as follows: can be called an indicator of the effectiveness of the project. ”

Clearly, the efficiency indicator should be directly related to the targeting of the investment project for the participant, and should serve to change the main parameters of the investment project.

### **Conclusion**

In conclusion, it is important to build forecasting models in the management of socio-economic systems in developing countries. Models for forecasting economic indicators and incomes of the population are very important in the development of future plans. Such models are especially useful for directing investment projects to these systems and analyzing their efficiency. That is why scientists are doing a lot of research in this area and scientifically substantiating the management of the system using models.

### **REFERENCES**

- [1]. Abdullayev A.M., Abduraxmanov O.K. "Forecasting and modeling of national economy". Textbook. T.: Science and Technology, 2010.
- [2]. Antoxonova I.V. Methods of forecasting socio-economic processes. - U.: VSGTU, 2007.
- [3]. Khakimov T.X., Abdullayev O.M., Almuradov A.A. Modeling and forecasting of socio-economic processes. Study guide. - T.: TDIU. 2012.
- [4]. Shodiyev T.Sh. and others. Economic-mathematical methods and models. Study guide. - T.TDIU, 2010.
- [5]. Turovov U. U., Burliev A. U., Ibragimova N. A. Software for teaching students to write programs C, C ++. - 2019.