

MULTIFACTORIAL FORECAST MODELING OF AGRO-INDUSTRIAL ENTERPRISES' PROFITABILITY IN THE PROCESS OF IMPLEMENTING DIVERSIFICATION STRATEGIES

Oksana Zghurska^{1*}, Lina Melnichuk¹, Yaroslava Larina², Tetiana Somkina¹, Ulia Remez², Kalyna Lutsii³, Hennadii Khmurkovskiyi³, Inna Basha², Olena Shaporenko⁴

**¹Educational and scientific institute of management and entrepreneurship,
Department of Entrepreneurship, Trade and Stock Exchange,
State University of Telecommunications, Solomianska str. 7, 02000, Kyiv, Ukraine**

**²Department of Marketing named after A. F. Pavlenko, Kyiv National Economic University
named after Vadym Hetman, Peremohy Avenue 54/1, 03057 Kyiv, Ukraine**

**³Department of Commercial activity and logistics, Kyiv National Economic University
named after Vadym Hetman, Peremohy Avenue 54/1, 03057 Kyiv, Ukraine**

**⁴Faculty of Agricultural Management, National University of Life and Environmental Sciences,
Heroyiv Oborony 15, 03041 Kyiv, Ukraine**

***e-mail: oksana.zgurska@ukr.net**

Abstract

The analysis of the effectiveness of innovative strategies for the development of diversified agro-industrial enterprises gave grounds to draw a general conclusion about the need to develop a system of strategic innovative solutions in terms of improving the efficiency of management in today's information society. At the same time, we should not ignore the results of diagnostics of all elements of micro- and macro system of innovation infrastructure of the enterprise, which directly or indirectly affects the effectiveness of optimal decisions on choosing the best options for innovative development of diversified agro-industrial enterprise. The purpose of the present scientific research is to perform a strategic forecast of multifactorial impact on the efficiency of diversified enterprises, construction of a multifactorial linear regression model of strategic forecast of profitability level of the studied enterprises, as well as a multifactorial model of logistic regression of strategic forecast of low profitability risks as a result of implementation of innovative strategies of diversified enterprises' development of in the long run.

The research was conducted on the basis of data from the State Statistics Committee and on the basis of data analysis of the surveyed the large agro-industrial enterprises of Ukraine. To achieve this purpose, the main criteria were ranked (Kruskal-Wallis ranking criteria (KWC) to assess the differences between the medians of different samples ($c > 2$), where KWC is a nonparametric alternative to the F-criterion in the one-factor analysis of variance. If the conditions necessary for the application of the F-criterion in multivariate variance-regression analysis are met, the KWC has the same influence. To build the models, the method of construction of multifactor models of logistic regression with step-by-step inclusion/exclusion of features was used. Strategic forecast of the results of multifactorial impact on the efficiency of diversified enterprises was made, based on the formation of a rational management structure of innovative strategies for the development of diversified agro-industrial enterprises.

The obtained results allowed to obtain the median indicators of the general set of research objects and a clear bifurcation picture of the strategic development of enterprises for the future. The multifactorial model of linear regression revealed a relationship between the level of profitability and the results of such strategies for the development of diversified enterprises as: innovative strategy 2 (Implementation of innovative programs with an interactive database for the efficiency of logistics solutions), innovative strategy 3 (The level of profitability of the results of introduction of a digital platform for automatic planning of production processes), and the year of the study. However, the linear model cannot take into account the specifics of each of the analyzed enterprises, which may be related to the level of its profitability. To take this impact into account, the method of constructing

multifactor models of logistic regression was used to analyze the relationship between the level of profitability of diversified enterprises and factorial features.

The multifactorial analysis and construction of the multifactor model of linear regression of strategic forecast of agro-industrial enterprises' profitability, as well as the multifactorial model of logistic regression of strategic forecast of low profitability risks probability have proved the usefulness of implementation of innovative strategies of competitiveness on domestic and foreign markets.

Key words: *Agro-industrial enterprise, Diversified enterprise, Innovative development strategy, Optimal strategic decision, Strategic forecast.*