Satyr L.M.,
dr.sc.(econ.), assistant professor of the department of economics enterprise
Bila Tserkva National Agrarian University

FORECASTING OF THE SUSTAINABLE DEVELOPMENT OF RURAL TERRITORIES OF UKRAINE BASED ON THE HOLT-WINTERS MODEL

This paper consider the relevance and the level of study of the sustainable development of problems in rural areas in Ukraine, and the questions of transition regions in Ukraine and its development, as sustainable development to ensure a high quality of life for present and future generations of Ukrainian people as a basis of economic growth, the formation of a social market economy, sustainable consumption material resources. Therefore, in the current economic conditions, modeling of sustainable rural development is a reasonable necessity.

It is proved that for statistical, short-term forecasting of development of rural areas in terms of significant changes in the external environment, it is necessary to use adaptive forecasting methodology, in particular, the adaptive model of Holt - Winters. To implement the ability to manage such a model, it is necessary to have not only the past and current values of development, but projections that play a much greater role in the economic development than the present. Existing forecasting methods based on analytical procedures, rules of logic and rational thinking, in many cases, do not give quality forecasts, therefore there is a necessity in significant and rapid improvement of the quality of short-and medium-term forecasting.

Studies show, that solving an effectively prediction problems on the new qualitative level, which requires the use of modern methods of systems analysis to existing approaches and techniques, correct the use of mathematical modeling based on the achievements of the theory of estimation and statistical analysis. Therefore, we propose to forecast indicators of the development by using of adaptive forecasting methodology, as the adaptive model is the most reliable in the process of forecasting economic performance in terms of significant changes in the external environment.

It is proved that adaptive forecasting allows us to automatically modify the smoothing constant during the calculation. Forecasting tool in the adaptive method is a mathematical model with one factor "time". Adaptive prediction model - a model of discounting data that can quickly adapt their structure and parameters to changing conditions. The most important feature of them is that it's self-regulatory model and in the case of new data forecasts updated with minimal delay without repeating the whole first volume calculations. Thus , adaptation is performed iteratively to give each new actual point a number. The model always " sucks " information and develop with the new trends available at the moment . Due to these properties of adaptive methods most successfully used for operational forecasting.

In general, the practice of statistical prediction models are considered basic adaptive model of Brown and Holt belonging to the moving average scheme and autoregressive model . The rest of adaptive methods, namely, the method of harmonic scales, etc. differ in the way the model parameter estimation and adaptation of parameters defining the basic models.

Choice of adaptive methods to justify the possibility of constructing self correction models, that can take into account the predictions made in the previous step. When you receive the actual value of the index value of the forecast error is measured and recorded some adjustment procedure model. Adaptive methods allow to take into account different levels of information value range, which is used for short-term forecasting, typical agricultural production with a distinct cycles.

It is proved that for short-term forecasting of sustainable development of rural areas of Ukraine can be recommending adaptive model of Holt - Winters , which in difference to Holt model , except linear trend also includes seasonal component. This model makes possible to predict the economic performance indicator of rural development and if it necessary, correct management actions of heads of the central and regional governments and their associations at the level of advisory boards and executive committees of associations of local governments.

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Purpose. Research and forecasting of development of rural areas based on using adaptive models.

Methodology of research. The research used a system of economic, statistical and economic-mathematical methods. In particular, for solving problems of effective prediction, system analysis methods have been applied to the existing approaches and techniques; mathematical modeling methods based on the achievement of the evaluation theory and statistical analysis data have been used. It has been proposed to carry out forecasting of development indices based on the use of adaptive forecasting methodology, since the adaptive models are the most reliable in the process of forecasting economic indices, where forecasting tool is a mathematical model with one factor "time". For short-term statistical forecasting of development indices adaptive models with a seasonal component have been used.

Findings. The necessity and process modeling for sustainable development of rural areas of Ukraine on the basis of the methodology of adaptive forecasting has been substantiated.

Originality. It has been proved that for statistical, short-term forecasting of development of rural areas in terms of significant changes in the external environment Holt-Winters adaptive model can be used.

Practical value. The proposed method, based on the use of adaptive forecasting, makes it possible to predict economic indices-indicators of rural areas development and define management actions of central and regional governments, local authorities and their associations at the level of advisory boards and executive committees of associations of local governments.

Key words: agriculture, modeling, forecasting, adaptive model, sustainable development, rural areas