

Decisive Factors in the Evolution of the Insurance Market in Romania

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Abstract

The evolution of the insurance market in relation to certain economic, social, educational factors is the central point of our research work. Thus, starting from statistical data from the period 2015 – 2022 on the eight development regions in Romania, we analyzed the existing correlation level between the insurance market represented by the density of gross premiums in the case of general insurance, viewed as a dependent variable and other factors such as: growth economic represented by GDP/capita; the standard of living reflected by the average net salary and the average/family income, but also the level of education of people from a certain region on bachelor's, master's and doctoral study cycles, as independent variables.

With the help of the statistical program Eviews, we highlighted the level and type of correlation between the variables, at the same time, after testing with certain statistical methods, reaching the outline of a regression model.

Key words: insurance, economic growth, standard of living, level of education

J.E.L. classification: C23, G22, I25

1. Introduction

The evolution of the insurance market over the past 20 years has covered the ever more varied and extensive needs of consumers. However, if we are to compare ourselves to the level of the insurance markets of other EU countries, the insurance market in Romania is insufficiently developed.

General insurance remains at the top of Romanians' preferences if we refer to the data sent by the ASF for the year 2023, it owning 80% of the total gross premiums subscribed.

Insurance Europe, through the data provided, performs a comparative analysis of the insurance market in our country with the other markets of the EU member countries. From the data provided, it can be seen that the level of gross premiums written for life insurance, compared to the total of gross premiums written in the field of insurance, is very low in our country compared to the European average.

The difference is given by the tradition of developed countries regarding the act of insurance, but also by the level of knowledge of this field by the population, the standard of living, the financial education of the population, etc (Competition Council, 2020).

The importance of one of these factors, namely the financial education of the population, is also highlighted by the vice-president of the ASF, D. Armeanu, who is of the opinion that the level of education is what determines the quality of the human factor, this also being true for the insurance sector. It mentions that demand and supply on the financial market should be in balance, determined by the level of financial education (Armeanu, 2019, pp. 5 -6).

Analyzing the results of research carried out by certain specialists in the field, there is a close correlation between financial education and economic growth. Author Tudose M comes and demonstrates this existing correlation between the level of financial education and the development of the life insurance industry. In general, the level of correlation between education and economic development, depending on the variables considered, is positioned between 0.3 and 0.7, while there is also a causal link between them, in the sense that a degree of economic development determines a development of the level of education and vice versa, the level of education can determine the development of the economy (Tudose, 2017, pp. 8-9).

2. Literature review

The comparative analysis of the data presented by Eurostat shows us a significant link between the indicators that reflect economic growth in a country and the evolution of the insurance market in that country. Thus, the lower the purchasing power is as a result of the increase in inflation, the more the volume of gross insurance premiums tends to decrease.

There is also a strong connection between the indicators that define the labor market and the level of the specific indicators of the insurance market.

An analysis of the correlation between the development of the insurance market and economic growth can be found in the authors HuiShan Lee, Zhen-Jiang YONG, Qiao-Ming LIM. Thus, through the study carried out on 123 countries over a period between 1967 - 2014, in which the economic growth represented by GDP/capita was the dependent variable and the indicators that define the independent variable insurance market, demonstrated a significant, causal link between the development insurance market and economic growth. In other words, not only the insurance market makes a major contribution to the economy, but also the level of development of a country's economy influences the development of the insurance market. (HuiShan et al, 2022, pp. 8-9).

Author Rudolf Enz demonstrates through his research the correlation between GDP/capita and insurance penetration. The minimum and maximum points of insurance penetration are reflected according to the evolution of GDP/capita, also demonstrating the causal relationship between the two indicators. This resulted in the fact that, the higher the economic growth, the higher the gross premiums subscribed become in value, thus leading to an increase in the degree of penetration (Rudolf, 2000, p. 7).

The relationship between the growth of the insurance market and economic development is also demonstrated by the author J. François Outreville. He is based in his study on the review of 80 articles that address the relationship between insurance and economic growth and reaches the conclusion that there is a causal relationship between the two variables, in the sense that economic growth can be seen as a determining factor of the level of the insurance market and the level of insurance in an economy can be a determining factor of economic growth. At the same time, among the determining factors of insurance, in most of the works analyzed, the income of each person proved to be a decisive factor in the purchase of an insurance policy (Outreville, 2011, p.7).

Beenstock et al. demonstrates the direct relationship between the insurance market and demographic factors such as: population size, population density, urban pollution. Thus, there is a directly significant connection between these indicators and the insurance market (Beenstock et al, 1988, pp. 9-10).

The relationship between the level of education and the insurance market was highlighted by Haiss and Sumegi. They demonstrated the direct, significant connection between the level of insurance demand and human capital, represented by the ratio of the workforce with higher education to the total population (Haiss, 2008, p. 12).

3. Research methodology

To carry out the research work, we used the data provided by the Financial Supervisory Authority (ASF) regarding the evolution of the insurance market in Romania, and for economic growth, standard of living, level of education by region, we used the National Institute of Statistics (INSSE).

The period taken into account is 2015 – 2022, the data being extracted from the 8 development regions of our country. The indicators extracted in order to carry out the study are: the distribution of gross premiums subscribed to general insurance; GDP/capita level; nominal salary; net income per family; number of people with bachelor's, master's and doctorate studies.

In this way, we created a panel data set, and starting from the research carried out in this field, we studied the existing links between them. The author J. François Outreville is one of the researchers who followed the results of 80 research papers, papers that demonstrated the significant direct relationships between economic growth and the insurance market, but also between the insurance market and demographic conditions, the evolution of the labor market, the level of education, etc. . In most of the works, direct, significant correlations resulted, also demonstrating the existence of causal relationships between variables (Outreville, 2011, pp. 6 - 7). The resulting causal relationships are also the starting point for the elaboration of this research.

Regarding the research, we selected as dependent variable the dispersion of gross premiums in general insurance and as independent variables GDP/capita, nominal salary, net income and the level of education for the 3 cycles: bachelor's, master's and doctorate. In order to standardize the variables, we applied logarithms using the natural logarithm in this sense. The variables used, the type of each variable as well as their distribution by domain are reflected in the following table:

Table no. 1 The variables used in the statistical study

Variable name	Variable type	Domain
Density of gross premiums in the case of general insurance	addiction	insurance
GDP/Capita	independence	Economic growth
Average net salary	independence	Standard of living
Average net income per family	independence	
Number of people with bachelor's degrees	independence	Level of education
Number of people with master's degrees	independence	
Number of people with doctoral studies	independence	

Source: made by the authors

With the help of the Eviews program, we moved on to the statistical processing of the data. In the first phase, we applied the Hausman test to determine the type of variables and the method we will use to create the regression model. This resulted in dummy variables and the method used was Panel Least Squares, with a fixed base.

After testing the type of variables as well as establishing the statistical method used, we performed the analysis of the variables with descriptive statistics. To validate the data, we analyzed the level between the mean and the standard deviation, as well as the level of the Skewness and Kurtosis coefficients.

Passing the test with descriptive statistics pushed us towards the analysis of the correlations between the variables. The resulting correlation level leads to the validation/invalidation of our research hypotheses:

H1: economic growth in a certain region influences the level of gross written premiums in the insurance field and implicitly the insurance market in that region;

H2: salary level is a factor that influences the decision to use or not the insurance bridges of an insurance company;

H3: the level of average income per family is also a decisive factor in contracting insurance policies;

H4: in general, the insurance market has proven to be influenced by the level of training, the financial education of the population in a certain country, region, etc. So there is also a significant direct correlation between the level of education and the insurance market.

Checking the type of correlation between the dependent variable and the independent variables represented the decisive moment on the final variables included in the regression model. In our case, all independent variables remained valid for the multiple linear regression.

The resulting multiple linear regression model is of the form:

$$\text{Ln_Density PBS_AG} = \alpha + \beta_1 * \text{GDP/capita} + \beta_2 * \text{Standard of living} + \beta_3 * \text{Level of education} + \varepsilon$$

where: α – the constant, β_1 , β_2 and β_3 the coefficients of the independent variables and ε - the error of the regression model.

4. Findings

By following the previously presented research methodology, we conducted the study on the correlation between the insurance market and economic growth in a certain region, but also between the insurance market, the standard of living represented by the average net salary and average net income per family and the level of education of the population, having as reference the eight development regions in Romania.

The testing of variables and the choice of statistical processing method is reflected in the following table:

Table no. 2

Dependent Variable: LN_DISTRIB_PBS

Method: Panel Least Squares

Date: 02/27/24 Time: 10:35

Sample (adjusted): 2015 2021

Periods included: 7

Cross-sections included: 8

Total panel (balanced) observations: 56

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_DOCTORAL STUDY	-0.014646	0.069809	-0.209794	0.8350
LN_GDP_CAPITA	3.838721	1.383986	2.773670	0.0087
LN_LICENSE	0.364189	0.352418	1.033402	0.3083
LN_MASTER	-0.080429	0.215442	-0.373320	0.7111
LN_NOM_SAL	0.284073	0.714304	0.397693	0.6932
LN_NET_INCOME	-0.245054	0.486944	-0.503248	0.6179
C	-47.98852	18.13009	-2.646899	0.0120

Effects Specification

Cross-section fixed (dummy variables)

Period fixed (dummy variables)

R-squared	0.988400	Mean dependent var	-2.287942
Adjusted R-squared	0.982278	S.D. dependent var	0.564257
S.E. of regression	0.075116	Akaike info criterion	-2.067111
Sum squared resid	0.203127	Schwarz criterion	-1.343771
Log likelihood	77.87910	Hannan-Quinn criter.	-1.786673
F-statistic	161.4469	Durbin-Watson stat	1.662093

Prob(F-statistic) 0.000000

Source: table taken from Eviews

R^2 , the level of F and the Durbin-Watson test confirm the nature of the variables as well as the time period involved in the statistical procedure.

After studying the variety of variables as well as the statistical processing method, we conducted a study of the association between the variables.

Table no. 2 Correlation level with Pearson correlation coefficient

	LN_DISTRIB_P BS	LN_DOCTOR AL STD	LN_GDP_CAPI TA	LN_LICEN SE	LN_MAST ER	LN_NO M SAL	LN_NE T INC
LN_DISTRIB_P BS	1.000000	0.684900	-0.126338	0.748068	0.840014	0.53236	0.4908
LN_DOCTOR L STD	0.684900	1.000000	0.013329	0.943890	0.931313	0.44427	0.4282
LN_GDP_CAPI TA	-0.126338	0.013329	1.000000	0.043248	0.041606	0.32860	0.3661
LN_LICENSE	0.748068	0.943890	0.043248	1.000000	0.972808	0.41763	0.4086
LN_MASTER	0.840014	0.931313	0.041606	0.972808	1.000000	0.51215	0.4799
LN_NOM SAL	0.532365	0.444275	0.328606	0.417639	0.512155	1.00000	0.9649
LN_NET INC	0.490849	0.428295	0.366138	0.408612	0.479999	0.96490	1.0000

Source: table taken from Eviews

Analysis of correlations between variables validates/invalidates our research hypotheses. So:

- Partial validation of the first research hypothesis (H1), between the density of gross premiums in general insurance and GDP/capita resulting in an inverse correlation but weak in significance. This is explained if we refer to the method of calculating the density of gross premiums subscribed, which is inversely proportional to GDP.

- Validation of the second hypothesis (H2), between the average net salary and the density of gross premiums for general insurance resulting in a direct, significant correlation;

- Validation of the third hypothesis (H3), the density of general insurance gross premiums and the average/family incomes, there being a direct, significant correlation;

- Validation of the fourth hypothesis (H4), between the density of general insurance gross premiums and the level of education, there are also strong direct correlations.

After performing the correlation analyses, we proceeded to determine the level of the regression coefficients:

Table no. 3 Coefficients of the regression model

Dependent Variable: LN_DISTRIB_PBS

Method: Panel Least Squares

Date: 02/27/24 Time: 10:42

Sample (adjusted): 2015 2021

Periods included: 7

Cross-sections included: 8

Total panel (balanced) observations: 56

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-47.98852	18.13009	-2.646899	0.0120
LN_GDP_CAPITA	3.838721	1.383986	2.773670	0.0087

LN_NOM SAL	0.284073	0.714304	0.397693	0.6932
LN_NET INC	-0.245054	0.486944	-0.503248	0.6179
LN_LICENSE	0.364189	0.352418	1.033402	0.3083
LN_MASTER	-0.080429	0.215442	-0.373320	0.7111
LN_DOCTORAL STD	-0.014646	0.069809	-0.209794	0.8350

Effects Specification

Cross-section fixed (dummy variables)

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R-squared	0.988400	Mean dependent var	-2.287942
Adjusted R-squared	0.982278	S.D. dependent var	0.564257
S.E. of regression	0.075116	Akaike info criterion	-2.067111
Sum squared resid	0.203127	Schwarz criterion	-1.343771
Log likelihood	77.87910	Hannan-Quinn criter.	-1.786673
F-statistic	161.4469	Durbin-Watson stat	1.662093
Prob(F-statistic)	0.000000		

Source: table taken from Eviews

The R² level of 0.988400 as well as the F-static of 161.4469 and the Durbin-Watson test validate the multiple linear regression model of the form:

$$\text{LN Distrib PBS} = -47,98852 + 3,838721 \cdot \text{LN_GDP_Capita} + 0,284073 \cdot \text{LN_NOM SAL} - 0,245054 \cdot \text{LN_NET INC} + 0,364189 \cdot \text{LN_License} - 0,080429 \cdot \text{LN_Master} - 0,014646 \cdot \text{LN_Doctoral} + \varepsilon$$

The study carried out showed us the fact that the insurance market in Romania is influenced by a series of factors such as: the salary earned by each individual, the income per family, the level of development of a certain area, region, but also the level of education of the population from a certain region.

5. Conclusions

The analysis of the decisive factors of the level of development of the insurance market in Romania, showed us the existence of a close connection between the gross premiums subscribed and several variables such as: economic growth/development in a certain region, the salary level and the average income per family, the level of preparation (of studies), the level of education of the population in a certain area, etc.

The study carried out in our case on the main 8 development regions in our country showed us the existence of a close correlation between the insurance market and all these variables, with the exception of the economic growth reflected by GDP/capita where an insignificant inverse correlation resulted.

6. References

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