

Research on FDI Effect of Provincial Development Zones

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Abstract

As an important source of investment in the development zone, foreign direct investment has always played an important role in the development of the development zone. As a large province in the eastern region, Anhui Province has developed rapidly in recent years. The study of foreign direct investment (FDI) has a significant impact on Anhui Province. The overall development of the development zone is of great significance. The article selects the panel data of Anhui Province and its sixteen cities from 2010 to 2020 for research and analysis. The results show that foreign direct investment (FDI) has significantly promoted the development of enterprises, industrial structure optimization, and economic growth in the development zones of sixteen cities in Anhui Province. The role of foreign direct investment (FDI), industrial structure optimization, and economic growth has promoted the overall development of enterprises in Shiliu City Development Zone, Anhui Province. The article summarizes and makes recommendations based on empirical results.

Keywords

Anhui Province; Sixteen Cities; FDI; Enterprise Development; Industrial Structure; Economic Growth.

1. Introduction

According to the data released by the Ministry of Commerce, my country's actual use of foreign capital in 2021 will be 1,149.36 billion yuan, an increase of 14.9%; in US dollars, it will reach 173.48 billion US dollars, a year-on-year increase of 20.2%. Compared with 2019, the two-year average growth rate of 12.1%, higher than The global average is 6.4 percentage points, a record high. The continuous growth of foreign direct investment (FDI) has played an important role in building a new open economic system and promoting the high-quality development of my country's economy. After more than 30 years of development, my country's national high-tech industrial development zone (hereinafter referred to as the high-tech zone) has continuously gathered innovative resources and elements, and a group of highly competitive technology companies have emerged. A large number of scientific and technological achievements have been born, making my country's high-tech industry The technology industry has developed vigorously and has increasingly become the main carrier to promote the high-quality development of the local economy. Many studies have shown that foreign direct investment will produce spillover effects. The smaller the domestic technology gap, the stronger the human capital, the stronger the ability to digest and absorb technology, and the better the spillover effect. High-tech zones are relatively concentrated areas of innovation elements such as technology and talents, and should theoretically benefit significantly from foreign direct investment. The "Notice on Several Measures for Actively and Effectively Utilizing Foreign Capital to Promote High-quality Economic Development" issued in 2018 proposed to support the innovative development of foreign investment and encourage foreign investment in high-tech fields. As an important foreign investment promotion policy in my country, the 2022 edition of the "Catalogue of Industries Encouraging Foreign Investment" has played an

important role in supporting the development of foreign investment, guiding foreign investment in industries, and optimizing the regional layout of foreign investment.

Anhui Province is located in the central and eastern part of my country. It is a province with a large population and a large economy. In 2014, it was officially included in the Yangtze River Delta Economic Belt, and the level of economic development has been rapidly improved, becoming an important economic component of the Yangtze River Delta region. From 1990 to 2019, the proportion of Anhui's secondary and tertiary industries in the region's GDP increased from 62.6% to 92.14%; the province's foreign direct investment (actual use) increased from 45.9665 million yuan in 1990 to 2019 123,759,090,000 yuan, with an average annual growth rate of 50.91%. The export value increased from 654.09 million US dollars to 40411.1165 million US dollars, and the import value increased from 82.59 million US dollars to 28319.2079 million US dollars. There are obvious interactive effects among industrial structure, foreign direct investment, and foreign trade import and export. At present, Anhui Province has proposed to create a "three regions and one region" strategy to promote the continuous optimization and upgrading of the industrial structure. The "Outline of the Yangtze River Delta Regional Integration Development Plan" clearly points out that it is necessary to promote the upgrading of the industrial structure and economic growth of the Yangtze River Delta region through market balance and good policy guidance.

In recent years, various cities and counties in Anhui Province have established relevant industrial zones, economic zones, development zones, etc., and are committed to creating a good industrial structure that is in line with local economic development, creating a new industrial structure, optimizing industrial layout, and promoting local economic development. What is the interactive effect of industrial structure optimization, development zone economic development and FDI? What are the paths to industrial structure optimization? How is the economic development of the development zone? How does FDI affect both? Does FDI have spillover effects on Anhui Development Zone? Whether to promote the economic development of Anhui region. From the perspective of Anhui Development Zone and FDI, this paper takes the data from 20XX to 20XX as a sample, and explores the role of foreign capital in upgrading the industrial structure of Anhui Province and the economic development of Anhui Development Zone from the perspective of time and space. Analyze the long-term relationship between the optimization of Anhui's industrial structure, the economic development of development zones and FDI, and provide new ideas for the development of development zones in Anhui Province.

2. Relevant Literature Review

Regarding the impact of FDI on the industry, domestic academic research is relatively sufficient at present. Tian Zeyong et al. (2009) studied the impact of FDI on the manufacturing industry based on the manufacturing data of Jiangsu Province, and the results showed that the crowding out effect of FDI is not established, and FDI can stimulate the economic development of manufacturing industrial zones. Sun Puyang, Han Shuai and Jin Shujing (2012) used the panel data of 288 cities in my country from 2003 to 2008 to conduct empirical analysis and found that urban service industry agglomeration is conducive to attracting FDI and promoting spillover effects, while manufacturing agglomeration and foreign capital agglomeration are not conducive to FDI spillover effects. Wang Lixiao and Hui Ning (2015) studied the data of three high-tech zones in Shaanxi Province from 2007 to 2012. FDI can promote industrial agglomeration in high-tech zones, promote urban economic development and technological progress, and industrial agglomeration can also promote the growth of FDI. Song Lijie, Zhang Li, et al. (2018) studied the impact of FDI on the development of high-tech zones based on the rapid development of Zhengzhou High-tech Industrial Zone and the continuous growth of FDI. The research shows that FDI can stimulate the development of high-tech zones and make up

for the lack of industrial structure in high-tech zones. . Chen Song and Lu Chen (2022) used the method of technological similarity to study industrial industries and FDI, and the results showed that foreign investment that takes technological similarity into account often produces positive effects, while FDI that does not take technological similarity into account produces negative effects. effect. Moreover, only when the overall industry level is similar, FDI can produce a better positive effect. Yin Huifang (2020) established a VAR model between foreign trade and economic growth in Shanxi Province from 1990 to 2018. The empirical results show that there is a positive correlation between import and export and economic growth. Wei Jingfu and Zhang Cuncai (2020) established a fixed-effect panel regression model between the foreign trade and industrial structure of the five countries of the Great Mekong Subregion (GMS) from 2003 to 2018, and found that foreign trade has a negative impact on industrial structure adjustment. The level of actual utilization of foreign businessmen has a positive impact on the adjustment of industrial structure. Zhu Heliang and Xie Xiaoyu (2020) analyzed the Sino-US trade situation since 2018, and proposed policy measures to reduce Sino-US trade frictions from the aspects of enhancing the rationality of industrial structure, improving the ability to adjust industrial structure, and making full use of the redistribution and upgrading of the global value chain. Guo Shuhua and Yang Zexia (2020) established a VAR model between my country's foreign trade, international direct investment and other variables and industrial structure from 1995 to 2016, and found that innovation drive is of great significance to the optimization and upgrading of industrial structure. Li Shijie and Zhao Tingru (2019) analyzed the significance of the establishment of free trade zones from the two aspects of industrial structure upgrading and industrial structure rationalization, and suggested that trade circulation should further play a leading role in industrial structure adjustment.

3. Research Hypothesis

The development zone is an area where universities, scientific research institutions, high-tech enterprises and innovative service institutions are relatively concentrated. Among them, high-tech enterprises are the main body of the development zone. A high-tech enterprise is a company engaged in the research, development, production and technical services of one or more high-tech and its products. It is naturally interested in advanced technology and its application, and has an endogenous motivation to learn and learn from foreign cutting-edge technologies. . Therefore, enterprises in high-tech zones have advantages in obtaining foreign technology spillovers. On the other hand, judging from the possible interaction between enterprises in the development zone and foreign capital, it is also conducive to the spillover of foreign technology and promote the development of enterprises in the development zone. First of all, under the guidance of my country's foreign investment policy and Anhui Province's foreign investment policy, more and more foreign capital has entered the field of high-tech industries. Many multinational companies have established institutions in development zones to form competition and cooperation relationships with enterprises in development zones. Moreover, with the entry of foreign investment, the overall industrial structure of the development zone will also change. Since foreign funds are mainly concentrated in high-tech industries, the upgrading of the industrial structure provides good opportunities for the future development of traditional tourist cities and industrial cities. opportunity. Accordingly, it is hypothesized that:

Hypothesis 1: FDI has a significant spillover effect on the development zone, which promotes the development of enterprises in the development zone.

Hypothesis 2: FDI can promote the upgrading of the industrial structure of the development zone.

Hypothesis 3: FDI can promote local economic development.

Hypothesis 4: FDI, industrial structure, and economic growth can promote the development of enterprises in development zones.

4. Empirical Research

4.1. Data Selection

It can be seen from the previous research in the academic circles that the development of development zones is affected by various factors such as national and regional economic policies, high-tech investment, foreign direct investment, education level, population density, etc. For this reason, this article combines the current academic research, According to the actual policies, higher education, and economic development of Anhui Province, the article selects the panel data of 16 cities in Anhui Province from 2010 to 2020 for research. Data sources: National Bureau of Statistics of China, China Economic Network database, Ruisi database, statistical yearbooks of various cities, Guotaian database, etc.

4.2. Variable Selection

The article summarizes the relevant research in the current academic circles, and according to the actual development of various regions in Anhui Province, as well as the changes in the relevant industrial structure and other factors, after comprehensive consideration, the following variables are selected for empirical analysis.

Explained variable.

According to the previous research hypothesis, the article selects the following variables as the explained variables.

Enterprise Development. In general, the development of enterprises can be measured by financial indicators such as total assets, total income, and total profits. This paper considers that the enterprises in the development zone are mainly high-tech enterprises, and their initial investment is relatively large, but the output may be possible within a certain period of time. It does not appear, but compared with total assets, total income and other indicators, the total profit can measure the profitability of the enterprise more intuitively. Therefore, the total profit is selected as the indicator to measure the development of the enterprise. Unit: 100 million yuan.

industrial structure. A very important indicator of industrial structure upgrading is the ratio of secondary and tertiary industries. Based on previous academic research, this paper uses the average value of the added value of secondary and tertiary industries in Anhui Province as an indicator of industrial structure. Calculation formula: industrial structure = (the added value of the secondary industry as a percentage of GDP + the added value of the tertiary industry as a percentage of GDP)/2.

Economic Growth. The level of economic development of a country or region is often measured by per capita GDP, and per capita GDP is also an important level to measure the economic structure of a country or region. In this paper, combined with the research of the academic circles, the logarithm of per capita GDP is selected as the index to measure the economic growth of the development zones in Anhui Province. unit: yuan.

Explanatory variables.

FDI. FDI refers to foreign direct investment, but the investment value of foreign capital in a certain region, because foreign investors generally tend to invest in regions with a large degree of openness, developed regional economy, and complete regional industrial structure, FDI often reflects the degree of openness of a region, the industry Structural perfection. Unit: USD million.

control variable.

Based on previous research, this paper considers that the degree of development of a development area is related to population density and local government expenditures in the

field of science and technology. Therefore, this paper selects population density and regional science and technology industry expenditures as control variables. Unit: person/square kilometer, 100 million yuan.

4.3. Equation Establishment

Combined with the previous assumptions, this paper establishes the following equation:

1) Discuss the relationship between FDI and the development of enterprises in the development zone, and explore whether FDI has promoted the development of the development zone.

$$\text{Lirunzongge} = \alpha + \beta_1 FDI + \beta_2 Tec + \beta_3 \text{People} \tag{1}$$

2) Discuss the relationship between FDI and the industrial structure of the development zone, and explore whether FDI has promoted the optimization of the industrial structure.

$$\text{Industy} = \alpha + \beta_1 FDI + \beta_2 Tec + \beta_3 \text{People} \tag{2}$$

3) Discuss the relationship between FDI and the economic growth of the development zone, and explore whether FDI promotes the economic growth of the development zone.

$$\text{Lngdpper} = \alpha + \beta_1 FDI + \beta_2 Tec + \beta_3 \text{People} \tag{3}$$

4) Discuss the impact of FDI, industrial structure, and economic growth on the development of enterprises in the development zone.

$$\text{Lirunzongge} = \alpha + \beta_1 FDI + \beta_2 \text{Industy} + \beta_3 \text{Lngdpper} + \beta_4 Tec + \beta_5 \text{People} \tag{4}$$

4.4. Benchmark Regression Model

The article uses stata software to analyze the established benchmark regression model, and the regression results are shown in Table 1:

Table 1. Regression results of each hypothetical equation

	(1)	(2)	(3)	(4)
	Lirunzongge	Industy	Lngdpper	Lirunzongge
LnFDI	17.234***	0.656***	0.181***	14.734***
	(5.47)	(4.00)	(7.31)	(5.16)
TecC	2.425***	0.036***	0.009***	2.288***
	(5.45)	(3.62)	(5.84)	(5.29)
People	0.022***	0.000	-0.000***	0.021***
	(2.74)	(0.23)	(-3.87)	(2.62)
Industy				4.202***
				(2.97)
Lngdpper				-1.412
				(-0.16)
_cons	-143.263***	39.249***	8.842***	-295.719***
	(-4.70)	(23.01)	(33.72)	(-4.62)
N	175.000	175.000	175.000	175.000
r2_a	0.664	0.169	0.426	0.685

In Table 1, equation (1) represents the relationship between FDI and the development of enterprises in the development zone, equation (2) represents the relationship between FDI and the industrial structure of the development zone, and equation (3) represents the relationship between FDI and the economic growth of the development zone. Equation (4) represents the impact of FDI, industrial structure, and economic growth on the development of enterprises in the development zone. From equation (1), it can be seen that there is a significant positive correlation between the logarithm of foreign direct investment (LnFDI) and enterprise development (Lirunzong), and its correlation coefficient is 17.234, which is significant at the 1% level. Technology expenditure (TecC), Population density (People) and enterprise development (Lirunzong) also have a significant positive correlation, both at the level of 1%, and the correlation coefficient between technology expenditure (TecC) and enterprise development (Lirunzong) is relatively large, which is 2.425, while the correlation coefficient between population density (People) and enterprise development (Lirunzong) is weak at 0.022. It can be seen from equation (2) that there is a significant positive correlation between the logarithm of foreign direct investment (LnFDI) and industrial structure (Industry), and the correlation coefficient is 0.656, which is significant at the level of 1%.) are also significantly correlated at the 1% level, with a correlation coefficient of 0.036, while the correlation with population density (People) is weak. From Equation (3), it can be seen that the logarithm of foreign direct investment (LnFDI) is significantly positively correlated with the logarithm of per capita GDP (Lngdpper) and technology expenditure (TecC) at the level of 1%, and the correlation coefficients are 0.181 and 0.009. And there is a negative correlation with the population density (People) at the level of 1%. It can be seen from equation (4) that there is an obvious positive correlation between enterprise development (Lirunzong) and the logarithm of foreign direct investment (LnFDI) and industrial structure (Industry), both of which are significant at the 1% level. The correlation coefficient It is 14.734 and 2.288, which means that the logarithm of foreign direct investment (LnFDI) and industrial structure (Industry) can significantly promote the development of enterprises in the development zone, but there is a negative correlation with the logarithm of GDP per capita (Lngdpper), but it is not significant. The remaining two control variables have a significant role in promoting the development of enterprises in the development zone.

5. Conclusion and Recommendations

5.1. Conclusion

This paper selects the data of 16 development zones in Anhui Province from 2010 to 2020 for empirical analysis using stata software. From the empirical analysis results, we can see that:

(1) In the relationship between the development of enterprises in the development zone and foreign direct investment (FDI), foreign direct investment (FDI) has a significant role in promoting the development of enterprises in the development zone. As an important source of investment in the development zone, foreign direct investment has a significant It has promoted the development of the development zone.

(2) In the relationship between the upgrading of the industrial structure of the development zone and foreign direct investment (FDI), foreign direct investment (FDI) has a significant positive effect on promoting the upgrading of the industrial structure of the development zone, because foreign investment is mainly concentrated in the secondary and tertiary industries production, especially the tertiary industry, so increasing foreign investment has a significant role in promoting the optimization of the industrial structure of the development zone.

(3) In the relationship between the economic growth of the development zone and foreign direct investment (FDI), foreign direct investment (FDI) can significantly improve the economic growth of the development zone. In this paper, the economic growth of the development zone

is measured by the logarithm of GDP per capita. Investment plays a significant role in the development of the development zone, and the development of the development zone can drive the growth of the overall economy of the development zone. Therefore, increasing foreign investment can obviously promote the economic growth of the development zone.

(4) When studying the relationship between the development of enterprises in the development zone and foreign direct investment (FDI), industrial structure and economic growth, it can be seen from the empirical results that foreign direct investment (FDI) and industrial structure have a significant impact on the development of enterprises in the development zone. Promoting effect, although economic growth has a weakening effect on the development of enterprises in development zones, but the degree is very low, and the significance level is low, which may be caused by insufficient data.

5.2. Recommendations

Based on the empirical results and the development of development zones in Anhui Province, the article puts forward the following suggestions:

(1) Increase policy optimization and improve the foreign investment environment. Provincial governments and regional governments should formulate corresponding foreign investment citation policies based on actual conditions to promote foreign investment in the country. At present, the negative impact of the epidemic on foreign investment citation and industrial development has been basically eliminated in China, and the overall domestic economy is recovering rapidly. To promote the development of enterprises in development zones, the local government should optimize industrial policies and increase the entry of foreign capital.

(2) Increase scientific and technological input and increase scientific and technological output. The development zone mainly concentrates relatively developed enterprises, which have more achievements in the field of science and technology, and the corresponding output value obtained is also more, while foreign investment is mainly concentrated in high-tech industries. Investment to promote the technological development of enterprises in the development zone, so as to fully attract foreign capital.

(3) Increase investment in education to attract talent inflow. As the core driving force of enterprise development, higher education talents play an important role in the development of enterprises. The development zone should actively attract talent reserves, increase the number of talents in the development zone, improve the quality of talent services, and thus improve the overall technical level of the development zone.

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