The Value of Mathematical Modeling in Teaching Econometrics to Students of Higher Educational Institutions

Ravshanova Muhayyo Maxmanazarovna

Karshi engineering-economics institute
https://orcid.org/ 0000-0001-5987-0172
Assistant of the Department "Business and innovative management"

ABSTRACT

This article contains the researcher's comments on the importance, necessity and relevance of using mathematical models in teaching econometrics to students of higher educational institutions. The scientific article contains opinions that the model, modeling, mathematical model and mathematical modeling are the advantages of the science of econometrics and the need to use a mathematical model when building an econometric model.

Keywords: econometrics, model, modeling, mathematical model, mathematical modeling, information, statistical information, econometric model, correlation, regression

Econometric knowledge arose and formed as a result of the interdependence and development of such sciences as economic theory, economic mathematics, economic statistics, probability theory and mathematical statistics. Econometrics forms its subject, purpose and research questions. At the same time, the content of econometrics, its composition and scope are always in contact with the above disciplines.

The mathematical expression of quantitative processes and objects of society and relationships is called a mathematical model. The viability of a model depends on how well it fits the object being modeled. Since it is difficult to reflect all aspects of an object in one model, only the most characteristic and important features of the object are displayed. Therefore, the accuracy of the model depends on the amount of data collected, the level of accuracy, the skill of the researcher, and the magnitude of the problem identified during the modeling process. It is known that the application serves to improve concrete and social sciences. The elementary concepts of mathematics are important not only in social processes, but also in the definition of conflict situations, mutual disagreements, agreement, public opinions. Mathematical models are developed, analyzed and applied to mathematical methods.

Mathematical models are written using mathematical expressions and methods depending on the nature and properties of the object. In some cases, there are complex rules when expressed in formula language. Formulas are involved in the creation of any mathematical model and are divided into stages. The indicators change over time.

The method of mathematical modeling is a mechanism of practical practical or abstract learning of an object, which directly proves some additional artistic origin or neposredstvennaya model, nakhodyashchayasya v nekotorom objective soglasii s opredelyaemym obektom; it has the possibility to replace the object in concrete aspects, so as to provide information on the

modeled object itself. They also teach basic principles of mathematical modeling, which you need to know for modeling.

Deterministic method - a method in which the value of each factor corresponds to a clearly defined non-random value of the effective indicator;

Probabilistic methods are methods used to describe the relationship between the output characteristics of the system and the input variables (parameters) of the system, taking into account random factors. Mathematical models are divided into analytical and simulation:

- analytical
- model with the use of standard mathematical language (formulas and equations);
- imitation models, using special language modeling or universal language programming (special algorithms or programs).

Mathematical modeling is called both the activity itself and the set of methods and techniques adopted for the construction and study of mathematical models. All natural and social sciences that use a mathematical structure are, in fact, engaged in mathematical modeling: they replace the object of study with its mathematical model, and then study the latter. With the help of mathematical methods, as a rule, an ideal object or process is described, built at the stage of meaningful modeling, the connection of a mathematical model with reality is carried out using a chain of empirical laws, hypotheses, idealizations and simplifications.

Mathematical model is an approximate description of some classes of external objects, expressions and mathematical symbols..

Modeling is the process of building, learning, and applying models. The modeling process includes the following three elements:

- item;
- object of study;
- a model that mediates the relationship between the subject of learning and the object being studied.

In the modeling process, the researcher is the subject. The object can be an event or a process. Modeling refers to the creation of a model of the object or event under study by the subject, that is, the researcher, and its implementation..

Mathematical models are presented as a set of functions, equations, inequalities, logical relationships, graphs. It is the implementation of such models in practice that gives mathematical modeling.

he basis of econometrics is the model. When creating a model of an event or process, a problematic situation is first identified, then statistical data are collected on this problematic situation or process, and an econometric model is created based on these statistical data. The resulting statistics must be correct, reliable, new economic data. Based on these data, the parameters of the econometric model are estimated and a forecast of the econometric analysis is made.

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