

Research on the Influence of Foreign Direct Investment on Regional Economy

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Abstract: Foreign direct investment is always an important part of Chinese economy. However, China's attitude toward FDI has changed in recent years because China wants development with higher quality. Based on official data from the National Bureau of Statistics of China, this article compares and analyzes the impact of investment on development in different regions. In this article, multiple linear regression model has been used in order to figure out the relationship between FDI and China's regional economic development. The reason we choose this model is because economic development is affected by multiple variables. By using this model, we figure out that there is a significant positive correlation between FDI and GDP from a country-wide perspective. From the perspective of different regions, this article finds that there is a significant positive correlation between FDI and GDP in the eastern and western regions, while there is no significant relationship between FDI and GDP in the central region. The result of this research shows factors that affect the effectiveness of FDI, which can help the country to utilize FDI better.

Keywords: FDI, Regional Economy, GDP.

1. Introduction

1.1 Research Background and Motivation

Foreign direct investment (FDI) is a category of cross-border investment. It is defined as an investor in one country owns at least ten percent of stocks of a firm in another country. Since FDI creates stable and long-lasting relationship between economies, it is a crucial part in international economic integration. Moreover, FDI is a crucial way to transfer technology between countries and promote international trade. From the perspective of the change of foreign investment policy and the increase of the amount of foreign investment, China's introduction of foreign investment has gone through four major stages. The first stage is from 1949 to 1978, which is the exploration and tortuous development stage. Since China had not reformed and opened yet, the connection with external economies is very weak, the introduction of foreign investment was also limited. The second stage is from 1979 to 1991, which is the stage of initial development and utilize of FDI. In this stage, the main way to use foreign investment is borrowing money. The biggest change in this stage is those discounts policies for foreign capital published by Chinese government. The third stage is from 1992 to 2011, which is the stage that attracted foreign investment comprehensively. Because of more than a decade of development, foreign investors have greatly increased their confidence in China's business environment, and the proportion of FDI in total foreign investment has increased rapidly. The final stage starts from 2012 to the present, which is the high-quality developing stage. Since China has already attracted many foreign investments in the third stage, Chinese government has released the idea of innovation-driven development since 2014. In the past six years, four batches of 17 free trade areas have been approved China entered a new stage of opening-up. In this stage, the quality of the foreign investment has significant improvement. In 2018, 60533 foreign invested enterprises were newly established in China, have a growth of 69.8 percent, about 1700 over 50 million dollars contracts of foreign investment, have a growth of 23.3 percent. These data shows that foreign investment have strong confidence in China. In 2018 and 2019, foreign funded enterprises have only

accounted for less than 3 percent of the number of enterprises in China, but they generated nearly half of the profits of foreign trade, a quarter of the profits of industrial enterprises and one fifth of the tax revenue. Their economic returns are significantly better than the average [1,2]. According to the World Investment Report 2019, FDI flows into China reached 139 billion dollars in 2019, which occupied more than 10% of the total foreign investment around the world, second only to the United States [3]. However, as China's economy shifts from traditional economic growth to the new economic normal, China's attitude towards FDI has also changed. That is because of some bad results caused by the FDI. Researchers figures out that FDI will not only bring benefits, but also some negative impact including the technology spillover effect, foreign funded enterprises occupy the market, crowding out domestic capital, and the potential threat to the national economic sovereignty and security, etc. Therefore, utilize FDI effectively is important.

Can FDI effectively promote economic growth in all regions? How to make better use of FDI to further promote the economic development of different regions? These issues need to be analyzed and studied. If these issues are solved, China can have a more balanced and comprehensive development [4]. Therefore, studying how FDI impact the promotion of China's economic growth has very important practical significance.

Different from previous studies, this paper makes a classified of the districts in China by the different stages of development. Then, this article compares and analysis the promotion of FDI in these different regions, focusing on the economic impact of the FDI on different region. At the same time, we want to figure out the impact of labor quantity and quality on the economic role of FDI through the perspective of education investment

1.2 Literature Review

In recent years, with FDI being concerned, there is an extensive literature which studies its influence. Below is review of the impact that FDI has brought about in China. The paper written by Meili Fun et al., analyzed the changing trend of FDI and the role of FDI in the regions of China, using the extended CD production function[5,6].The study found that the scientific and technological innovation ability od domestic enterprises has improved in the past few years. Besides, FDI also plays an important part in the long-term economic growth. Another paper written by Shanshan Zheng analyzed the threshold characteristics od FDI's spillover effect on technological innovation in China from 2001 to 2016.From this study, it could be found that the inflow of FDI was beneficial to the technological innovation output of the central and eastern areas, while it hindered the FDI technological innovation in the western region. Some scholars analyzed the impact of labor quality and quantity from the perspective of economics of FDI. Kai Liu et al. analyzed the influence of labor on FDI from labor force scale, labor force quality, labor force structure and labor force cost[7].The result indicated that labor heterogeneity had a huge effect on FDI location selection in developing countries rather than in developed countries. In addition, the paper written by Junxu Zhou et al. studied the impact of labor force on FDI from the price, quality, quantity and heterogeneity [8]. They found that the influence of labor force on FDI was mainly generated by decreasing the heterogeneity of labor force that was negatively correlated with FDI in a region. Besides, the improvement of the labor force quantity and quality was advantageous to decrease the gap of the heterogeneity of labor force. As a major country in attracting foreign investment in developing countries, FDI solves the problem of capital shortage in related industries and promotes the rapid development of my country's economy. Since the reform and opening up, China's absorption of foreign capital has grown rapidly. The formation of an all-round opening pattern and the establishment of market economic reform goals have made China one of the most attractive regions for FDI also played a very important role in the world [9,10].

However, there is still less information about FDI in different regions in recent one or two years. This paper will focus on the different areas' situation and analyze the impact of labor on FDI from the perspective of education investment.

1.3 Research Contents and Framework

Based on official data from the National Bureau of Statistics of China, this article compares and analyzes the impact of investment on development in different regions. Explore the relationship between FDI and China's regional economic development by constructing a multiple linear regression model. And distinguish the changes in the relationship between different regions, and explore the deep relationship between FDI and regional economic development by analyzing the heterogeneity. The research framework of this paper is as follows: the first part is the introduction, including the background and motivation of the research and the literature review; the second part is the methodology, which mainly introduces the data source and model construction; the third part is the conclusion and discussion. The last is the conclusion.

2. Methodology

2.1 Data Sources

The data in this paper mainly comes from the official website of the National Bureau of Statistics of China, using panel data from 31 provinces, municipalities and autonomous regions in Mainland China from 1995 to 2017 (except Hong Kong, Macau and Taiwan). Among them, Chongqing Municipality was directly under the Central Government only in 1997, so its data was missing before 1997. Among them, the provincial annual data of economically active population is missing. The formula for calculating the economically active population of each province is as follows: The economically active population of each province is equal to the product of the ratio of the national economically active population to the national population and the population of each province. At the same time, data on the amount of FDI in different provinces are also missing, so this paper uses data on the total investment of foreign-invested enterprises to replace it. The data in this paper comes from the official website of the National Bureau of Statistics of China, which is highly authoritative.

2.2 Research on Electrical Business Media

This paper uses a multiple linear regression model to analyze the relationship between FDI and China's regional economic development. Regional economic development is affected by many factors such as FDI, investment in fixed assets, economically active population, and investment in education. In this case, by selecting relevant variables and constructing an econometric model, it is more practical to analyze the impact of FDI on the regional economy under the constraints of different influencing factors. The model form is shown in formula (1).

$$y = \beta_0 + \beta x_1 + \beta z_1 + u \quad (1)$$

In equation (1), the dependent variable y is the GDP, and the independent variable x is FDI. The coefficient β represents the degree of influence of FDI on regional economic development. In order to accurately understand the influence of FDI on regional economic development, this paper adds a series of control variables z to equation (1), including fixed asset investment and economic development, active population and education investment. In the estimation method, this paper adopts the least square estimation method to estimate the parameters of the model.

3. Results and Discussion

3.1 Empirical Results Analysis

Based on the OLS estimation method, the parameter estimation results of the multiple linear regression model are obtained, as shown in Table 1.

Table 1 Multiple linear regression model results

Variables	(1) GDP	(2) GDP	(3) GDP	(4) GDP
FDI	0.444*** (0.0175)	0.160*** (0.0202)	-0.238 (0.248)	0.780*** (0.116)
Pci	0.575*** (0.0299)	0.520*** (0.0270)	0.787*** (0.0848)	0.900*** (0.0563)
Ep	10,612*** (803.5)	12,040*** (958.9)	9,098*** (1,464)	7,459*** (745.3)
Ei	8.675*** (0.662)	15.25*** (0.639)	4.250** (1.707)	-0.947 (0.857)
Constant	-165,431*** (19,267)	-182,164*** (24,806)	42,350 (51,847)	-7,229 (11,471)
Observations	501	164	145	192
R-squared	0.969	0.990	0.959	0.980

Notes: Standard errors in parentheses ; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

In Table 1, the dependent variable is the gross national product, and the independent variables include FDI, fixed asset investment, economically active population, and education investment.

The (1) column of Table 1 reports the regression results of all provinces in the country. From the national average situation, there is a significant positive correlation between FDI and gross national product. The increase in FDI significantly increases the gross national product, with an average impact coefficient of 0.444, which means that every increase in FDI 1 yuan will increase the gross national product by an average of 0.444 yuan. Factors that have a significant impact on gross national product also include investment in fixed assets, economically active population, and investment in education. The column (2) reports the regression results of provinces in the eastern region. Judging from the average situation in the eastern region, FDI and gross national product have a significant positive correlation, with an average impact coefficient of 0.160. Factors that have a significant impact on regional environmental protection expenditures also include investment in fixed assets, economically active population, and investment in education. Column (3) of Table 1 reports the regression results of provinces in the central region. Judging from the average situation in the central region, there is no significant relationship between FDI and gross national product. Factors that have a significant impact on regional environmental protection expenditures also include investment in fixed assets, economically active population, and investment in education. The column (4) reports the regression results of provinces in the western region. Judging from the average situation in the western region, FDI and gross national product have a significant positive correlation, with an average impact coefficient of 0.780. Factors that have a significant impact on regional environmental protection expenditures also include fixed asset investment and economically active population.

The results of the multiple linear regression model show that: First of all, from the situation of the whole country and the eastern, central and western regions, FDI does affect the gross national product, and the influence coefficient is between 0.16 and 0.78. Secondly, from the perspective of different regions, FDI has a greater impact on the gross national product of the eastern and western regions than the central region. This shows that the high-quality labor force in the eastern region and the low cost of building factories in the western region It is more suitable for FDI to play a role. Finally, the relationship between FDI and gross national product is also restricted by regional socio-economic characteristics. Generally speaking, the increase in fixed asset investment, economically active population, and education investment will strengthen this relationship.

3.2 Discussion

From our analysis of the experimental data and results, we know that FDI does have an impact on GDP. By comparing the situation in the central region and the eastern region, the FDI in the eastern region is more inclined to investment in fixed assets, economically active population, and investment in education. It can be seen from the national situation that FDI has a positive correlation with my country's economy, but after comparing the experimental data, it can be analyzed that FDI in the western and eastern regions has a positive correlation with my country's GDP, but the FDI in the central region has a positive correlation. There is no significant relationship with GDP. China is a country with a very large population, so a lot of FDI is more skewed towards investment in education, which is why the coefficient of investment in education is similar in every region. Analyzing the eastern and western regions, we can see that the impact of FDI on the GDP of the central and western regions is far greater than the impact on the GDP of the central region. Through experimental data, it can be found that the labor force in the eastern region is higher than that in the central region, and the investment cost in the western region is lower than that in the central region.

4. Conclusion

FDI plays an important role in China. Not only does FDI promote China's economic growth, but it also promoted international trade and maintain the relationship between countries. From 1949, China began the introduction of FDI, and the forms of FDI have been changed several times until now. In order to better solve the problems of whether FDI can effectively promote economic growth in various fields, how to make better use of FDI to promote economic growth in different regions, and how to promote FDI, this paper discusses the economic impact of FDI on different regions. Besides, this paper studies the impact of labor quantity and quality on FDI through the perspective of education investment.

In this paper, the relationship between FDI and China's economic development in different regions is discussed by using a multiple linear regression model. The results show that FDI does have the influence on the development of China's economic growth in different regions. And the impact of gross national product on FDI is influenced by a variety of ingredients, such as fixed asset investment, economically active population and education investment. Besides, the gross national product is influenced more obviously by FDI in eastern regions and western regions than the provinces in the central regions, and the gross national product rises in all regions because of the impact of FDI. This shows that there is more high-quality labor force in the eastern area and lower plant construction cost in the western region.

Moreover, the factors that affect the gross national product, not only from the overall perspective of China, but also from the perspective of different regions of China on the basis of various situations in different regions. In this paper, people who are engaged in FDI can easily find the data that they want. Besides, it provides data and analysis for China to make better use of FDI. In the future, in China, because the situations like fixed asset investment, economically active population and education investment are changing, it is very important to constantly update data and analysis which are relative with the relationship between FDI and GDP.

References

- [1] Jianli Liu. 70 Years of Foreign Capital Utilization in New China: History, Effects and Main Experiences[J]. Management World, 2019,35(11), 19.
- [2] Bo Peng, & Yapin Han. 70 Years of New China's Foreign Trade Development: History, Achievements, Contributions and Experiences[J]. Journal of Chang'an University: Social Science Edition, 2019, 21(6), 15.
- [3] World investment report 2019. (2019, September). UNCTAD.

- [4] Qiang Li. An Analysis of the Negative Impact of Fdi on China's Economic Development[J]. Qilu Journal, 2014 (3), 4.
- [5] Meili Eun, Yunxian Hou, Danqiu Cao, Kailei Wei. FDI, Technological Progress and Regional Economic Growth in China: Based on the Inter-provincial Panel Data from 1979 to 2013 [J]. Modern Economic Science, 2018, 40(2): 29-37.
- [6] Junxu Zhou, Qi Jiang. Influence of Regional Labor's Disparity on FDI Location Choice [J]. Forum on Science and Technology in China, 2012, (5): 130-136.
- [7] Shanshan Zheng. Study of Threshold Characteristics of the Spillover Effect of FDI on China's Technological Innovation [J]. Journal of Industrial Technological Economics, 2018, 37(5): 105-111.
- [8] Kai Liu, Yazhuo Zhu, Shaomei Zhan. Labour Force Heterogeneity and FDI Location: An Empirical Research Based on Panel Data of 69 Countries [J]. International Business, 2016, (5): 100-112.
- [9] Yun Liu, Ju Mengyi, Feng Lu. Research on the Influence of FDI on China's Economic Development and Countermeasures [J]. Modern Economic Information, 2014(18):2.
- [10] Alfaro L, Chanda A, Kalemli-Ozcan S, et al. FDI and economic growth: the role of local financial markets[J]. Journal of International Economics, 2004, 64.