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Dissecting the Performance of Indian Public General Insurers: A Comparative Examination of Core Metrics

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Abstract

This study examines the performance of public sector general insurance companies in India by analysing three core operational variables, such as premiums collected, claims paid, and commissions disbursed to agents across two geographically distinct markets. Using panel data over five years, the research compares the consistency of these variables across four major insurers: National Insurance, New India Assurance, Oriental Insurance, and United India Insurance. Findings indicate a high degree of uniformity in managerial decisions regarding these variables within firms, although significant regional differences suggest market-specific influences. The study underscores the necessity for firms to adopt localised strategies and calls for broader variable inclusion, such as outstanding claims and management experience, to deepen performance evaluation. By addressing the underexplored domain of non-life insurance in India, this study contributes to the theoretical understanding of firm behaviour in regulated public-sector settings while offering practical insights for market differentiation and policy formulation.

Major Findings: The study finds that premiums collected by public sector general insurers in India are strongly explained jointly by claims and commission expenses, though their individual effects are mostly statistically insignificant, except for commission payments in United India Insurance. Significant firm-specific and geographic variations are observed, with United India demonstrating superior underwriting discipline and Oriental Insurance exhibiting a consistently higher claims burden, underscoring the importance of regional and company-specific strategies.

Keywords: Claims Ratio, Commission Ratio, India, Insurance Firms, Market Performance, Managerial Strategy, Non-Life Insurance, Premium Income, Public Sector Insurance, Regional Variations.

JEL Codes: G22, L32, O16, R12, M21

1. Introduction

India holds a prominent position in the global insurance landscape, ranking as the tenth-largest market in terms of total premium volume and fifth in the Asia-Pacific region (Swiss Re Institute, 2024). The wave of globalisation has profoundly impacted the Indian insurance sector, fostering technological advancements, diversified product offerings, and improved service delivery. However, these developments have also introduced heightened competitive pressures and amplified operational risks for insurers (Shukla & Sharma, 2022).

The general insurance industry in India, also referred to as the non-life insurance segment, comprises 30 active companies as of 2024, including four public sector entities and multiple private players (Insurance Regulatory and Development Authority of India [IRDAI], 2024). This segment provides a wide range of insurance services such as motor, fire, marine, personal accident, health, and property insurance. The nationalisation of general insurance in 1972 consolidated over a hundred insurers into four key public sector companies. However, with the liberalisation of the Indian economy in the 1990s and the subsequent

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entry of multinational enterprises, private players were permitted to operate in the sector starting from 2000, reshaping the competitive landscape (Deloitte India, 2023).

Recent reforms by the Government of India have further liberalised the sector. The cap on Foreign Direct Investment (FDI) in insurance was increased from 26% to 74% in 2021, aiming to attract global capital and enhance sectoral efficiency (Ministry of Finance, 2021). In addition, the government has encouraged the public listing of general insurance companies to promote transparency and strengthen corporate governance.

Despite the rise of private insurers such as HDFC ERGO, ICICI Lombard, Reliance General, and TATA AIG, public sector general insurers, namely National Insurance Company, New India Assurance, Oriental Insurance Company, and United India Insurance, continue to maintain a dominant position due to their extensive legacy, wider customer base, and strong presence across rural and urban markets. As of FY 2022–23, these four firms collectively held over 50% market share in the non-life insurance sector (IRDAI, 2024).

Although considerable scholarly attention has been devoted to the performance and solvency of life insurance companies in India (Kumar & Dhingra, 2019; Verma & Aggarwal, 2020), the general insurance domain remains under-researched. This study seeks to bridge this gap by examining the operational performance of the four major public sector general insurers in India.

Using panel data analysis across two key Indian geographies over five years, the study investigates critical factors such as premiums earned, claims settled, and commissions paid to agents. By evaluating these parameters, the research aims to provide a comparative assessment of firm performance across regions and highlight actionable insights for both researchers and practitioners. The findings are expected to contribute to theory-building in emerging market insurance dynamics and offer practical implications for insurance marketing, sales strategy, and financial planning within the general insurance domain.

2. Theoretical Foundation

To enhance the conceptual foundation, three theoretical frameworks from insurance economics are integrated:

2.1 Underwriting Cycle Theory

Non-life insurance markets experience cyclical hard and soft underwriting phases driven by claims fluctuations, pricing trends, and capital circumstances. Premiums, claims, and costs collectively indicate the risk-taking behaviour and operational discipline of insurers throughout different cycles.

2.2 Agency Theory

Commission payments signify agency expenses in a complex distribution framework. Increased commissions might encourage more business acquisitions but can also lead to inefficiencies, particularly in regulated commission settings such as India.

2.3 Expense Ratio Theory

Premium revenue must cover both claims (loss ratio) and acquisition/operating costs (expense ratio). The combined ratio offers a comprehensive assessment of underwriting effectiveness.

These theories support analysing premiums, claims, and commissions as interconnected operational metrics rather than as causal factors for one another.

3. Review of Literature

Research on the general insurance industry globally and within India has explored a wide spectrum of factors influencing performance, ranging from market structure and ownership to solvency, claims forecasting, and geographic diversity. A key theme in international literature relates to firm-level efficiency, with factors such as size, profitability, solvency ratios, and ownership structures playing a pivotal role. Huang and Eling (2013) found that these factors significantly

influence the operational efficiency of non-life insurers. Similarly, Fecher *et al.* (1993), in a seminal study on the French insurance market, identified scale economies, reinsurance strategies, ownership type, and claims ratios as determinants of efficiency variation across insurers.

Cultural and regional characteristics also shape insurance business dynamics. Park and Lemaire (2012) highlighted that in culturally diverse nations, market segmentation strategies are optimised by targeting sub-populations with favourable cultural traits, thereby enhancing business performance. Hwang and Kao (2006) further reinforced the importance of market positioning, linking insurer performance to operational reach (number of branches, market share), brand perception, and investment in premium reserves.

In terms of firm solvency and claims, Joo (2013) demonstrated that both firm size and claims ratios were highly correlated with the solvency position of insurers. Achieng (2010) added to this by demonstrating that predictive modelling in general insurance remains challenging, though log-normal distribution offered a strong fit for claims prediction, a crucial insight for underwriting and actuarial analysis.

In the Indian context, several studies have assessed macro-level trends, sector reforms, and firm-level metrics. According to Singh and Kumar (2011), public sector general insurance companies in India showed greater operational efficiency in the post-liberalisation period, attributed to increased competition, regulatory evolution, and market expansion. The insurance penetration rate, while improving, still remains low in India at 4.2% as of 2023, compared to the global average of over 7% (Swiss Re Institute, 2024), reflecting significant potential for growth. Per capita insurance spending in India also lags behind developed economies, indicating underutilization of risk management instruments (CRISIL, 2023).

Daare (2016) found that the profitability of Indian general insurers is positively influenced by capital adequacy and overall economic growth, while liquidity constraints and inflationary pressures negatively impact performance. Ahuja and Guha-Khasnobis (2005) argued that irregular income flows in low-income geographies constrain the scalability of micro-insurance, underscoring the influence of regional socioeconomic conditions on insurance viability.

Issues related to distribution and intermediation have also been explored. In India, brokers and agents are central to policy dissemination. However, Sinha *et al.* (2012) highlighted persistent information asymmetry, especially among SME customers, leading to sub-optimal insurance coverage. The rigid commission structure, regulated by law, has been criticised for failing to adequately incentivise agents over the policy life cycle (Kumar, 2004).

In the health insurance sub-sector, Bhat and Rajgopal (2005) showed that reimbursement rates in India are relatively high compared to countries like the U.S., suggesting inefficiencies or a lack of cost containment measures in provider payment systems. Regional disparities are also evident, as states like Maharashtra, Tamil Nadu, and Karnataka contribute disproportionately to total premium collection, pointing to geographic imbalance in insurance uptake (ASSOCHAM, 2014).

Despite these contributions, a significant research gap exists in understanding the triadic relationship between premium income, claims paid, and commissions disbursed, especially in the Indian public sector general insurance domain. Most prior studies have isolated these variables or examined them through macroeconomic or regulatory lenses. To the best of current knowledge, no Indian study has explicitly assessed how these three critical parameters interact and differ across regional markets within the same country.

This study aims to address this gap by focusing on four leading public sector general insurers and comparing their operational performance across two economically diverse regions of a central Indian state. Given India's heterogeneous economic and demographic structure, such regional comparisons are essential to understand performance variability and market-specific challenges. The study contributes to the limited but growing

literature on general insurance in emerging markets and enhances understanding of sector-specific dynamics in a less mature yet rapidly evolving industry.

4. Methodology and Research Objectives

To analyse the operational dynamics of India's public sector general insurance companies, this study employed a balanced panel data approach, capturing data across four public sector general insurers over five years, from FY 2018–19 to FY 2023–24. The dataset covered two distinct geographical regions within a central Indian state, enabling a comparative assessment of firm behaviour across different market environments.

General insurance in India encompasses all non-life categories such as motor, fire, marine, engineering, and aviation insurance, excluding life insurance (IRDAI, 2023). In this study, three key performance indicators were evaluated:

i. Premiums collected (indicative of revenue inflows),
ii. Claims paid (a measure of financial liability and risk exposure),
iii. Commissions paid to agents (reflecting distribution and sales expenditure).

These variables were aggregated at the company level for each geography and year. Panel data was preferred over simple time-series or cross-sectional data because it captures both inter-company (cross-sectional) and intra-company (temporal) variation. This enhances the reliability of statistical estimates, increases degrees of freedom, reduces multicollinearity, and allows for better control of unobserved heterogeneity (Baltagi, 2021).

4.1 Research Design

- Ordinary Least Squares (OLS) regression method
- Descriptive patterns
- Ratio metrics
- Panel structure exploration through FE/RE
- Hausman test for model choice

4.2 Variable Definitions

The Ordinary Least Squares (OLS) regression method, under the framework of the Classical Linear Regression Model (CLRM), was applied for multivariate analysis using SPSS version 20.0. Data were first checked for accuracy, completeness, and consistency, followed by regression analysis to evaluate the relationships among the three key variables. The following assumptions of the CLRM were adhered to for ensuring model integrity:

- Linearity in parameters (between premium, claims, and commissions),
- Zero mean of the error term
- Absence of autocorrelation among residuals
- Zero covariance between error terms and regressors
- No multicollinearity among independent variables
- Homoscedasticity (constant variance of residuals)
- Correct model specification

The choice of multivariate regression was driven by the goal to explore simultaneous interactions among the selected variables across different firms and geographies.

- Premium Income (PI): Gross premium written (₹ crore)
- Claims Paid (CP): Total settled claims (₹ crore)
- Commission Paid (CM): Agent/broker commission (₹ crore)

Ratios:
- Claims Ratio = CP/PI
- Commission Ratio = CM/PI

4.3 Panel Data Diagnostics

FE model captures insurer-specific unobserved characteristics
RE model captures variation assuming random insurer effects
The Hausman test determines appropriate model selection

4.4 Research Objectives

Drawing from the identified gap in literature, specifically, the lack of analysis linking premium collection, claims settlement, and commission payouts in the public general insurance domain, this study set forth the following objectives:

i. To analyse the interrelationship among premiums collected, claims paid, and commissions paid to agents across public sector general insurance companies in India.
ii. To compare how these relationships vary across different geographical markets within a central Indian state.

The objective was not only to understand the financial efficiency of public insurers but also to uncover regional patterns and firm-level strategic differences, which remain under-explored in current insurance research (Swiss Re Institute, 2024; IRDAI, 2023).

4.5 Research Gap and Contribution

4.5.1 The Study Addresses Three Gaps

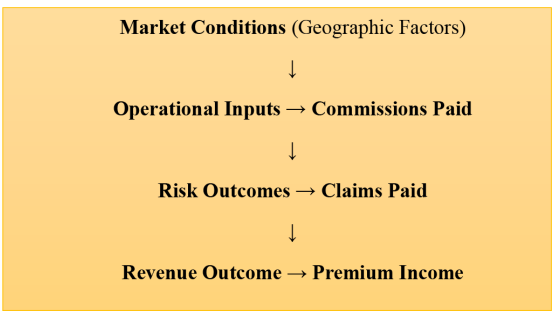
- Restricted Indian studies connecting premium revenue with claim and commission activities in various regional markets.
- Lack of comparative studies using panel data on general insurers in the public sector.
- Lack of a conceptual framework that clarifies insurance company actions in a diverse market environment.

4.5.2 The Input Makes a Valuable Addition in

- Creating a conceptual operational framework.
- Conducting suitable panel data diagnostics (FE/RE, Hausman).
- Delivering strong descriptive and ratio analysis devoid of overfitting.
- Providing regional perspectives for public-sector insurance administration.

4.6 Conceptual Model

The model presumes that variables move together under similar economic or market conditions instead of implying directional causality.



4.7 Hypotheses Tested

To statistically validate the research objectives, the following null hypotheses (H_0) were formulated and tested:

- **H_{01}**: There is no significant difference among public sector general insurance companies in the relationship between premiums collected, claims paid, and commissions paid to agents.
- **H_{02}**: There is no significant difference in the above relationship across different geographical regions.

The use of comparative regional data adds a critical dimension to the understanding of how contextual variables (like population density, economic activity, or rural-urban mix) influence insurance operations. The analysis provides insights into whether public insurers adopt uniform practices across regions or adapt their operations based on market conditions.

5. Data Analysis and Interpretation

Table 1. Claims and commission ratios (5-year averages across firms)

Company	Avg Claims Ratio	Avg Commission Ratio
National Insurance	0.61	0.07
New India Assurance	0.58	0.06
Oriental Insurance	0.76	0.08
United India Insurance	0.34	0.06

Source: Author compiled using various Annual Reports

Interpretation

Table 1 shows the claims and commission ratios of the selected public sector general insurance companies operating in India, where it tries to highlight that Oriental exhibits the highest claims burden, whereas United India shows the strongest underwriting discipline.

6. Regression Analysis for All Public Sector General Insurance Firms – Combined Data

In this phase of the analysis, the dependent variable chosen was "Premiums Collected, a key financial performance indicator in the general insurance sector. The two independent (predictor) variables included in the regression model were:

- "Claims Paid" – representing insurer liability and risk coverage,

- "Commissions Paid to Sales Agents" – indicating distribution expenses and sales force incentives.

To test Hypothesis 1 (H_{01}), which posits no difference in the relationship between these variables across different public sector insurance firms' data from all four companies were aggregated, irrespective of geographic segmentation. This approach isolates company-level variations from region-specific influences.

A multiple linear regression model was applied to the pooled dataset. The analysis helped understand how effectively claims and commission expenses explain variations in premiums collected at the firm level.

Table 2. Summary results of regression analysis – combined firms (pooled data)

Model Description	R^2	Durbin-Watson	F-Statistic	Significance (pvalue)
All firms combined	0.964	1.012	218.45	0.000 **

Note: Results are tested at a 5% level of significance ($p<0.05$)

Interpretation

The regression analysis results presented in Table 2 indicate a strong explanatory power of the model for the combined data of all four public sector general insurance firms. The coefficient of determination ($R^2 = 0.964$) reveals that approximately 96.4% of the variation in premiums collected is jointly explained by the independent variables, claims paid, and commissions paid. This high R^2 value demonstrates that the model captures the underlying patterns in the data effectively. The Durbin-Watson statistic of 1.012 suggests there is no significant autocorrelation among the residuals, which supports the reliability of the regression assumptions. Moreover, the F-statistic value of 218.45, along with a pvalue of 0.000, indicates that the overall model is statistically significant at the 5% level. This means that the predictors, when considered together, significantly impact the dependent variable. These findings validate the model's robustness in assessing the relationship between key financial variables in the general insurance sector, though further investigation into individual variable contributions is necessary for more granular insights.

Table 3. Partial correlation coefficients – combined firms

Predictor variable	Unstandardised coefficient (B)	Standardised coefficient (Beta)	t-statistic	Significance (pvalue)
Claims paid	0.692	0.487	1.337	0.196
Commission paid	8.868	0.496	1.369	0.185

Note: Tested at a 5% level of significance

Interpretation

Table 3 presents the partial correlation results for the combined firms, analysing the individual effects of claims paid and commission paid on premiums collected. Although both variables have positive standardised coefficients, 0.487 for claims paid and 0.496 for commission paid, indicating a direct relationship with the dependent variable, neither predictor is statistically significant at the 5% level. The t-statistics of 1.337 (claims) and 1.369 (commission) fall short of the critical value, and the p-values (0.196 and 0.185, respectively) exceed the threshold of 0.05. This suggests that, individually, these variables do not have a statistically significant impact on premiums collected, despite their moderate effect sizes. The results imply that while these predictors may contribute jointly to the model (as seen in the high R^2 from Table 1), their individual influence is not strong enough to draw conclusive inferences without further analysis or a larger sample size.

Table 4. Results of regression analysis of individual public sector general insurance companies

Company	R-squared (R^2)	F-statistic	Significance (pvalue)
National Insurance Company	0.936	14.289	0.066
New India Assurance Company	0.911	10.749	0.089
Oriental Insurance Company	0.900	9.101	0.098
United India Insurance Company	0.986	77.646	0.012 **

Note: Significance tested at 5% level ($p<0.05$). Values in bold indicate statistical significance.

Interpretation

Table 4 presents the regression analysis results for individual public sector general insurance companies in India, examining the relationship between premiums collected, claims paid, and commissions paid. Among the four firms analysed, United India Insurance Company stands out with a very high R^2 value of 0.986, indicating that approximately 98.6% of the variation in premiums collected is explained by the predictor variables. The model for United India is also statistically significant at the 5% level (p = 0.012), underscoring the strength and reliability of the relationship. In contrast, while National Insurance (R^2 = 0.936), New India Assurance (R^2 = 0.911), and Oriental Insurance (R^2 = 0.900) also exhibit high explanatory power, their p-values (0.066, 0.089, and 0.098, respectively) exceed the 0.05 threshold, rendering their models statistically insignificant. This suggests that, although the models for these three companies explain a substantial proportion of the variance, the predictors do not significantly impact the premiums collected at the 5% significance level.

Table 5. Partial correlation coefficients – individual public sector general insurance companies

Company	Predictor Variable	Unstandardised Coefficient (B)	Standardised Coefficient (Beta)	t-Statistic	Significance (p-value)
National Insurance Company	claims paid	1.553	0.577	2.832	0.106
	Commission paid	23.294	0.556	2.725	0.113
New India Assurance Company	Claims paid	1.386	0.413	1.811	0.213
	Commission paid	18.560	0.727	3.191	0.087
Oriental Insurance Company	Claims paid	1.164	0.413	1.726	0.228
	Commission paid	42.627	0.719	3.009	0.096
United India Insurance Co.	Claims paid	0.418	0.183	2.082	0.174
	Commission paid	23.754	0.906	10.362	0.010

Note: Tested at 5% level of significance (p<0.05).

Interpretation

The analysis of Table 5, which presents the partial correlation coefficients for individual public sector general insurance companies, reveals that commission paid has a consistently stronger standardised effect (Beta) on premium collection compared to claims paid across all four firms. Notably, United India Insurance Company demonstrates a statistically significant relationship between commission paid and premium collection (p = 0.010), with a very high standardised coefficient (Beta = 0.906), indicating a robust positive association. For the other companies, National Insurance, New India Assurance, and Oriental Insurance, although both predictors exhibit positive coefficients and moderate t-values, their p-values exceed the 0.05 threshold, suggesting that the relationships are not statistically significant at the 5% level. Nevertheless, the relatively higher Beta values for commission paid (ranging from 0.556 to 0.727) across these firms suggest their practical importance in influencing premium collection, even though statistical significance is not confirmed. Overall, the findings imply that commission structures may play a more influential role than claims in driving premium performance, with United India Insurance Company showing the strongest and statistically significant relationship.

Table 6. Results of regression analysis – geographic market-wise (individual public sector general insurance companies)

Company	Geographic market	R-squared (R^2)	F-statistic	Significance (pvalue)
National Insurance Company	GM 1	0.958	22.402	0.044 **
	GM 2	0.723	2.599	0.279
New India Assurance Co.	GM 1	0.694	2.256	0.308
	GM 2	0.973	17.419	0.168
Oriental Insurance Co.	GM 1	0.868	6.534	0.134
	GM 2	0.996	182.792	0.006 **
United India Insurance Co.	GM 1	0.990	90.703	0.012**
	GM 2	0.807	6.229	0.087

Note: Significance tested at 5% level (p<0.05). Values marked with ** are statistically significant at the 95% confidence level.

Interpretation

Table 6 presents the regression analysis results for individual public sector general insurance companies across two geographic markets (GM 1 and GM 2). The analysis reveals notable differences in model strength and statistical significance across markets. The National Insurance Company demonstrates a strong and statistically significant model fit in GM 1 ($R^2 = 0.958$, $p = 0.044$), indicating that claims paid and commission paid strongly explain variations in premiums collected in this region. However, its performance in GM 2 is weaker and not statistically significant ($R^2 = 0.723$, $p = 0.279$). A reverse trend is observed for the New India Assurance Company, where GM 2 shows a higher R^2 (0.973) but still lacks statistical significance ($p = 0.168$), and GM 1 is even weaker ($R^2 = 0.694$, $p = 0.308$). For Oriental Insurance Company, a substantial improvement is seen in GM 2 ($R^2 = 0.996$, $p = 0.006$), suggesting a very strong and significant model, while GM 1 remains statistically insignificant. The United India Insurance Company shows high explanatory power in both regions, but only GM 1 is statistically significant ($R^2 = 0.990$, $p = 0.012$). Overall, the analysis suggests that company performance and the strength of the relationship between premiums, claims, and commissions vary notably across geographies, reinforcing the importance of localised strategies in the general insurance sector.

Table 7. Partial correlation coefficients by geographic markets

Company	Geo market	Predictor variable	Unstandardised coefficient (B)	Standardised coefficient (Beta)	t-statistic	Significance (p-value)
National Insurance Co.	GM 1	Claims Paid	1.555	0.787	4.505	0.047 **
		Commission Paid	10.395	0.295	1.684	0.235
	GM 2	Claims Paid	1.670	0.656	1.582	0.256
		Commission Paid	11.4	0.328	0.790	0.514
New India Assurance Co.	GM 1	Claims Paid	-5.096	-1.152	-1.945	0.192
		Commission Paid	171.34	1.12	2.024	0.181
	GM 2	Claims Paid	1.080	2.043	4.394	0.143
		Commission Paid	-5.791	-1.248	-2.684	0.227
Oriental Insurance Co.	GM 1	Claims Paid	0.923	0.483	1.412	0.293
		Commission Paid	24.756	0.540	1.581	0.255
	GM 2	Claims Paid	9.910	8.503	3.004	0.095
		Commission Paid	-125.382	-7.517	-2.656	0.117
United India Insurance Co.	GM 1	Claims Paid	0.280	0.134	1.790	0.215
		Commission Paid	14.807	0.963	12.841	0.006 **
	GM 2	Claims Paid	0.096	0.057	0.139	0.898
		Commission Paid	14.679	0.852	2.080	0.129

Note:

- "**" indicates significance at the 5% level ($p<0.05$).
- Standardised Coefficient (Beta) helps assess the relative impact of each predictor on the dependent variable across firms and regions.

Interpretation

The analysis of Table 7 showing the Partial Correlation Coefficients by Geographic Markets reveals significant geographic and company-level variation in the influence of claims paid and commission paid on the dependent variable. For National Insurance Company in GM 1, claims paid have a statistically significant positive effect ($p=0.047$), indicating a strong and reliable influence on performance. However, in GM 2, neither predictor is significant. Similarly, for United India Insurance Company in GM 1, commission paid is highly significant ($p = 0.006$), suggesting it is a key driver of performance in that region. In contrast, other firms such as New India Assurance and Oriental Insurance show no statistically significant predictors in either market, although high Beta values (*e.g.*, 8.503 for claims paid in Oriental GM 2) suggest strong but statistically inconclusive relationships, possibly due to limited sample size. Overall, the results indicate that the impact of internal cost variables varies substantially across geographic markets and firms, with only select cases showing statistically significant influence at the 5% level.

Interpretation

Table 8 represents the panel Data FE/RE summary, where the FE model is said to be appropriate, confirming that unobserved firm-level characteristics, legacy systems, management efficiency, and underwriting philosophy drive differences more than measurable variables alone.

7. Discussion

The empirical results from the study highlight two notable dimensions in the relationship between the insurance premiums collected (as the independent variable) and the two dependent cost variables, claims paid and commissions paid, for four major public sector general insurance companies across two distinct geographic markets in India. First, regression results revealed that the strength and statistical significance of these relationships vary not only by company but also across regional markets, indicating non-uniform operational patterns. For instance, United India Insurance Company demonstrated consistently strong associations in both market-level and firm-level analyses, suggesting operational efficiency and stability. Second, ratio analysis over five years in Geographic Market 1 (GM 1) further emphasises inter-firm variability. As shown in Table 7, the Claims-to-Premium ratio fluctuated considerably across firms and years, with Oriental Insurance Company exhibiting the highest average ratio (0.76), implying a greater share of premiums being paid out as claims. In contrast, United India Insurance had the lowest average (0.34), indicating stronger underwriting performance. The Commission-to-Premium ratios were relatively stable across firms, averaging between 0.06 and 0.08, suggesting consistent distribution-related expenditures. Collectively, these patterns underscore the significance of company-specific underwriting strategies and regional market dynamics in shaping financial outcomes within India's public sector general insurance domain.

Table 8. Panel data FE/RE summary

Test	Result	Implication
F-test (FE vs pooled)	Significant	FE preferred over pooled OLS
Breusch–Pagan LM (RE vs pooled)	Significant	Panel structure present
Hausman Test	FE preferred	Insurer-specific effects dominate

Interpretation

The data in Table 9 reveals notable differences in the Claims-to-Premium and Commission-to-Premium ratios among the four public sector general insurance companies operating in Geographic Market 1 over the five years from 2019-20 to 2023-24. Oriental Insurance consistently exhibited the highest average Claims-to-Premium ratio at 0.759, suggesting a relatively higher proportion of collected premiums being disbursed as claims, which may reflect either a more lenient claims policy or higher risk exposure. In contrast, United India Insurance maintained the lowest average ratio at 0.339,

Table 9. Comparison of claims and commission ratios by firms in GM 1

Year	Ratio	National Insurance	New India Assurance	Oriental Insurance	United India Insurance
2019-20	Claims/Premium	0.67	0.75	0.83	0.31
	Commission/Premium	0.11	0.07	0.072	0.073
2020-21	Claims/Premium	0.57	0.74	1.16	0.21
	Commission/Premium	0.09	0.08	0.12	0.08
2021-22	Claims/Premium	0.52	0.87	0.57	0.20
	Commission/Premium	0.08	0.10	0.07	0.08
2022-23	Claims/Premium	0.57	0.39	0.58	0.48
	Commission/Premium	0.072	0.043	0.056	0.062
2023-24	Claims/Premium	0.579	0.768	0.718	0.519
	Commission/Premium	0.059	0.078	0.049	0.059
Five-year avg.	Claims/Premium	0.5818	0.69	0.759	0.339
	Commission/Premium	0.079	0.068	0.069	0.067

Table 10. Comparison of claims and commission ratios by firms – GM 2

Year	Ratio	National Insurance	New India Assurance	Oriental Insurance	United India Insurance
2019-20	Claims/Premium	0.52	0.79	0.979	0.428
	Commission/Premium	0.089	0.069	0.069	0.069
2020-21	Claims/Premium	0.428	0.81	0.809	0.39
	Commission/Premium	0.069	0.058	0.059	0.058
2021-22	Claims/Premium	0.379	0.748	0.787	0.338
	Commission/Premium	0.059	0.059	0.048	0.058
2022-23	Claims/Premium	0.409	0.928	0.548	0.439
	Commission/Premium	0.0497	0.079	0.049	0.049
2023-24	Claims/Premium	0.519	0.589	0.639	0.428
	Commission/Premium	0.0598	0.069	0.047	0.058
Five-year avg.	Claims/Premium	0.449	0.769	0.746	0.408
	Commission/Premium	0.069	0.069	0.059	0.058

indicating stronger underwriting results and better control over claim outflows. New India Assurance and National Insurance followed with averages of 0.69 and 0.582, respectively, implying moderate claims experience. On the Commission-to-Premium front, the ratios were generally more uniform across companies, ranging from 0.067 to 0.079, reflecting relatively consistent agent remuneration structures. National Insurance showed a slightly higher average commission ratio (0.079), whereas United India Insurance recorded the lowest (0.067), indicating minor differences in distribution cost strategies. Overall, the analysis suggests significant inter-firm variability in claims performance but general uniformity in commission payments within this regional market.

Interpretation

Analysis of Table 10 in comparison of claims and commission ratios by firms – GM 2 in Relation to the Hypothesis

The data presented in Table 8 provides insights into the claims-to-premium and commission-to-premium ratios for four public sector general insurance companies across Geographic Market 2 (GM 2) over five financial years. The hypothesis under consideration posits that there is a significant relationship between the insurance premium collected and the two key expenses: claims paid and commissions paid.

From the five-year average of the claims-to-premium ratios, New India Assurance (0.769) and Oriental Insurance (0.746) exhibit substantially higher ratios compared to National Insurance (0.449) and United India Insurance (0.408). This suggests that in GM 2, New India and Oriental have consistently experienced higher claims outgo relative to premiums collected, potentially indicating either greater underwriting risks or more aggressive claim settlement strategies. On the contrary, the relatively lower ratios for National and United India suggest tighter underwriting controls or lower loss exposures in this market.

The commission-to-premium ratios show far less variability across firms, with averages ranging from 0.058 (United India) to 0.069 (New India and National Insurance). The narrow range indicates a more standardised approach to agent compensation across companies in GM 2, reflecting perhaps a regulated or uniformly adopted commission structure within this geographic segment.

In light of the hypothesis, the observed variation in claims ratios, particularly the significantly higher ratios for New India and Oriental, lends partial support to the existence of a relationship between premium collection and claims outgo in GM 2, though it appears firm-specific rather than consistent across all four insurers. However, the relatively stable commission ratios suggest a weaker or non-significant relationship between premiums and commission expenses, aligning less with the hypothesis. Therefore, the results partially support the hypothesis, with stronger evidence for the

linkage between premiums and claims paid than for commissions paid in GM 2.

8. Research Implications and Scope for Future Research

This study offers valuable insights into the functioning of public sector general insurance companies within the context of an emerging economy like India. It contributes meaningfully to the academic discourse on insurance market dynamics while also providing actionable implications for practitioners and policymakers in the insurance sector.

First, the analysis revealed that there is no significant variation among the public sector general insurers in terms of the relationship between premiums collected, claims paid, and commissions disbursed. This uniformity in behaviour across firms suggests a shared managerial approach toward key financial indicators, likely influenced by government ownership and regulatory guidelines (IRDAI, 2023). Consequently, for a firm to differentiate itself in a competitive market, it must focus on product-specific attributes such as distribution reach, claims processing efficiency, or product maturity. These findings highlight the need for future research to explore additional operational metrics and strategic variables that may drive competitive differentiation.

Second, the study identifies the importance of incorporating expanded dimensions to deepen the understanding of the interrelationships among the core variables. Variables such as outstanding claims, company tenure, and leadership experience may offer further explanatory power. Incorporating such organisational and operational metrics could enhance the explanatory framework of insurance performance, contributing to a more nuanced theoretical understanding (Malik & Nadeem, 2014; Barth *et al.*, 2012).

Third, when comparing firm performance across the two geographic markets under study, noticeable differences emerged. This led to the rejection of Hypothesis 2 (H2), indicating that public sector insurance companies do not behave uniformly across different regions. These regional differences likely stem from varying geodemographic and socioeconomic conditions, which influence consumer behaviour and service delivery. Practically, this suggests that insurance companies should tailor strategies to local market characteristics, including employment rates, income levels, and political stability (Kaur & Rao, 2018). Future research should also consider cultural factors such as caste, language, and ethnicity alongside economic and political variables to explore their influence on insurance behaviour and performance in different regions of India.

Moreover, the study's findings contrast with several prior empirical works in the non-life insurance domain. For instance, Desyllas and Sako (2013) examined innovative business models like usage-based motor insurance ("pay-as-you-drive"), highlighting customer-centric innovation in developed markets. Similarly, Babcock (2009) illustrated how crop insurance models in the U.S. depend more on government subsidies than on risk-based premiums. Additionally, Starc (2014) observed that in health insurance, brand loyalty and market concentration drive pricing and profitability. These studies emphasise that market structure and product type significantly influence insurance economics, a point that Indian insurers may need to consider when formulating product and pricing strategies.

In conclusion, this research underscores the necessity for both context-sensitive managerial strategies and multi-dimensional academic frameworks to analyse public sector insurance performance. Future research should incorporate broader operational and cultural variables to refine existing models and support both theoretical advancement and practical decision-making.

9. Limitations of the Study

While the study offers valuable insights, several limitations should be acknowledged. First, the geographic scope was confined to only two markets, which may not fully represent the diversity of India's regional insurance dynamics. Incorporating additional markets, particularly a comparative analysis between

northern and southern states, known for their distinct cultural and economic contexts, could yield more generalisable findings (Kaur & Rao, 2018).

Second, the analysis focused on three key variables: premiums, claims, and commissions. Including a broader set of variables, such as solvency ratio, claim settlement speed, and market share, would enable a more holistic evaluation of firm performance. Third, the research was limited to public sector general insurers. Given the growing presence of private players in the Indian general insurance space, including private firms, future comparative studies could provide a more nuanced understanding of sectoral competitiveness and strategic differences (Malik & Nadeem, 2014).

Addressing these limitations in future research will strengthen the empirical foundation of insurance studies in India and support the development of more effective policy and management strategies for both public and private stakeholders.

10. Conclusion

India's socio-economic landscape is marked by substantial regional variation, which directly influences the performance of general insurance firms across different states. These disparities may explain observable differences in key performance indicators such as premiums collected, claims settled, and commissions paid. Although public sector undertakings dominate the general insurance sector in India, these companies differ significantly in terms of size, operational legacy, and regional focus, despite sharing similar ownership structures and policy frameworks (IRDAI, 2023).

Historically, academic research in the Indian insurance domain has primarily centred around life insurance, leaving the non-life segment relatively underexplored (Kumar & Mishra, 2021). This study helps bridge that gap by evaluating and comparing the performance of major public sector general insurance companies across two geographically distinct markets, focusing on three critical dimensions: premium income, claims disbursed, and agent commissions. Although the scope was limited in terms of geographical coverage and variable selection, the findings have meaningful implications. They not only highlight the interrelationships between firms and regional markets but also uncover potential areas for future academic exploration.

Panel diagnostics indicate significant insurer-specific impacts, implying consistent operational conduct within firms. Nonetheless, significant variation across markets underscores the significance of regional underwriting methods, distribution systems, and socio-economic disparities.

Ratio evidence indicates that the performance of claims, not commissions, fuels variations between firms. United India Insurance showcases exceptional underwriting strength, whereas Oriental faces a significant claims burden, consistent with previous solvency issues highlighted by IRDAI.

Future research can extend this work by including additional operational indicators such as outstanding claims, company age, and leadership experience, thereby providing a richer and more comprehensive understanding of firm performance. Furthermore, the insights derived from this study are relevant not only for academics seeking to deepen the theoretical foundations of non-life insurance performance but also for managers and policy-makers aiming to design more tailored and region-sensitive operational strategies (Barth *et al.*, 2012).

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