European Journal of Sustainable Development (2025), **14**, 2, 661-676 ISSN: 2239-5938
Doi: 10.14207/ejsd.2025.v14n2p661

Sustainable Development and the Insurance Industry: Factor Analysis and Forecasting in the Georgian Market

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ABSTRACT:
The insurance industry is crucial to the formation of a flawless financial market system. Excessive risks have emerged in several areas, including financial market institutions, due to the expanding scope of globalization. Risk awareness hinders not only the development of a particular business entity, but also the retrograde business entities associated with this entity. In actuality, the continuity chain, which is essential for maintaining market share and competition in a market economy, has been broken. Aside from insurance, no other mechanism has been created in modern times to guarantee prompt compensation for losses caused by risks.
This paper investigates the insurance industry's impact on economic growth and the barriers to its progress. In order to accomplish the objective, the comparison procedure was implemented. Indicators of the development of the insurance industry in Georgia have identified, in accordance with data pertaining to the insurance sectors of OECD nations, the obstacles to the sector's progress. The United States, the United Kingdom, Germany, France, and South Korea were chosen because their life and non-life insurance premiums are the highest among developed countries. The widespread use of life insurance is a defining feature of these states. The volume of non-life insurance premiums in the same countries is between 1.7 and 3.4 times smaller than the volume of life insurance premiums.
An empirical data-based statistical analysis method was employed to conduct an in-depth analysis. In order to assess the impact of specific independent variables—namely insurance market density, insurance market loss index, consumer price index, and gross domestic product per capita—the following null hypotheses were developed:
1.H0 - The percentage of GDP per capita that is unrelated to insurance industry development;
2.H0 - The insurance industry remains unaffected by fluctuations in the consumer price index;
3.H0 - The growth of the insurance industry is not impacted by the density of the market;
4.H0 - The insurance industry's progress remains unaffected by the decline of the insurance market.
The statistical significance and rejection of the null hypotheses pertaining to the parameters of each variable were outcomes of the research employing the regression method. The formulation of conclusions and recommendations ensued from the process of forecasting.
Due to the inconsistency between current economic processes and economic regularities, the influence of the selected variables on the profitability of the insurance market is of average quality.
The underdevelopment of accumulative and returnable life insurance, which prevents insurance companies from fulfilling their investment function and causes them to significantly lag behind the insurance markets of developed nations, is expected to contribute to a sharp decline in the growth of the insurance market in 2026.

Keywords: Insurance, Economic, Risk, Predict

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1. Introduction

This study aims to statistically analyze factors influencing the insurance market's development, identify key factors, and forecast its future using an econometric model, presenting ongoing conceptual challenges. Therefore, it is the responsibility of science to analyze the nature of various risks, classify them accurately, and develop protective mechanisms. Insurance is the only mechanism that transfers expected losses from risks to insurance companies, ensuring business continuity. Unmanaged financial risks in production organizations can lead to crises.

The first five to seven years of the insurance industry's development during Georgia's 33-year transition to a market economy were a period of psychological transformation. The seventy-year history of the Soviet regime contains no mention of the need for citizen-driven insurance protection Active state insurance in the Soviet Union compensated for losses caused by natural disasters and other events. Consequently, the population lacked a risk perception culture and demand for insurance protection.

Moreover, the underdeveloped insurance culture in Georgia is deeply rooted in its historical background. During the Soviet period, state-driven centralized systems dominated risk management, where losses caused by natural disasters, accidents, or social hardships were compensated directly by the government. This approach created a perception among citizens that insurance was neither a necessary nor a trusted mechanism. As a result, Georgians developed a low awareness of insurance benefits, a lack of trust in private insurance companies, and limited understanding of risk-sharing mechanisms.

The psychological legacy of this period continues to influence insurance behavior today. Many citizens perceive insurance as an unnecessary expense rather than an investment in financial security. This skepticism is further compounded by the population's limited financial literacy, particularly regarding life insurance, which is mistakenly associated only with post-mortem benefits, neglecting its savings, investment, and protection roles. The first insurance company "Aldagi" was established in 1990 with the Charity and Health Protection Fund of Georgia, at a time when the insurance law had not been developed in the country, there was no mandatory form of insurance, and the country's difficult socioeconomic situation made the industry's development prospects uncertain. In 1992, the company's management signed an important agreement with Lloyd and Harrys & Dixon insurance companies. The lack of legal regulation mechanisms hindered the growth of the insurance industry, despite the fact that Aldagi steadily increased the number of insurance products it offered to its clients. In 1997, the Insurance Supervision Service was established and the Law of Georgia "On Insurance" was enacted. There are currently 18 insurance companies licensed to provide life and non-life insurance operating in the market. Georgia's economic and industrial development occurred under the conditions of transformation in all areas. The socioeconomic situation of the country, which is determined by the GDP, is the basis for the development of the insurance industry.

2. Theoretical Background

Insurance protection against risks has become an integral part of production organizations' operations in the modern economy. The importance of the insurance industry to the economy cannot be fully gauged by its size, number of employees, assets under management, or contribution to the national gross domestic product. Because the modern, highly industrialized and technologically advanced economy faces greater and more diverse risks than ever before, the insurance industry is one of the most fundamentally important sectors for society and the economy (Abbas, 2016).

Given the process of financial liberalization and integration, insurance market activity in developing country markets has increased dramatically over the past decade (Agbada & Osuji, 2020). Which established the foundation for research on the influence of the insurance industry on economic growth. There is substantial evidence that both life and non-life insurance contribute to economic growth. (Arena, 2008; Chang, Lee, & Chang, 2013; Ez & Okoye, 2013; Stanisław, Papież, & Śmiech, 2019) The development of non-life insurance is significantly more important for developing economies than for developed economies (, 2010). Long-term underdevelopment of insurance has an expensive effect on the financial situation of individuals, the economy, and society as a whole. Unfortunately, policy decisions do not adequately reflect the current state of affairs, and they frequently contribute to the emergence of new threats. Intellectually speaking, this is not only a problem, but also the most efficient way to squander opportunities for the modern economy's growth (Patrick, 2007).

The insurance industry has three roles in the economy: (Baruti, 2022) on the one hand, it maintains the financial condition of individuals and legal entities by providing insurance protection, Secondly, it contributes to the formation of state finances, and thirdly, it invests in the stock market with its own capital, thereby contributing to economic entities and insurance itself. development of the business.

The functions of insurance are economic compensation, financing, and social management. It is a crucial component of economic development in contemporary economies, as it provides protection against multidimensional risks. The government should provide citizens with access to financial services (credit, savings, and insurance) that enable them to expand their income-generating activities in order to improve their welfare (Liedtke, 2007).

Numerous factors influence insurance decisions, including risk perception, lack of information or false information, and biases that result in irrational consumer behavior. (Pantazi, 2021; Kong, Qin, & Feng, 2019) Each participant in the insurance market, including the state, regulatory bodies, educational institutions, insurance companies, insurance brokers, insurance agents, and insured individuals, should contribute to the process's healthy growth. Through legislation, the state should influence social norms so that insurance becomes a habit for the society (Buzatu, 2013).

3. Methods

Based on an analysis of the insurance industry (life and non-life) in developing countries, this article compares the 30-year development of the insurance industry in

Georgia to that of developing countries. The criteria of market penetration, the proportion of the country's population covered by insurance, and the indicator of the impact on economic development serve as the primary parameters. The expansion of the insurance industry is proportional to the expansion of GDP.

A comparison method is used to evaluate the insurance industry of the country: the data of the insurance industry of developed and developing countries of OECD are studied, its role in GDP is compared, and the results of research on the insurance industry of Georgia are compared. A forecasting model is also used to determine the future of the insurance industry. (Glonti, Ghoghoberidze, & Beridze, 2020) The developed countries with the highest premiums collected for life and non-life insurance products were chosen: the United States, the United Kingdom, Germany, France, and South Korea. The regularity that characterizes developed nations is revealed by the statistical data: cumulative life insurance ranks first. In the same countries, the data for non-life insurance is 1.7 to 3.4 times less than the volume of premiums collected. The ratio between life and non-life insurance in developing countries was determined by analyzing data from seven countries (Bulgaria, Greece, Lithuania, Latvia, Estonia, Poland, Slovenia). In contrast to developed nations, the volume of non-life insurance premiums in these nations is 2-2.5-3 times greater than the volume of life insurance premiums, with the exception of Greece, where both subsectors are nearly equally developed. From this, it can be deduced that a significant portion of the population in developing nations is preoccupied with the maintenance of material possessions and pays little attention to the long-term maintenance of their standard of living. In some nations, this may be due to a lack of insurance culture and a low socioeconomic status. Compared to the countries discussed in Georgia, the subsector of life insurance is underdeveloped. (Brokešová, Pastoráková, & Ondruška, 2014)

Table I: Volume of life and non-life insurance premiums collected on the Georgian insurance market

	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Life insurance	10 008 394	16367 003	22 638 777	12597173	1665711 5	25021595	25374505
Non-life insurance	3514487 66,2	3047800 44,6	4928326 50,1	458468946, 7	2859835 56,2	334777177 ,6	367664109,2
	2017	**2018**	**2019**	**2020**	**2021**	**2022**	
Life insurance	24 696 964	37 434 561	45 696 276	50 415 319	59 973 569	74 867 045	
Non-life insurance	416 703 998	5047660 31,1	5793058 96,9	616863355, 9	7126846 08,2	834762727 ,3	

Source: LEPL Insurance State Supervision Service of Georgia, insurance.gov.ge

As shown in the **Table I**, the volume of life insurance premiums increases by 1.2 ÷1.6 times between 2010 and 2022, while the volume of non-life insurance premiums

increases by 1.5 times; however, the primary issue is the disparity between the two. 12÷20 times less than the total volume of non-life insurance premium is the total volume of life insurance premium. The life insurance index consists of two types of insurance: first, savings in pension insurance schemes of insurance companies, and second, demand for life insurance on mortgage loans by banks.

In contrast to OECD countries, where life insurance plays a key role in both protecting households and mobilizing long-term savings, Georgia's life insurance sector remains underdeveloped and primarily focused on mortgage-linked or short-term insurance products. In OECD economies, such as Germany and France, accumulative and returnable life insurance accounts for a significant share of household assets, providing stable financing to government and corporate bond markets. This system enhances financial market liquidity, stimulates investment, and improves economic resilience. In Georgia, however, the absence of similar instruments limits the insurance sector's investment function. Developing accumulative life insurance could promote sustainable development by increasing household financial security, expanding capital market participation, and reducing the economy's vulnerability to external financial shocks. Therefore, policies promoting such products, combined with proper regulation and financial education, are vital to closing the gap between Georgia and advanced economies.

The accumulative and refundable form of life insurance, which not only serves to maintain the standard of living of citizens but is also the primary investment resource of the long-term financial market, has not yet been developed.

To examine the current state of the insurance industry, an empirical analysis was conducted. The research variables that are independent are:

1. GDP per capita, which reveals the socioeconomic status of the population and its ability to purchase insurance;
2. Consumer price index, which influences population purchasing power;
3. Insurance market density, which indicates the proportion of premiums paid per capita;
4. The loss ratio of the insurance industry.

The dependent variable, the insurance market profitability ratio ROA, demonstrates the industry's growth dynamics. This is how the formula for multiple regression was developed:

$$Y = \beta 0 + \beta 1\, X1 + \beta 2 X2 + \beta 3\, X3 + \beta 4\, X4 + \varepsilon \quad (1)$$

Where, Y is the ROA profitability index of the insurance market;

X1- share of GDP per capita;

X2 - Annual consumer index;

X3- density of the insurance market;

X4- insurance market loss index;

β0, β1, β2, β3 - regression coefficients;

ε- regression error.

Georgia's insurance market has existed for 30 years, but statistics were unavailable prior to the formation of the country's insurance regulatory body, which reduced the number of time series research variables. Since 2008, the field has been governed by the supervision service, which publishes periodic reports on the state of the field and its development dynamics.

Table II: Statistics of factors influencing the growth of the insurance industry

years	Y ROA	X_1- per.GDP	X_2- index	X_3 penetration	X_4 Loss Ratio
2008	-0.03	4352.9	5.55	1.42	0.76
2009	0.07	4101.3	2.99	2	0.64
2010	0.08	4665.9	11.24	1.75	0.61
2011	0.04	5437.2	2.04	1.32	0.82
2012	0.009	5825.3	-1.37	1.97	0.86
2013	0.005	5977	2.37	1.76	0.87
2014	0.09	6502.6	1.95	1.04	0.87
2015	0.009	8562.8	4.88	1.13	0.71
2016	0.047	9138.8	1.83	1.16	0.69
2017	0.04	10166.2	6.72	1.17	0.71
2018	0.065	11958.3	1.52	1.22	0.63
2019	0.04	13240.2	7.0	1.27	0.64
2020	0.06	13263.7	2.4	1.35	0.62
2021	0.048	16091.8	13.94	1.29	0.65
2022	0,045	19 465,3	9,85	1,26	0.04

Source: National Statistics office of Georgia, geoststat.ge
Source: LEPL Insurance State Supervision Service of Georgia, insurance.gov.ge

The variables of the regression model were evaluated using descriptive statistics, revealing the "behavior" of the statistical data of all parameters over time.

Table III: Descriptive statistics

	ROA	INDEX	LOSS.RATIO	PER.GDP	PERNETATION
Mean	0.041200	4.707857	0.715333	9249.953	1.407333
Median	0.045000	2.695000	0.690000	8562.800	1.290000
Maximum	0.090000	13.94000	0.870000	19465.30	2.000000
Minimum	-0.030000	-1.370000	0.610000	4101.300	1.040000
Std. Dev.	0.031835	4.323295	0.096278	4689.536	0.309319
Skewness	-0.586558	0.849044	0.627747	0.740672	0.889840
Kurtosis	2.879235	2.730090	1.840575	2.514214	2.392838
Jarque-Bera	0.869241	1.724542	1.825333	1.518978	2.209942
Probability	0.647510	0.422202	0.401452	0.467905	0.331221[1]
Sum	0.618000	65.91000	10.73000	138749.3	21.11000
Sum Sq. Dev.	0.014188	242.9814	0.129773	3.08E+08	1.339493

Observations	15	14	15	15	15

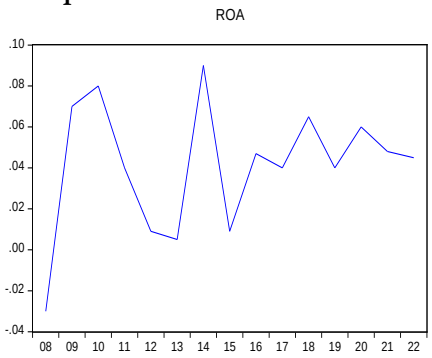
Source: Authors' calculations

Table II demonstrates that virtually all parameters exhibit significant variation. For instance, the maximum and minimum values of GDP per capita, consumer index, and insurance premium per capita fluctuate significantly, as do the standard deviation values. CPI volatility is one of the critical barriers to the sustainable development of Georgia's insurance market. Frequent and sharp fluctuations in inflation undermine the affordability of insurance products and increase uncertainty for both consumers and insurers. This situation discourages long-term commitments, such as life and pension insurance contracts. In countries where inflation is stable and predictable (e.g., Czech Republic, Poland, or Slovenia), insurance penetration has improved significantly as consumers are more willing to invest in long-term financial products. For Georgia, reducing CPI volatility through effective inflation-targeting policies, sound fiscal management, and structural reforms is essential to ensuring that insurance products become more affordable and trusted. This will positively influence both demand and supply in the insurance market.

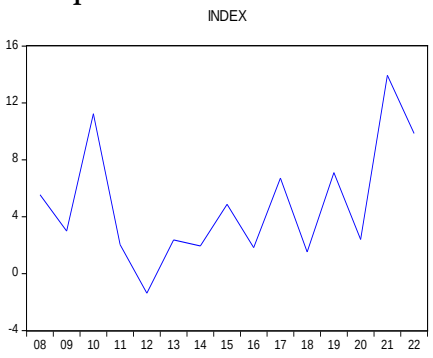
The consumer price index and per capita GDP are significant indicators. In general, a rise in the per.gdp indicator indicates an improvement in the socioeconomic status of the population, which should be accompanied by a decline in the consumer price index. The data indicates that per.gdp is increasing, whereas the consumer price index fluctuates widely and shows a low point only in 2012-2014, which is partially due to the political climate. PERNETATION is another indicator of the development of the insurance industry for the same time period. Because there was no universal healthcare program in the country, a significant portion of insurance companies' income was comprised of the medical care costs of the population insured by the state's social programs, in which private insurance companies participated. The Jarque-Bera test of normal distribution of data fails to meet the requirement for only one variable ROA, whereas the asymmetry, excess, and test criteria of the other variables correspond to the normal distribution, indicating that the research can continue using the parametric method.

To ensure that the research result is closer to reality, the stationarity of the time series was examined.

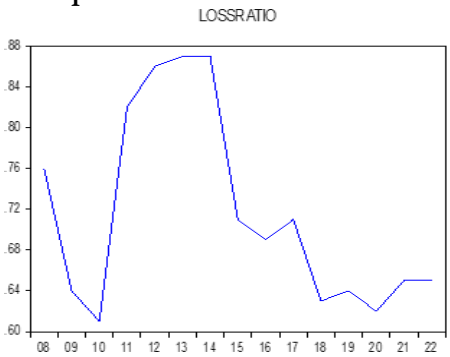
Graph I.



Graph II.

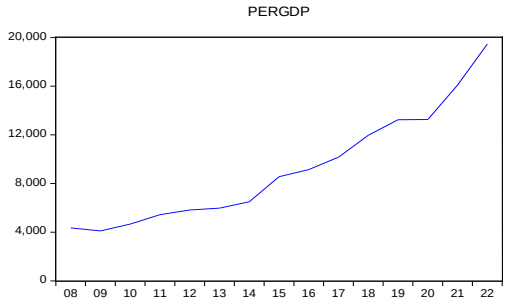


Graph III.

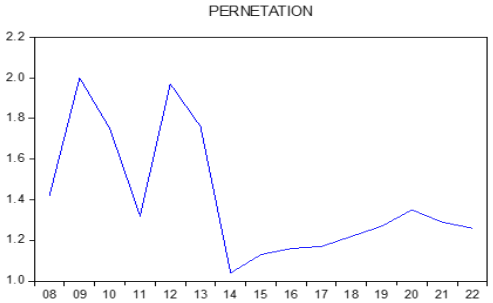


Source: Performed by the authors

Graph IV.



Graph V.



Source: Performed by the authors

From graphs №I through №III, it is evident that the data (ROA, Index, Loss.ratio) do not exhibit significant seasonality during the period, despite the variable standard deviation. They describe a weak stationarity. In addition, market penetration data demonstrate a lack of stationarity (Graph No. V). As for per.gdp (graph no. IV) data is constantly increasing over time; therefore, this time series is non-stationary. The results of the Dickey-Fuller test were as follows: (Eviews software).

Table IV: Dickey Fuller test results

criteria / variables	t-Statistic	Probability	Adjusted R-squared	Coefficient	std. Error	F-statistic	Akaike info criterion	Schwarz criterion	Durbin-Watson stat
ROA	5.646364	0.0006	0.703747	1.226750	0.2172636	31.88143	4.34026	4.24897	2.08070
per.GDP**	3.78220	0.0213	0.823238	0.81804	0.5034589	14.9720	16.6606	6.7817	1.8389
index*	3.17564	0.04375	0.411357	0.9687	0.305060	10.0846	5.99637	6.087669	1.8934
penetration	5.64764	0.0009	0.757102	0.61209	0.207303	18.1433	0.29412	0.294127	1.4470

Loss ratio*	4.16860	0.01204	0.709660	0.51088	0.311246	6.49954	2.94788	2.796594	2.0700

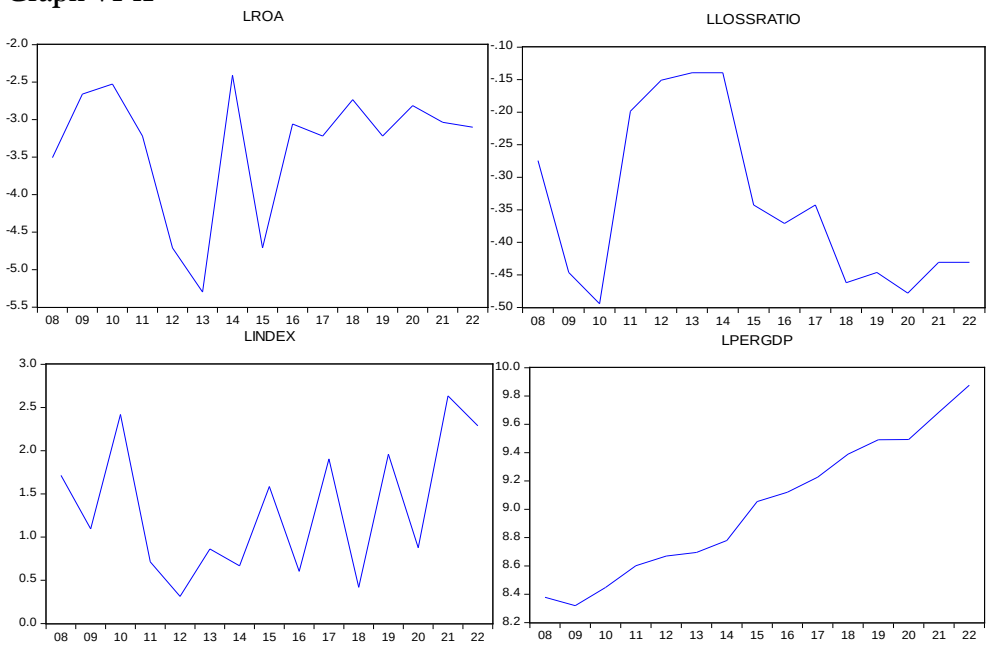
Source: Eviews calculation results
*Note: * - 1st difference; ** - 2nd difference;*

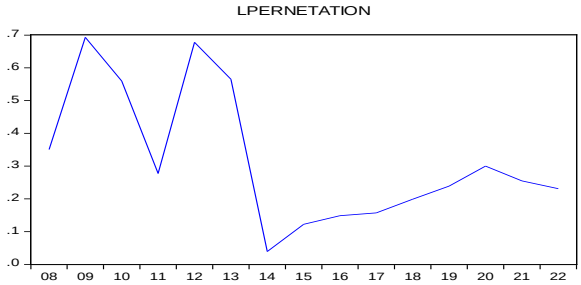
Indicators of the t statistic tststist.>tcritik and time series of all variables are non-stationary regardless of the data of probability of non-stationarity below 0.05. It should be noted that time series cannot be strictly stationary because they fluctuate in response to current economic processes.

Particularly, per.gdp is characterized by long-term growth, while the consumer price index fluctuates significantly because the country's economy is affected by external factors despite the growth of GDP (inflation, economic crisis, political instability, etc.), Therefore, the 2nd difference was used to convert the time series to a stationary format. The rate of insurance market penetration should increase in proportion to the per capita GDP, but qualitative characteristics also impact the development of insurance. Low insurance culture, low risk perception, insurance intermediary competence, etc. As for the rest of Dickey Fuller's test criteria (F-statistic, Akaike info criterion, Schwarz criterion) they do not show values confirming stationarity.

The logarithmic data transformation method was used to transform the non-stationarity of the time series into a stationary one for the effectiveness of the research.

Graph VI-X





Source: Performed by the authors

Due to the fact that the shape of per.gdp data does not change even after logarithms, the relationship between this indicator and the insurance market growth is irregular. In order to enhance the quality of the model, per.gdp- was eliminated from the regression model and the following was created:

Lnroa= β0 + β1 log(index) + β2log (lossratio) + β3 log(pernetation) + ε (1)

Next, empirical research must determine the relationship between variables.

Table V: Correlation between variables

	LROA	**LPERNETATION**	**LLOSSRATIO**	**LINDEX**
LROA	1.000000	0.289801	-0.550282	-0.180640
LPERNETATION	0.289801	1.000000	0.070093	-0.090376
LLOSSRATIO	-0.550282	0.070093	1.000000	-0.494902
LINDEX	-0.180640	-0.090376	-0.494902	1.000000

Source: Eviews calculation results

The correlation between the independent variables and the profitability index (ROA) of the insurance market is displayed in **Table IV.** The negative correlation of the consumer price index implies that its decrease will increase the market's profitability, as the decline in consumer spending will increase the demand for insurance protection. The correlation between market penetration rate (pernetation) and profitability (ROA) indicates that market profitability will increase proportionally to the relationship between the total insurance premium and the country's GDP. The correlation between independent variables is low, i.e., variables are statistically significant and correctly selected.

Table VI: *Regression model results and F test*

	df	*SS*	*MS*	*F test*	*Sig.F*	R Square	*Durbin Watson*
Regression	3	0.001705	0.000568	0.8566332	0.491980537	0.715181	2.218343
Residual	11	0.007299	0.000664				
Total	14	0.009004					

Source: Eviews calculation results

Comparing the calculated Durbin Watson value to the table value revealed that there is no autocorrelation among the variables.

0.82 >DW(2.21)<4-1.75

According to the results of the regression model, it was determined that the Granger causality test was applied to the time series, which permits the selection for forecasting of variables (Sotnyk et al., 2022) whose data determine the prediction of dependence.

Granger's causality test was applied to the time series of two variables: loss ratio and profitability of the insurance market (lossratio and ROA). Their relationship was utilized as the basis for selection

***Table VII**: Pairwise Granger Causality Tests*

Date: 05/19/23 Time: 10:15			
Sample: 2008 2022			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	rob.
LPERNETATION does not Granger Cause LROA	13	0.22892	0.8004
LROA does not Granger Cause LPERNETATION		1.56885	0.2662
LLOSSRATIO does not Granger Cause LROA	13	7.66694	0.0138
LROA does not Granger Cause LLOSSRATIO		0.57768	0.5830

The result of the test indicates that ROA does not contribute to market declines, as the F statistic Prob.>0.5830 e. The null hypothesis is not rejected; rather, the loss ratio of the insurance market is responsible for the decrease in ROA, since the probability is less than 0.0138. The correlation coefficients also illustrated this dependence.

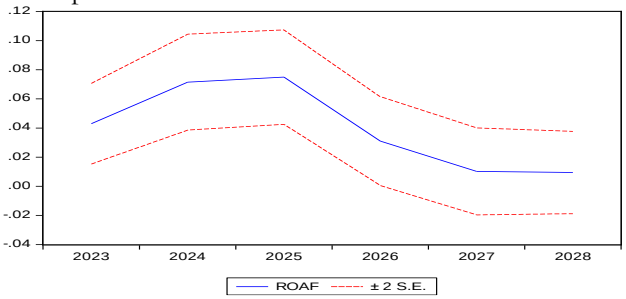
The obtained results regarding the influence of the chosen variables on the profitability of the insurance market are of moderate quality; this is due to the non-compliance with economic regularities of the economic processes that are occurring. e.g., an increase in GDP per capita should result in a rise in the demand for insurance protection, but its effect can be viewed in two ways: First, the deterioration of the socioeconomic situation can motivate the population to purchase an insurance product, and second, the improvement of the socioeconomic situation enables the population to purchase an insurance product and protect the property it has created from risks. (Tsintsadze, 2023). A decrease in the consumer price index should have the same effect, but the insurance product, which is still considered a "unnecessary" purchase due to a lack of risk awareness and a poor insurance culture, is separating the insurance industry from economic norms. Insurance market penetration and profitability are interdependent factors, so the obtained correlation confirms the growth of the other variable if one

variable increases. The weak correlation is due to the small sample size and imprecise statistical analysis.

Based on the results of the Granger test, every variable was predicted.

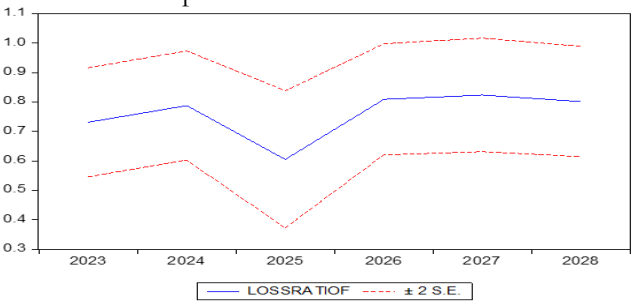
Diagram I-V

ROA predicts



Forecast: ROAF	
Actual: ROA	
Forecast sample: 2023 2028	
Included observations: 6	
Root Mean Squared Error	0.006789
Mean Absolute Error	0.004870
Mean Abs. Percent Error	13.59654
Theil Inequality Coefficient	0.070627
Bias Proportion	0.000000
Variance Proportion	0.016228
Covariance Proportion	0.983772

LOSSRATIO predicts

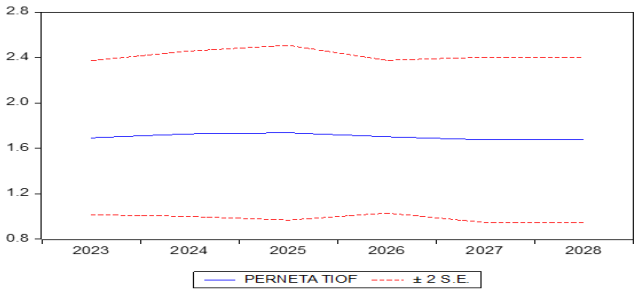


Forecast: LOSSRATIOF	
Actual: LOSSRATIO	
Forecast sample: 2023 2028	
Included observations: 6	
Root Mean Squared Error	0.069324
Mean Absolute Error	0.049375
Mean Abs. Percent Error	6.832276
Theil Inequality Coefficient	0.045294
Bias Proportion	0.000000
Variance Proportion	0.153122
Covariance Proportion	0.846878

INDEX predicts

Forecast: INDEXF	
Actual: INDEX	
Forecast sample: 2023 2028	
Included observations: 6	
Root Mean Squared Error	3.375113
Mean Absolute Error	2.667393
Mean Abs. Percent Error	84.55557
Theil Inequality Coefficient	0.347503
Bias Proportion	0.000000
Variance Proportion	0.842708
Covariance Proportion	0.157292

PERNERTATION predicts



Forecast: PERNETATIOF	
Actual: PERNETATION	
Forecast sample: 2023 2028	
Included observations: 6	
Root Mean Squared Error	0.254387
Mean Absolute Error	0.219268
Mean Abs. Percent Error	13.68841
Theil Inequality Coefficient	0.074254
Bias Proportion	0.000000
Variance Proportion	0.828257
Covariance Proportion	0.171743

The ROA forecast indicates potential challenges for the insurance market, with projected growth from 2023 to 2025, followed by a sharp decline in 2026.

What could have caused this outcome?

1. Inefficient use of resources by insurance companies;
2. An increase in losses due to the acceptance of high-quality risks in insurance;
3. An increase in the proportion of premiums covered by reinsurance (only foreign reinsurance companies operate in the Georgian market).

The anticipated ROA is consistent with the loss ratio: a rise in the loss ratio from 2025 results in a decline in the profitability ratio from the same year. Until 2028, the outlook for the consumer price index and insurance market penetration is virtually unchanged. This highlights the issue with the development of the insurance market: the low insurance culture of the populace.

In the evolution of Georgia's insurance market, the so-called Lack of development of accumulative and returnable life insurance is one of the primary causes of business failures. As a result, insurance companies are unable to fulfill their investment function and lag significantly behind the insurance markets of developed nations in providing temporary free financial resources to the market.

4. Discussion

An important limitation of this research is the short length of the time series, mainly due to the absence of official statistical data on the Georgian insurance market before 2008. This data gap is primarily attributed to the lack of a specialized supervisory body during the early years of Georgia's transition to a market economy. The small sample size (2008–2022) may reduce the robustness of the model, increasing its sensitivity to cyclical fluctuations and limiting the strength of long-term forecasting. To improve future research reliability, it is crucial to reconstruct historical data where possible, establish a centralized insurance database, and standardize data collection methods. These actions will enhance the accuracy of forecasting models and support more evidence-based policymaking.

The weak link between market penetration and profitability identified by the Granger causality test suggests that other non-quantitative factors may influence the Georgian insurance market. In particular, behavioral variables, such as trust in insurance companies and agents, public perception of insurance value, and the general level of financial literacy, may substantially impact both insurance demand and profitability.

Considering the legacy of the Soviet era, which instilled skepticism towards private financial institutions, and the relatively low insurance culture, future research should aim to integrate these dimensions. Incorporating qualitative variables into forecasting models, possibly through surveys and behavioral data, would allow for a more comprehensive understanding of the barriers to insurance market development in Georgia.

5. Implications and further research

The proposed measures for strengthening Georgia's insurance market are not only sectoral reforms but also essential components of the country's broader sustainable development strategy. These actions are fully aligned with Georgia's "Strategy for Socioeconomic Development 2030," which aims to strengthen financial inclusion, improve social protection mechanisms, and mobilize long-term capital for economic resilience. Furthermore, enhancing the insurance sector directly supports Georgia's commitment to the Sustainable Development Goals, particularly Goals 1 and 8, by reducing poverty risks and promoting economic growth. The insurance sector's integration into the country's climate resilience and disaster risk management plans could also offer additional stability, protecting both public and private assets against external shocks. (Polinkevych et al., 2022; Xie, 2022)

The weak insurance culture observed in Georgia has deep cultural and historical roots. Inherited from the Soviet period, the population's expectations were shaped by state guarantees and subsidies, leaving little room for the development of a private insurance mindset. This situation results in a low perception of risk and an underestimation of the role of insurance, especially life insurance, which is often mistakenly associated only with funeral expenses, ignoring its significant role in household financial planning and long-term savings.

To overcome this challenge, tailored awareness campaigns should address both the cultural and psychological barriers specific to Georgia. These campaigns should:

•Integrate financial literacy education into the general and vocational education systems, with a focus on explaining risk management, insurance mechanisms, and the long-term benefits of life insurance.

•Engage trusted institutions such as universities, banks, and professional associations to deliver insurance education in a credible and practical manner.

•Promote success stories and case studies from both Georgian and international contexts, showing how life insurance contributes to household welfare and resilience.

•Implement targeted communication strategies for different age groups, focusing on young families, employees, and entrepreneurs, who can particularly benefit from life insurance products.

•Enhance the competence and professional training of insurance agents and brokers, ensuring they are equipped to rebuild trust and properly advise clients.

Without addressing these historical and cultural obstacles, purely economic and regulatory reforms may not achieve the expected results. Therefore, increasing the insurance culture should be viewed as a key policy objective aligned with the country's sustainable development strategy.

The socioeconomic conditions typical of a developing nation, which cannot encourage the purchase of an insurance product and are viewed as a waste of money, were identified as the source of the problems with the insurance market development (Tsintsadze, Glonti, Diasamidze, & Ghoghoberidze, 2023) through the research process. The following actions should be taken by both the population and the government in order to alter the attitude towards insurance:

1.State support for the establishment of a Georgian reinsurance company because the insurance premiums mobilized by insurance companies will remain in the country's insurance market, thereby reducing the loss rate to some degree;

2.We believe that scientifically based approaches should be utilized in risk assessment in order to reduce the likelihood of catastrophic losses; (Tsintsadze & Gogoberidze, 2019; Tsintsadze & Ivanishvili, 2023)

3.To increase the population's awareness of insurance, thereby enhancing the agents' skills, by introducing the techniques of well-known agents operating on international markets (Heidema, 2008);

4.Imposing different (higher) commissions on agents for the sale of life insurance products; Constant advertising (television, billboards, etc.) to boost appeal;

5.Risks that worsen the socioeconomic situation of the population necessitate the implementation of mandatory insurance, even if only for a few years (company property, residential house of individuals, insurance). Accident insurance for hazardous occupations;

6.Introduction of mandatory professional liability insurance, which is currently voluntary on the Georgian insurance market; no contract has been signed as of yet.

Consider that insurance not only serves to protect the risks of individuals and legal entities, but also the country's risk, as the developed insurance market is a provider of financial resources to the financial market, thereby making loan instruments more affordable. By performing an investment function, insurance companies increase financial stability, which benefits both the insurance industry and the economy.

References

Arena, M. (2008). Does insurance market activity promote economic growth? A cross-country study for industrialized and developing countries. The Journal of Risk and Insurance, 75(4), 921-946. https://openknowledge.worldbank.org/bitstream/handle/10986/9257/wps4098.pdf?sequence=1&isAllowed=y

Agbada, A. O., & Osuji, C. C. (2020). Fundamental analysis of insurance industry operations and GDP increase in Nigeria. International Journal of Financial Research, 11(4), 275-288.

Abbas, A. O. (2016). Factors that drive the development of the insurance industry in Tanzania. Journal of Finance and Investment Research, 1(1), 1-12.

Baruti, B. H. (2022). The dynamics of insurance sector development and economic growth. Corporate Governance and Organizational Behavior Review, 1(4), 28-42.

Buzatu, C. (2013). The influence of behavioral factors on insurance decisions. International Economic Conference of Sibiu 2013 Post Crisis Economy: Challenges and Opportunities, 6(2), 31-40.

Buryk, Z. (2021). Economic and legal aspects of EU insurance market development. Journal of Management Information and Decision Sciences, 4, 1-9.

Brokešová, Z., Pastoráková, E., & Ondruška, T. (2014). Determinants of insurance industry development in transition economies: Empirical analysis of Visegrad group data. The Geneva Papers on Risk and Insurance - Issues and Practice, 39, 471–492.

Chang, T., Lee, C.-C., & Chang, C.-H. (2013). Does insurance activity promote economic growth? Further evidence based on bootstrap panel Granger causality test. The European Journal of Finance, 20(12), 1187–1210.

Cristea, M., Marcu, N., & Cârstina, S. (2014). The relationship between insurance and economic growth in Romania compared to the main results in Europe – A theoretical and empirical analysis. Procedia Economics and Finance, 8, 226-235.

Ez, O. R., & Okoye, V. (2013). Analysis of insurance practices and economic growth in Nigeria: Using co-integration test and error correction model. Global Advanced Research Journal of Management and Business Studies, 2, 63-70.

Glonti, V., Ghoghoberidze, T., & Beridze, Z. (2020). Dynamical estimation and prediction of business value of regional insurance companies. 52nd International Scientific Conference on Economic and Social Development, Porto. Book of Proceedings, 484-488.

Han, L., Li, D., Moshirian, F., & Tian, Y. (2010). Insurance development and economic growth. The Geneva Papers on Risk and Insurance - Issues and Practice, 35, 183–199.

Kong, D., Qin, N., & Feng, Z. (2019). Betting on temperature: Psychological bias in insurance purchases. Journal of Accounting and Finance, 59(5), 2993-3027.

Liedtke, P. M. (2007). What's insurance to a modern economy? The Geneva Papers on Risk and Insurance - Issues and Practice, 32(2), 211-221.

Pantazi, D. M. (2021). Psychological factors for assessing consumer perception in the insurance market. Journal of Economics & Management Research, 2(1), 2-3.

Peleckienė, V., Peleckis, K., & Dudzevičiūtė, G. (2017). The relationship between insurance and economic growth: Evidence from the European Union countries. Economic Research-Ekonomska Istraživanj, 32(1), 1138-1151.

Polinkevych, O., Glonti, V., Baranova, V., Levchenko, V., & Yermoshenko, A. (2022). Change of business models Ukrainian insurance companies in the conditions of COVID-19. 12(1), 83.

Sotnyk, V., Kupchyn, A., Trynchuk, V., Glonti, V., & Belinskaja, L. (2022). Fuzzy logic decision-making model for technology foresight. 1, 139-159.

Stanisław, W., Papież, M., & Śmiech, S. (2019). Insurance market development and economic growth in transition countries: Some new evidence based on the bootstrap panel Granger causality test. Argumenta Oeconomica, 1(42), 213-233.

Tsintsadze, A., Glonti, V., & Ghoghoberidze, T. (2022). Georgia's reform of the pension system and demographic dividend. Mathematical Statistician and Engineering Applications, 71(4), 7963-7973.

Tsintsadze, A., & Ivanishvili, M. (2023). Sustainable insurance and professional liability: An empirical analysis. European Journal of Sustainable Development, 12(1), 35.

Tsintsadze, A., & Gogoberidze, T. (2019). Risk analysis in professional terms and insurance tariff algorithm. European Journal of Sustainable Development, 8(2), 1, 39-139.

Tsintsadze, A., Glonti, V., Diasamidze, M., & Ghoghoberidze, T. (2023). Risk management problems and the role of insurance in developing countries. Montenegrin Journal of Economics, 19(2), 153-165.

Xie, X. (2022). Insurance industry and China's regional economic development. Finance: Theory and Practice, 26(1), 186-197.