

Study on the Regional Influential Factors of Foreign Direct Investment in China

Qiuyan Lin

Shang Hai University, China

linqiy@foxmail.com

Keywords: Foreign direct investment in China; Regional differences; Influencing factors; Panel data

Abstract. This article analyzes the regional differences and influential factors of inflow of foreign capital in our country from 2006 to 2015 in our country. The results of empirical analysis show that the level of economic development is positively correlated with the inflow of foreign capital and is evident in the central and western regions; the impact of labor costs on the inflow of foreign capital is a negative effect; as China's infrastructure improves, the influence of infrastructures on the inflow of foreign capital is weakened. The degree of opening to the outside world has an important impact on the inflow of foreign capital to our region. The major reason why the inflow of eastern capital is higher than that in the central and western regions is the coastal geographical advantage in the east. Finally, the paper summarizes and puts forward some suggestions based on the empirical regression results.

Introduction

Since the reform and opening policy, China has become the main destination for foreign direct investment. Foreign direct investment is an important factor in China's sustained and rapid economic growth. The inflow of foreign capital not only plays an important role in promoting China's industrial modernization, improving the financial system, and introducing regional and global management methods, but also plays an important role in improving China's overall economic structure and achieving a higher level of opening up.

Although the growth rate of inflow of foreign capital in China has slowed down in recent years, its scale is still huge. According to statistics from the Ministry of Commerce of our country, the actual utilized foreign investment in China amounted to 877.56 billion yuan in 2017, an increase of 7.9% over the same period of last year. However, the unbalanced distribution of foreign direct investment in China still exists. There is a clear gap between the FDI inflows in eastern China and the central and western regions. This article explores the differences between foreign direct investment in China's regions and conducts empirical analysis. Under the background of building the "The Belt and Road" in our country, how to attract more foreign investors to the central and western regions where capital and technology are lacking is of great significance in research and policy guidance for promoting the balanced development of our economy and narrowing the regional disparity.

Theoretical Basis

Among foreign scholars' achievements in studying the investment of multinational corporations, Dunning's (1977, 1981) [1,2] international eclectic theory is one of the most influential and well-explained theories in FDI theory. Based on the advantages of ownership and internalization, this theory introduces the location advantages of host countries and illustrates the factors that influence FDI inflow from the host country's perspective.

The domestic scholars' research on the regional differences in FDI started in the 1990s. Many scholars have made a lot of achievements in the study of the regional differences in the inflow of foreign capital in China. Domestic scholars Lu Minghong (1997) [2] and Wei Houkai (2001) [3] pointed out the main factors that attract foreign investment such as economic development level,

market factors, preferential policies and labor costs. Wei Houkai et al. (2001) [4] also pointed out that the level of development of the tertiary industry has a great impact on the location distribution of FDI. Sun Jun (2002) [5] believes that in addition to the level of economic development, infrastructure, policies and other factors, the industrial structure has a significant impact on the investment environment in the region. Wang Zuowei (2005) [6] under the background of foreign investment entering a new stage after China's accession to the WTO, analyzed the characteristics and differences of FDI inflow and distribution in the eight major economic regions of our country and discussed the regional differences and determinants of the actual FDI inflows. Li Hanjun (2011) [7] made an empirical study of the regional differences in FDI inflows in China from 1992 to 2007 using panel data of Chinese provinces, selecting economic development level, labor cost, degree of opening to the outside world and coastal location advantages as explanatory variables. Liu Yulin and Li Yang (2011) [8] analyzed the dynamic reasons for the regional differences in China's FDI using the panel data model. The MoranI index was used to analyze the regional agglomeration effects of FDI in China and confirmed the spatial dependence and agglomeration effects of FDI in China.

The theoretical basis of this study is based on the theory of location advantage, which is used to explain the motivation and investment direction of OFDI. The theory of location advantage points out that the reason why MNCs make direct investment in a country or a specific economic area is to acquire the unique geographical location that the region has but does not have in other areas. The main determinants of the location choices affecting foreign direct investment are: First, The level of economic development. Including the stage of economic development, economic development speed, market size and market potential. Second, Operating costs. Including infrastructure improvement and labor costs. Among them, the higher degree of infrastructure improvement means that the faster the transportation in this area, the lower the transportation cost. One of the reasons for direct foreign investment is to seek lower factor prices and lower costs so as to obtain more profit margin. Third, Taxes, preferential policies. The support of a stable policy environment has a huge impact on the formulation of foreign investment strategies. Fourth, Specific resources and energy factors. The abundance of specific elements in a area are also important considerations in foreign investment decisions.

Variable Selection

Based on the previous research results, this paper chooses the following five explanatory variables and analyzes the influencing factors of FDI inflows in various regions in China from 2006 to 2015.

The level of economic development. The higher level of regional economic development means that the larger the market size of the region, the faster the capital absorption and circulation, the more attractive it will attract foreign investment. Therefore, the level of economic development in a region has become an important factor affecting foreign direct investment.

Labor costs. All along, China's labor cost advantage has become an important decision-making factor for multinationals to invest in our country. Economic globalization has promoted the optimal allocation of global elements and resources and enabled multinational corporations to find cost-reducing elements and resources allocation in a global scale and thus won the fierce international market competition. The lower labor cost advantage of developing countries is an important consideration in foreign direct investment decision-making.

Infrastructure. Infrastructure is an important factor for investment enterprises to consider when making investment decisions. Sound infrastructure conditions, such as convenient transportation facilities and well-developed logistics and transportation, can save enterprises transaction costs and attract more investment. Therefore, the complete degree of infrastructure will affect the direction of foreign investment.

Coastal geographical advantages. The advantage of geographical location is the first characteristic of location advantage. Whether an area has geographical advantage is an important condition that affects the investment of multinational corporations. Compared with the inland areas,

coastal areas have more opportunities and contacts with the outside world and have higher frequency. In 2015, the top five import and export trade volume of China's foreign-funded enterprises are Guangdong, Jiangsu, Shanghai, Shandong and Zhejiang, all belonging to the eastern coastal areas. In this paper, we use the geographical position as one of the explanatory variables, and consider whether the area is a coastal city as a dummy variable or 1 if it is a coastal city, and 0 otherwise.

Regional openness. The stronger the openness of the region, the more opportunities for exchanges with the outside world and the greater access of foreign businessmen to the regional strengths and characteristics of the region. Moreover, the higher degree of openness in a region means that its market system is more sound and its policies are more transparent. A stable political environment is more likely to attract foreign direct investment and the region's foreign trade is stronger. Therefore, this article measures the degree of regional openness by using the ratio of the total amount of foreign trade to total GDP as a percentage of GDP.

The Establishment of the Model

The data used in this paper are derived from panel data of 30 provinces and cities in China's National Bureau of Statistics from 2006 to 2015, with a total of 10 time series and 30 cross-sectional data. Tibet Autonomous Region, Hong Kong Region and Macao Region are excluded. This article uses panel data to expand the sample size, include more information, and increase the credibility of regression results.

Based on the above analysis of the factors that influence FDI, a logarithmic model of FDI and these influencing factors is established:

$$\ln ImExit = \alpha \ln Y_{it} + \beta \ln W_{it} + \delta Rd \ln Rd_{it} + \varphi Tr \ln Tr_{it} + \gamma Op Op_{it} + \eta dum Dum + \mu_{it} + e_{it}$$

ImExit: The import and export volume of foreign-funded enterprises in various provinces and cities. *Y_{it}*: Represents the level of economic development in 30 provinces and cities, expressed in terms of gross domestic product (GDP). *W_{it}*: On behalf of labor costs, the average wage of employed persons in urban units is used. *Op_{it}*: Represents the degree of opening to the outside world, divided by the total volume of imports and exports of foreign-invested enterprises divided by the gross domestic product of various regions. *Rd_{it}*, *Tr_{it}*: Weighing the infrastructure in different places is measured by the annual freight volume of highways and railroads divided by the length of roads and railways, which are respectively defined as the efficiency of road and rail transportation. *Dum*: It is a dummy variable that distinguishes whether it is a coastal province or not. According to the division of coastal provinces in our country, 12 coastal provinces such as Liaoning, Beijing, Tianjin, Hebei, Shandong, Jiangsu, Shanghai, Zhejiang, Fujian, Guangdong, Guangxi and Hainan 1, the other eight non-coastal provinces take 0 value.

Empirical Test

Model estimation. In this paper, we use Stata software to do the econometric analysis, and validate the model by choosing a number of different parameters. The parameters are estimated using fixed and random effects. The Hausman test is used to determine whether to choose the fixed effect model or the random effect model. Table 1 shows the model Estimated result.

Table 1 Regional Differences in Foreign Direct Investment in China Influencing Factors
Regression Results

Argument	Model (1)	Model (2)	Model (3)	Coastal Model(4)	Coastal Model(5)	Non-Coastal Model(6)	Non-Coastal Model(7)
lny	lninex 0.988*** (7.41)	lninex	lninex 0.949*** (9.79)	lninex 1.018*** (18.43)	lninex	lninex 0.549*** (4.37)	lninex
lntr	-0.0462 (-1.02)	-0.0932* (-2.00)	-0.0444 (-0.99)	-0.0205 (-1.40)	-0.0198 (-1.10)	-0.117 (-1.38)	-0.132 (-1.60)
lnrd	0.0220 (0.51)	0.0523 (1.18)	0.0188 (0.44)	0.0588** (3.36)	0.0132 (-0.55)	0.0813 (0.61)	0.116 (0.95)
lnwage	-0.0231 (-0.44)	0.251*** (6.32)			0.482*** (14.17)		0.248*** (5.02)
op	3.986*** (6.77)	3.131*** (4.84)	3.973*** (6.78)	2.405*** (11.70)	1.459*** (6.63)	15.97*** (10.99)	16.16*** (11.38)
dum	1.296** (3.03)	2.076*** (3.50)	1.316** (3.12)				
cons	-3.715** * (-10.63)	-5.300*** (-14.00)	-3.754** * (-11.22)	-1.651*** (-18.05)	-2.222*** (-22.35)	-5.081*** (-14.21)	-5.747*** (-17.16)
N	299	300	299	109	110	189	188

Note: *, **, *** represent significant at the level of significance of 10%, 5%, 1%, respectively, and the coefficients without * show no significance in the regression. The fixed-effects model is estimated in the Stata software using dummy variables. In a model that distinguishes between coastal provinces and non-coastal provinces, the fixed-effects model poses a serious collinearity problem because the coastal conditions are represented by dummy variables. Therefore, models (1) and (2) with dummy variables adopt the stochastic effect model and the fixed effects model is used in models (4), (5), (6) and (7).

When all the explanatory variables were regressed, it was found that the level of economic development and the degree of openness had a significant positive impact on foreign investment, while the impact of infrastructure and labor costs was insignificant. The regression results of Model 2 show that labor productivity is significant when the cost of labor is regressed against other factors without considering the level of economic development. At this moment, only the transportation condition of the highway has no significant impact on the attraction of foreign investment, the labor cost, the degree of opening to the outside world and the geographical location of the coast are very significant. Model 3 does not consider the impact of labor cost factors. The regression results show that the influence of infrastructure factors on attracting foreign investment is insignificant, and the coefficients of economic development, opening up and coastal geography are significantly positive.

Comparing the regression results of models (4), (5), (6) and (7), it is found that the level of economic development, labor cost and regional openness have significant impacts on FDI in coastal and non-coastal areas. Compared with model (4) and (6), we can see that the coefficient of economic development in coastal model is larger than that of non-coastal model. Comparing with model (5) and (7), we find that the coefficient of labor wage in coastal model is nearly two times than that in non-coastal model. The degree of regional openness has significant effects on FDI in coastal and non-coastal areas, and the coefficients in non-coastal models are much larger than those

in coastal models; However, the efficiency of road transport and the efficiency of railway transport, which measure the situation of infrastructure, are significant only in coastal model (4) but not significant in other models.

Regression Analysis. The level of economic development is an important factor in attracting foreign direct investment in various regions. From a national point of view, GDP increases by 1% and foreign direct investment will increase by 0.988%. Judging from the coastal areas and non-coastal areas in China, the level of economic development is the major factor in attracting foreign investment in various places and the impact of the level of economic development in coastal areas on foreign direct investment is greater than that in non-coastal areas. The result here is somewhat different from what we expected. The level of development in the central and western regions is expected to have a greater impact on foreign investment than in the coastal areas.

Labor costs have a significant impact on the inflow of foreign capital in the region. From the national model, labor costs are significantly negative impact, indicating that increased labor costs will hinder the inflow of foreign capital in various regions, but for the coastal areas and non-coastal areas of the extent of the impact is different. In the coastal and non-coastal models, the impact of labor costs is significantly negative. Among them, the labor cost has a greater impact on the coastal areas. When the labor cost increases by 1%, the foreign investment decreases by 0.48%. For every 1% increase in the labor cost in the central and western regions, the foreign investment decreases by 0.25%. This is mainly due to the loss of the demographic dividend advantage of our country in recent years and the increase in labor costs. While foreign-funded enterprises in coastal areas are more sensitive to rising labor costs, many foreign investors have withdrawn from China and extended their investment to a labor-saving Southeast Asia.

The impact of infrastructure. From a national point of view, the impact of rail transport efficiency on foreign capital is almost insignificant and negatively correlated, while the coefficient of regression of road transport efficiency is small and insignificant, indicating that the impact of infrastructure conditions measured by traffic conditions on foreign investment is weakened. In addition, from the zoning model, the impact of road transport efficiency on foreign direct investment in coastal areas and non-coastal areas has a greater impact and positive impact, and the railway transport efficiency is negatively correlated with the impact of coastal transport and non-coastal areas. This further shows that with the improvement of basic transportation facilities in the eastern and western regions of China, the impact of infrastructure on the regional differences in foreign investment is gradually weakened.

The degree of openness. The degree of openness has a positive and significant impact on attracting foreign investment both in the eastern coast and in the central and western regions. Generally speaking, the more coastal provinces are, the more open areas are and the easier they are to attract foreign direct investment. The greater the degree of openness, the more likely it is that open-ended areas will be significantly affected by open areas. The empirical results prove this point. As can be seen from the model in Table 2, the impact of increased openness on non-coastal areas is much higher than that on coastal areas.

Geographical factors have a significant impact on the flow of foreign investment. Empirical results show that whether coastal areas are important influencing factors for the flow of foreign investment. Among other factors, coastal areas attract 1.296% more foreign investment than non-coastal areas. This shows that the eastern coastal areas will attract more foreign capital inflow even if other conditions are not maintained in the central and western non-coastal areas. Therefore, the coastal location conditions are the main determinants of the direction of FDI.

Conclusion

Through the empirical analysis of the factors that affect foreign investment in our country, it is found that the level of economic development is the main factor in attracting foreign investment. The improvement of economic development will promote the expansion of foreign investment. The increase in labor costs is not conducive to the expansion of the scale of foreign investment, or even

lead to the withdrawal of foreign investment. With the improvement of the national transportation infrastructure, the impact of infrastructures on foreign inflows is not obvious, and the impact of highway facilities on railway facilities is greater. The degree of opening up has a significant positive impact on the inflow of foreign capital to our country. Whether it belongs to the coastal areas plays a crucial role in attracting the inflow of foreign capital. Even under the same conditions, the inflow of foreign capital to non-coastal areas is still lower than that of the coastal areas.

Foreign-funded economy has become an important part of China's economic development. Combined with the above analysis results, this paper mainly proposed the following suggestions to our country to attract foreign investment: Improving the level of economic development in various regions of our country is the main measure to promote the balanced distribution of the inflow area of foreign capital in our country. In our country, due to the loss of labor cost advantage, the withdrawal of foreign capital began to appear. The central and western regions should also make good use of their labor cost advantages and make full use of their unique resource endowments to improve the level of economic development in the region. In the eastern region, however, human capital, innovation and technology should be increased to promote industrial restructuring. The degree of opening up has a significant impact on the inflow of foreign capital in the coastal and non-coastal areas. The higher the degree of opening up, the more it can attract the inflow of foreign capital, so our country should achieve a more open-oriented economy.

References

- [1] J.H.Dunning, "Trade, Location of Economic Activity and the MNE : A Search for an Eclectic Approach"[M]. London.: First published in B. Ohlin Per Ove Hesselborn Activity. Macmil-lan, 1977. 25112.
- [2] J.H.Dunning, International Production and the Multinational Enterprise[M]. London and Boston : Allen&Unwin, 1981. 1—439.
- [3] Minghong Lu. Regional distribution of foreign direct investment and China's investment environment assessment. Economic Research [J], 1997 (12): 37-44.(In Chinese)
- [4] Houkai Wei, CanfeHei and Wang Xin. Analysis on the Motivation and Location of Foreign Direct Investment in China - An Empirical Study of Foreign Direct Investment in Qinhuangdao City [J], 2001 (2): 67: -94(In Chinese)
- [5] Jun Sun. Factor Analysis of China's FDI Location Selection [J]. Economics, 2002 (2): 687-698.(In Chinese)
- [6] Zuowei Wang. Comparison and Theoretical Analysis of Regional FDI Inflow in China [J] .Science & Technology Progress and Policy, 2005: 72-74.(In Chinese)
- [7] Hanjun Li. Regional Differences and Influencing Factors of FDI Inflow in China - Based on Provincial Panel Data from 1992 to 2007 [J] .International Trade Issues, 2011: 124-130.(In Chinese)
- [8] Yulin Liu, Yang Li. MoranI Index Analysis of Regional Differences in FDI in China [J]. Journal of Chongqing University (Social Science Edition), 2011, 17 (1): 1-8.(In Chinese)