Proceedings of Business and Economic Studies

Research Article

A Study on Investment Structure of Fixed Assets and Regional Economic Growth

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Abstract: Nowadays, it has been in the period of rapidly developing China's economy. Since the financial crisis in 2008, China has paid more and more attention to investing in fixed assets, and the growth rate of investing in fixed asset is also rising. However, when promoting regional economic growth, if we only pay attention to the total amount of fixed asset investment, there will inevitably exist some blindness and lack of sustainability. Therefore, the study between the investment structure of fixed assets and regional economic growth is quite important. China has a vast territory and many regions. The investment structure of fixed assets in different regions is also different, so the influence on economic growth is also different. This paper analyzes the investment structure of fixed assets and regional economic growth, and help realize the rapid growth of regional economy by recognizing the current situation of China's investment structure of fixed assets.

Keywords: Investment structure of fixed assets; Region; Economic growth

Publication date: June, 2020

Publication online: 30 June, 2020

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1 Introduction

In the economic growth, investment, consumption and exports can be described as the troika that promotes the economy. According to the theory about investment growth, investment has played an important role in economic growth, so countries around the world have paid much attention to investment. As we all know, investment structure of fixed assets plays a vital role in economic growth, it also plays a major role in response to the economic crisis. For economic development, it is not true that more investment is better, because excessive investment will aggravate the internal contradictions of the economy. Therefore, it is particularly important to explore the investment structure of fixed assets and scientifically optimize the investment structure of fixed assets. Only in this way can we improve the comprehensive strength of the regions, and strengthen the quality of urban and rural residents' life in the regions.

2 Overview of the investment structure of fixed assets

2.1 Definition of the investment structure of fixed assets

The investment structure of fixed assets is also called the basic construction structure, or simply called the investment structure. The investment structure of fixed assets refers to the distribution of the investment between the various components of fixed assets within a certain period. The investment structure of fixed assets is mainly divided into six categories: structure of main investors, structure of investment project, structure of investment source, structure of investment industrial, structure of investment benefits, and scale structure of the investment project[1].

2.2 Characteristics of the investment structure of fixed assets

The characteristics of the investment structure of fixed assets can be described as the boundary of reform and opening up. First of all, before the reform and opening up, the characteristics of China's investment structure of fixed assets were mainly manifested in

three aspects. First, the structure of the main investors was single, mainly based on the national economy. Also, it only relies on financial means to centralize and disburse funds free of charge, which deteriorates the utilization of funds. Third, the investment structure of fixed assets is susceptible to non-economic factors and has not improved economic imbalances. Secondly, the characteristics of the investment structure of fixed assets after reform and opening up are mainly manifested in four aspects. On the one hand, it puts light industry and agriculture in an important position and give priority to their development[2]. Second, the proportion of national investment in the fixed asset investment structure declined, and the proportion of collective ownership and individual ownership increased. The third is that the formation of a coexistence of multiple investment channels such as national fiscal investment, bank loan, self-raised investment and foreign-funded investment is evident. The fourth is that the adjustment of the investment structure of fixed assets and the dual adjustment of the market are obvious[3].

2.3 Determinants of the investment structure of fixed assets

The determinants of the investment structure of fixed assets mainly include natural conditions, the period of economic development, technological development, population quality, social and cultural environment, economic development and implementation methods, globalization, international trading environment and opening to the world. Among them, natural conditions mainly refer to factors such as climate, terrain and geographic location; the period of economic development refers to the level of per capita output value. When the per capita output value level is low, the primary industry accounts for a higher proportion. When the per capita output value level is high, the apparel industry accounts for a relatively high proportion; technological progress mainly refers to the emerging technologies that can promote the quantitative and qualitative changes in the traditional parts to improve the metabolism of the industry[4].

3 The status quo of China's economic growth

Since the reform and opening up, China's economy has developed rapidly and has made remarkable achievements, which not only enhances economic strength, but also enhances China's international status. Nowadays, China's economy has achieved a successful transition from a closed economy to an open economy. For a long time, the investment structure of fixed assets has been important in driving China's economic growth[5]. However, there are certain deficiencies and problems in the current investment structure of fixed assets in China, which also affects the economic growth to a certain extent.

While China's economic growth may slow down, it also needs to adopt some effective measures to promote economic growth according to the status quo of economic growth. First, develop a circular economy to save resources; second, develop high-tech and labor-intensive industries; third, implement resource allocating methods to promote government-oriented to market-oriented industry to achieve the optimal allocation of resources; fourth, strengthen technological innovation and human capital development. In economic development, scientific and independent innovation is important to improve the competitiveness of a country. The effect of the investment structure of fixed assets on economic growth is mainly reflected in three aspects[6]. First, it can promote balanced and coordinated economic development; second, it is beneficial to reduce economic operating costs; third, it improves people's living standards. Reform and opening up have opened the door to the world for citizens. Only by insisting on independent innovation in science and technology can we accelerate the construction of the economic development system of Chinese characteristics.

4 Analysis of the investment structure of fixed assets and regional economic growth

4.1 Empirical analysis

In the analysis of the investment structure of fixed assets and regional economic growth, GDP is selected as the indicator of economic aggregate. The investment structure of fixed assets includes national economic investment, private economic investment, domestic loan investment and other investments. This study selects five of these investments to analyze its coordinated relationship with GDP. The data of the five investments are shown in Table 1 below:

Table 1. The timetable of the five investments

Number	Category of the investment	Years
1	National economic investment (NI)	1978-2005
2	Private economic investment (PI)	1981-2005
3	Domestic loan investment (DLI)	1981-2005
4	Foreign loan investment (referred to as FLI)	1981-2005
5	Real estate investment (REI)	1986-2005

4.1.1 Unit root test

Since the studied object of co-integration theory is data of non-equilibrium sequence , the stationary state of the sequence must be tested before analysis. This study uses the unit root test. The test table is shown in Table 2 below:

Table 2. Data of the unit root test

Variable	Unit root test	Associated probability	Critical value	Type of the test	Stationary state
FLI	-3.94	0.03	-3.27*	(c,t,2)	stable
PI	0.53	0.98	-3.77***	(c,0,0)	unstable
GDP	-4.49	0.02	-3.83***	(c,0,6)	stable
NI	-4.47	0.02	-3.72***	(c,0,0)	stable
PI	-3.81	0.01	-3.79***	(c,0,0)	stable
DLI	-7.02	0.00	-3.77***	(c,0,0)	stable
REI	-3.39	0.27	-3.89***	(c,0,0)	stable

Among them:

*: Critical value at 10% significance level;

***: Critical value at 1% significance level

C: constant;

t: time trend;

L: Number of lag phases.

It can be learned from the data in Table 2 that only PI is integrated of order 2, and NI, DLI, REI, and FLI are all integrated of order 1.

4.1.2 Co-integration test

When conducting the co-integration test, it is necessary to set the regression equation first, otherwise the problem of pseudo regression will easily occur. When testing the co-integration between two variables, the two sequences must have the same single-integral order to set the co-integration model. The above analysis has concluded that GDP and NI, DLI, REI and FLI are all integrated of order 1, so they meet the requirements of setting a co-integration model, which also indicates that there is likely to be a permanent relationship between NI, DLI, REI and FLI and GDP. This co-integration test uses E-G two-phase regression analysis. First, we must set a co-integration regression and use the OLS method to achieve regression of variables. Then, check the stability of the regression equation residuals. If the test result shows that the residual is stable, then the variable is co-integrated; if the test result shows that the residual is unstable, then the variable is not co-integrated . The data shows that the residuals without constant and trend terms are stable, that is to say, each variable is co-integrated with GDP and has a positive co-integration relationship[7].

4.1.3 Error correction model

The above analysis shows that there is a permanent equilibrium relationship between variables. The error correction model is also used to analyze the degree of deviation of the variable from the long-term equilibrium under short-term fluctuations. Among them, the error correction model of NI and REI shows a good effect, and the coefficients are negative, indicating that NI and REI meet the reverse correction principle[8]. In addition, as can be seen from the data, NI can quickly implement corrections in a short time; and other than the constant term, all other coefficients have passed the 10% significance test.

4.1.4 Granger causality test

The above analysis shows that there is a co-integration relationship between GDP and NI, DLI, and REI, but whether they have a causal relationship and the direction of the causal relationship require further study. Granger causality test is the current universally testing method. The following data is the relationship between GDP and NI, DLI, and REI.

Table 3. Data of the Granger causality test

Assumptions	Lag phase(t)	F statistics	probability
Granger reasons why NI is not the Granger cause of GDP	2	2.37	0.12
Granger reasons why GDP is not the Granger cause of NI	2	8.31	0.01
Granger reasons why DLI is not the Granger cause of GDP	2	16.92	7.30
Granger reasons why GDP is not the Granger cause of DLI	2	0.41	0.67
Granger reasons why REI is not the Granger cause of GDP	2	7.03	0.01
Granger reasons why GDP is not the Granger cause of REI	2	1.99	0.18

From the data in the above table, it can be learned whether there is a causal relationship between GDP and NI, DLI, REI. First, it is verified that NI is not the Granger cause of GDP, but at a 98% confidence level; GDP is the Granger cause of NI. This conclusion is not consistent with convention. The reason may be the change of the national economy. GDP is closely related to the performance of government, so when the GDP of government performance is low, they will increase investment in the national economy. But when the GDP reaches a certain value, the government will turn the focus of their work to other things, which shows the changes in GDP and the guiding role of the enterprise. Second, it is verified that DLI is the Granger reason of GDP. The reason is that China's capital market is still imperfect, and the financing account is relatively low. Many national enterprises rely on loans for their operations. Third, it verified that REI is the Granger reason for GDP, which means that real estate has a significant effect on economic growth[9].

4.2 Empirical conclusion

First: The regression results show that there is no co-integration between foreign investment and private investment of GDP; GDP shows positive co-integration with DLI and REI; and credit control can restrain economy.

Second: Granger causality test shows that REI is the Granger cause of GDP.

Third: The Granger causality test indicates that NI is not the Granger cause of GDP, but GDP is the Granger cause of NI, which means that the growth of GDP will lead to changes in NI[10].

5 Conclusion

In conclusion, through the analysis in this paper, we can learn the relationship between economic growth and national economic investment, private economic investment, domestic loan investment, foreign investment and real estate investment. The investment structure plays a key role in promoting regional economic growth. Therefore, according to the laws of regional economic development and methods of economic growth to develop local major projects, the investment structure of fixed assets should be optimized to effectively promote the healthy development of the economy.

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