ECONOMETRIC ANALYSIS OF INCREASING CAPITAL INVESTMENTS OF HIGHER EDUCATION INSTITUTIONS IN THE REGION

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Annotation. *In this state, the concept of information and selection factors, necessary for the creation of a multifactor econometric model, the factor of the correlation coefficient, the creation of a regression equation, a simple econometric model and the creation of a model with the help of Excel are presented. Also, the authors identified the resulting and influencing factors, such as factors that influence the number of public educational institutions, human investment and basic capital, and the number of students and public educational institutions. The method of thematic research was used to create a multifactorial econometric model, and this method was used to create a multifactorial econometric model.*

Base words: *econometrics, correlation, multifactorial regression equation, Excel, thematic research method, linear regression equation, econometric estimation model, Fisher's criterion, Student's criterion.*

Introduction According to the decision of the Cabinet of Ministers of the Republic of Uzbekistan No. 345 dated June 3, 2021, educational institutions must comply with the Constitution and laws of the Republic of Uzbekistan, decisions of the chambers of the Oliy Majlis of the Republic of Uzbekistan, decrees and decisions of the President of the Republic of Uzbekistan. and orders, the decisions of the Cabinet of Ministers of the Republic of Uzbekistan, this Regulation, other regulatory legal documents, as well as their charters given. From the framework of this decision, it can be understood that educational institutions are under the control and protection of the state and the law. The opportunities and changes implemented in educational institutions today are of great importance in the development of the young generation and becoming perfect people. Also, free general secondary education in public educational institutions is a clear example that today the young generation is under the protection and attention of the state, and education is at the level of state policy. Today, due to the increase in the population of the republic, the number of general education institutions is also increasing. In particular, based on statistical data, an econometric model of the number of general education institutions is presented.

The statistical values of the resulting factor Y and the factors X1 and X2 affecting it are presented in the form of a table.

Years	Number of general education institutions Y	Fixed capital investment per capita X1	Number of students in general education institutions X2
2012	9779	821,4	4490960
2013	9758	1008,2	4489668
2014	9733	1224,0	4539720
2015	9720	1431,7	4670685
2016	9719	1608,6	4824974
2017	9718	2227,8	5271261
2018	9774	3769,6	5850852
2019	10090	5834,6	6168198
2020	10181	6140,3	6287885
2021	10289	6861,0	6304586

Tasks:

1. Determine the multifactor regression equation and the correlation link.

2. Analyze the multifactor regression equation.

3. Process R^2 should be evaluated for compatibility.

4. Evaluate according to the Fisher criterion.

5. Evaluate the significance of X1 and X2 parameters.

Recommended resources for students.

Do a case based on the topic "Estimating Econometric Models" from the "Introduction to Econometrics" textbook.

Instructions for students:

1. Determine the specific purpose of the case.

2. The regression equation should be created using the "Normal Equation System" and the linear correlation coefficient formula should be used for the relationship between the factors.

3. Evaluate the regression equation according to its suitability to the real situation.

4. The statistical significance of the regression equation should be assessed using Fisher's test.

5. The parameters of the regression equation for each factor should be evaluated for statistical significance using the Student's test.

Case resolution process:

1. At the beginning of the lesson, students are divided into small groups and analyze the general process.

2. They discuss the factors affecting the increase in the number of general education institutions.

3. Based on statistical data, the regression equation and correlation coefficient are calculated.

4. The procedure is evaluated using Fisher and Student's tests and factors are analyzed according to the level of significance.

5. The results of small groups are analyzed and a general conclusion is made.

The solution:

The multifactor regression equation and correlation coefficient are calculated using the "Analysis data" extension of the Excel program.
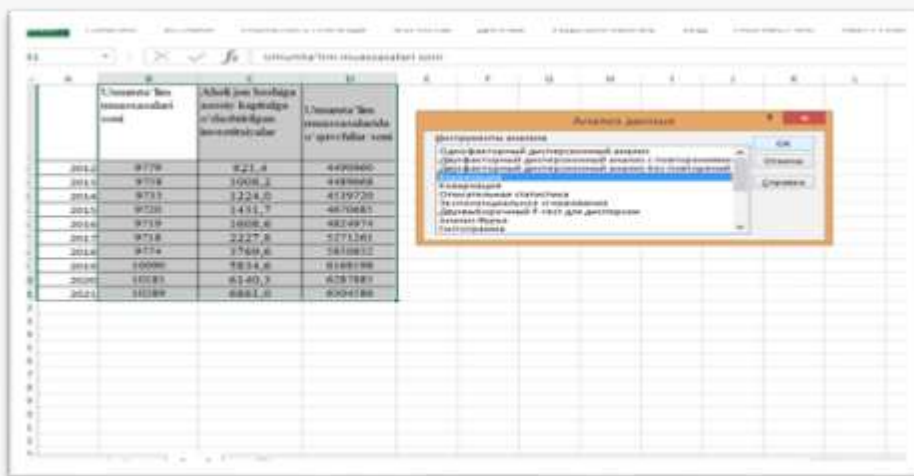

Figure 1. Correlation coefficient calculation window in "Analysis Data" application.
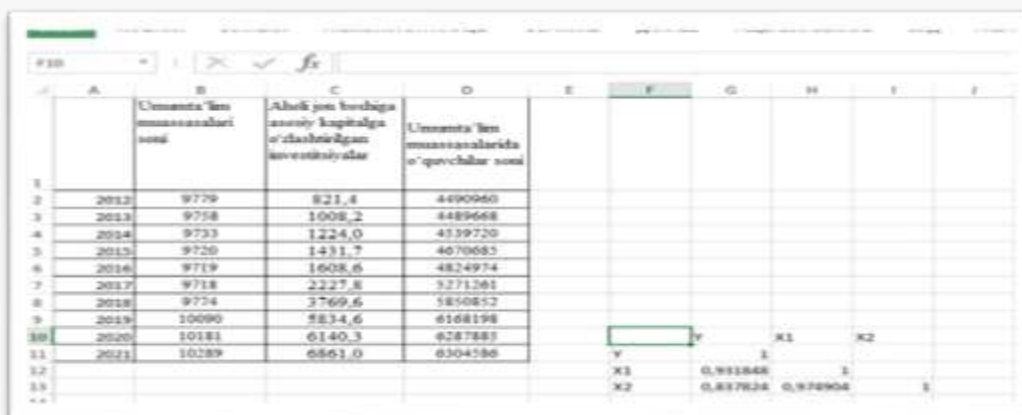

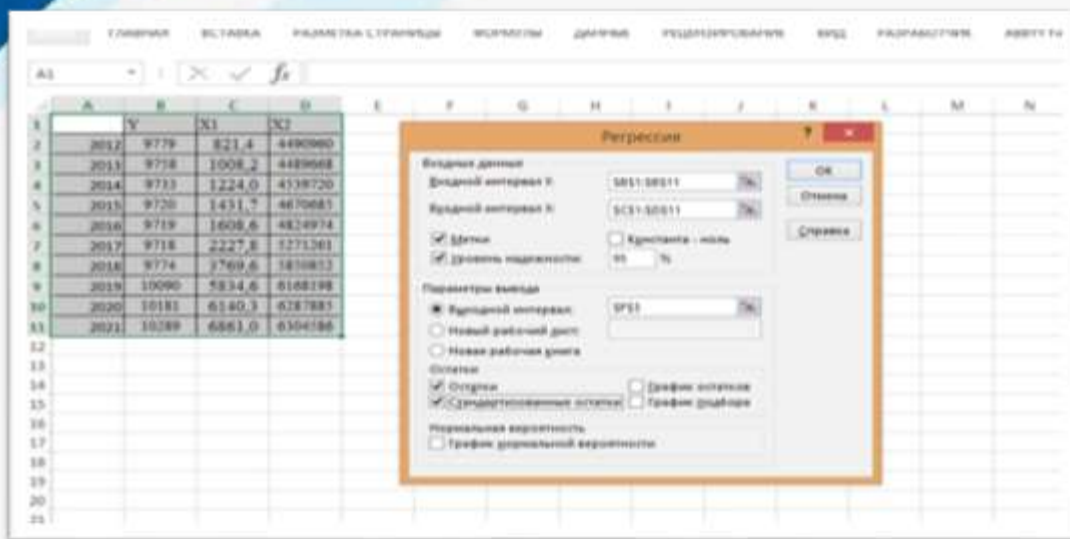**Figure 2. The resulting value of the correlation coefficient in Excel.**

Figure 3. Regression coefficient calculation window in "Analysis Data" application.

Figure 4. The resulting value of the regression coefficient in Excel.

The factor affecting the number of general education institutions as a result factor is 0.93 per capita capital investment. The number of students in general education institutions has a factor of 0.83. And the multifactor regression equation

$y = 11321,9 + 0,216 x_1 - 0,0004 x_2$

If we increase the fixed capital investments per capita by one unit, the number of general education institutions increases by 0.216 units. When the number of students in general education institutions increases by one unit, the number of general education institutions decreases by 0.0004. When the factors are evaluated according to Fisher's criterion, the general process is evaluated as correct when $F_{hisob} > F_{azdval}$. Fisher's F-criterion table shows a value of 4.1. Fhisob is equal to 109.48. The statistical significance of the

regression equation is found to be correct. We evaluate the statistical significance of factors x_1 and x_2 using the Student's test:

$$\frac{Y}{t} = \begin{array}{ccc} 11322 + & 0.21X_1 - & 0.0004X_2 \\ (31,41) & (7,76) & (-4,76) \end{array}$$

$t_{account} > t_{table}$ the process is evaluated as correct. When performing the regression equation at 95% significance, the Student's criterion value shows 1.81. Therefore, $t_{account} < t_{table}$ the statistical significance of the factors was correctly estimated. Therefore, the regression equation and the correlation coefficient are positively estimated.

In conclusion, it should be noted that the importance of teaching econometrics to students with the help of pedagogical methods is high. In particular, among these methods, the role of the case study method is incomparable. In this case, students can master tasks and tasks necessary for creating an econometric model with the help of cases. Selection of factors for construction of econometric models, compilation of statistical data based on these factors, creation of correlation and regression equations. It will be possible to evaluate the constructed econometric model based on the criteria and form forecasting skills by creating a trend model.

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