Exploresearch ISSN:3048-815X(Online) Vol. 02, No. 03, July-September, 2025, 01-09

Original Article | **Peer Reviewed** | **Open Access**

Exploresearch

Impact Factor: 6.262

www.mgmpublications.com

Indian Insurance Sector: Trends and Relation with Economic Growth

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***Citation**: Sharma, A., Kumar, M., & Kumar, S. (2025). Indian Insurance Sector: Trends and Relation with Economic Growth. Exploresearch, 02(03), 1–9. https://doi.org/10.62823/exre/2025/02/03.78*

Article History:

Received: 08 July 2025
Accepted: 25 July 2025
Published: 02 August 2025

Keywords:

Indian Insurance Sector; Economic Growth; Insurance Penetration; Insurance Density; Financial Intermediation; Insurance Participation.

***JEL Codes:** G22, O16, E44*

Abstract: *The Indian insurance sector has witnessed significant transformation over the past two decades, particularly after liberalization in 2000, which introduced private players and foreign investments. The study examines the performance of the insurance sector in India and its relationship with economic growth from 2001 to 2023. Using secondary data and an econometric approach, we analyze the impact of insurance sector performance on economic growth. Insurance penetration and insurance density are used as proxies for insurance sector performance, and Gross domestic product (GDP) per capita is used as a proxy for economic growth. The data related to insurance penetration and insurance density has been compiled from the Handbook on Indian Insurance Statistics, IRDAI, and the data related to GDP per capita was extracted from the World Bank. The findings suggest a complex interaction. While higher insurance penetration appears to exert a lagged negative impact on GDP growth, insurance density positively contributes to economic expansion. The results emphasize the role of the insurance sector as a financial intermediary, facilitating risk management, capital formation, and investment mobilization. However, structural and regulatory challenges persist, limiting the sector's full potential. The study underscores the need for balanced sectoral development, policy interventions, and increased financial literacy to enhance insurance participation and optimize its contribution to economic growth.*

Introduction

The objective of this paper is to examine the performance of the Indian insurance sector and the potentially existing causal relationship between the growth of the Indian insurance sector and the economic performance of India. The financial sector plays a crucial role in the economic development of a country. Most of the studies related to financial performance are based on banking and stock markets (Han et al., 2010). Provided that the growth of the insurance market has a significant potential for the creation of productive capital within an economy, lack of literature available on the role of the insurance sector. The insurance sector benefits economies in terms of size, employment, managed assets, and other aspects. Insurance also plays a critical role in enabling numerous economic activities in

contemporary society (Han et al., 2010**)**. According to (Skipper, 1997) insurance promotes the economy by providing economic stability and reducing anxiety. By managing risk, insurance also facilitates trade and commerce. The insurance sector influences an economy by providing risk transfer and indemnification services and acting as a financial mediator (Ward & Zurbruegg, 2000). Insurance services, therefore have the potential to have a major positive economic impact. The broader economic advantages of insurance are influenced by national regulations, economic systems, and cultural factors. Therefore, it is suggested that the relationship between insurance and economic growth should be analyzed individually for each country (Ward & Zurbruegg, 2000).

Despite the seeming scarcity of literature on the role of insurance, Outreville's work stands out for highlighting connections between an economy's financial development and the development of its insurance market. But there are still some issues that need to be addressed. One of the issues is that most of the studies in the past focused on the demand side of the relationship (Outreville, 2013). The performance of the insurance sector depends on various behavioral, cultural and regulatory conditions of a country. This study, therefore examines how the changes in the conditions of a national environment impact the insurance sector's performance from 2001 to 2024. Besides that, this study also examines the relationship between insurance sector performance and economic growth.

Literature Review

The insurance sector has emerged as a significant driver of economic growth across various economies, with its impact manifesting through multiple channels. In India, research demonstrates that the insurance industry plays a multifaceted role by promoting financial stability, encouraging savings and investments, generating employment opportunities, and supporting infrastructure development, despite facing challenges of low penetration rates (Panchal & Rao, 2024). Studies that investigate the relationship between insurance sector development and economic growth provide a complex interaction (Verma & Bala, 2013). While short-term impacts of life and non-life insurance premiums on economic growth show mixed results in Nigeria, on the other hand, long-term analysis shows a significant positive influence, particularly in the non-life insurance segment. This finding emphasizes the need for product diversification to enhance market participation (Dada et al., 2023). Research across different geographical contexts provides compelling evidence of the insurance-growth nexus. In ASEAN countries, particularly Malaysia and Singapore, studies demonstrate a bidirectional causal relationship between insurance market penetration and economic growth, highlighting the sector's pivotal role in fostering economic development (Pradhan et al., 2015). Similarly, in Nepal, research indicates that the non-life insurance sector positively impacts GDP through investments and tax contributions, although high premiums can impose certain economic costs (Upadhyaya et al., 2024).

A distinctive feature appears in the relationship between insurance development and economic growth, characterized by a non-linear, inverted U-shaped relationship between insurance premiums and growth. Findings of the research suggest that while increased insurance penetration can promote economic growth, excessive expansion of the sector may potentially hinder it (Dawd & Benlagha, 2023). The finding underscores the importance of balanced sector development. Country-specific studies provide further insights into regional variations. In Ghana, research reveals a positive relationship between both life and non-life insurance and sectoral growth in both short and long terms, with non-life insurance showing particularly strong contributions to the service sector (Sare et al., 2023). The situation is contrary in Kosovo, where the analysis shows gross written premiums having a positive effect on GDP growth, although modest (Baruti, 2022). The Indian context shows a great deal of wealth concerning insights. Studies focused on the post-liberalization period confirm that both life insurance penetration and density ensure the stimulation of long-term economic growth. One way causality from the insurance sector growth to economic growth was also established by research, implying that insurance sector growth translates itself into economic growth and that economic growth may not supplement insurance sector growth (Kumar et al., 2020). Improving efficiency, productivity, and employment generation in the insurance sector would lead to economic development (Mishra & Mir, 2019). Cross-country assessments would ascertain that the nature and the degree of impact of insurance development on economic growth depend, among other factors, on the initial income levels of each country and its geographical location. The impact of insurance development on economic growth is often indirect, mediated through insurers' investment performance and their interconnectedness with the banking sector (Lee et al., 2022). The impact of insurance on economic development is conditional on the extent and strength of the financial system as a whole (Etale & Edoumiekumo, 2020). While a robust life insurance market usually brings

economic growth, the degree to which this happens varies depending on local determinants. Some indicators of a good economy, such as high saving rates or well-developed stock markets, may be detrimental to the gains brought by the life insurance markets (Chen et al., 2012).

Analysis of trends in Indian insurance industry and its association with growth in the economy will play a significant role. It is a critical area of research with far-reaching implications. The evolution of the insurance sector in India, which had gone through extensive reforms and liberalization, is indicative of the transformation that the industry is undergoing, moving from state monopoly to competitive market environment. It helps forecast new trends in consumption behavior, product design and innovation, distribution channels, and market penetration levels-important elements in understanding how this industry's movement develops (Kumar et al., 2019). Further, the above study about the insurance industry and economic growth essentially holds greater relevance in an Indian perspective, as this sector, apart from risk management, serves many more functions in a developing economy. The role of the insurance sector in acting as an important financial intermediary-in mobilizing savings into long-term investments and thereby contributing to the growth of capital markets-has been established by Pradhan et al. (2017). The dual analysis of trends in the insurance industry and their relationship to economic growth is very relevant academically, as it fills a gap in the existing financial literature.

Composition of the Indian insurance Sector

- **Pre-Liberalization Period (Before 2000)**

Before 2000, the Indian insurance sector operated under a state-controlled monopoly. The Life Insurance Corporation of India (LIC) was the sole provider of life insurance, while the General Insurance Corporation (GIC) and its four subsidiaries controlled the non-life insurance market. In that period, limited insurance products were offered, with traditional insurance plans and minimal innovation. The sector's growth was sluggish due to a lack of competition, limited consumer awareness, and restricted accessibility. In 1999, insurance penetration was very low, standing at approximately 1.93 percent. Similarly, insurance density was also very low, indicating low insurance adoption among the population.

- **Post-Liberalization Growth (2000-2010)**

Insurance Regulatory and Development Authority of India (IRDAI) was established in 1999. IRDAI was set up as a part of the liberalization of the economy. In 2000, India's insurance industry took off with the entry of new private-sector businesses. India first opened up the insurance market to private businesses in 2000, with a 26 percent FDI cap. This was raised to 49 percent in 2014 and then to 74 percent in the Union Budget (Feb 2021). In the non-life insurance business, the market share of private enterprises increased from 15 percent in 2004 to 62 percent in financial year 2023. The Indian insurance industry faces fierce competition from private insurers such as HDFC, ICICI, and SBI which offer both life and non-life policies. It helps in catering to a broader range of consumer needs through diversification of products such as unit-linked insurance plans (ULIPs), term insurance, and health insurance.

- **Maturation and Technological Evolution (2010-Present)**

The Indian insurance sector has matured and embraced technological advancements from 2010 onwards. Life insurance remains dominated by LIC, which held about 66 percent of the market as of 2020, although private players have steadily increased their market share. Non-life insurance has experienced rapid growth, driven by segments like health insurance, motor insurance, and crop insurance. Companies such as ICICI Lombard, HDFC Ergo, and Bajaj Allianz have emerged as strong competitors in the non-life space. Health insurance, in particular, has become a key driver post-2010 due to rising healthcare costs and increased awareness, a trend further accelerated by the COVID-19 pandemic. Life insurance remains dominated by LIC, which held about 66 percent of the market as of 2020, although private players have steadily increased their market share. Non-life insurance has experienced rapid growth, driven by segments like health insurance, motor insurance, and crop insurance. Companies such as ICICI Lombard, HDFC Ergo, and Bajaj Allianz have emerged as strong competitors in the non-life space. Health insurance, in particular, has become a key driver post-2010 due to rising healthcare costs and increased awareness, a trend further accelerated by the COVID-19 pandemic.

- **Insurance Penetration and Insurance Density**

Over the last 25 years, the insurance industry in India has grown at a compound annual growth rate (CAGR) of 16.5 percent. The penetration and density of the Indian insurance sector are still relatively low, and both indicate the degree of development of the insurance industry in a nation. The percentage of

insurance premiums to GDP is used to measure insurance penetration, while the ratio of premiums to population (per capita premium) is used to calculate insurance density (IRDAI, 2018). Over the last 17 years, the percentage of insurance premiums in India increased by just 1.7 percent, from 2.7 percent in 2001 to 3.7 percent in 2017, according to IRDAI data. On the other hand, insurance density increased by double digits (CAGR of 12.2 percent). Insurance penetration has increased from around 2.7 percent in 2001-02 to over 3.8 percent in 2023-24. There was a significant jump in penetration between 2006-07 and 2011-12, followed by a decrease and then a slow rise. Non-life insurance penetration seems to be consistently lower than life insurance penetration throughout the period.

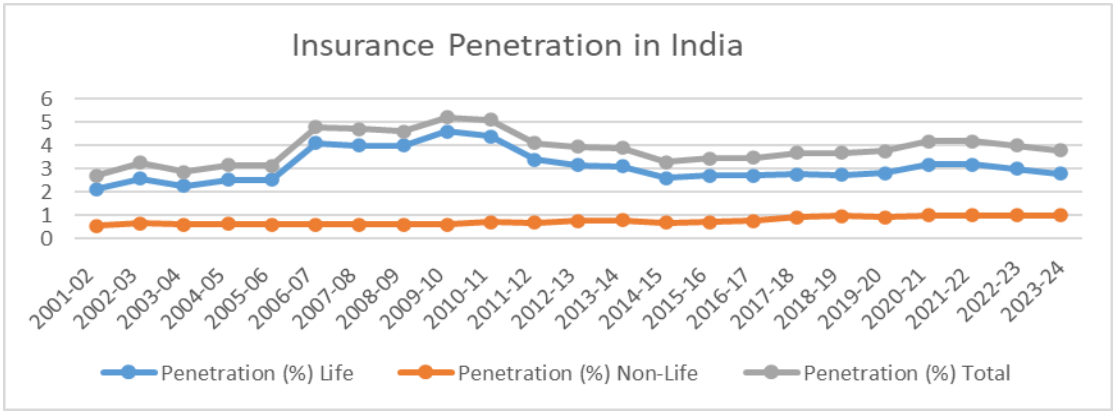

Figure 1: Insurance penetration

The total insurance density rose from $92 in the fiscal year 2022-2023 to $95 in 2023-24. Both life and non-life insurance density have generally increased over time. Life insurance density seems to be growing at a slower pace compared to non-life insurance density. However, the gap between life and non-life density appears to be closing in recent years. Life insurance density remained constant at $70, while non-life insurance density increased from $22 to $25. The significant rise in penetration around 2006-2012 could be due to factors like increased disposable income, growing awareness of insurance products, or government initiatives promoting insurance. However, the timing also coincides with the global financial crisis of 2008. It's possible that people in India, seeing the value of financial security during a time of economic uncertainty, turned towards insurance products. The decrease in penetration after 2012 might be due to economic slowdown or market saturation. While insurance penetration has grown in India, it still remains lower compared to developed economies. Factors like a large rural population with lower income levels and limited financial literacy could be playing a role. The rise in Foreign Direct Investment (FDI) limit to 49 percent in 2015 could be a contributing factor to the slow but steady rise in insurance penetration observed after 2014-15. Increased FDI might have brought in new players, more capital, and potentially more innovative insurance products, making them more attractive to a wider range of customers.

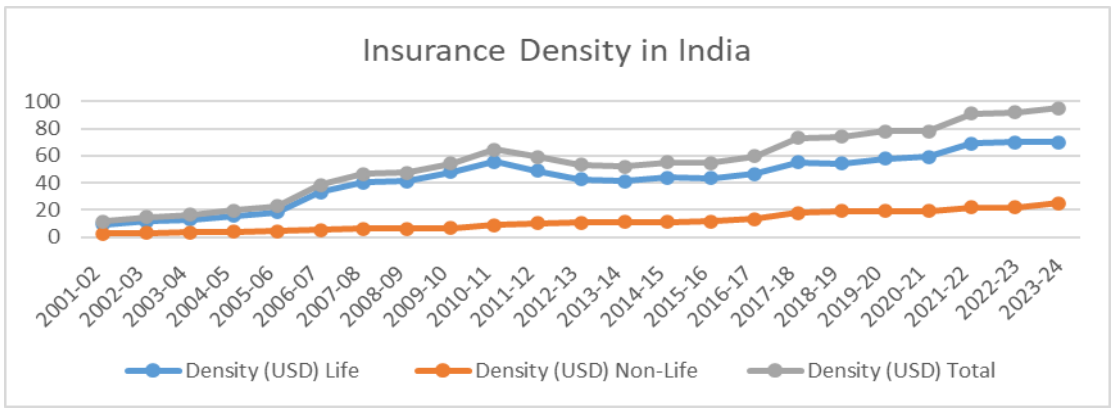

Figure 2: Insurance Density

Empirical Analysis

The financial sector plays a crucial role in the economic growth of any country. The relationship between insurance sector development and economic growth remains relatively understudied compared to extensive research on banking systems and stock markets. While numerous studies have explored the economic impact of traditional financial institutions, the insurance industry's contribution to economic development has received limited scholarly attention. The substantial growth of India's insurance market and its increasing influence on policy decisions underscores the need for a deeper empirical investigation within the Indian context. This research gap, combined with the insurance sector's expanding role in India's financial landscape, provides a compelling rationale for conducting a thorough empirical analysis of how insurance market development affects the country's economic growth trajectory.

Methodology

The present study is based on secondary data. The secondary information was collected from the Report of Indian Insurance Statistics, the annual report of the Insurance Regulatory Development Authority, and India's economic survey. This study uses three variables which Gross domestic product (GDP) per capita, insurance penetration, and insurance density. GDP per capita is determined as a dependent variable and the insurance penetration and the insurance density are independent variables. The stationarity of the variables was assessed using the Dickey–Fuller test, which tests for the presence of a unit root. Non-stationary variables were transformed using the first difference to achieve stationarity. The ordinary least square (OLS) model has been applied to the analysis.

Regression Model

A regression analysis was conducted to estimate the functional relationship:

$$\Delta GDP_t = \beta_0 + \beta_1 \Delta TIP_{t-1} + \beta_2 \Delta TID_{t-1} + \epsilon_t$$

Where:

ΔGDP_t is the first difference of GDP per capita.

ΔTIP_{t-1} is the first lag of the first difference of insurance penetration.

ΔTID_{t-1} is the first lag of the first difference of insurance density.

β_0 is the constant term.

β_1 and β_2 are the coefficients for the lagged variables.

ϵ_t is the error term.

Diagnostic Tests

The following test of the regression model has been applied: Breusch–Godfrey LM test for autocorrelation, the Ramsey RESET test for model specification, and the Cameron & Trivedi's IM-test for heteroskedasticity, were performed to ensure model robustness.

Results

- **Unit Root Testing**

The Dickey–Fuller test results indicate that all three variables—GDP per capita, insurance penetration, and insurance density—are non-stationary at their levels, as shown in **Table 1**. Differencing was applied to achieve stationarity. The results as shown in **Table 2,** indicate that the variables ΔGDP_t, ΔTIP_t, and ΔTID_t are stationary at their first differences, as the test statistics were significantly lower than the critical values at conventional significance levels. This confirms that the data does not exhibit unit roots, making them suitable for regression analysis.

Table 1: Dickey–Fuller Test Results for Unit Root

Variable	Test Statistic	1% C.V	5% C.V	10 % C.V	p-value	Conclusion
GDP_t	1.127	-3.750	-3.000	-2.630	0.9954	Non-stationary
TIP_t	-2.313	-3.750	-3.000	-2.630	0.1677	Non-stationary
TID_t	-0.683	-3.750	-3.000	-2.630	0.8511	Non-stationary

C.V = Critical Value

Table 2: Dickey–Fuller Test Results for Unit Root after first Difference

Variable	Test Statistic	1 % C. V	5 % C.V	10 % C.V	p-value	Conclusion
ΔGDP_t	-4.217	-3.750	-3.000	-2.630	0.0006	Stationary
ΔTIP_t	-4.794	-3.750	-3.000	-2.630	0.0001	Stationary
ΔTID_t	-4.046	-3.750	-3.000	-2.630	0.0012	Stationary

C.V = Critical Value

Regression Analysis

To account for potential endogeneity and delayed effects, the regression model was estimated using lagged values of the independent variables. The regression model is statistically significant at the 5 percent level, as indicated by the p-value of 0.0428. The results reveal that ΔTIP_{t-1} has a negative and significant effect on ΔGDP_t, with a coefficient of -55.99919 (p = 0.043). This suggests that an increase in the number of policyholders leads to a decline in GDP growth, potentially due to higher policy-related costs or other structural factors. In contrast, ΔTID_{t-1} exhibits a positive and significant impact on ΔGDP_t, with a coefficient of 6.0284 (p = 0.018), implying that an increase in total premium collections contributes positively to GDP growth. The R-squared value of 0.2954 indicates that 29.54 percent of the variation in ΔGDP_t is explained by ΔTIP_{t-1} and ΔTIP_{t-1}, suggesting a moderate explanatory power of the model. Additionally, the significant constant term (β_0) highlights the presence of a baseline effect on GDP growth, reinforcing the importance of other underlying economic factors. The results are summarized in **Table 3**:

Table 3: Regression analysis

Independent Variables	Coefficient	Standard Error	t-statistic	p-value	95 % Confidence Interval
ΔTIP_{t-1}	-55.999	25.696	-2.18	0.043	[-109.984, -2.013]
ΔTID_{t-1}	6.028	2.314	2.60	0.018	[1.164, 10.891]
β_0	38.689	13.485	2.87	0.011	[14.419, 70.773]

Model Summary

- R^2 = 0.2954: Approximately 29.54 percent of the variability in GDP growth is explained by the model.
- Adjusted R^2 = 0.2171: After accounting for predictors, 21.74 percent of variability is explained.
- F-statistic: 3.77 (p = 0.0428), indicating that the model is statistically significant.

Diagnostic Tests

To ensure the validity of the regression results, several diagnostic tests were conducted. The results of the diagnostic tests, as shown in **Table 4,** are discussed below:

- **Variance Inflation Factor (VIF):** The VIF values for the independent variables were low (1.45), indicating the absence of multicollinearity.
- **Autocorrelation Test (Breusch-Godfrey LM Test):** The test showed no presence of serial correlation (p = 0.8801), confirming that the residuals are not autocorrelated.
- **Omitted Variable Test (Ramsey RESET Test):** The test did not indicate the presence of omitted variables (p = 0.2229), suggesting that the model specification is appropriate.
- **IM-Test (Cameron & Trivedi's Decomposition):** The test results show marginal heteroskedasticity (p = 0.0900) and skewness (p = 0.0904), but the overall test for normality is slightly significant (p = 0.0473), indicating mild deviations from normality.

Table 4: Diagnostic Test Results

Test	Null Hypothesis	Test-Statistic	df	p-value	Conclusion
Variance Inflation Factor (VIF)	No multicollinearity	Mean VIF: 1.45	-	-	No Multicollinearity (VIF < 10).
Breusch–Godfrey LM Test for Autocorrelation	No serial correlation in residuals	$\chi^2(1) = 0.023$	1	0.8801	No evidence of serial correlation.
Ramsey RESET	Model has no	F(3, 15) = 1.64	3	0.2229	No evidence of

Test	omitted variables				omitted variables.
Cameron & Trivedi's IM-test	No heteroskedasticity, skewness, or kurtosis	$\chi^2(8) = 15.67$	8	0.0473	Model exhibits issues in at least one aspect.
Heteroskedasticity	Homoscedasticity	$\chi^2(5) = 9.52$	5	0.0900	marginal evidence of heteroskedasticity.
Skewness	No skewness	$\chi^2(2) = 4.81$	2	0.0904	some non-normality in the error terms.
Kurtosis	No excess kurtosis	$\chi^2(1) = 1.34$	1	0.2468	No evidence of excess kurtosis.

Regression Analysis with Robust Standard Errors

Due to the existence of heteroskedasticity, robust standard errors were applied to enhance the reliability of the coefficient estimates. The results indicate that the coefficient for ΔTIP_{t-1} remains negative (-55.99), suggesting that an increase in the number of policyholders has a lagged negative effect on GDP growth. However, the statistical significance weakens after applying robust standard errors ($p = 0.064$), implying that while the effect exists, it is less precisely estimated.

Conversely, the coefficient for ΔTID_{t-1} remains positive (6.03), reinforcing the idea that total premium collections positively impact GDP growth, even with a time lag. The effect is statistically significant ($p = 0.042$), indicating a consistent relationship between premium collection and economic growth. The model explains approximately 29.5 percent of the variation in GDP growth (R-squared = 0.2954), suggesting that while insurance variables play a role, other macroeconomic factors also contribute to GDP fluctuations.

Table 5: Regression Analysis with Robust Standard Errors

Variable	Coefficient	Robust Std. Error	t-statistic	p-value	95 % Confidence Interval
ΔTIP_{t-1}	-55.999	28.360	-1.97	0.064	[-115.583, 3.584]
ΔTID_{t-1}	6.0284	2.752	2.19	0.042	[0.245, 11.811]
Constant	42.596	17.775	2.40	0.028	[5.252, 79.940]

Discussion

Diagnostic tests revealed no major issues with multicollinearity or autocorrelation, but Cameron & Trivedi's IM-test indicated minor concerns with overall model assumptions as there was marginal evidence of heteroskedasticity. Therefore, robust standard errors were applied to correct for heteroskedasticity

The analysis demonstrates a statistically significant relationship between the lagged changes in insurance sector performance and GDP growth. A one-unit increase in the lagged first difference of insurance penetration decreases GDP growth by 55.99 units, suggesting a negative and significant impact. A one-unit increase in the lagged first difference of insurance density increases GDP growth by 6.03 units, indicating a positive and significant impact. These findings highlight the importance of considering time-lagged effects when evaluating the relationship between insurance sector indicators and economic growth. The results suggest that while policyholder growth may initially place a burden on economic performance, premium accumulation remains a key driver of GDP expansion over time.

Conclusion

The analysis of India's insurance sector reveals significant developments and implications for economic growth since its liberalization in 2000. The transformation of the industry is evident in the substantial market share gained by private enterprises, particularly in the non-life insurance segment, which grew from 15 percent in 2004 to 62 percent in the financial Year 2023. This growth has been facilitated by progressive increases in FDI caps from 26 percent to 74 percent, attracting foreign investment and fostering competition in the sector.

The insurance industry has demonstrated robust growth with a CAGR of 16.5 percent over two decades, marked by an increase in insurance penetration from 2.7 percent in 2001-02 to 4.2 percent in 2021-22. A notable surge in penetration occurred during 2006-2012, coinciding with the global financial crisis, suggesting possible links between economic uncertainty and insurance adoption. Recent trends

show a narrowing gap between life and non-life insurance density, indicating evolving market dynamics and consumer preferences. The results of the empirical analysis suggest that premium accumulation remains a key driver of GDP expansion over time. The findings of the study emphasize the role of the insurance sector as a financial intermediary.

Limitation

These limitations suggest opportunities for future research, particularly in examining regional variations, demographic factors, and the long-term impact of recent regulatory changes on insurance sector development. The model includes only two measures of insurance sector performance. Additional factors like financial market development and policy frameworks could enhance explanatory power. While differencing addresses non-stationarity, potential structural breaks in the data are not accounted for.

Future research should address these limitations by incorporating more variables, a larger dataset, and advanced econometric techniques, such as vector autoregression or cointegration analysis, to capture long-term relationships. Despite these constraints, the study provides valuable insights into the relationship between insurance sector development and economic growth in India's evolving market landscape.

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