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ANALYSIS OF FACTORS AFFECTING LIVING STANDARDS OF THE POPULATION OF THE REPUBLIC OF KAZAKHSTAN

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Abstract. The article discusses a number of factors that may affect the standard of living of the population of Kazakhstan. The aim of the study is to find indicators that will help measure the quality of life of the population of Kazakhstan. The statistical data characterizing the life expectancy of the population, the differentiation of incomes of the population and the size of the average annual exchange rate of the dollar are analyzed.

In the framework of this study, using the proposed indicators of quality of life, a model of integral calculus of indicators was constructed, and a practical measurement of the quality of life in the Republic of Kazakhstan was carried out.

Keywords: per capita GDP, correlation-regression analysis, living standards, factor analysis, living standards factors.

President of Kazakhstan Nursultan Nazarbayev mentions in his messages to the people that "human capital is the basis of sustainable economic development and the main engine of innovation, and the policy of a sovereign state is built from these positions" [1].

Consequently, the task facing our country is to invest in human potential and promote its development.

Time-based monitoring and analysis of the development of human capital in Kazakhstan contributes to the further growth of the economy. Determining the factors influencing the state of human potential will allow shaping the future path of Kazakhstan's policy towards achieving the country's competitiveness on the world stage.

The standard of living is one of the most important social categories. The standard of living is understood to be the provision of the population with the necessary material goods and services, the achieved level of their consumption and the degree of satisfaction of reasonable (rational) needs [2].

To identify the factors affecting the standard of living of the population, we will conduct a correlation and regression analysis. For the correlation and regression analysis, as an effective indicator, we take the expected life expectancy of the population. According to the results of the correlation analysis, the life expectancy depends on the nominal income, the minimum pension and the average annual exchange rate of the US dollar (Figure 1).

In regression analysis, it suffices to have only two factors affecting y. Taking into account the multicollinearity of the selected factors, we investigate the following relationships: nominal income and exchange rate (USD). Using the following codes, we can build a model and make a regression analysis (Figure 2).

Got the following model for multiple regression:

$$y = 61{,}452 + 0{,}0137x1 + 0{,}024x2$$

According to the regression equation, we can draw the following conclusions:

— if nominal income increases by $ 1, then life expectancy will increase by 0.013 years;

— if the exchange rate increases by 1 tenge, life expectancy will increase by 0.024 years.

The REG Procedure
Model: MODEL1
Dependent Variable: lifespan lifespan

Number of Observations Read	22
Number of Observations Used	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	148.17094	74.08547	243.13	<.0001
Error	19	5.78952	0.30471		
Corrected Total	21	153.96046			

Root MSE	0.55201	R-Square	0.9624
Dependent Mean	67.17136	Adj R-Sq	0.9584
Coeff Var	0.82179		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	61.45266	0.31828	193.08	<.0001
nominalincome	nominalincome	1	0.01374	0.00111	12.43	<.0001
exchangerates	exchangerates	1	0.02422	0.00235	10.31	<.0001

Fig. 1 Correlation Analysis

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Fig. 2 Regression Analysis

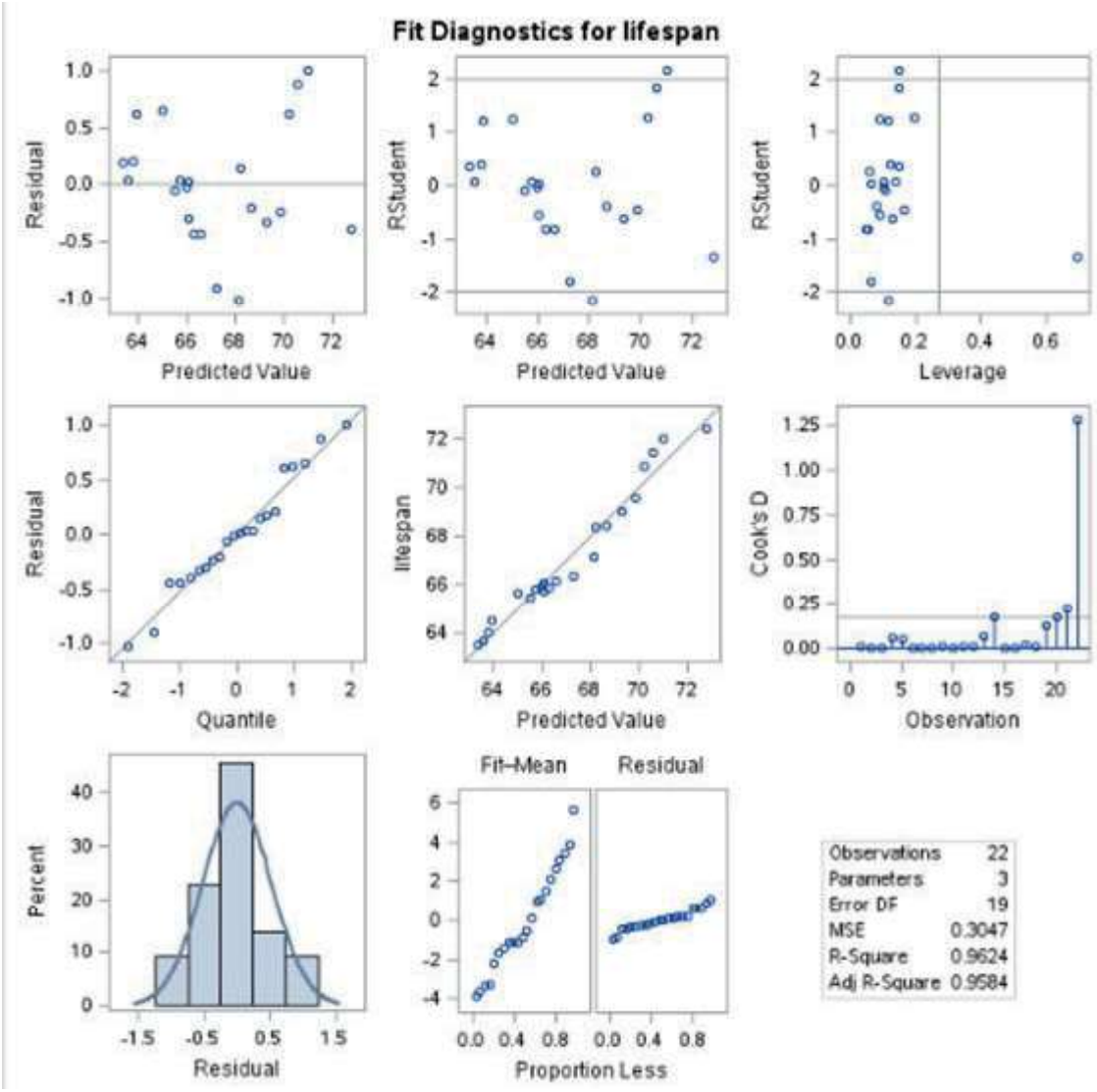

Fig. 3 Diagnosis of life expectancy

As a result of the analysis, it was found that the multiple correlation coefficient is R = 0.98, and the coefficient of determination is R = 0.96. Therefore, the relationship between indicators is closer. Those employment rate is affected by 96% of nominal income and exchange rate. The remaining 4% are unrecorded factors. The regression equation is adequate, since

$$F = 243{,}1 > F_{кр} = 3{,}52$$

Regression parameters are also statistically significant.

$$1) t_b = 12{,}43 > t_{кр} = 2{,}074;$$
$$2)\ t_b = 10{,}31 > t_{кр} = 2{,}074.$$

Figure 3 shows the predicted value of the effective indicator, residual plots and normal distribution. Based on the graph, we can say that the effective indicator has the character of a normal distribution.

The nominal cash income per capita from 1995-2016 increased by an average of $ 8.89 per year. And the average annual exchange rate of the US dollar in the years 1995-2016, increased by an average of 12.78 per year. If this trend continues, we assume that in 2018 the nominal income will be 232.69 US dollars and the exchange rate is 354.94 tenge, and in 2019 the nominal income will be 241.58 US dollars and the exchange rate will be 367.72 tenge :

$y_{прогноз2018}$ =61,452+0.0137*232,69+0,024*354,94=73,15 лет
$y_{прогноз2019}$ =61,452+0.0137*241,58+0,024*367,72=73,58 лет

Life expectancy at birth will be 73.15 years in 2018, and 73.58 years in 2019 if the predicted value of the factors is met.

Conclusion: Improving the standard of living (social progress) is a priority direction of social development. When developing programs to improve the standard of living for the Republic of Kazakhstan, one can rely on the factors identified by econometric analysis in this article. Thus, raising the level of health care, creating conditions for education, regulating the environmental situation and creating conditions for the realization of human needs should be priority areas for development in all countries of the world. Life expectancy is also the most important factor in raising the standard of living. As life expectancy increases, the country's economy will also improve accordingly.

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