Mathematical modeling of life quality assessment of the population of the Republic of Artsakh

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Introduction. The object of the study, the results of which are presented in this article, is the life quality of the population of the Republic of Artsakh. The subject of the study is the assessment tools and the possibilities of modeling the quality of life in conjundfction with the components of its structure. The purpose of the study is to analyze the current state of the methodological foundations and to choose a methodology for building a model of the link between the quality of life and the components of the structure of life quality of the population.

What is the starting point when considering such a controversial category as the quality of life? What should underlie its definition? Even with a superficial analysis of it at an intuitive level, it seems obvious to any researcher that the basic concept, the closest in meaning, synonymous with the quality of human life is human satisfaction with life - as the degree of compliance of actual parameters and living conditions with human expectations. In this, the opinions of the majority of researchers reach relative unity. The very concept of "quality" defines exactly the relationship of the correspondence of life to some indicators, the value of which allows us to talk about its high or low level.

Literature review. Also, many Western researchers in the field of psychology consider the concept of “happiness” close in terms of quality of life - a similar comparison can be found in the works “Psychology of Happiness” by M. Argyle M., “The Idea of Happiness in the Russian Mentality” by I. A. Dzhidaryan I. A., “Independence of Positive and Negative Influences” by E. Diener and R. A. Emmons. Indeed, the question of the quality of human life is largely close to the question of happiness. However, the concept of "happiness" is not usually used in scientific circulation due to some of its ephemeral nature, inaccessibility for analysis. In addition, happiness is not amenable to differentiated measurement, since it means the highest level of satisfaction with life (with regard to happiness, it is customary to use the characteristics “presence-absence” rather than “more-less”). While life satisfaction can be divided into a certain number of levels, measured on a certain scale (it is acceptable to talk about higher or lower life satisfaction). Therefore, it is most expedient to compare the quality of life with life satisfaction, and only a high quality of life will invariably have happiness as a constant companion. Widely known classifications of needs were proposed by K. Alderfer (in existence, in relationships, in growth), D. McClelland (in achievement, in joining, in power), F. Herzberg (hygienic and motivating factors), the classics of Marxism- Leninism (natural needs and those created by society), V. P. Makhnyrylov (physiological, social), L. Ya. Baranova (material, spiritual), A. I. Rofe (physical, spiritual, social), Tarasenko V. I. (existence and development), Podmarov V. G. (providing, vocation, prestige), Zavelsky M. G. (desire to possess benefits that bring comfort and pleasure, needs associated with the realization of human abilities), Genkin B. M. (needs of existence, the need to achieve goals in life) [8].

To achieve unity in the approach to the quality of life, it is necessary to ensure unity in the classification of needs. According to the most general approach, needs can be conditionally divided into non-supporting (including material needs, needs for a favorable environment), social (social, including political and status) and spiritual (including all types of development needs, knowledge and self-determination). This typology of needs is successfully consistent with most classifications. The complexity of modeling socio-economic systems is due to the multidimensio-nality, abundance and ambiguity of the relationships of key parameters of the economic and social nature (difficult to formalize cultural, ethnic, psychological factors), a wide list of input and output variables, external and internal signals [1]. At the same time, the relevance of the formation of such models remains in connection with the declining level and life quality of the population of Artsakh in recent years, especially in connection with the economic crisis caused by the coronavirus pandemic, the political situation, and the war in Artsakh.

What is Standard of Living? The definition of standard of living is the level of material wealth and income available to a person or community. It is usually measured by standards such as life expectancy, literacy rates, access to education and health care, and housing conditions. Some of the most common ways to measure the standard of living are through Gross Domestic Product (GDP) per capita and per capita income. Per capita income is the average income of each person in the country. Standard of living can measure both economic factors and noneconomic factors but it tends to place a heavier emphasis on economic factors [9]. Standard of living is important because it is a measure of the well-being of society. A high standard of living indicates that people in a society are able to live long, healthy lives and have access to resources that allow them to lead productive and fulfilling lives. A low standard of living, on the other hand, indicates that people in a society are more likely to experience poverty, poor health, and limited opportunities. This also has implications for the economy, as a low standard of living can lead to a decrease in productivity and an increase in inequality. The criteria for assessing a high standard of living and a low standard of living include measures of factors such as:

- Access to clean water and sanitation
- Access to adequate shelter
- Access to healthcare
- Access to education
- Reasonable working hours
- Livable wages
- Healthy diet

The main purpose of the article is mathematical modelling of the quality and standard of living of the population of Artsakh, in particular, modeling of processes and systems (in order to identify the relationship of its heterogeneous parameters). Approbation of the method of mathematical modelling on the example of the life quality of the population of Artsakh, allowed forming a number of formalized models of the relationship and mutual influence of various indicators.

The assessment of the life quality and well-being of the population of Artsakh and its individual regions is of great theoretical and practical interest both for scientific research and for public authorities due to the fact that improving the well-being of citizens and managing the quality of life has come to be regarded as a strategic goal in many countries. In Artsakh, this trend is also noticeable. Interest in the issues of the life quality and the well-being of the population covers the widest range of topics, so it is not surprising that researchers from various scientific disciplines, such as economics, medicine, philosophy, sociology, psychology, pedagogy, etc., are studying these issues. In this regard, there is an urgent need to create a methodology for assessing the quality of life of the population, which would allow, on the one hand, to take into account the many components of public life that reflect the real living conditions of people, and on the other hand, the implementation of such a measurement could be carried out promptly and on a regular basis for optimal support of management decisions. Up to date, the history of the scientific study of well-being and life quality has more than half a century, and during this time a wide variety of components of the quality of life, approaches to its measurement and evaluation have been proposed.

In the most general, the whole variety of well-being theories can be divided into two large groups - theories of objective and subjective well-being, depending on what types of data are used to assess well-being in a particular practical model. In the case of objective theories, well-being is measured primarily on the basis of income and consumption data. Recently, this approach has begun to include not only economic factors, but also other, non-economic aspects of well-being, such as value needs, human capabilities, stability, gender issues, etc. Subjective theories of well-being operate in less specific categories, such as happiness, life satisfaction, etc., i.e., well-being is measured on the basis of people's subjective judgments about their lives. This classification of theories of well-being is practically universally recognized; it fixes the differences in the tools for assessing well-being, but is insufficient to capture what well-being is in fact.

Methodology. Artsakh is a complex socio-economic system, which is characterized by a large number of heterogeneous variables and feedbacks, and also combines continuous, discrete and probabilistic processes. To manage such a complex system, appropriate tools are required. Of the quantitative methods, one can note the apparatus of probability theory and mathematical statistics, optimization methods, in which there theoretical models (operations research apparatus) are used and applied to describe complex systems and predict their state in the short and long term. Here it is also appropriate to note the forecasting of time series (in terms of forecasting in the future). There are two equivalent ways to define the model - graphically, using a diagram, or using a system of linear multiple regression equations and covariance relations. We will use a system of linear multiple regression equations. But before revealing the true type of link between variables, we will determine the correlation coefficient between indicators of the life quality of the population [2].

Scientific novelty. In our models, only the correlations of the independent variables are specified or estimated. The consistency and quality of the generated model is assessed using various indicators, the main of which are the Fisher criterion, the coefficient of determination, Student's criterion. For each putative causal relationship, standardized regression coefficients are calculated. Standardized regression coefficients show by how many units the result will change on average if the corresponding factor changes by one unit with the average level of other factors unchanged. The standardized regression coefficients are comparable to each other, which makes it possible to rank the factors according to the strength of their impact on the result. The indicators of the quality and standard of living in our study are as follows: average monthly nominal wages/salaries of workers (AMD, Y_1), GDP (million AMD X_1), average number of employed population (1000 people, X_2), minimum pension (in AMD, Y_2), fixed minimum wage (drama, Y_3), number of poor people (X_3), total poverty line (X_4), number of registered diseases (diagnosis established for the first time is common, X_5), incidence of mental disordersamong population (total people, X_6), income of the population per capita (thousand drams, Y_4), income of the population (total, Y_5), average life expectancy - men (X_7), average life expectancy - women (X_8), birth rate by years (total, X_9), mortality by years (total, X_{10}). The algorithm for assessing the link between the quality of life and the component of tlife quality of the population includes several stages:

First stage. Grouping of explained variables.

Second phase. Definition of a group of explanatory variables.

Third stage. Rationale and modeling of the link between explained and explanatory variables.

Fourth stage. Modeling the impact of indicators on the quality and standard of living of the population, checking the results.

Analysis. Given the insufficient number of indicators that need to be analyzed to assess the quality and standard of living of the population, we had to consider only those whose number allowed us to use methods of mathematical statistics: correlation and regression analyses. Therefore, we had to limit ourselves to the availability of data where complete information is present. It is shown that the quality of life is a complex dynamic category, which is revealed through heterogeneous components. The qualimetric system of the level and quality of life includes: the level of well-being, demographic indicators, the quality of the population and other components. The software for mathematical modeling is the software application such as Statistica Minitab and Statgraphics. Below are the results of correlation and regression analysis for controlled and controlling variables.

Table 1. The results of correlation and regression for controlled and controlling variables

Матрица коэффициентов корреляции

	Time	Y_1	X_1	X_2	Y_2	Y_3	X_3	X_4	X_5
Y_1	0.985 0.000								
X_1	0.949 0.000	0.962 0.000							
X_2	0.834 0.000	0.752 0.000	0.662 0.000						
Y_2	0.984 0.000	0,982 0.000	0.947 0.000	0.703 0.000					
Y_3	0,979 0.000	0.980 0.000	0.929 0.000		0.982 0.000				
X_4	0.727 0.064	0.793 0.034	0.266 0.564	0.805 0.029	0.776 0.040				
X_5	0,799 0,000	0.770 0.000	0.792 0.000	0.520 0.009	0.765 0.000	0.714 0.001		-0.849 0.016	
X_6	-0,687 0.000	-0.665 0.000	0.661 0.000	-0.398 0.054	-0.656 0.001	-0.661 0.003			0.58 0.003
Y_4	0,951 0,000	0.919 0,000	0.963 0,000	0.748 0.001	0.965 0.000	0.943 0.000	* *	* *	0.864 0.000
Y_5	0,972 0,000	0.958 0.000	0.987 0.000	0.581 0.011	0.981 0.000	0.977 0.000			0.879 0.000
X_7									0,551 0.041
X_8	0.763 0.002	0.729 0.003	0.777 0.001		0.724 0.003	0.667 0.009			
X_9	0.575 0.002	0.51 0.007	0.394 0.046	0.653 0.000					0.590 0.002

	X_6	Y_4	X_8	X_9
Y_4	-0.573 0.02			
Y_5	-0.661 0.003	0.996 0.00		
X_9		0.496 0.051	-0.567 0.034	
X_{10}			-0.842 0.000	0.475 0.012

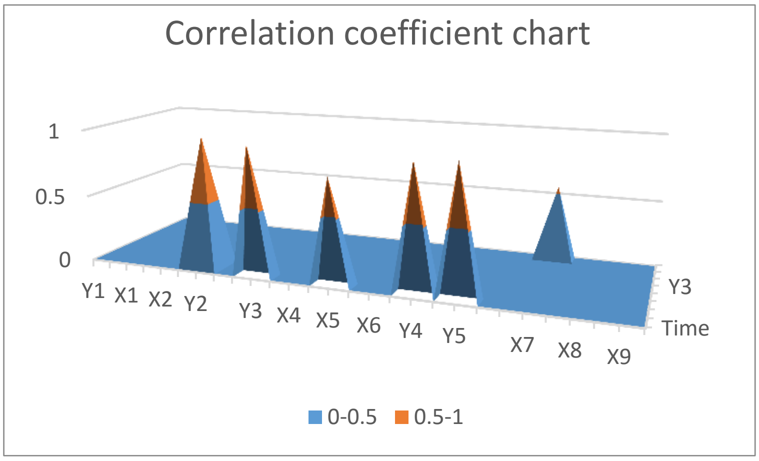

Figure 1. Correlation coefficient chart

Multiple Regression - Y_1
Dependent variable: Y_1
Independent variables: X_1, X_5

Table 2. Coefficients of the regression equation and their significance

Parameter	*Estimate*	*Standard Error*	*T Statistic*	*P-Value*
X_1	0,461	0,0385	11,961	0,0000
X_5	0,656	0,135512	4,8385	0,0001

Table 3. Analysis of Variance

Source	*Sum of Squares*	*Mean Square*	*F-Ratio*	*P-Value*
Model	2,84131E11	1,42065E11	757,15	0,0000
Residual	4,12787E9	1,87631E8		
Total	2,88258E11			

R-squared = 98,57 percent
R-squared (adjusted for d.f.) = 98,51 percent
Standard Error of Est. = 13697,8
Mean absolute error = 10235,7

Table 4. 95,0% confidence intervals for coefficient estimates

Parameter	*Estimate*	*Standard Error*	*Lower Limit*	*Upper Limit*
X_1	0,461	0,039	0,381	0,541
X_5	0,656	0,136	0,375	0,937

This table shows 95,0% confidence intervals for the coefficients in the model. Confi-dence intervals show how precisely the coefficients can be estimated given the amount of available data and the noise which is present. The output shows the results of fitting a multiple linear regression model to describe the relationship between Y_1 and 2 independent variables. The equation of the fitted model is

$$Y_1 = 0{,}46076 * X_1 + 0{,}655673 * X_5$$

Since the P-value in the ANOVA table is less than 0,05, there is a statistically significant relationship between the variables at the 95,0% confidence level. The R-Squared statistic indicates that the model as fitted explains 98,568% of the variability in Y_1. The adjusted R-squared statistic, which is more suitable for comparing mo-dels with different numbers of independent variables, is 98,5029%. The standard error of the estimate shows the standard deviation of the residuals to be 13697,8. This value can be used to construct prediction limits for new observations by selecting the Reports option from the text menu. The mean absolute error (MAE) of 10235,7 is the average value of the residuals.

Multiple Regression - Y_2

Dependent variable: Y_2

Independent variables: X_1, X_5

Table 5. Coefficients of the regression equation and their significance

Parameter	*Estimate*	*Standard Error*	*T Statistic*	*P-Value*
X_1	0,1136	0,0136	8,374	0,0000
X_5	0,2244	0,0479	4,689	0,0001

Table 6. Analysis of Variance

Source	*Sum of Squares*	*Mean Square*	*F-Ratio*	*P-Value*
Model	2,11688E10	1,05844E10	460,71	0,0000
Residual	4,59482E8	2,29741E7		
Total	2,16283E10			

R-squared = 97,88 percent

R-squared (adjusted for d.f.) = 97,77 percent

Standard Error of Est. = 4793,13

Mean absolute error = 3689,48

The output shows the results of fitting a multiple linear regression model to describe the relationship between Y_2 and 2 independent variables. The equation of the fitted model is

$$Y_2 = 0{,}113551 * X_1 + 0{,}224413 * X_5$$

Since the P-value in the ANOVA table is less than 0,05, there is a statistically significant relationship between the variables at the 95,0% confidence level. The R-Squared statistic indicates that the model as fitted explains 97,88% of the variability in Y_2. The adjusted R-squared statistic, which is more suitable for comparing mo-dels with different numbers of independent variables, is 97,8%. The standard error of the estimate shows the standard deviation of the residuals to be 4793,13. This value can be used to construct prediction limits for new observations by selecting the Reports option from the text menu. The mean absolute error (MAE) of 3689,48 is the average value of the residuals.

Table 7. 95,0% confidence intervals for coefficient estimates

		Standard		
Parameter	*Estimate*	*Error*	*Lower Limit*	*Upper Limit*
X_1	0,114	0,0136	0,085	0,142
X_5	0,224	0,048	0,125	0,324

This table shows 95,0% confidence intervals for the coefficients in the model. Confidence intervals show how precisely the coefficients can be estimated given the amount of available data and the noise which is present.

Multiple Regression - Y_3

Dependent variable: Y_3

Independent variables: X_1, X_5

Table 8. Coefficients of the regression equation and their significance

		Standard	*T*	
Parameter	*Estimate*	*Error*	*Statistic*	*P-Value*
X_1	0,153	0,022	7,15	0,000
X_5	0,242	0,079	3,06	0,008

Table 9. Analysis of Variance

Source	*Sum of Squares*	*Mean Square*	*F-Ratio*	*P-Value*
Model	3,26183E10	1,63091E10	397,34	0,0000
Residual	6,56735E8	4,1046E7		
Total	3,3275E10			

R-squared = 98,03 percent

R-squared (adjusted for d.f.) = 97,9 percent

Standard Error of Est. = 6406,71

Mean absolute error = 4266,43

The output shows the results of fitting a multiple linear regression model to describe the relationship between Y_3 and 2 independent variables. The equation of the fitted model is

$$Y_3 = 0{,}153102 * X_1 + 0{,}242374 * X_5$$

Since the P-value in the ANOVA table is less than 0,05, there is a statistically significant relationship between the variables at the 95,0% confidence level. The R-Squared statistic indicates that the model as fitted explains 98,03% of the variability in Y_3. The adjusted R-squared statistic, which is more suitable for comparing models with different numbers of independent variables, is 97,9%. The standard error of the estimate shows the standard deviation of the residuals to be 6406,7. This value can be used to construct prediction limits for new observations by selecting the Reports option from the text menu. The mean absolute error (MAE) of 4266,43 is the average value of the residuals. This table shows the statistical significance of each variable as it was added to the model. One can use this table to help determine how much the model could be simplified, especially if you are fitting a polynomial.

Table 10. 95,0% confidence intervals for coefficient estimates

Parameter	*Estimate*	*Standard Error*	*Lower Limit*	*Upper Limit*
X_1	0,153	0,0214	0,1077	0,1985
X_5	0,242	0,0792	0,0744	0,4102

This table shows 95,0% confidence intervals for the coefficients in the model. Confidence intervals show how precisely the coefficients can be estimated given the amount of available data and the noise which is present.

Multiple Regression - Y_4

Dependent variable: Y_4

Independent variables: X_1, X_5

Table 11. Coefficients of the regression equation and their significance

		Standard	*T*	
Parameter	*Estimate*	*Error*	*Statistic*	*P-Value*
X_1	0,0027	0,00033	8,123	0,0000
X_5	0,0066	0,00102	6,687	0,0000

Table 12. Analysis of Variance

Source	*Sum of Squares*	*Mean Square*	*F-Ratio*	*P-Value*
Model	7,01844E6	3,50922E6	394,45	0,0000
Residual	133447	8896,49		
Total	7,15189E6			

R-squared = 98,13 percent

R-squared (adjusted for d.f.) = 98,1 percent

Standard Error of Est. = 94,3212

Mean absolute error = 77,1417

The output shows the results of fitting a multiple linear regression model to describe the relationship between Y_4 and 2 independent variables. The equation model is

$$Y_4 = 0{,}00265907 * X_1 + 0{,}00685266 * X_5$$

Since the P-value in the ANOVA table is less than 0,05, there is a statistically significant relationship between the variables at the 95,0% confidence level. The R-Squared statistic indicates that the model as fitted explains 98,13% of the variability in Y_4. The adjusted R-squared statistic, which is more suitable for comparing models with different numbers of independent variables, is 98,1%. The standard error of the estimate shows the standard deviation of the residuals to be 94,32. This value can be used to construct prediction limits for new observations by selecting the Reports option from the text menu. The mean absolute error (MAE) of 77,14 is average value of the resi-duals.

Table 13. 95,0% confidence intervals for coefficient estimates

Parameter	*Estimate*	*Standard Error*	*Lower Limit*	*Upper Limit*
X_1	0,00266	0,000327	0,001961	0,003357
X_5	0,00686	0,001025	0,004664	0,009037

This table shows 95,0% confidence intervals for the coefficients in the model. Confidence intervals show how precisely the coefficients can be estimated given the amount of available data and the noise which is present.

Multiple Regression - Y_5

Dependent variable: Y_5

Independent variables: X_1, X_5

Table 14. Coefficients of the regression equation and their significance

Parameter	*Estimate*	*Standard Error*	*T Statistic*	*P-Value*
X_1	0,468	0,039	11,941	0,0000
X_5	0,795	0,121	6,546	0,0000

Table 15. Analysis of Variance

Source	*Sum of Squares*	*Mean Square*	*F-Ratio*	*P-Value*
Model	2,08659E11	1,0433E11	810,33	0,0000
Residual	2,18875E9	1,2875E8		
Total	2,10848E11			

R-squared = 98,97 percent

R-squared (adjusted for d.f.) = 98,9 percent

Standard Error of Est. = 11346,8

Mean absolute error = 9029,89

The output shows the results of fitting a multiple linear regression model to describe the relationship between Y_5 and 2 independent variables. The equation of the fitted model is

$$Y_5 = 0{,}468257 * X_1 + 0{,}794647 * X_5$$

Since the P-value in the ANOVA table is less than 0,05, there is a statistically significant relationship between the variables at the 95,0% confidence level.

The R-Squared statistic indicates that the model as fitted explains 98,97% of the variability in Y_5. The adjusted R-squared statistic, which is more suitable for comparing models with different numbers of independent variables, is 98,9%. The standard error of the estimate shows the standard deviation of the residuals to be 11346,8. The mean absolute error (MAE) of 9029,89 is the average value of the residuals.

Table 16. 95,0% confidence intervals for coefficient estimates

Parameter	*Estimate*	*Standard Error*	*Lower Limit*	*Upper Limit*
X1	0,4682	0,0392	0,3855	0,5509
X5	0,7946	0,1214	0,5385	1,0507

This table shows 95,0% confidence intervals for the coefficients in the model. Confidence intervals show how precisely the coefficients can be estimated given the amount of available data and the noise which is present.Time series - the sequence of the recorded signal (observed). This approach is used when it is not possible to construct the equations of motion. Currently, there are two qualitatively different approaches to the study of time series:

- statistical
- dynamic

Statistical approaches include probabilistic models. To dynamic one – Takens - Mane embedding theory. A modern idea of the possibility of describing observables is given by embedology, which combines elements of dimensional theory, information theory, topology, differential dynamics, and the theory of dynamical systems.

Basis: there is a range y_n and noise — sequence of uncorrelated and identically distributed random variables ξ_i with a zero mean. So we can write that

$$y_n = F(y_{n-1}, \dots, y_{n-m}, \xi_n, \dots, \xi_{n-k}) \quad (5)$$

where k and m are several finite numbers

The basic models are models of ARMA (Auto Regression Moving Average):

$$y_i = a_0 + \sum_{j=1}^{m} a_i y_{i-j} + \sum_{j=1}^{k} b_j \xi_{i-j}: \quad (6)$$

Finding the coefficients is a possible solution to the identification task, and the ratio for y_i can be used to predict the m previous ones.

The average value is usually used as the predicted value:

$$\hat{y}_i = a_0 + \sum_{j=1}^{m} a_i y_{i-j} \quad (7)$$

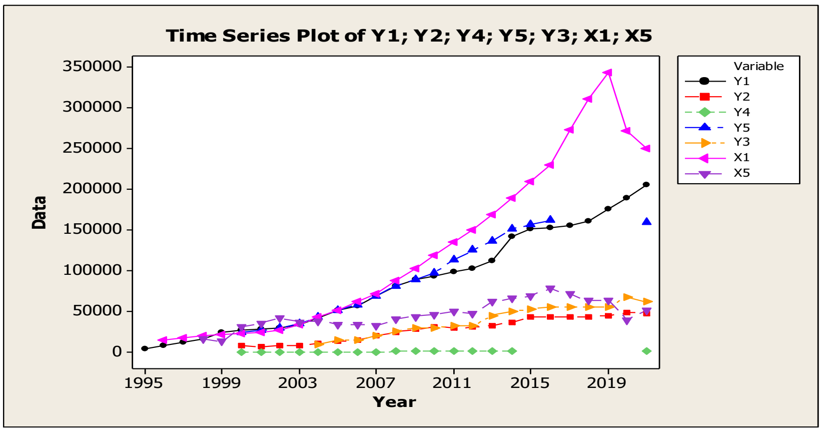

Figure 3. Time series for $Y_1, Y_2, Y_3, Y_4, Y_5, X_1, X_5$

and the preceding values are known exactly. It should be emphasized that noise is an integral part of the model; in its absence, the behavior is unlike the range under study

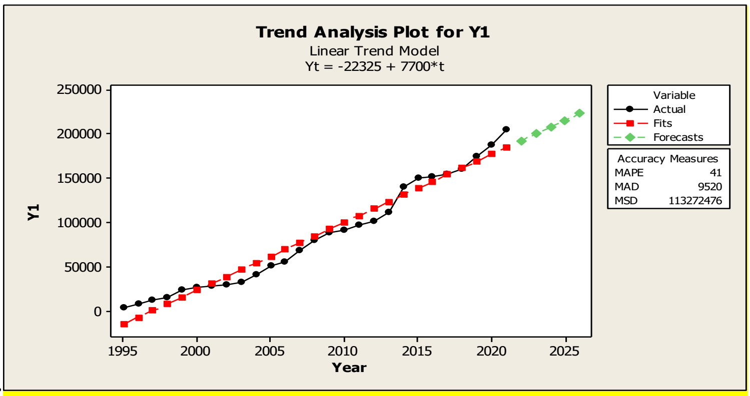

Figure 4. Forecasting the average monthly nominal wage

Trend Analysis for Y1

Data Y1

Length 27

NMissing 0

Fitted Trend Equation

Yt = -22325 + 7700*t

Accuracy Measures

MAPE 41

MAD 9520

MSD 113272476

Forecasts

Period Forecast

2022 193285

2023	200985
2024	208685
2025	216386
2026	224086

Conclusions. Thus, mathematical modelling made it possible to identify and visualize explicit and latent relationships between various indicators of the quality and standard of living and indicators of the level of economic development (private, factorial). The results are well reflected with the identified patterns in the process of regression analysis, as a result of which we received qualitatively new information and new data. The results of mathematical modelling (based on the apparatus of probability theory and mathematical statistics) made it possible to identify latent variables (economic and healthcare), to form high-quality mathematical models of individual indicators of the quality and standard of living of the population of Artsakh and the impact of economic development indicators on them. There were identified economic indicators that can be considered as managers in regulating the quality of life of the population - GDP, average monthly nominal wages, arage pension, minimum pension, per capita income, total income, social sphere - the number of poor, the number below poverty lines. Each of these indicators determines most of the dispersion of the values of the quality and standard of living of the population of the region, according to the developed model. Consequently, it is precisely on their regulation that the efforts of regional authorities should be directed to intensify the socio-economic development of the territory and improve the lives of its citizens. Economic indicators have been identified that can be considered as managers in regulating the quality of life of the population - GDP, average monthly nominal salary, salary pension, minimum pension, per capita income, total income, social sphere - the number of poor, the number below the poverty line. Each of these indicators determines most of the spread of values of the quality and standard of living of the population of the region, according to the developed model. Consequently, the efforts of the regional authorities to activate the socio-economic development of the territory and improve the lives of its citizens should be directed to their regulation. As a result of correlation and regression analyses, the following results were obtained: as an assessment of the level and quality of life of the population, per capita income, average monthly nominal salary, average pension, minimum pension, minimum wage, total income were considered as financial indicators. These indicators acted as controlled variables, the following were identified as informative control variables: GDP and newly registered diseases. That is, in order to increase the average monthly nominal salary, the average pension size and the minimum pension size, the minimum wage, the state should take measures to increase GDP, reduce the number of illnesses (i.e. increase preventive measures to prevent morbidity). Research will continue in order to increase the number of indicators in different areas. There was an attempt to look at housing conditions: that is, the provision of housing for the population, but due to insufficient information (studies were conducted in conditions of incomplete information), we received not reliable and not adequate models.But as we postulate the data, in the future we will include both quantitative and qualitative indicators from different areas of the population's life.

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Mathematical modeling of life quality assessment of the population of the Republic of Artsakh

Key words: quality of life, correlation analysis, regression analysis, multiple linear regression

Practically, the Standard of Living of people of a country is reflected in the way in which people live, such as how much money they have to spend on, how their houses are constructed, how educated they are, what facilities are available to them, etc. Standard of Living is a measure of comparison which is used to different countries, or regions, on the basis of metrics such as level of comfort, wealth, material possessions and basic necessities, which the residents have access to, in those geographic areas. Real income per person and poverty rate are the two indicators that determine the standard of living. It analyses the quantity of material goods and services produced and sold in a particular region like a state or country. Basically, to measure the standard of living components which can easily be quantified are taken into consideration like income, employment opportunities, poverty, cost of goods and services, life expectancy, infant mortality, rate of inflation, etc. Here it must be noted that: High standard of living results in more demand for comfort and luxury products, whereas a low standard of living less demand for comfort and luxury products. It is based on both the quality and quantity of the available goods and services and how they are distributed among the population. Standard of living implies the availability of the level of welfare to the people of a certain area, indicating the ease by which they can comfortably fulfil their needs.