

## MODERN METHODS OF ECONOMIC FORECASTING

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**The purpose** of this study is the consideration, systematization and enumeration of the types of forecasts and effective methods of economic forecasting. Accordingly, **the subject** of the study is the concept of forecasting. Forecast is a judgment about the possible state of an object in the future.

The objects of forecasting are various socio-economic events and processes, namely: demographic processes, scientific and technological progress, aggregate demand, aggregate supply (or economic growth), sectored structure of the national economy, dynamics of the usage of various types of recourses, the inflation rate, employment and unemployment, exchange rates, dynamics of foreign economy activity, raw material prices, level of income, interest rates and other economic indicators.

During the writing the study, the theoretical and empirical research **methods** were used.

**The practical application** of effective methods of forecasting is of increasing importance today. They provide the most accurate results. **The actuality** of my report lies in the fact that finally, in connection with the development of science and technology, it has become possible to implement complex forecasting calculations with the help of a computerized environment. **The role** of economic forecasting is extremely high. Qualitative results of forecasts provide to reduce the level of uncertainty and allow to take effective and optimal decisions by managers of different levels, especially by strategic planners. Also forecasting helps to avoid mistakes in economic activity, minimize losses. Ensure the timely application of protection measures and maximize benefits.

**The result of the study** was as follows. Forecasting is usually short-term, medium-term, long-term, depending on the period of time for which the forecast is made. Also, depending on the scale of forecasting, it can be a macroeconomic forecast (for a state economy), a regional forecast or a microeconomic forecast (for a separate enterprise) [1].

There are qualitative, intuitive and quantitative forecasting methods [2, 4].

The qualitative methods involve reference to the opinion of professional experts with significant experience. They can be individual assessments or collective assessments. In the former case, the assessments are based on the use of the opinion individual experts independent of each other. In the latter case, the assessments are based on the use of the opinion of experts when they work together in a group. A joint opinion has better accuracy.

The qualitative method is mainly applicable when specific numerical data and other information are missing or too expensive. It is always important to evaluate the quality and reliability of the expert as a set of indicators that characterize the expert's ability to assess the development of the object over time. The more advanced the expert is, the more expensive his services are.

Also worth mentioning are the intuitive forecasting methods. They are used when the object of forecasting is either too simple or so complex and unpredictable that it is practically impossible to include the full range of influences of many factors analytically.

The quantitative methods are generally considered to be the best for forecasting purposes. They are based on numerical mathematical procedures. In turn, the quantitative methods are divided



into the casual prediction methods and the time-series analysis. It is expedient to use the time-series analysis if there is a high probability of relative replication of a scenario of development of a certain economic phenomenon. Other words, when the past experience can be transferred to the future with some adjustments. This kind of forecasting is suitable for short periods of time.

The casual prediction methods are used in cases where the change in the state of an economic object depends not only on time but also on other variables. This necessitates the search for functional relationships and their mathematical descriptions. This kind of forecasting is appropriate for medium and long-term periods of time.

The time-series analysis can be done using the «naive» models, the rolling average, exponential smoothing.

The casual forecasting can be done by means of multiple regression models, polynomial mathematical functions, stochastic modeling with its statistical criteria, elasticity coefficients.

The latest word in economic forecasting is the use of neural networks, which enable to derive complex multiple regression model based on the constructing of super-complicated algorithms through programming [3]. Nowadays it is called machine learning or artificial intelligence. Some examples of the use of machine learning in business activity: prediction of solvency of a legal entity or individual person (in banking), anticipating «clients-leaving» (in marketing and sales), prediction of the likelihood of a user click on an ad banner (in the internet advertising).

For forecasting it is better to use special computer programs with all the necessary analytical instruments. This allows to automate calculus operations and also to avoid various errors associated with data inputs and model constructions. In practice, economic forecasting is most frequently conducted through such programs as: R, SPSS, Statistic, Forecast P, Forecast Expert, Python and others.

An important stage in the forecasting process is verification. The verification of the forecast is treated as an assessment of the reliability and accuracy of this forecast [5]. Most often it is done by comparison with other forecasts based on alternative sources of information.

Also in practice, at a serious level, forecasting is carried out mainly at large enterprises that have sufficient funds, facilities and competent staff. Small business operates with more simple and not labor-intensive methods of forecasting. They all also can use paid services.

Among researches there is no consensus on the existence of the best method of forecasting in fact. Therefore, it is practiced a way of combining separate forecasts and, as a rule, specialist present a combined forecast in the form of a weighted sum of individual forecasts.

At the same time, there are fundamental difference between forecasting and planning. Firstly, forecasts should be preceded by plans. Secondly, a description of the possible is a forecast and a list of measures to achieve the possible one is a plane.

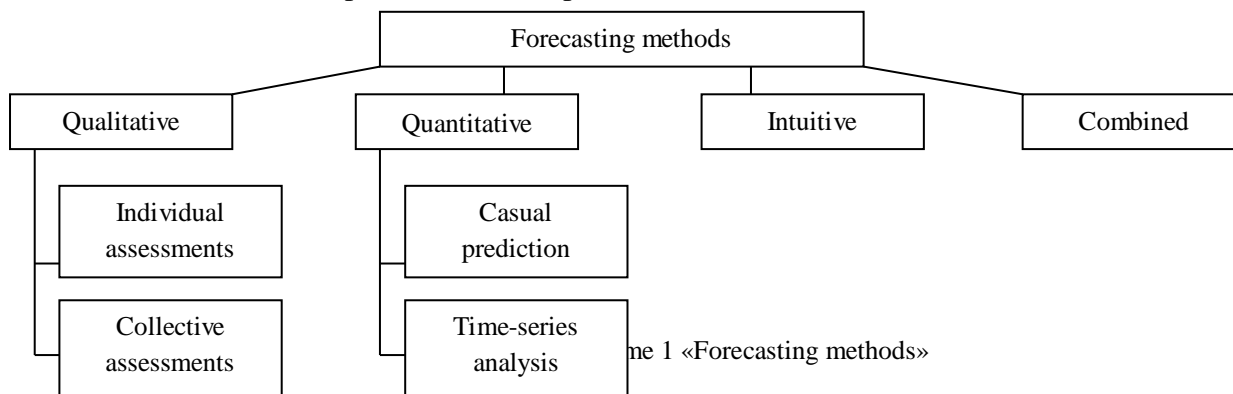


Figure 1 «Forecasting methods»

**As a result**, the thesis considered the essence of forecasting and modern forecasting methods. They are intended to be the basis for rational management decisions, therefore, must be mastered by



current and future specialists in order to succeed in the economic activity of all levels of the national economy.

**Keywords:** Forecasting, expert evaluation, casual prediction, neural networks, time-series analysis, verification, combined forecasting.

#### **LITERATURE**

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