# Sustainable Insurance and Professional Liability: An Empirical Analysis

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**Abstract**

Professional liability insurance combines types of property insurance for several categories of individuals who may cause material harm to third parties as a result of their professional activities. As market rivalry has strengthened with the development of a market economy, the demand for insurance protection has increased, and the presence of a professional liability insurance policy boosts the prestige and confidence of a professional in the eyes of his clients and business partners.

In many nations throughout the world, professional liability insurance is a burgeoning insurance industry that brings profit to insurance firms and helps professionals maintain their activity and business stability.

Given that professional liability insurance is becoming a strategically significant area of insurance, it is pertinent to examine the problems and prospects of its development, which largely determined the research task: empirical analysis determined the level of influence of factors affecting the development of professional liability; based on the analysis of the state of professional responsibility in the insurance market, the problems of the development of the sub-sectors were identified.

*Keywords: professional risk, insurance, object of insurance, professionalism, factor analysis.*

## 1. Introduction

In classical philosophy, the comprehension of responsibility is contingent upon the comprehension of liberty. Skinner argues in his behaviorism thesis that if we view human behavior as a deterministic process, then it is difficult to discuss responsibility. Responsibility is one of the requirements of freedom, and freedom is one of the manifestations of responsibility. Responsibility implies that a person is aware of the conditions of the case and the requirements imposed upon him, the non-fulfillment or improper fulfillment of which becomes the subject of judgment, as a result of which it is necessary to determine what caused the process violation: deliberate action or ignorance. According to Aristotle, even in the event of damage owing to ignorance, a person is faced with a double responsibility: as a result of an unfulfilled or badly done deed, a person's legal liability is proportional to the gravity of the resulting harm (Daigle, 2015).

Analytic philosophers frequently examine moral responsibility in modern issues about free will and determinism. This is the duty when a superior causes moral harm to a subordinate by reprimand, any type of sanction, insult, or unfair punishment. This form of duty, in our perspective, represents the limits of human freedom. We believe it is one of the manifestations of determinism, in which the restriction of freedom imposed by the gods has been replaced with the absolute authority of the individual. In order to verify this, we

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will rescue the Freedom-determinism as explained by Skinner (Skinner, 1974). Skinner states, "Humans are completely reliant on their past."

Specifically, our behavior is a "product" of the preceding period, i.e., we repeat behaviors that have already been established. Because freedom is not permitted in the experimental analysis of behavior, individual differences in behavior depend on forces created and reinforced in the past. In fact, Skinner argued that determinism is an absolute requirement for the study of human behavior. "In order to apply scientific methods to the study of human behavior, we must assume that behavior is regular and conditioned" (Skinner, 1953).

The logician J. M. Bochensky was the first philosopher to assert that responsibility is a formal logic of relationships, arguing that if someone is accountable to another for something, there should be at least a double relationship (Bocheński, 1965). In this instance, understanding of responsibility is complete, as dual relationships are part of triple relationships, although the number of relationships can continue to grow. For example, the president is responsible for everything in the country, but it is impossible to assign this level of responsibility to a single individual due to the interdependence of officials.

In the sense that economic policy, legal legislation, which regulates the economy in general, creates relationships in which there are not triple, but rather compositional relationships, the concept of responsibility is of great importance in the economy. Therefore, the following elements can be used to explain the concept of responsibility.

The paper's primary focus is a discussion of professional responsibility and the formation of the insurance industry's financial mechanism. In order to create a reliable financial mechanism, it is essential to investigate the factors that lead to the risks that arise when professionals make decisions. The decision-psychological maker's profile is one of the factors. In practice, this occurs when a decision-maker prioritizes his own opinion over responsibility, resulting in recklessness and a negative outcome. It is for these and other reasons that the enterprise's final result is not accepted, thereby imposing on the managers a responsibility that, in addition to psychological factors, is based on their professionalism (Bennett, 1990).

The microeconomic and macroeconomic aspects of liability insurance should be considered (Cooter, 1991).

At the microeconomic level, liability insurance in an enterprise-institution has a double effect: first, human resources are saved in exchange for a small insurance premium, because the responsible party, when signing the insurance contract, focuses solely on uninsured systemic risks and pays more attention to the strategic management of the enterprise. According to the theory of human capital, the preservation of professional personnel and their material condition is a necessary condition for the development of production.

In the event that the insurance company is profitable, the amounts contributed to the state budget in the form of taxes, and the temporarily free monetary resources supplied to the financial market by providing financial resources for the re-production processes of other enterprises-institutions create new opportunities for their development and thereby contribute to the expansion of state finances.

## 2. Literature Review

In developing nations (Georgia), the insurance culture is still characterized by insurers spending money to acquire clients in the form of agents' commissions, rather than the client approaching the insurer. This is due to the fact that prospective insurers may be unaware of the risks posed by their profession and assets. In risk management, this attitude is known as a lack of risk appetite.

Professional liability insurance, which fundamentally differs from property insurance, entails "hidden risks," resulting in a negative attitude toward insurance. If a country lacks a mandatory form of insurance, the types of insurance remain unused for a decade. The activity of risk-bearing objects and subjects in a mandatory form acclimates the insurer to "comfort" (loss payment by the insurer), resulting in a desire to switch to insurance in a voluntary form. "a person does not wish to leave their comfort zone" is primarily influenced by psychological factors (Khrupacheva & Khadartseva, 2011).

To activate professional liability insurance, the professional must recognize the likelihood of making expected errors while performing professional activities and accept that "even the most expensive specialists are not insured against errors" For instance, a physician may make an error when making a diagnosis or when confirming the accuracy of audit-accounting documents, etc. The only mechanism for maintaining the status and material condition of a professional against such errors is insurance, of which Georgians have a very low level of awareness. In the financial mechanism of professional liability insurance, it is important to consider not only the movement of cash flows, but also the country's social policymaker (Gliedman, 2016). In particular:

1. The insurance premium guarantees the insurance company's financial stability.
2. The protection provided by insurance enables the professional to concentrate on his work.
3. Damage indemnification mitigates the conflict between the insurer and the insured.
4. (as part of social policy) the material condition of the insured-professional is maintained;
5. Social policy and the insurer's reputation are entwined with the insured's financial security.

Legally correct conduct of the listed procedures has the effect of encouraging uninsured professionals, thereby boosting this segment of the insurance market, insurance company revenues, state finances in the form of state taxes, and the economic capacity to invest in the financial market.

The growth of the professional liability insurance segment of the insurance market occurs in insurance markets where, first and foremost, there are mechanisms for assessing the professional level of various professions in the country and where institutions and professional associations have a strong culture of keeping information on risks caused by the mistakes of professionals. All of the aforementioned information enables insurance companies to determine an acceptable rate, and supervisory bodies to evaluate the impact of this type of insurance on the insurance industry, the socioeconomic climate of the country, etc (Tsintsadze & Gogoberidze, 2019).

Since 1991, the insurance market in Georgia has been operational, but clients have access to no more than 18 types of insurance products. On the world's financial markets,

approximately 100 products are used for insurance protection, and their sales are primarily driven by customer demand.

The product of professional liability insurance appears in the 2007 statistical data and is distributed in a modified form to the willing specialist. In light of the fact that the primary objective of this research is to examine professional liability insurance and identify existing issues, the situation directly relating to this product was investigated.

Since 2008, we have not maintained direct professional liability insurance. As indicated by the market analysis, all types of third-party liability insurance products were merged into a single civil liability insurance product. Legal expenses insurance, which protects judges and lawyers against third-party liability, has been marketed since, 2009, but no contracts have been signed in years.
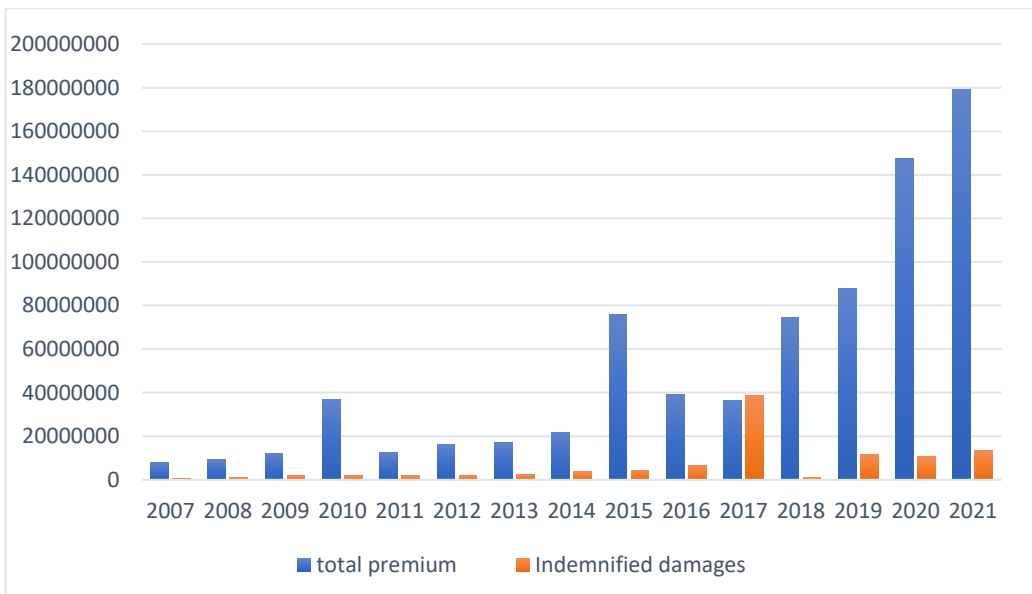


*Figure 1 Total Liability Insurance Premiums Compared to Indemnified Losses,*
*Source: State Insurance Supervision Service of Georgia, statistical indicators for the insurance market from 2007 to 2021. Author's own calculations*

The graph depicts a rise in liability insurance premiums, which indicates an increase in contracts. Is this the reason professional liability insurance in the country is in a developing stage?

According to the data, civil liability insurance related to the use of ground transportation has the largest market share, followed by civil liability insurance, which does not provide an accurate picture for evaluating professional liability insurance. Civil liability is a subject of legal regulation in two forms: delict (non-contractual) and non-delict (contractual).

Depending on the specifics of the activity to be performed, a significant portion of tortious civil liability is not insurable, whereas contractual liability, which is formed with the employer at the outset of the activity, is insurable. in This article examines these types of

insuranceTo create a complete representation (with the exception of separately existing products), an insurance portfolio (sub-portfolio) is created in the insurance company, which must ensure compliance with the principle of equivalence by the volume of insurance premiums and indemnified losses:, This ratio does not correspond to the principle of profitability of the insurance company under market conditions, but due to the high volatility of insurance premiums, it does correspond to the principle of profitability of the insurance company under market conditions. Except for 2017, when the volume of losses exceeded the volume of insurance premiums, the chart shows that liability insurance products adhere to the principle of equivalence:

$\sum \text{Total premium} = \sum \text{Total pay,}$ The ratio of income to losses appears to indicate a stable development of this segment of the market, but the development does not imply less compensation of losses, but rather an increase in premiums collected. Only the product for civil liability insurance contains this condition. Tortious liability, which does not require the signing of a contract when performing activities, is not reflected in the insurance, but motor vehicle owners' liability insurance is an insurable risk and is sold separately on the market.

The existence of a portfolio based on individual professions is unacceptable from the standpoint of maintaining the optimality of the insurance company's costs, because the absence of contracts and insurance compensation cannot ensure the financial sustainability of the portfolio or sub-portfolio; consequently, the conversion to a single portfolio on the Georgian market is due to the reduction of portfolio management costs. Before deciding which types of professional liability should be included in the civil liability insurance portfolio, it is necessary to model and forecast the growth of the liability insurance segment of the insurance market.

Integration with the banking and stock markets, as well as interaction with the production and social spheres, are essential to the development of the insurance market. Therefore, the growth of each of them is heavily dependent on the professionalism and retention of their employees. In addition to the insurance industry, there are other professions that are subject to legal liability. In this instance, professional liability insurance serves as a purely financial regulation, and legal liability applies to any errors that occur. This indicates that professional liability insurance is not a panacea, as it is constrained by the severity of the activity's consequences. The purpose of the research is not to discuss the issue of legal regulation in conjunction with professional responsibility; rather, the paper focuses on the research of the use of the compensation mechanism for damages caused by expected risks by professionals in the performance of their functions, and on forecasting the growth of this market segment by identifying problems (*Laureen Regan*, 2011).

The world's insurance industries serve as financial market stabilizers. Financial crises reduce insurance sales, but the increasing rate on the Georgian market does not indicate that the correlation between financial crises and market growth has been broken; rather, this trend is the result of an underdeveloped market. Financial crises in developing country markets stimulate the demand for liability insurance in order to avoid a double crisis, which is the emergence of a financial problem in addition to the adverse event that precipitated the country's financial crisis.

## 3. Research Methodology

In order to investigate the underdevelopment of professional liability insurance, hypotheses were developed in accordance with the purpose of the paper:

Hypothesis H0: Certain variables do not affect the annual total premium and have no effect;

Hypothesis H1: The selected variables determine the volume of the annual total premium;

To evaluate the development of the subsector, the total annual insurance premium (dependent variable - TPR) is used, with the following factors influencing it:

1. Gross domestic product, (PGDP) per capita), a socioeconomic status indicator;
2. The number of contracts signed (NC), an indicator of the growth of the liability insurance industry;
3. As an inducement to sign the contract and an indication of the insurance company's dependability, the number of losses compensated (compensation) serves as an incentive.

Since the insurance statistics do not include the types of professional liability insurance offered by individual businesses, the regression model was developed using data from general liability insurance **(**Tom Baker, 2013).

**Table 1**. Data on variables (2007-2022)

| year | TPR(lari) | NC | Compensation(lari) | GDP per capital (lari) |
|------|-----------|-----|--------------------|------------------------|
| 2007 | 7525281,00 | 15486,00 | 460767,00 | 4268,60 |
| 2008 | 6284046,00 | 17432,00 | 132812,00 | 4720,00 |
| 2009 | 12231087,00 | 76122,00 | 1794128,00 | 4941,00 |
| 2010 | 13017329,00 | 28287,00 | 1788287,00 | 5754,00 |
| 2011 | 12649284,00 | 29472,00 | 1802002,00 | 5921,00 |
| 2012 | 16372530,00 | 33656,00 | 2083369,00 | 6343,00 |
| 2013 | 17197400,00 | 44943,00 | 2370046,00 | 6578,00 |
| 2014 | 21561746,00 | 87554,00 | 3852165,00 | 6879,00 |
| 2015 | 23041672,00 | 97640,00 | 4453671,00 | 7066,00 |
| 2016 | 37585900,00 | 127012,00 | 6459840,00 | 7263,00 |
| 2017 | 27488569,00 | 136294,00 | 6421464,00 | 7624,00 |
| 2018 | 71347825,00 | 935215,00 | 7766964,00 | 11013,00 |
| 2019 | 87181378,00 | 916911,00 | 11609269,00 | 13239,00 |
| 2020 | 68038699,00 | 649047,00 | 10563835,00 | 13234,00 |
| 2021 | 76866796,00 | 946896,00 | 13681091,00 | 16179,00 |

*Source: Insurance Supervision Service of Georgia figures are the source. insurance.gov.ge*

To confirm the accuracy of the data, descriptive statistics were utilized to validate the information.

**Table 1**. Descriptive statistics

| variables | Minimum | Mean | Maximum | Standard Deviation |
|---|---|---|---|---|
| Total premium | 6284046 | 32167269 | 87181378 | 27375822 |
| | | | | |
| Number of contracts | 15486.00 | 265231.4 | 946896.0 | 363417.2 |
| | | | | |
| Indemnified damages | 132812.0 | 3111106. | 13681091 | 4200561. |
| | | | | |
| PGDP | 4268.600 | 6972.500 | 16179.00 | 3902.307 |

*Source: author's calculation*

Table №2 demonstrates that virtually all parameters exhibit significant variation. Total premiums drawn, number of contracts, and losses paid - all exhibit a substantial range of extremes and standard deviations. A 61-fold increase in the number of contracts is a positive indicator, but a 14-fold increase in the volume of premiums and a 103-fold increase in losses reduces the financial sustainability of insurance companies, as a result of which they are unable to offer liability insurance products at an acceptable price to policyholders. Another reason for the underdevelopment of responsibility is the low socioeconomic status of the population; during the past 16 years, the GDP per capita has increased by only 3.7%. The magnitude of each variable's standard deviation indicates that there may be high risks in the future, which will either improve or deteriorate the situation on the liability insurance segment's insurance market.

The Insurance Supervision Service of Georgia's annual data from 2007 to 2022 was used to achieve the research objective. Scientific studies, econometric models. A rough regression model was constructed using the selected variables:

$$\text{TPR} = a_0 + a_1\,NC + a_2\,Comp + a_3\,PGDP \qquad \text{[formula 1]}$$

Population income influences the development of liability insurance the most among the selected variables. In addition to the impossibility of determining an individual's risk, which impedes insurance decision-making, the insurance premium is still regarded as a non-refundable tax.

The selected factors are among those that influence the development of various types of liability insurance, and it is believed that the three selected main factors are common to the evaluation of all insurance products. In a nation with imperfect sectoral statistics, in-depth analysis lacks precision.

Using the Eviews program, the research was conducted. The data were initially examined for normal distribution using the Jarque-Bera test. The following conclusions were reached as a result of the regression analysis:

**Table 3**. Results of the regression model

| Dependent Variable: Y | | | | |
|---|---|---|---|---|
| Method: Least Squares | | | | |
| Date: 11/19/22   Time: 13:11 | | | | |
| Sample: 2007 2022 | | | | |
| Included observations: 16 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| X1 (NC) | 44.81180 | 7.505886 | 5.970221 | 0.0001 |
| X2 (compensation) | 2.852731 | 0.632503 | 4.510222 | 0.0007 |
| X3 (PGDP) | -140.6498 | 486.4707 | -0.289123 | 0.0474 |
| C | 7772071 | 3350943. | 2.319368 | 0.0388 |
| R-squared | 0.977965 | Mean dependent var | | 32167269 |
| Adjusted R-squared | 0.972456 | S.D. dependent var | | 27375822 |
| S.E. of regression | 4543399. | Akaike info criterion | | 33.70857 |
| Sum squared resid | 2.48E+14 | Schwarz criterion | | 33.90171 |
| Log likelihood | -265.6685 | Hannan-Quinn criter. | | 33.71846 |
| F-statistic | 177.5275 | Durbin-Watson stat | | 2.275854 |
| Prob(F-statistic) | 0.000000 | | | |

*Source: Compiled by the author*

The value of Prob. confirms that the number of contracts and the rates of compensation of losses have an effect on the amount of premiums collected, thereby reaffirming the correctness of the variable selection.

According to regression analysis, the variables have a negative correlation with GDP per capita. That is, the premium volume reduces the PGDP (peer capita GDP). This is explained as follows: if the liability insurer is the organization of the insured object, according to Georgia's tax law, the insurance premium will be deducted from the taxable income, thereby reducing the amount of funds to be allocated to the state budget. Otherwise, the GDP will not be considered to affect the total premium. The corrected regression equation appears as follows:

$$\text{TPR} = a_0 + a_1\, NC + a_2\, Comp - a_3\, PGDP \qquad \text{[formula 2]}$$

Using the multicollinearity test, the normal distribution test of the variables, and the heterostasticity test, the quality of the regression model was evaluated.

The variance inflation factor (VIF) test was used to determine multicollinearity between variables, with VIF values greater than 5 indicating critical levels of multicollinearity. In this instance, the critical limit is protected, thereby excluding multicollinearity between the variables.

**Table 4.** Variance Inflation Factors

| Variance Inflation Factors | | | |
|---|---|---|---|
| Date: 11/19/22   Time: 17:46 | | | |
| Sample: 2007 2022 | | | |
| Included observations: 16 | | | |
| | Coefficient | Uncentered | Centered |
| Variable | Variance | VIF | VIF |
| C | 1.12E+13 | 8.703468 | NA |
| X1(NC) | 56.33832 | 8.478784 | 4.406850 |
| X2 (compensation) | 0.400060 | 12.28785 | 5.029436 |
| X3(PGDP) | 236653.8 | 15.90034 | 2.618700 |

Source: Compiled by the author

The data were analyzed using Durbin Watson's criterion in order to confirm the model's suitability for no autocorrelation between the residuals.

$$4 - d_u < \text{DW} < 4\text{-}d_l \qquad \text{[formula 3]}$$

**2,27** $<$ 2.275854$<$ **3,14**

Compared to the criteria given by DW test, it was established that there is no autocorrelation between the residuals, failing to reject the null hypothesis. In turn, this verifies that the built model determines the correlations between the study variables, i.e. that the liability insurance premium is influenced by the specified elements. The standard $R^2 = 0,983614$ demonstrates that the regression model is appropriate. Based on the results of the regression analysis, one can draw a conclusion.

The Ramsey test was used to examine the functional stability of the model in order to assess the relationship between the variables in the selected time interval. According to the test data, $F_{statistic}$ (3.1150) $< F_{critical.}$(3.239). (3.239). Thus, the model's functional form has been appropriately chosen.

The Breusch-Pagan-Godfrey test for determining heteroscedasticity yielded a probability value of 0.02 as its result. If the test condition indicates that P is less than 0.05, the model assumes heteroskedasticity.

Thus, it is determined that the variables in the regression model are appropriately chosen, allowing for the formulation of suggestions regarding the condition of the liability insurance market and its future outlook. In particular, the conducted econometric analysis determined the results of the influence of the principal factors on the total insurance premium, which do not reflect the high-quality state of the insurance market; however, the test analysis revealed that the model maintains a high level of quality. The data of the model variables conforms to the pattern of growth, but the growth rate attained in 2019 has once again declined due to the pandemic. The situation regarding the development of professional liability insurance as described by the regression model is deemed imperfect due to the existence of other factors whose influence can be of higher quality, but cannot

be reflected in the model due to the difficulty in quantifying their impact. For instance, risks associated with professional liability, a professional's psychological image, and others. A conclusion can be made based on the results of the regression analysis.

## 4. Conclusions

1. The growth of liability insurance is dependent on the number of contracts.
2. Contrarily, the number of contracts depends on the situation of non-litigated settlement of losses;
3. The impact of the per capita gross domestic product can be viewed in two ways: first, the deterioration of the socioeconomic situation can serve as a motivator for professional liability insurance by allowing individuals to receive insurance protection without paying additional financial resources, and second, the improvement of the socioeconomic situation allows individuals to easily pay for the purchase of an insurance product with their own income.
4. The negative attitude established in the paper toward total premium and PGDP is illustrative for the insurance markets of developing countries. In particular, the increase in PGDP does not increase the number of people willing to purchase an insurance product; rather, it decreases it, as meeting other requirements takes precedence and the insurance principle "insurance is not about getting rich" source" is disregarded.

In conclusion, a recommendation was formulated based on the findings of the research:

1. To expand professional liability contracts, insurance firms must allocate transaction expenses for advertising the product, increasing agent compensation, selecting target audiences based on professions, and arranging meetings with underwriters.
2. Underwriters are required to produce a well-documented analysis of the risks anticipated in various professions, as well as the losses covered and the disputes filed by victims with insurance firms.
3. A mandatory form for the development of professional liability insurance should be introduced;
4. Punishment for errors made while performing professional activities should be tightened;
5. Institutions should include a professional liability insurance requirement in the employment contract.
6. Sectoral governmental circles should take responsibility for developing a professionalism assessment rule, as research has shown that the lack of a professionalism assessment mechanism, which is a necessary condition for determining a fair rate, is a barrier to the development of professional liability insurance in developing countries.

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