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PECULIARITIES OF MODELING AND FORECASTING OF ECONOMIC PROCESSES IN AGRARIAN SECTOR OF ECONOMY

Economic and mathematical models are simplified formal description of the economic phenomena. When building models, economists identify significant factors determining the phenomenon under investigation and drop items that are not relevant to the problem and its solution. Formalization of the main features of functioning of economic objects allows you to evaluate the possible effects of exposure to them and use such estimates in management.

Model – it is a conventional image of the object, built for ease of study. It is expected that the model gives new knowledge about the object, or allows it to determine the best decision in any situation. Economic models allow to reveal the peculiarities of functioning of economic object and on this basis to predict the future behavior of an object when you change any of the settings. By definition, any economic model abstract, and, therefore, incomplete, because marking the most significant factors that determine the regularities of functioning of the considered economic object, it is abstracted from other factors which, despite their relatively low significance, in the aggregate, to determine not only the deviation in the behavior of an object, but also its behavior.

Of great importance in economic modeling of agrarian sector of economy is the definition of the degree of complexity and the conditionality of the actions of the agricultural production as of the analyzed object, its interaction with the external environment and the internal communication between the constituent elements of it. Specifics of agriculture lies in the fact that this branch of material production is inseparable from the earth, which is not only an object of management, but also the subject of labor and means of production. Agricultural production is characterized by close interplay of biological, technological, economic and social processes. The reproductive cycles of different kinds of resources are interrelated and interdependent. Self agricultural production also continuously changes as a result of technological progress, changes in the social sphere. In addition, in the process of functioning of the agricultural enterprise experiences a significant influence of random factors. In this regard, the most objective analysis of agrarian reproduction is possible only in the framework of probabilistic categories.

Agrarian sector of the economy is a system with inherent all system features. For the production of agricultural products requires the use of a set of interrelated and interdependent production resources: land, labor, and material. These parts of the production process form a

complex system of interactions with the constant change of their quantitative proportions, quality characteristics, determined by the level of development of production.

Agricultural production is a complex dynamic system. This is because the environment in which the agrarian sector of economy, by itself, is not static. It is dynamic, always changing, being exposed to both external and internal influences. Agricultural production tests on itself influence of the economic situation, social stress, changes in the legislative system and other impacts, which are in the nature of changes in the external environment. So when modeling of the agrarian sector of economy it is necessary to take into account its dynamic nature. So, dynamic models include the relationship of variables in time. In static models are usually recorded values of some quantities, which are the variables in the dynamics - for example, investment resources, prices. The dynamic model is not reduced to a sum of a number of static models, and describes forces and cooperation in the economy, determine the course of processes in it. Dynamic models usually use the apparatus of differential and difference equations, the calculus of variations.

Agrarian sector of economy is an open system. First of all it is connected with the fact that on its state, functioning and development is significantly influenced by natural factors. Especially close relationship occurs in the interaction of living organisms with their physical environment. In addition, agricultural production is one of the branches of the national economy. Between agriculture and other sectors of the economy are closely interrelated.

The specifics of statistical modeling economic processes in agrarian sector of economy is in a non-linear nature of the functioning of this system. A significant impact on the functioning of the agricultural production system have uncontrollable, and often uncontrollable factors. Considering the processes occurring in agricultural production, it should be noted that there is objective uncertainty, caused by operation of the objects of the biological nature. Objects of biological nature, form the basis of functioning of agricultural production, quite objectively can be described with the help of statistical regularities.

Agriculture is a system with stochastic principle of action. It is necessary to state a permanent presence in the agricultural production, the uncertainty associated with the assessment of the state of the environment. There is uncertainty in natural, human, material and financial resources. In this regard, the mathematical model of the agrarian sector of the economy should be of a stochastic character. Stochastic models allow for random effects on the studied parameters and use the tools of the theory of probability and mathematical statistics to describe them.

Thus, agricultural production is the open dynamic system with stochastic principle of action. Therefore, the most objective analysis of the agrarian sector of economy is possible only in the framework of probabilistic categories. Economic-mathematical model describing the process of reproduction in the agrarian sector should be of essentially nonlinear character.