

# The Linkage Relationship Between Commercial Insurance Performance and New Urbanization

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**Abstract.** With the steady progress of urbanization in Guangxi, the performance of the commercial insurance market is gradually rising. Guangxi's commercial insurance reform not only made up for various risk losses in the process of urbanization in Guangxi, but also promoted the integrated development of Guangxi's urban and rural economy. This article mainly uses the VAR model to conduct an empirical analysis on the interrelationship between urbanization and commercial insurance development in Guangxi. The results find that there is a long-term equilibrium relationship between the two. The development of commercial insurance is to reduce the urban-rural gap and promote urbanization in Guangxi. In addition, the development of urbanization has promoted the development of commercial insurance.

**Keywords-**New Urbanization, Commercial Insurance Performance, VAR model

## 1 INTRODUCTION

In 2021, the National Development and Reform Commission pointed out that the development of China's new urbanization and the integration of urban and rural development in rural areas should be the focus of work. Promoting the reform of the local commercial insurance business will not only speed up the transformation of the regional economy, continuously improve people's quality of life and consumption levels, but also speed up the process of urbanization, thereby promoting the sound and rapid development of the national economy. The mutually reinforcing relationship between the commercial insurance business and the new urbanization has an important influence on the local new urbanization process.

Scholars at home and abroad have conducted in-depth studies on the linkage between the construction of a new urbanization process and the development of commercial insurance. Peng and Xiong (2017) believe that there is a long-term coordination relationship between China's new urbanization and China's social insurance premium income, and it has a lasting role in promoting the increase of China's social insurance premium income <sup>[1]</sup>. Li (2018) believes that the establishment and development of insurance can provide a good guarantee for China's urbanization: the reason is that insurance can effectively disperse the risks that exist in China's urbanization and development and provide economic benefits. Compensation <sup>[2]</sup>. Wang (2019) believes that through the economic and social development of the world today, he believes that medical care and insurance not only accompany China's urbanization, but also promote the coordinated development of urban and rural areas, to enrich and improve the social security

system, and accelerate and improve It has significant advantages in terms of social capital financing and auxiliary social management<sup>[3]</sup>. Guo and Li (2016) stated that with the rapid advancement of China's new-type urbanization, my country has encountered problems in the process of new-type urbanization, such as the large gap between urban and rural social security, and the lack of funds for infrastructure construction caused by local fiscal expenditures. Giving full play to the risk transfer and financing functions of commercial insurance can well solve the problems in the process of urbanization<sup>[4]</sup>. Foreign scholar Berry (1970) made a comprehensive analysis using several of the main factors. They agreed that there is still a strong internal correlation between China's new urbanization and China's rapid economic growth. The impact is relatively large<sup>[5]</sup>.

In summary, most scholars agree that there is a significant correlation between the new urbanization and the social insurance industry, and that the process of urbanization can promote the development of commercial insurance, but most scholars lack empirical analysis. Therefore, this article will mainly use the VAR model to conduct an empirical analysis of the linkage between Guangxi's urbanization and the development of commercial insurance companies' performance.

## **2 THE STATUS QUO OF URBANIZATION AND INSURANCE INDUSTRY IN GUANGXI**

### **2.1 Rapid development of urbanization**

From 2011 to 2020, the total resident population of Guangxi's urban residents will gradually increase from about 13.5 million to about 19.42 million. The average level of urbanization development will rapidly increase from 28.20% to 41.81%, and the average annual urban and rural residents' living rate will increase by 1.36 year-on-year. The percentage of points. Statistics show that in 2021, the actual number of labor employees in China's urban areas will reach 10.355 million, which provides a large amount of social labor and various sources of funds from various channels in order to better promote the stable development of urban secondary, tertiary and fourth industries Supply, economic and industrial structure has also been optimized.

Guangxi is dominated by small and medium-sized cities, with very few megacities and large cities, and the urbanization development of cities at various levels is uneven. According to the data, the only cities with a permanent population of more than 1.3 million and fiscal revenue exceeding 7 billion yuan are Nanning and Liuzhou. There are eight prefecture-level cities whose urbanization level is below 40%. It can be clearly seen that most cities and towns in Guangxi are relatively small. The improvement of the level of urbanization is inseparable from the economic development of various cities. There are too many small towns, which slow down industrial development and make Guangxi insufficient for urbanization.

### **2.2 Rapid development of insurance**

The area of insurance expenses in Guangxi reached 46.92 billion yuan, providing a total of 3.2 trillion yuan in all kinds of risk protection for the economy and society of the district throughout the year, a year-on-year increase of 85 percent, of which 54,000 yuan was for property risk protection 100 million yuan, personal risk protection 26 trillion yuan; a total of 15.85 billion

yuan in compensation for disaster accident insurance, a year-on-year increase of 19.7%. As of now, there are 39 provincial-level insurance institutions in the region, with 187,000 insurance employees, and 51,000 newly created jobs throughout the year.

The urbanization of Guangxi's population is mainly reflected in the migration of rural residents to cities and towns, as well as the gradual improvement of population quality. In recent years, the total commercial insurance premium income in Guangxi has increased year by year, and its growth rate has also been maintained at a relatively high level. Since 1980-1989, China's insurance industry developed rapidly again, and the depth of insurance development was relatively low. There were irregular behaviors in the rapid development of some pension insurance, and these insurers' sense of social insurance responsibility and their risk awareness are relatively weak. Judging from the development history of the insurance industry in various developed countries, the higher the population quality level, people will correctly understand the essential characteristics of the insurance industry, thus forming the demand for commercial insurance.

### **3 EMPIRICAL ANALY OF THE LINKAGE RELATIONSHIP BETWEEN THE LEVEL OF URBANIZATION AND THE INSURANCE DEVELOPMENT**

The content of this section takes the urbanization development level and commercial insurance performance of Guangxi area as the research sample, takes the comprehensive index F reflecting the urbanization development level of Guangxi over the years as the evaluation standard, and uses the VAR model to analyze the relationship between the urbanization level and commercial insurance performance of Guangxi. Interrelationships are studied depth.

#### **3.1 Sample selection and data processing**

##### *1) Sample selection*

Basis on related literatures, the two indicators of Guangxi's urban residents' consumption level and GDP are used to reflect the level of urbanization in Guangxi studied in this article. The reason for choosing the two is that they can well reflect the level of urbanization in a certain period. In terms of commercial insurance performance, premium income is selected as an indicator, because premium income can more fully reflect the level of development of commercial insurance.

##### *2) Data processing*

The data in this article are mainly derived from the National Bureau of Statistics and China Economic Net. Select the data from 2011 to 2019. This study uses X1, X2, X3, and X4 to represent Guangxi's per capita GDP, Guangxi's population growth rate, and Guangxi's residents' consumption in the process of urbanization. The price index CPI, the logarithm of the economic growth rate of four related indicators, with y representing the logarithm of the level of farmers' consumption development in Guangxi's commercial insurance performance.

### 3.2 Test for heteroskedasticity

Because the numerical difference between the variables is relatively large, it is necessary to carry out a logarithmic transformation between the variables to reduce the influence of heteroscedasticity on the research results. Using EVIEWS software for testing and analysis, the p value corresponding to the statistic at the 5% significance level is -2.874. If the null hypothesis is not rejected, the model does not have heteroscedasticity.

### 3.3 ADF unit root test

To avoid the problem of false regression, it is necessary to perform ADF test on the time series. First, use EVIEWS software to test the ADF stability of the time series of urban residents' disposable income and commercial insurance premiums. The test results of urban per capita disposable income and commercial insurance premiums are shown below, using D(Y, 1), D(X1, 1), D(X2,1), D(X3, 1), D(X4, 1) Respectively indicate the first-order difference of several indicators, and the ADF test results are shown in Table 1:

**Table 1** Augmented Dickey-Fuller Test

Variable	ADF inspection value	5% Significance level	Probability value	Result
Y	-2.345	-2.874	0.162	Unstable
X1	-0.967	-2.874	0.767	Unstable
X2	-2.697	-2.874	0.078	Unstable
X3	-0.868	-2.874	0.812	Unstable
X4	-2.086	-2.874	0.250	Unstable
D(Y, 1)	-13.185	-2.874	0.000	Stable
D(X1, 1)	-16.925	-2.874	0.028	Stable
D(X2, 1)	-12.575	-2.874	0.014	Stable
D(X3, 1)	-10.485	-2.874	0.000	Stable
D(X4, 1)	-12.753	-2.874	0.000	Stable

It can be seen from Table 1 that the ADF critical test value of the original time logarithmic vector sequence is greater than the 5% significance level, which is an unstable time logarithmic sequence. The ADF critical test value of the original differential logarithmic hypothesis series is lower than the 5% significance level, which is a stable first-order time logarithmic series.

## 4 MODEL CONSTRUCTION

The Vector Auto Regression model <sup>[6-8]</sup> is generally used to study a variety of different variable time series, predict and describe the dynamic factors of random disturbances on the variable system, so as to extend the univariate autoregression model to the "vector" autoregressive model composed of multiple time series variables. The general VAR (P) model is as follows:

$$Y_t = c + X_1(y_{t-1}) + X_2(y_{t-2}) + X_3(y_{t-3}) + X_4(y_{t-4}) + \dots + X_p(y_{t-p}) + e_t \quad (1)$$

Among them:  $c$  is an  $n \times 1$  constant vector, and  $X_i$  is an  $n \times n$  matrix.  $\epsilon_t$  is an  $n \times 1$  error vector, which satisfies: the mean value of an error term is 0.

It establishes a set of interrelated equations based on data, which are mostly used in multivariate statistical analysis to conduct research and analysis on related variables. Many scholars in my country also use the VAR model to conduct research [9-12].

Selects Guangxi's urbanization level indicators, commercial insurance administrative service performance and development indicators, Guangxi GDP indicators, Guangxi urban residents' population growth indicators, and Guangxi's urbanization indicators for each quarter from 2001 to 2019. CPI and other indicators are analyzed and used as variables in related research.

#### 4.1 Johansen cointegration test

This article carries out the Johansen cointegration test. The test results are shown in Table 2 and Table 3. For sequence data satisfying the same-order single integral condition, Johansen cointegration test can determine whether there is a long-term equilibrium and stable relationship between variables.

**Table 2** Result of Johansen cointegration test

Cointegration relation number	Eigenvalue estimation	Statistic	5% Critical value	Prob.
None	0.332	116.021	69.819	0.003
At most1	0.286	78.216	56.856	0.000
At most2	0.175	35.674	29.797	0.009
At most3	0.108	15.299	15.495	0.054

**Table 3** Result of Johansen cointegration test

Cointegration relation number	Eigenvalue estimation	Statistic	5% Critical value	Prob.
None	0.332	36.792	32.876	0.012
At most1	0.286	33.532	27.575	0.008
At most2	0.175	20.375	21.132	0.072
At most3	0.108	10.918	14.265	0.156

It can be clearly seen from Table 2 and Table 3 that the length of the time variable series is at a significant linearity level of 5%. The linear test results of similar statistical variable model tests show that each time variable series contains at least 3 linear relationships. The variable linearity test results show that each time variable series contains at least two. The rapid development of the insurance industry, per capita GDP, the average annual population growth rate, the development level of the urbanization process, and the CPI have shown long-term mutual cointegration among various important variables.

## 4.2 Granger Causal Relation Test

This article uses Granger causality test to discuss the linkage relationship between the degree of urbanization and the development of the insurance industry and discuss the profound impact of predicting the level of urbanization on the development of commercial insurance under different lagging periods.

**Table 4** Result of Granger Causal Relation Test

Lag period	Null hypothesis	F-statistic	Prob.
K=1	Guangxi urbanization level dose not Granger Cause Commercial insurance development.	3.56	0.05
	Commercial insurance development dose not Granger Cause Guangxi urbanization level.	2.36	0.07
K=2	Guangxi urbanization level dose not Granger Cause Commercial insurance development.	1.93	0.16
	Commercial insurance development dose not Granger Cause Guangxi urbanization level.	2.56	0.08
K=3	Guangxi urbanization level dose not Granger Cause Commercial insurance development.	1.35	0.26
	Commercial insurance development dose not Granger Cause Guangxi urbanization level.	1.92	0.52
K=15	Guangxi urbanization level dose not Granger Cause Commercial insurance development.	4.05	0.01
	Commercial insurance development dose not Granger Cause Guangxi urbanization level.	0.86	0.63
K=25	Guangxi urbanization level dose not Granger Cause Commercial insurance development.	7.32	0.00
	Commercial insurance development dose not Granger Cause Guangxi urbanization level.	3.36	0.00

Note: The significance level is 10%. K, F, and P represent the selection of the lag period, the value of the F statistic and the associated probability, respectively.

It can be seen from Table4 above that at the 5% significance level, the development of the insurance industry in the process of urbanization not only shows a high degree of urbanization at the lagging stage k=1, 2, 3 The Granger succeeded, and when k=15 and 25, it also showed the Granger success with a high degree of urbanization. Therefore, it can be analyzed that the level of urbanization in Guangxi and the growth of commercial insurance performance are the fundamental reasons for the success of the Granger experiment.

## 5 CONCLUSIONS

The research conclusions are as follows: First, the development capacity of commercial insurance in the urbanization construction is much greater than before. However, the self-development and improvement capabilities of commercial insurance are still relatively weak, so the level of urbanization has a certain influence on the future development of the insurance industry. Second, there is a long-term balanced relationship between the level of Guangxi's commercial insurance and the development of Guangxi's commercial insurance performance. The two promote and promote each other and develop together. Third, changes in the

performance of Guangxi's commercial insurance have a positive effect on the improvement of the level of urbanization in Guangxi.

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## REFERENCES

- [1] Yulong Peng, Lin Xiong. New urbanization increases insurance demand and investment yield [J]. FE, 2 (2017)
- [2] Xing Li. On the interaction between the insurance industry and urbanization [J]. JIVC, 3 (2018)
- [3] Zuji Wang, Insurance Services in New Urbanization[J]. CF, 2 (2019)
- [4] Dandan Guo, Zheng Li. Research on the role of commercial insurance in the new urbanization [J]. CBF, 8 (2016)
- [5] Berry A. The demand for life insurance: An application of the economics of uncertainty [J]. JF, 35(1980).
- [6] Hakanson H. Optimal investment and consumption strategies under risk, and uncertain lifetime, and insurance[J]. IER, 10 (1969)
- [7] Browne J, Kim K. An international analysis of life insurance demand[J]. JRI, 60 (1993)
- [8] Yaguo Li. Research on the influencing factors of China's commercial health insurance demand based on VAR model[J]. EF, 7 (2017)
- [9] Chuansuo Bai, Zhengliang Min. An Empirical Analysis of the Relationship between Social Insurance and Economic Growth——Based on the Perspective of VAR Model[J]. FE, 8 (2016)
- [10] Liangyong Zhang, Hong Li. An Empirical Analysis of China's Resident Consumption and Insurance Development Based on VAR Model[J]. HE, 10 (2018)
- [11] Zhifeng Xu, Jianbo Wen, Thoughts on the insurance industry's participation in the development of urbanization [J]. IR, 6 (2013)
- [12] Fangping Yu, Xu Wu. New urbanization, new world of insurance [J]. CIN, 7 (2014)