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Article

Insurance Market Development in Central Asia: A Comparative Panel Data Analysis of Uzbekistan and Kazakhstan

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Abstract: This study examines insurance market development in Uzbekistan and Kazakhstan over the period 2014–2025, with particular attention to the relationship between macroeconomic conditions and insurance premium growth. It focuses on two major transition economies in Central Asia and assesses how economic growth and inflation are associated with changes in insurance premiums. The analysis is based on annual panel data compiled from the World Bank, Swiss Re Institute, the International Monetary Fund (IMF), and national statistical sources. Panel regression analysis is employed, with HC1 heteroskedasticity-robust standard errors used to ensure more reliable statistical inference. The results indicate a positive and statistically significant association between GDP growth and insurance premium growth. Specifically, a one-percentage-point increase in GDP growth is associated with an average increase of approximately 4.16 percentage points in insurance premium growth. Inflation also shows a positive association with insurance market development, although its statistical significance is weaker than that of GDP growth. The comparative analysis reveals notable structural differences between the insurance markets of Uzbekistan and Kazakhstan. Kazakhstan has a relatively more developed insurance infrastructure and a higher share of life insurance, whereas Uzbekistan has experienced more rapid insurance market growth since 2016, coinciding with broader economic reforms and increased domestic economic activity. This study provides new empirical evidence on the relationship between insurance market development and economic growth in the context of Central Asian economies and offers practical recommendations for insurance market regulators.

Keywords: Insurance Market Development, Economic Growth, Inflation, Panel Data Analysis, Uzbekistan, Kazakhstan

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1. Introduction

The insurance sector plays an important role in promoting financial stability, supporting investment activity, and mitigating economic risks. In recent years, the global insurance market has undergone structural changes amid economic uncertainty, inflationary pressures, geopolitical tensions, and other sources of instability. According to the OECD Global Insurance Market Trends reports, insurance penetration and premium volumes have continued to increase in many countries despite persistent macroeconomic uncertainty [1], [2].

The relationship between economic growth and insurance market development has therefore become an important area of research. Insurance can contribute to economic activity through risk diversification, financial intermediation, capital accumulation, and investment. Ward and Zurbruegg [3] and Arena [4] identify a positive relationship between insurance activity and economic growth across developed and developing

economies, while more recent research has extended this literature through panel-data and dynamic econometric approaches [5].

The strength of this relationship, however, depends on macroeconomic conditions, institutional structures, and the level of financial market development. Evidence from developing economies suggests that insurance development is more strongly associated with economic growth when it is accompanied by improvements in economic infrastructure and financial-sector development [6]. Macroeconomic conditions also matter directly: inflation and interest-rate movements can influence the real value of insurance coverage, household demand, insurers' profitability, and the relative attractiveness of alternative financial instruments. Recent global insurance reports by Swiss Re Institute and Allianz highlight inflationary pressures and changing interest rates as important drivers of premium growth and insurance-sector performance [7], [8].

Recent empirical studies provide further evidence on these relationships. Singh, Srivastava, Malik, Yadav, and Jain [9], in a broad review of 126 empirical studies covering 96 countries, conclude that insurance market development is associated with GDP growth, investment activity, and financial stability, although the strength of the relationship varies with institutional and macroeconomic conditions. Rodriguez Gonzalez, Wegener, and Basse [10] also find evidence of a long-run relationship between insurance development and economic growth in a panel of 90 countries.

Other studies show that the insurance-growth relationship is not necessarily uniform. Mathew and Sivaraman [11] find that financial-sector development and inflation are positively associated with life-insurance demand in India, while Dawd and co-authors [12] report a threshold effect in which financial development supports economic growth only up to a certain level. Additional evidence suggests that institutional and country-specific conditions may weaken or modify the positive insurance-growth relationship [13].

Evidence from Asia and other regional settings is particularly relevant for the present study. Singhal and co-authors [14] show that the relationship between insurance development and economic growth differs across Asian regions and is influenced by economic, demographic, and institutional factors. Das S. and co-authors [15] similarly find that the relationship between insurance penetration and GDP per capita growth is not uniform across Eurozone countries. Akhter W. and co-authors [16] document differences in the composition of insurance demand across income groups, while Hemrit and Benlagha [17] demonstrate that the choice of macroeconomic measure also matters by identifying a nonlinear relationship between insurance premiums and non-oil GDP in Saudi Arabia.

Within Central Asia, Uzbekistan and Kazakhstan provide a useful comparative setting because their insurance markets have followed different development paths. Kazakhstan has relatively higher insurance penetration and a more developed insurance infrastructure, while Uzbekistan has maintained a lower ratio of insurance premiums to GDP but has experienced rapid market expansion in recent years. Despite the economic importance of these two countries, comparative econometric evidence on the determinants of insurance market growth in Uzbekistan and Kazakhstan remains limited. Most existing studies focus on global samples or broad groups of developing economies, leaving a clear regional research gap.

Accordingly, this study examines the relationship between GDP growth, inflation, and insurance premium growth in Uzbekistan and Kazakhstan over the period 2014–2025. It also compares the structural characteristics and development patterns of the two insurance markets. By combining comparative market analysis with panel-data estimation, the study seeks to provide additional empirical evidence from two emerging Central Asian economies and to offer practical insights for policymakers, insurance regulators, and financial-market participants.

2. Materials and Method

This study employs a comparative panel data approach to examine the relationship between economic growth and insurance market development in Uzbekistan and Kazakhstan. The analysis focuses on the structure and development trends of the insurance markets in both countries. It also seeks to identify the key macroeconomic determinants of insurance market development and to assess how GDP growth and inflation are associated with insurance sector growth in Uzbekistan and Kazakhstan.

The study uses annual panel data for Uzbekistan and Kazakhstan covering the period from 2014 to 2025. The sample size and study period were determined by data availability. GDP growth (annual %) represents the annual percentage change in real GDP and is used as one of the macroeconomic variables associated with insurance market growth. Data on GDP growth and inflation were obtained from the World Bank [18]. Since the World Bank had not yet published the corresponding data for 2025, official national statistical sources were used for both countries for that year.

Data on insurance premiums and premium growth were obtained from the respective insurance regulatory authorities of Uzbekistan and Kazakhstan. Additional data used in the analysis were compiled from several international and national sources, including the World Bank, Swiss Re Institute, the International Monetary Fund (IMF), and the official statistical agencies of Uzbekistan and Kazakhstan.

The dependent variable in the model is insurance market growth, measured by the annual growth rate of insurance premiums. The initial specification included GDP growth, inflation, interest rates, population growth, and broad money as explanatory variables. However, the interest rate variable was excluded from the final specification because of multicollinearity with inflation. Population growth and broad money were also excluded because they were not statistically significant in the preliminary estimations.

To assess the relationship between economic growth and insurance market development, the following econometric model was estimated:

$$Insurance\ Growth_{it}=\beta_0+\beta_1 GDP\ Growth_{it}+\beta_2 Inflation_{it}+\varepsilon_{it}$$

where:

Insurance Growth$_{it}$ — the annual growth rate of insurance premiums in country *i* in year *t*;

GDP Growth$_{it}$ — the annual GDP growth rate in country *i* in year *t*;

Inflation$_{it}$ — the inflation rate in country *i* in year *t*;

ε_{it} — the error term.

Panel data analysis was employed because it allows cross-country and time-series variation to be examined simultaneously. Compared with purely time-series or cross-sectional approaches, panel data can improve the efficiency of econometric estimation and provide a more informative assessment of macroeconomic relationships. Similar panel data approaches have been widely applied in recent studies examining the relationship between insurance development and economic growth [5], [12], [19].

A correlation matrix and Variance Inflation Factor (VIF) were used to assess the relationships among the explanatory variables and to detect potential multicollinearity [20], [21]. The results indicate that severe multicollinearity is not a concern in the final model specification.

In addition, the model was re-estimated using HC1 heteroskedasticity-robust standard errors to account for potential heteroskedasticity and provide more reliable statistical inference [22], [21]. The main regression results remained broadly robust after this adjustment, with GDP growth retaining its statistical significance, while inflation remained positive but showed weaker statistical significance.

In addition, a country dummy variable was included in the model to account for country-specific structural differences between Uzbekistan and Kazakhstan. The dummy variable takes a value of 1 for Kazakhstan and 0 for Uzbekistan. This specification makes it possible to examine whether structural and institutional differences between the two

countries are associated with systematic differences in insurance premium growth [23], [24].

The study is subject to several methodological limitations. Since the panel dataset covers only two countries over a relatively short period, the scope for applying more sophisticated dynamic panel estimation techniques is limited [24], [25]. Nevertheless, the selected methodology provides useful empirical evidence on the relationship between insurance market development and economic growth in two emerging Central Asian economies.

3. Results

To compare the insurance markets of Uzbekistan and Kazakhstan, it is useful to first consider the key similarities and differences between their economies. The two countries share a broadly similar historical background, having both undergone a gradual transition from centrally planned to market-oriented economies. They also share certain geographical characteristics, including the absence of direct access to the open sea, which contributes to relatively high transportation and logistics costs. The table below presents selected economic indicators for the two countries.

Table 1. Selected Economic Indicators of Kazakhstan and Uzbekistan

Indicator	Kazakhstan	Uzbekistan
Development model	Export-oriented, primarily based on raw materials	Domestic market- and export-oriented
GDP (USD billion)	291,50	115,00
GDP per capita (USD)	14 154,60	3 161,70
GDP growth (%)	5,00	6,50
Exports as a share of GDP (%)	34,51	24,42
Insurance penetration (% of GDP)	1,20	0,67
Population (million)	20,59	36,36

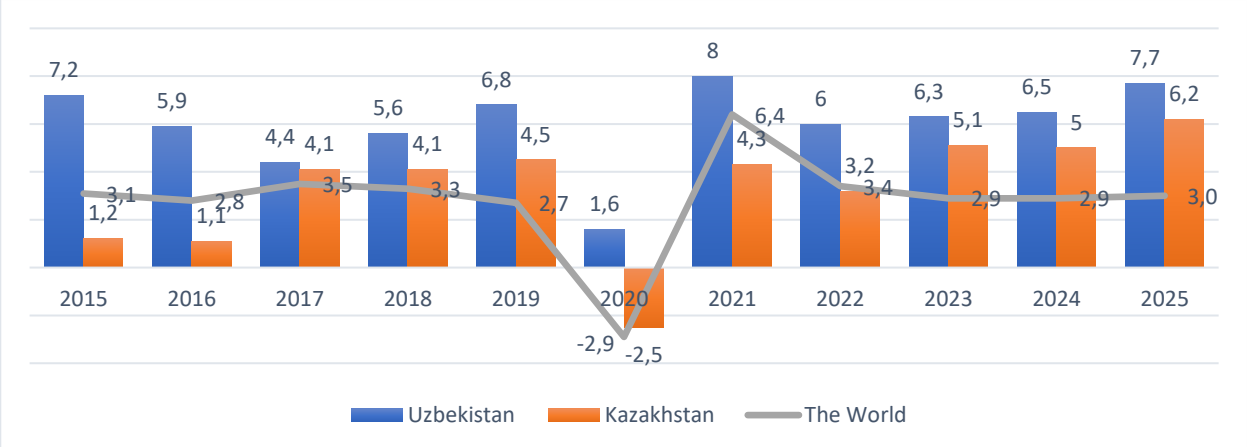


Figure 1. GDP Growth Rate (%)
Source: Authors' compilation based on World Bank data. The 2025 global GDP growth rate is based on the World Bank forecast.

As shown in Figure 1, the annual GDP growth rates of Kazakhstan and Uzbekistan are presented alongside global GDP growth. Kazakhstan's economic growth generally followed a pattern similar to that of the global economy, although its growth rate was higher than the global average in some years and lower in others. The economic downturn caused by the COVID-19 pandemic in 2020 was also reflected in Kazakhstan. While global GDP contracted by 2.9% in 2020, Kazakhstan recorded a contraction of 2.5%. This sensitivity to global economic conditions may partly reflect the relatively high share of exports in Kazakhstan's economy and its dependence on external markets and commodity exports.

In contrast, Uzbekistan maintained GDP growth rates above the global average throughout the period under review. Even in 2020, when the global economy contracted sharply because of the COVID-19 pandemic, Uzbekistan recorded positive GDP growth of 1.6%. This relative resilience may be associated with the structure of the Uzbek economy and the greater role of domestic demand, which may have reduced its exposure to the immediate effects of the global downturn.

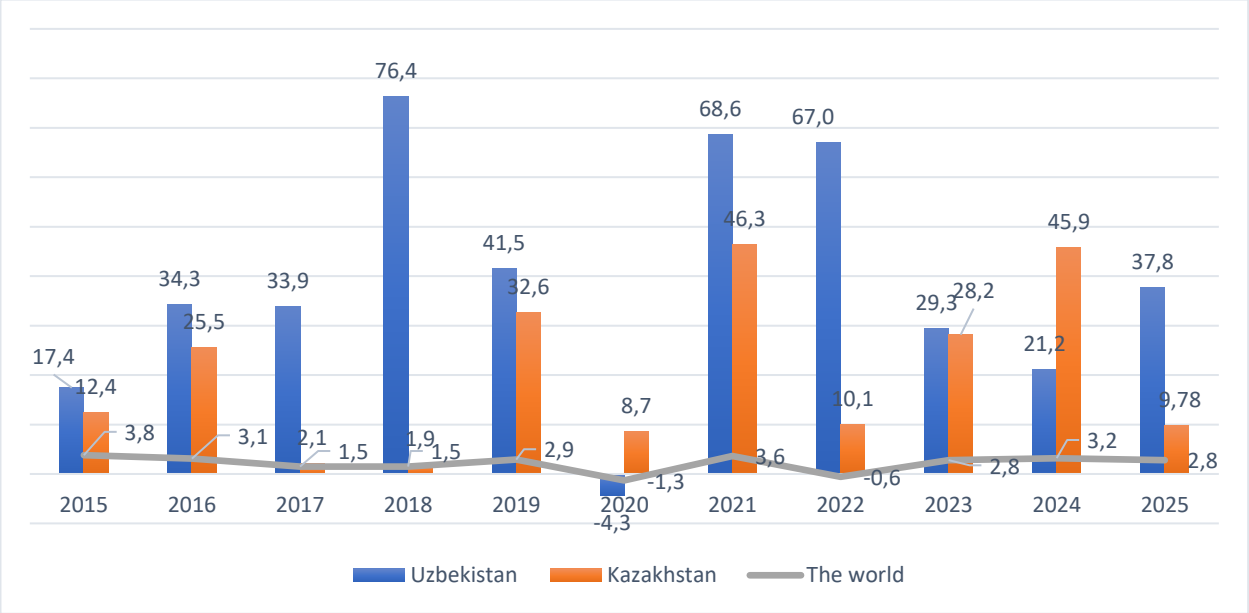


Figure 2. Growth Rate of Insurance Premiums (%)

Note: *The global insurance premium growth rate for 2025 is based on the Swiss Re Institute forecast.*

Uzbekistan and Kazakhstan are the two largest economies in Central Asia, together accounting for approximately 83% of the region's total GDP. They are also home to around 69.2% of Central Asia's population. In both countries, the insurance market is developing into an increasingly important segment of the financial system and is viewed as a mechanism for supporting economic growth, financial stability, and investment activity.

Figure 2 presents the growth rates of insurance premiums in Uzbekistan and Kazakhstan compared with the global insurance market. The data show that insurance premium growth in both countries has generally exceeded the global rate. This relatively rapid growth may partly reflect the lower level of insurance market development in these economies, particularly their relatively low insurance penetration. As a result, both markets have considerable room for further expansion as insurance coverage and demand continue to develop.

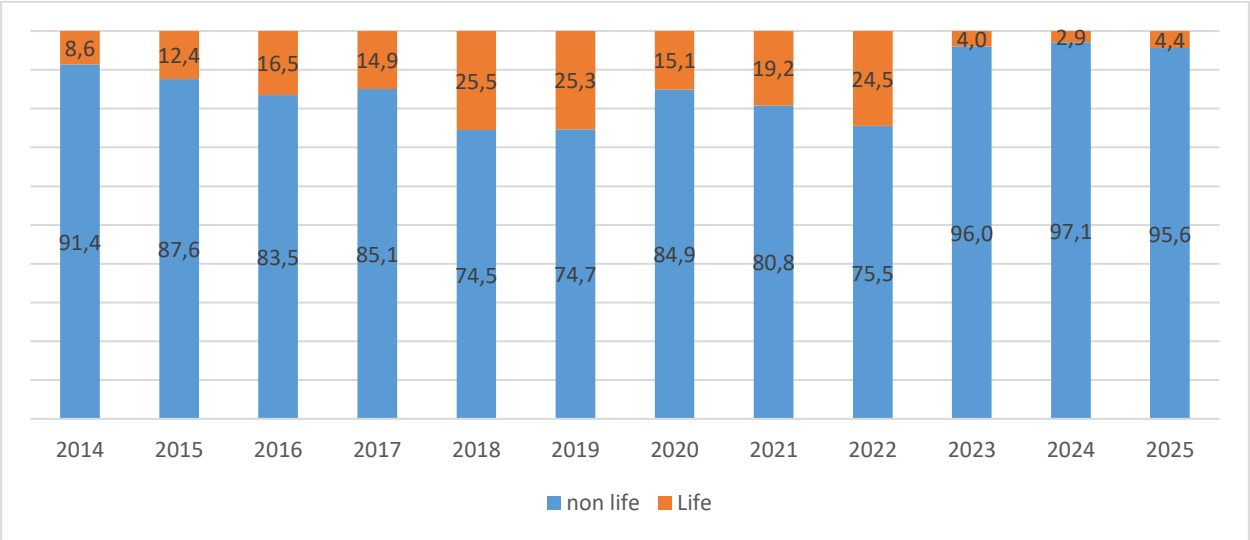


Figure 3. Composition of Insurance Premiums in Uzbekistan (%)

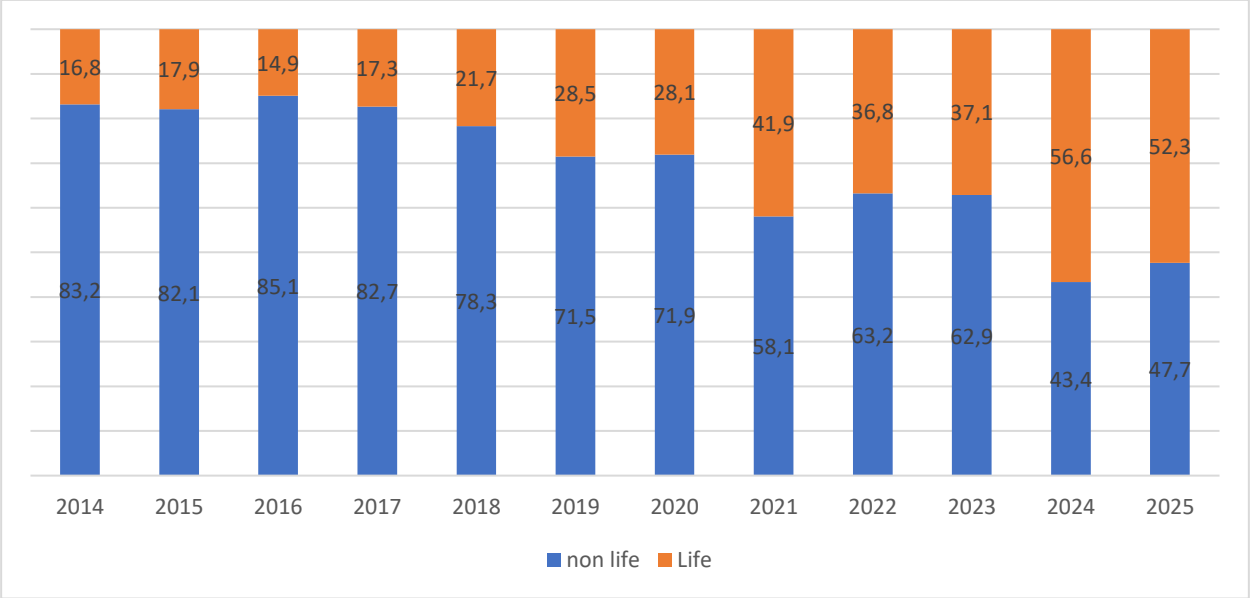


Figure 4. Composition of Insurance Premiums in Kazakhstan (%)

Figures 3 and 4 illustrate the composition of insurance premiums in Uzbekistan and Kazakhstan over the past 12 years. The figures reveal substantial differences in the structure of the insurance markets in the two countries. In Kazakhstan, life insurance accounts for a significant share of total insurance premiums, reaching 52.3% in 2025, although its share has fluctuated over the period under review. A particularly sharp increase was recorded in 2024, when life insurance premiums grew by 52.4% in absolute terms. As a result, the share of life insurance in total premiums rose from 37.1% to a record 56.6%.

The structure of Uzbekistan's insurance market differs considerably from that of Kazakhstan. Between 2014 and 2022, the share of life insurance in total insurance premiums increased from 8.6% to 24.5%. However, this share fell sharply to 4.0% in 2023 and declined further to 2.9% in 2024. Until 2022, Uzbekistan provided a tax incentive under which funds allocated by individuals to life insurance were exempt from personal income tax. Following the removal of this incentive, the life insurance segment experienced a substantial decline.

More broadly, the considerably higher share of life insurance in Kazakhstan may partly be associated with its higher income levels. In 2024, GDP per capita amounted to

USD 3,161.7 in Uzbekistan, compared with USD 14,154.6 in Kazakhstan. Thus, Kazakhstan's GDP per capita was approximately 4.48 times that of Uzbekistan, indicating a substantial income gap between the two countries. Figure 5 presents the dynamics of GDP per capita in Kazakhstan and Uzbekistan over the period 2015–2025.

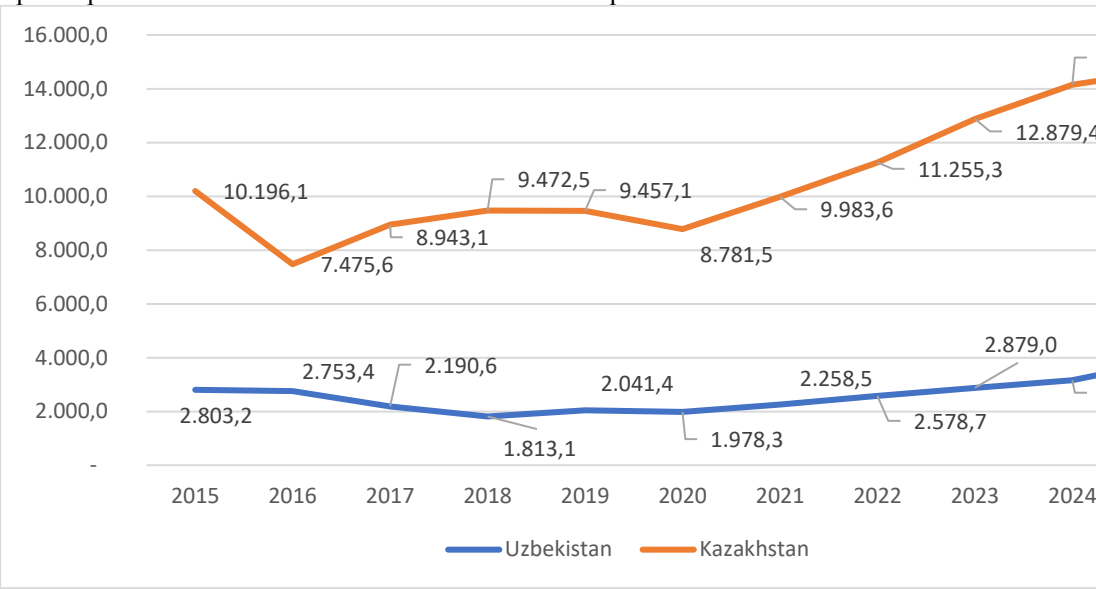


Figure 5. GDP per Capita in Kazakhstan and Uzbekistan (Current US$)

An econometric model was developed to examine the relationship between GDP growth and insurance premium growth in Kazakhstan and Uzbekistan. In addition to GDP growth, the initial model specification included several macroeconomic variables, namely inflation, the policy interest rate, population growth, and broad money. However, the interest rate was excluded from the final specification because of multicollinearity with inflation. Population growth and broad money were also removed because they were not statistically significant in the preliminary estimations. Table 2 presents the panel data used in the final model for the period 2014–2025.

Table 2. Panel Data Used in the Econometric Model

Country	years	Insurance growth	GDP growth	inflation
Uzbekistan	2014	29,9	6,9	9,3
Uzbekistan	2015	17,4	7,2	8,8
Uzbekistan	2016	34,3	5,9	8,1
Uzbekistan	2017	33,9	4,4	13,9
Uzbekistan	2018	76,4	5,6	17,5
Uzbekistan	2019	41,5	6,8	14,5
Uzbekistan	2020	-4,3	1,6	12,9
Uzbekistan	2021	68,6	8	10,8
Uzbekistan	2022	67,0	6	11,4
Uzbekistan	2023	29,3	6,3	10
Uzbekistan	2024	21,2	6,5	9,6
Uzbekistan	2025	37,8	7,7	7,3
Kazakhstan	2014	3,6	4,2	6,8
Kazakhstan	2015	8,5	1,2	6,7
Kazakhstan	2016	26,7	1,1	14,4
Kazakhstan	2017	3,1	4,1	7,4
Kazakhstan	2018	1,0	4,1	6,2
Kazakhstan	2019	19,2	4,5	5,3
Kazakhstan	2020	9,5	-2,5	6,7
Kazakhstan	2021	37,3	4,3	8

Kazakhstan	2022	12,2	3,2	15
Kazakhstan	2023	25,5	5,1	14,5
Kazakhstan	2024	52,7	5	8,7
Kazakhstan	2025	9,8	6,2	10,5

Table 3 presents the correlation matrix for the variables included in the model. The correlation between insurance premium growth and GDP growth is moderate and positive (r = 0.4933), indicating that higher GDP growth tends to be associated with higher insurance premium growth in Uzbekistan and Kazakhstan. Inflation also shows a moderate positive correlation with insurance premium growth, although its relationship with GDP growth is relatively weak. The positive correlation between inflation and insurance premium growth may partly reflect increases in the nominal value of insurance premiums during periods of rising prices.

The correlation between GDP growth and inflation is very low (r = 0.0847), suggesting that multicollinearity between the two explanatory variables is unlikely to be a concern. To further assess potential multicollinearity, the Variance Inflation Factor (VIF) was calculated. The VIF value of 1.0072 provides additional evidence that multicollinearity is not a concern in the final model specification.

Table 3. Correlation Matrix

Variables	Insurance growth	GDP growth	Inflation
Insurance growth	1,0000	0,4933	0,3962
GDP growth	0,4933	1,0000	0,0847
Inflation	0,3962	0,0847	1,0000

Table 4 presents the estimation results of the econometric model. The findings indicate that GDP growth is positively associated with insurance premium growth and is statistically significant ($p < 0.05$). Inflation also has a positive association with insurance premium growth, although its statistical significance is weaker than that of GDP growth. This positive relationship may partly reflect the increase in the nominal value of insurance premiums during periods of higher inflation.

The estimated model can be expressed as follows:

$$\textbf{Insurance Growth}_{it} = -15{,}75_0 + 4{,}16_1 \textbf{GDPGrowth}_{it} + 2{,}33_2 \textbf{Inflation}_{it} + \varepsilon_{it}$$

Table 4. Econometric Model Estimation Results

Variable	Coefficient	Std. Error	t-stat	p-value
const	-15,75	13,68	-1,15	0,26
GDP growth	4,16	1,56	2,66	0,01
Inflation	2,33	1,13	2,05	0,05

To assess and improve the reliability of the econometric estimates, the model was re-estimated using HC1 heteroskedasticity-robust standard errors. Table 5 presents the results of this robustness check. GDP growth remains statistically significant at the 5% level after the adjustment, supporting the robustness of the positive association between economic growth and insurance premium growth identified in the baseline model.

Inflation also retains a positive coefficient and remains marginally significant at the 10% level. Overall, the results suggest that the main findings are robust to potential heteroskedasticity, particularly with respect to the relationship between GDP growth and insurance premium growth.

Table 5. OLS Regression Results with HC1 Robust Standard Errors

Variable	Coefficient	HC1 Robust SE	Robust t-stat	Robust p-value
const	-15,75	13,62	-1,16	0,26
GDP growth	4,16	1,59	2,61	0,02
Inflation	2,33	1,15	2,02	0,06

To examine whether differences in economic structure and other country-specific characteristics affect the model estimates, a country dummy variable was added to the specification. The results are presented in Table 6. The Kazakhstan dummy takes a value of 1 for Kazakhstan and 0 for Uzbekistan, allowing the model to account for systematic country-specific differences in insurance premium growth.

After introducing the country dummy, the coefficients on GDP growth and inflation remain positive, although their statistical significance is weaker than in the baseline model. The coefficient on the Kazakhstan dummy is negative, but it is statistically insignificant. Therefore, the results do not provide sufficient statistical evidence of a systematic difference in insurance premium growth between Kazakhstan and Uzbekistan after controlling for GDP growth and inflation. The relatively short time dimension of the panel may also contribute to the lower precision of the estimates in this specification.

Table 6. Econometric Estimation Results with a Country Dummy Variable

Variable	Coefficient	Std. Error	t-stat	p-value	95% CI Low	95% CI High
const	-5,41	19,46	-0,28	0,78	-45,99	35,18
GDP growth	3,34	1,91	1,75	0,1	-0,65	7,33
Inflation	2,05	1,2	1,7	0,1	-0,47	4,56
Kazakhstan dummy	-7,24	9,58	-0,76	0,46	-27,22	12,75

4. Discussion

Uzbekistan and Kazakhstan are the largest economies in Central Asia and together account for the majority of the region's GDP. Examining the macroeconomic factors associated with insurance market development in these countries is therefore relevant from both academic and practical perspectives. Despite differences in the structure and development patterns of their insurance markets, insurance premium growth in both countries has generally exceeded the global rate. This can partly be explained by the tendency of financial markets, including insurance markets, to expand more rapidly in emerging economies where the sector is still developing and has greater room for growth. Similar patterns have also been highlighted in reports published by the Swiss Re Institute [6].

One of the most notable differences between the insurance markets of Kazakhstan and Uzbekistan is their composition. Life insurance accounts for a considerably larger share of total insurance premiums in Kazakhstan than in Uzbekistan. This difference may partly be associated with higher household income levels in Kazakhstan. Since life insurance is generally purchased after more immediate household needs have been met, demand for such products tends to increase as disposable income rises. Kristio Rapi and co-authors [26] identify household income as one of the key determinants of life insurance demand, with the relationship being particularly pronounced in developing economies. Similarly, Philipp Charner and co-authors [27] argue that as economies become wealthier, households tend to allocate a larger share of their income to life insurance.

The econometric results indicate that GDP growth is one of the key determinants of insurance market development. According to the regression estimates, a one-percentage-point increase in GDP growth is associated with an approximately 4.16-percentage-point increase in insurance premium growth. Economic growth may arise through several channels, including business expansion, higher levels of credit and investment, and

stronger international economic activity. As an economy expands, existing firms tend to grow, new businesses emerge, and access to financing increases. Economic growth is also typically accompanied by the development of financial markets and rising household incomes.

These developments increase the need for effective risk management among both businesses and households, which in turn can strengthen demand for insurance products and support the expansion of the insurance market. This mechanism may be particularly relevant in developing economies, where insurance penetration remains considerably below global levels and therefore leaves greater scope for market expansion alongside economic growth. The findings are consistent with reports by international organizations. In particular, Swiss Re Institute [6] and Allianz [7] identify economic growth and increasing demand for risk protection as important drivers of insurance market expansion.

The results suggest that Uzbekistan's relatively strong economic growth has been closely associated with the rapid expansion of its insurance market. Both GDP growth and insurance premium growth have also shown a relatively stable pattern over the period under review. Notably, Uzbekistan maintained positive economic growth even during the COVID-19 pandemic, when the global economy contracted. This resilience may partly be related to the diversified structure of the economy and the relatively important role of domestic demand. The insurance market has similarly continued to expand without the sharp fluctuations observed in some other markets.

The acceleration of insurance market development in Uzbekistan after 2016 also coincided with a broader period of economic reforms. The expansion of international economic relations, improvements in the business environment, and increasing investment activity may have further supported demand for insurance services. The International Monetary Fund [28] notes that Uzbekistan's macroeconomic performance has remained relatively strong and projects continued economic growth in the coming years. In light of the empirical results of this study, sustained economic growth may therefore provide favorable conditions for further expansion of the country's insurance market.

Kazakhstan's relatively high exposure to external markets has contributed to greater volatility in GDP growth, which may also be reflected in fluctuations in insurance market growth. When the Kazakhstan country dummy was introduced into the econometric model, its coefficient was negative, suggesting slower insurance premium growth relative to Uzbekistan. However, the coefficient was not statistically significant, and therefore the model does not provide sufficient evidence of a systematic country-specific difference in insurance premium growth after controlling for GDP growth and inflation.

At the same time, Kazakhstan has a more mature insurance market than Uzbekistan, with a higher level of insurance penetration. This may partly explain the difference in observed growth rates, as more mature insurance markets generally have less scope for rapid expansion. This interpretation is consistent with the findings of Giovanni Millo [29], who suggests that insurance market growth tends to moderate as markets become more developed.

Institutional factors may also play an important role. Differences in insurance market infrastructure, regulatory frameworks, and supervisory arrangements can influence the development of the sector. An effective regulatory environment can support market growth by promoting competition, protecting policyholders, and maintaining appropriate conditions for insurers. This argument is consistent with the findings of Maheswaran Srinivasan and Subrata Mitra [30]. During the period under review, Uzbekistan implemented a number of reforms aimed at developing a more competitive and market-oriented insurance sector, with particular attention to digitalization, consumer protection, and broader investment opportunities for insurers. These reforms may have contributed to the relatively rapid expansion of Uzbekistan's insurance market.

The econometric results also indicate a positive association between inflation and insurance premium growth, although the statistical significance of this relationship is weaker than that of GDP growth. This finding is noteworthy because inflation is generally expected to have an adverse effect on insurance demand. In the life insurance segment in particular, periods of high inflation may encourage consumers to seek alternative investment instruments rather than allocate funds to insurance products.

The positive coefficient observed in the model may partly reflect the nominal effect of inflation on insurance premiums in developing economies, where rising prices can increase the nominal value of insured assets and, consequently, the premiums charged for insurance coverage. At the same time, persistently high inflation may adversely affect insurers' investment returns and financial stability over the longer term. The relationship between inflation and insurance market development may therefore operate through different channels and need not be uniformly positive. Saeed Sazzad Jeris and co-authors [31], for example, report a negative relationship between inflation and insurance market development. In this respect, the findings of the present study differ from some of the existing empirical evidence.

The correlation matrix and VIF results indicate that multicollinearity is not a concern in the final model specification. This reduces the risk of inflated standard errors arising from strong linear relationships among the explanatory variables and supports more stable estimation of the regression coefficients.

The main findings remained broadly unchanged when the model was re-estimated using HC1 heteroskedasticity-robust standard errors. GDP growth remained statistically significant at the 5% level, providing further support for the robustness of the baseline results. This suggests that the observed association between GDP growth and insurance premium growth is not driven by potential heteroskedasticity in the error terms. Inflation also retained a positive coefficient, although its statistical significance remained weaker than that of GDP growth.

The inclusion of the Kazakhstan country dummy allowed country-specific differences to be examined more explicitly. The estimated coefficient on the Kazakhstan dummy was negative, indicating a lower estimated rate of insurance premium growth relative to Uzbekistan. However, the coefficient was statistically insignificant. Therefore, the results do not provide sufficient evidence of a systematic country-specific difference in insurance premium growth after controlling for GDP growth and inflation.

These findings should be interpreted in light of the limitations of the dataset. The panel covers only two countries over a relatively short period, limiting the number of explanatory variables that can be included without reducing the reliability of the estimates. Several additional variables, including the interest rate, population growth, broad money, and insurance penetration, were considered during the model specification process. Some were statistically insignificant in the preliminary estimations, while others raised multicollinearity concerns. The final specification was therefore restricted to GDP growth and inflation as the principal explanatory variables.

Overall, the findings confirm a positive association between economic growth and insurance market development. Given that the insurance markets of Uzbekistan and Kazakhstan are still developing, GDP growth appears to be an important factor associated with the expansion of the insurance sector. In this context, further economic diversification, maintaining price stability, and continuing institutional reforms in the financial sector, particularly in the insurance market, may create more favorable conditions for sustainable insurance market development.

5. Conclusion

The review of the existing literature indicates that comparative research on insurance market development in Central Asia, particularly in Uzbekistan and Kazakhstan, remains limited. Given that these two countries account for a substantial share of the region's

population and economic output, a comparative analysis of their insurance markets is particularly relevant. This study therefore seeks to contribute to the literature by providing empirical evidence from two major Central Asian economies.

In addition to macroeconomic factors such as GDP growth and inflation, the study considers differences in economic structure, insurance market composition, and institutional conditions when interpreting insurance market development trends. Particular attention is given to the period of economic reforms in Uzbekistan since 2016, which remains relatively underexplored in the insurance economics literature.

The results confirm that economic growth is one of the key determinants of insurance market development. The regression estimates show a positive association between GDP growth and insurance premium growth. This finding is consistent with the *insurance–growth nexus* and the *demand-following hypothesis*, according to which stronger economic activity generates greater demand for insurance services.

The findings further suggest that economic growth is strongly associated with insurance premium growth in the two emerging Central Asian economies examined in this study. Since insurance penetration in both Uzbekistan and Kazakhstan remains below the global average, their insurance markets still have considerable room for expansion. As economic activity increases, rising demand for risk protection and insurance services may therefore support relatively rapid growth of the insurance sector.

The study also reveals notable differences in the development patterns of the insurance markets in Uzbekistan and Kazakhstan. Kazakhstan has a relatively more mature insurance market and a higher level of insurance penetration, while life insurance accounts for a substantially larger share of total premiums than in Uzbekistan. As insurance markets mature, their growth rates tend to moderate, which may partly explain why insurance premium growth in Kazakhstan has been slower than in Uzbekistan. The acceleration of Uzbekistan's insurance market after 2016 coincided with broader economic reforms, financial liberalization, and increasing external economic activity. These developments suggest that emerging insurance markets may retain considerable growth potential while insurance penetration remains relatively low.

The econometric results also show a positive association between inflation and insurance premium growth, although this relationship is statistically weaker than that observed for GDP growth. In the short run, inflation may contribute to higher nominal insurance premiums as the value of insured assets and the cost of coverage increase. Over the longer term, however, persistently high inflation may adversely affect insurers' investment returns, asset management, and financial stability.

The findings also have important practical implications for economic policymakers. Further development of the insurance sector requires continued economic diversification, institutional reforms in financial markets, improvements in the regulatory framework, and the maintenance of macroeconomic stability. Expanding digitalization across the financial and insurance sectors, broadening the range of investment instruments available to insurers, and strengthening institutional mechanisms for consumer protection may also contribute to the sustainable development of the insurance market.

This study is subject to several limitations. First, the analysis covers only two countries, resulting in a relatively small panel dataset. Second, several potentially relevant factors, including the level of financial development, interest rates, and insurance penetration, are not included in the final model. Future research could extend the country sample, incorporate additional macroeconomic and institutional variables, and apply dynamic panel, threshold, and nonlinear econometric models. Such extensions would provide a more comprehensive understanding of the relationship between economic growth and insurance market development.

Overall, the findings suggest that the sustainable long-term development of insurance markets in emerging economies such as Uzbekistan and Kazakhstan depends not only on

favorable macroeconomic conditions but also on the continued implementation of institutional and financial sector reforms.

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