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RESEARCH OF ECONOMETRIC MODELS FOR CREATION OF EXPECTED VALUES

ИССЛЕДОВАНИЕ ЭКОНОМЕТРИЧЕСКИХ МОДЕЛЕЙ ДЛЯ ПОСТРОЕНИЯ ПРОГНОЗНЫХ ЗНАЧЕНИЙ

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ABSTRACT

CORRELATION, REGRESSION, MODEL, EQUATIONS, CORRELATION FIELD

Econometric analysis on the basis of data on profit from sales (result) and the volume of sales (factor) allows us to study the internal structure of the models, which in turn allows us to correctly and accurately predict the (future) values of economic indicators.

АННОТАЦИЯ

КОРРЕЛЯЦИЯ, РЕГРЕССИЯ, МОДЕЛЬ, УРАВНЕНИЯ, КОРРЕЛЯЦИОННОЕ ПОЛЕ

Проведение эконометрического анализа на основе данных о прибыли от реализации продукции (результат) и об объемах реализованной продукции (фактор) позволяет исследовать внутреннюю структуру моделей, что в свою очередь позволяет правильно и точно спрогнозировать значения экономических показателей.

The purpose of this work is to study the relationship of economic indicators and the development of econometric models using computer technology to predict profits from sales.

Tools of the study is TP MS Excel.

Correlation analysis is a section of mathematical statistics devoted to the study of relationships between random variables. The main task of correlation analysis is to establish the nature and closeness of the relationship between the effective (dependent) and factor (independent) indicators (signs) in this phenomenon or process.

The nature of the relationship between the indicators of sales of a small enterprise for women's clothing is determined by the correlation field. For the analysis, the volume and profit from the sold products are considered. The selected indicators are significant for the company in today's competitive environment. In the model Y is a dependent

sign (profit from sales, thousand rubles), and X is an independent sign (volume of sales, thousand rubles), then noting each case $X(i)$ with coordinates x_i and y_i , a correlation field is constructed, which is shown in figure 1.

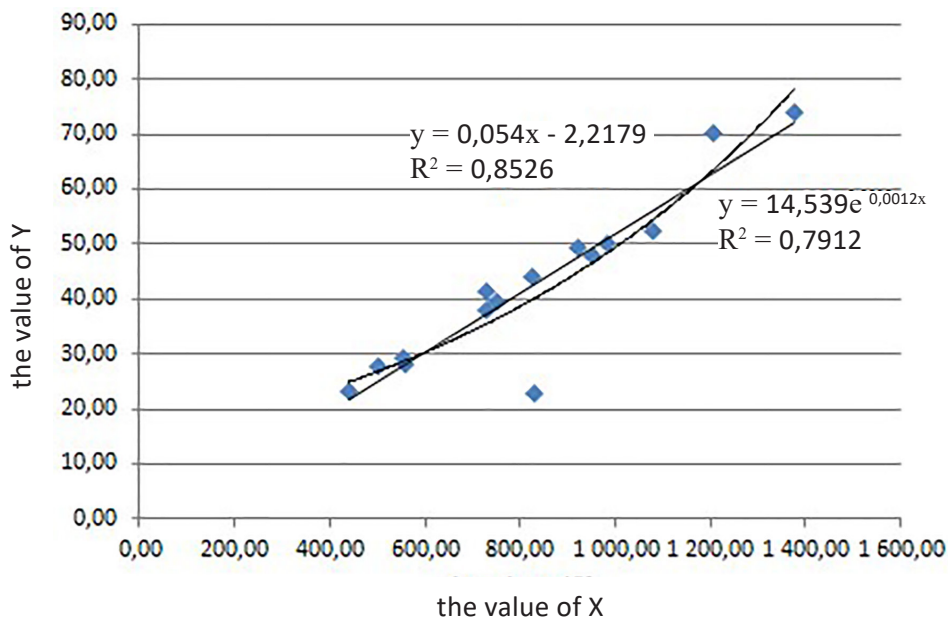


Figure 1 – Correlation field of dependence Y on X (linear and exponential relationship)

The presence or absence of a connection between the studied parameters is determined by the correlation coefficient (R_{xy}), which in turn allows from a practical point of view to confirm or refute the previously stated, on the correlation field, theoretical hypotheses.

The calculation method assumes that the correlation coefficient lies in the range from minus one to plus one $[-1;+1]$ («-» says about available feedback, and «+» – direct ties). To establish a statistical relationship between the studied economic indicators and the factors affecting it, a regression analysis was carried out.

Regression analysis involves the identification of explanatory variables, specification of the form of the desired relationship between variables, determination and evaluation of specific numerical values of the parameters of the regression equation (regression model). Regression analysis aims to derive, define (identify) the regression equation, including statistical evaluation of its parameters. The regression model allows you to find the value of the dependent variable if the value of the independent or independent variables is known.

To research and build predictive values of the selected econometric models such as linear ($y = b + m \times x$) and the exponentia ($y = b \times m^x$). These models allow you to present a predictive calculation in the form of clear and accessible functional dependencies. The values and proportions of the equation parameters also allow to estimate the forecast

accuracy and dependence of the studied values. The analysis of statistical estimates of parameters of econometric models are presented in tables 1 and 2.

Table 1 – Estimation of linear model parameters ($y = b + m \times x$)

Parameters	Linear model $y = -2,218 + 0,054 \times x$	Analysis of statistical estimates of parameters regression model
R_{XY}	0,92	Communication between the X and Y straight line, strong. As Y substantially depends from X, linear model will be under construction taking into account this factor
m	0,054	Regression coefficient. At increase in X on 1 Y will increase by 0,054 thousand rubles
b	-2,218	Coefficient of regression model
R^2	0,853	Determination coefficient. The model is adequate The result for 85,3 % depends on a factor
$F_{\text{расч}}$	75,224	Calculated value of criterion of Fischer $F_{\text{расч}} > F_{\text{табл}}$ – model is significant
$F_{\text{табл}}$	4,667	Tabular value of criterion of Fischer
d_f	13	Quantity of degrees of freedom of regression model

Figure 2 shows the graphs of actual and projected values of profit from the sale of products obtained using the studied econometric models. The forecast values are calculated on the basis of the values of the relationship of the studied indicators for the period 2003-2017. The initial data were obtained at the end of the year.

As a result of the analysis of two econometric models – linear and exponential, it is determined that between the studied indicators, namely the profit from the sale of products and the volume of sales there is a very strong and direct relationship ($R_{XY} = 0,92$).

The models under study are adequate because their determination coefficients are greater than 0,7 ($R^2 = 0,853$ in the linear model and $R^2 = 0,791$ in the exponential model) and both can be used for prediction. But it is necessary to take into account to a greater extent the forecast made by the linear model, since the value of the coefficient of determination, in this case, is higher than that of the exponential model.

The results of the analysis of econometric models are provided to specialists of the enterprise for work and are used in the study of this topic by students of economic specialties.

Table 2 – Estimation of exponential model parameters ($y = b \times m^x$)

Parameters	Exponential model $y = 14,539 \times 1,001^x$	Analysis of statistical estimates of parameters regression model
R_{XY}	0,92	Communication between X and Y straight line, strong. As Y substantially depends on X, exponential model will be under construction taking into account this factor
m	1,001	Regression coefficient. At increase in X on 1 Y will increase by 1,001 thousand rubles
b	14,539	Coefficient of regression model
R^2	0,791	Determination coefficient The model is adequate. The result for 79,1 % depends on a factor
$F_{расч}$	49,256	Calculated value of criterion of Fischer $F_{расч} > F_{табл}$ – model is significant
$F_{табл}$	4,667	Tabular value of criterion of Fischer
d_f	13	Quantity of degrees of freedom of regression model

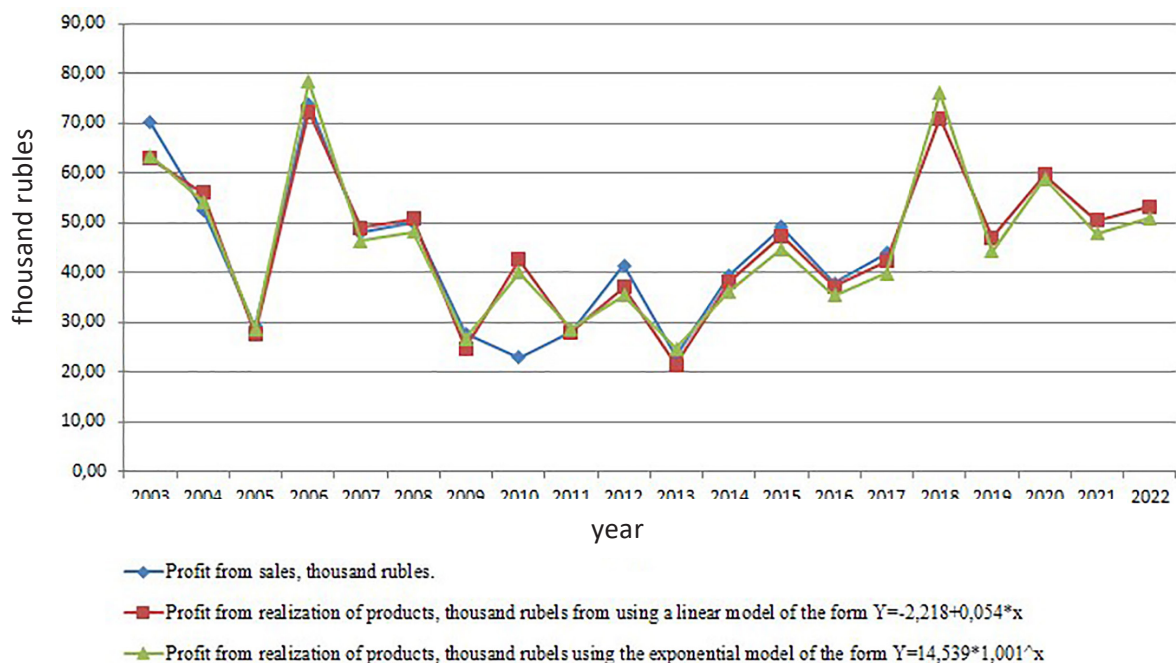


Figure 2 – Actual and expected values of profit on product sales

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ANALYSIS OF READING ACTIVITIES AS A SUBJECT FOR TEST DESIGN

АНАЛИЗ ЧТЕНИЯ КАК ОБЪЕКТА ТЕСТИРОВАНИЯ

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ABSTRACT

VISUAL AND AUDITORY MEDIA, BOTTOM-UP (TOP-DOWN) STRATEGIES, GENRE, SCHEMATA, READING PERFORMANCE

The article considers reading as an essential part of learning a foreign language. The role of text in terms of its style and genre is analyzed. The classification of reading performance as a subject of test design is presented.

АННОТАЦИЯ

ВИЗУАЛЬНЫЕ И АУДИОСРЕДСТВА, СТРАТЕГИИ «ОТ ЧАСТНОГО К ОБЩЕМУ» («ОТ ОБЩЕГО К ЧАСТНОМУ»), ЖАНР, СТРУКТУРА ТЕКСТА, РЕЗУЛЬТАТИВНОСТЬ ЧТЕНИЯ

В статье рассматривается процесс чтения как неотъемлемая часть деятельности по изучению иностранного языка. Представлен анализ текста по стилистической и жанровой составляющим. Предложена классификация результативности чтения как критерия, учитываемого при составлении тестов.