

# CORRELATION DEPENDENCE BETWEEN ISURANCE COMPULSORY MEDICAL INSURANCE PREMIUMS AND DEMOGRAPHIC FACTORS

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**Abstract:** the article discusses the possibility of increasing the financial potential of the health insurance market for compulsory health insurance premiums and the main indicators of the healthcare industry, economic and demographic indicators in the Republic of Azerbaijan. The parameters were estimated using the SPSS software package. The analysis of the interrelationships, confirmed in the models of regression analysis by the appropriate criteria, showed that an increase in the volume of insurance premiums for compulsory health insurance will lead to an increase in the birth rate, average life expectancy at birth, to a decrease in the number of hospital beds, as well as deaths from neoplasms.

**Keywords:** regression, correlation, model, dependent variable, free variable, coefficient, coefficient.

## КОРРЕЛЯЦИОННАЯ ЗАВИСИМОСТЬ МЕЖДУ СТРАХОВЫМИ ВЗНОСАМИ ПО ОБЯЗАТЕЛЬНОМУ МЕДИЦИНСКОМУ СТРАХОВАНИЮ И ДЕМОГРАФИЧЕСКИМИ ФАКТОРАМИ Алиев З.Р. (Азербайджанская Республика)

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**Аннотация:** в статье обсуждается возможность наращивания финансового потенциала рынка медицинского страхования взносов по обязательному медицинскому страхованию и основных показателей отрасли здравоохранения, экономических и демографических показателей по Азербайджанской Республике. Оценка параметров выполнена с использованием программного пакета SPSS. Осуществленный анализ взаимосвязей, подтвержденных в моделях регрессионного анализа соответствующими критериями, показал, что рост объема страховых премий по обязательному медицинскому страхованию приведет к увеличению коэффициента рождаемости, средней ожидаемой продолжительности жизни при рождении, к снижению количества больничных коек, а также умерших от новообразований.

**Ключевые слова:** регрессия, корреляция, модель, зависимая переменная, свободная переменная, фактор, коэффициент.

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**Main part.** Medical Insurance Market is an important component of the economy of the state, the main task of which is the creation of a financial mechanism to attract additional financial resources in the health care system with the purpose of providing full, timely and quality medical care to the subjects of medical insurance [1, p. 334].

The realized financial potential of the health insurance market is characterized by the financial resources of this market in the form of compulsory insurance payments for compulsory health insurance and voluntary contributions for voluntary health insurance (VHI). When considering economic processes, most often it is necessary to refer to models containing more than one factor-attribute [1, 348]. The feasibility of increasing the financial potential of the health insurance market can be established using the correlation between the dynamics of insurance premiums for compulsory medical insurance and the main economic, demographic and health sector indicators using the example of the Republic of Azerbaijan. Thus, in the process of regression analysis of the developmental features of the health insurance market, it is advisable to include several groups of factors in the model, i.e. build a multiple regression equation. To avoid multicollarity between faults and regression, we compose the regression equation for each group of factors separately. The multiple regression equation is [2, 297].

$$Y = f(x_1, x_2, x_3, \dots, x_n) \quad (1)$$

where  $x_1, x_2, x_3, \dots, x_n$  is a vector of economic, demographic factors or factors from health care.

Multiple regressions is widely used in solving problems of demand, profitability, production costs, in macroeconomic calculations and a number of other issues of econometrics. Currently, multiple regression is one of the most common methods in econometrics. The main goal of multiple regression is to build a model with a

large number of factors, which determines the influence of each of them separately, as well as their cumulative effect on the modeled indicator.

To construct multiple regression, we selected the main factors influencing the formation of the health insurance market.

The main factors influencing the formation of the health insurance market can be divided into economic factors, demographic factors, factors characterizing the state of the health care system [2].

The parameters were estimated using the SPSS software package [2, 3]. The results of performance for the dependent variable (the volume of insurance premiums by the volume of insurance premiums for compulsory health insurance) from demographic factors in the Republic of Azerbaijan are presented in Table 1 [4, 5].

*Table 1. Results of execution for the volume of insurance premiums for compulsory health insurance against demographic factors in the Republic of Azerbaijan*

Indicators	Unstandardized Coefficient		Standardized Coefficients	t	Sig.B
	B	Std. Error	Beta		
(Constant)	-1,41E+07	5,98E+06		-2,36E+00	0,118
Resident population, million people ( $k_1$ )	38543,736	14326,021	0,284	2,826	0,067
Number of hospitals, thousand ( $k_4$ )	376,617	102,185	0,544	3,052	0,056
Average life expectancy at birth, years ( $k_5$ )	164324,12	61210,18	1,892	1,908	0,163
The number of deaths from neoplasms, thousand people ( $k_7$ )	-12,36	3,239	-0,447	-0,624	0,021
$r^2$	0,989				
F-test	179,716				

Source. SPSS application is developed by the author based on the software package.

Based on the results of the dependence of the volume of insurance premiums on demographic factors, the following regression equation was obtained:

$$Y = 38543,736 * k_1 + 376,617 * k_4 + 164324,12 * k_5 - 12,36 * k_7 - 1,41E + 07$$

The equation shows that an increase in insurance premiums for compulsory health insurance will lead to an increase in the fertility rate by 376,617, an increase in the average life expectancy at birth and a decrease in the number of deaths from neoplasms by 12,36, which confirms the feasibility of developing health insurance for additional financing of the health care system.

**Conclusions.** As a result of the study, it was determined that between health insurance payments and demographic indicators in Azerbaijan, expressed by the regression equation  $Y = 38543,736 * k_1 + 376,617 * k_4 + 164324,12 * k_5 - 12,36 * k_7 - 1,41E + 07$  Coefficient A correlation  $R^2=0,989$  means that the corresponding regression equation is explained by 98,9% of the variance results and 1,1% by other factors. A high coefficient of determination indicates that the regression equation better reflects the original data and that most of the resulting factor (98,9%) is due to the demographics included in the model.

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