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ANALYSIS OF ECONOMETRIC MODELING STEPS

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Annotation. This article investigates the main stages of econometric modeling, their unique characteristics in various fields and the economy, as well as the sequence and content of the stages of economic-mathematical modeling.

Keywords: model, mathematical modeling, econometric modeling, correlational-regression, hypothesis.

Modern economic theory also includes mathematical models and methods as highly natural and necessary elements. The use of mathematics in economics allows for the identification and formal description of the most important and significant connections between economic variables and objects, and for the clear and concise presentation of the rules, concepts, and conclusions of economic theory. The basis of these methods is correlational-regressive analysis. As a system of specific methods, econometrics began to develop by clarifying its problems while describing the characteristics of economic variables and their interrelations." [1].

The formulation of the economic problem and its qualitative analysis. This stage includes isolating the most important characteristics and properties of the object to be modeled and abstracting them from secondary ones; studying the main connections that link the structure of the object and its elements; and forming (at least initial) hypotheses that explain the state and development of the object[2].

Building the mathematical model. This stage involves formalizing the economic problem and expressing it in the form of definite mathematical connections and relationships (functions, equations, etc.). Usually, the main structure (type) of the mathematical model is determined first, and then the components of this structure (a precise list of variables and parameters, the form of connections) are specified.

Mathematical analysis of the model. The goal of this stage is to identify the general properties of the model. Here, pure mathematical methods of research are used. In the analytical study of the model, issues such as the existence and uniqueness of the solution, which variables (unknowns) may be included in the solution, the relationships among them, how these variables change depending on which ranges and initial conditions, the directions of their changes, and similar problems are clarified. The analytical study of the model is preferable to empirical

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(numerical) research in that the conclusions obtained retain their validity under various specific values of the model's external and internal parameters.

Nevertheless, models of complex economic objects are analytical with great difficulty brought to research. General properties of the model by analytical methods it is impossible to determine and it is desirable to simplify the model in cases that lead to non-existent results, it is transferred to quantitative methods of research.

Preparation of preliminary data. Strict to the modeling information system makes demands. At the same time, the real possibilities of obtaining information are in practice limits the selection of models intended for application. In this not only the current possibility of preparing information (within specific deadlines), but also relevant the cost of preparing information arrays is also taken into account. These spending costs should not exceed the cost of using additional information [3].

Numerical solution. This stage includes the development of algorithms for the numerical solution of the problem, the creation of programs in EHMs and direct calculations. Difficulties at this stage arise, first of all, from the large volume of economic issues, the need to process very large information arrays. A quantitative study can significantly complement the results of an analytical study, and for many models it will be the only study performed. The class of economic problems that can be solved by numerical methods is much wider than the class of problems that can be analyzed analytically. At this final stage of the cycle, the question arises about the accuracy and completeness of the modeling results and their level of practical application. Mathematical methods of verification identify the incorrect structure of models and thus narrow down the class of models that are likely to be correct [4].

In conclusion, econometric modeling is an informal analysis of theoretical conclusions and numerical results obtained by means of the model, comparing them with existing knowledge and real facts.

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