Analysis of foreign direct investment on china's industrial structure innovation

Cheng Ye-bing

Anhui Science and Technologe University, School of Management, Fengyang Anhui, 233100, (CHINA)

ABSTRACT

Since the beginning of reform and opening up, the international competitiveness of China's economic has been enhanced. So it leads to the significant growth of foreign direct investment in our country. However, the industrial structure of foreign investment runs counter to China's industrial structure optimization and orientation. It makes it impossible for that foreign investment maximization and China's industrial structure optimization can't be directly proportional to develop. And it leads to the lack of conductivity for foreign investment in China's industrial. Addressing this situation, we start with the proportional changes in composition and changes in industrial structure of FDI in the three major industries, and analyze the changes in composition of the FDI in China's three industrial structures. The innovative industrial structure change is proposed and feasible suggestions of how to guide foreign investment gradually is put forward.

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INTRODUCTION

After 30 years of reform and opening up, along with the continued growth of economy and the acceleration of the process of economic globalization, China is now out of the middle stage of industrialization. The initial adjustments of China's three industrial structures and the rational tasks in the current period have been completed basically fully[1-3]. The foreign direct investments have played a certain role in China's economy market regulating. It has further accelerated the evolution and development of China's three major industrial institutions, making the total of China's economic growth mainly to change from the first and secondary indus-

tries into mainly in the secondary and tertiary industries. Comparing to most developed countries over the same period, the proportion of China's secondary industry is relatively higher and the proportion of the tertiary industry is lower. Although China's industrial structure adjustment and upgrading has been put into an important position and the industrial structure has been greatly improved, there are still some urgent problems to be solved[4-6].

The industrial structure refers to different industries in economic activities from technical and economic relevance, and contains the corresponding proportional relation. Technical and economic relevance to fundamentally describe the different between industry trans-

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formation relationship, reflects the characteristics of different industrial economic activity. Proportional relation can describe different industries in the overall industrial structure system, the effect size, can reflect different industry economic activity external characteristics. From the static Angle analysis, three times between industry field, mainly reflected in a certain period of the three industries produce GDP accounted for the proportion of the total gross national product, from the dynamic perspective, three industries are mainly embodied in the relationship between the three industries of GDP accounted for the proportion of the total gross national product changes[7-10].

Industrial structure is the key to influence the pattern of economic growth factors, and can describe China's economic development and the overall national economic performance, and analysis the situation of industrial structure of our country, to understand the change of the structure of industry trends and to optimize the existing industrial structure and upgrade of industrial structure of the advantages, enhance the nation's overall economic strength, promote economic development has important value.

Our existing production and supply structure can't adapt to the changes of the international and domestic market demand. On the one hand, the performance of local production is excess and the level structure is relatively low. On the other hand, the quality of personnel is relatively low and product consumption is relatively high. China is faced up the task of adjustment and upgrading of industrial structure. And the effective use of foreign investments is the main method to achieve this goal. However, the industrial structure of foreign investment runs counter to China's industrial structure optimization and orientation. This makes it impossible that foreign investment maximization and China's industrial structure optimization can't be directly proportional to develop. Addressing this situation, we start with the relativity of the proportional changes in composition, the relationship of FDI total and economic growth, the total impact of FDI in the structure changes of the three industrial. An experiment is analyzed, and measures to effectively improve China's industrial structure are addressed. Feasible suggestions are put forward on reasonably guiding foreign investment among China's industrial distribution.

FDI AND THE STATUS OF CHINA'S INDUSTRIAL STRUCTURE

Industry is the industry enterprises and organizations part of the aggregate, the industrial structure is the parts or the mutual relationship between industries. At present, China's industry standard for three kinds of industrial structure, the first industry is including animal husbandry and fishery, the second industry is mining, manufacturing, gas, electricity and water production and supply, and construction, and the third industry including except the first industry and the second industry outside of all enterprise industry, foreign direct investment in China's institutions of industrial capital investment in this pattern property division.

With China's economic growth, the phased development of GDP and FDI can be roughly divided into four stages. The first stage is that FDI gradually slowly enters the China's market and gradually shows a growth. At the same time, China is also forming the scale of the market economy and economic development is relatively slow. The second stage is that FDI enters into the stage of development of the rapid growth. China at this time establishes a socialist market economic system. It leads to the rapid development of the economy. The third stage is that FDI investment shows a slowed down stage, also the Southeast Asian financial crisis occurs. Therefore the growth rate of China's economic structural adjustment began to slow down. The fourth stage is that FDI has a rapid and stable growth stage, which accelerates the steady growth of China's domestic economy. Their specific distributions are shown as in Figure 1 and Figure 2.
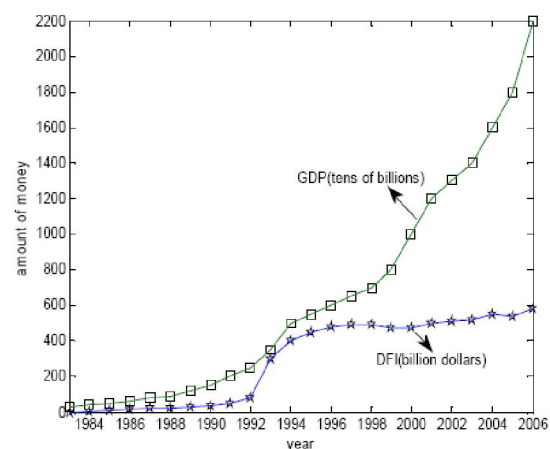

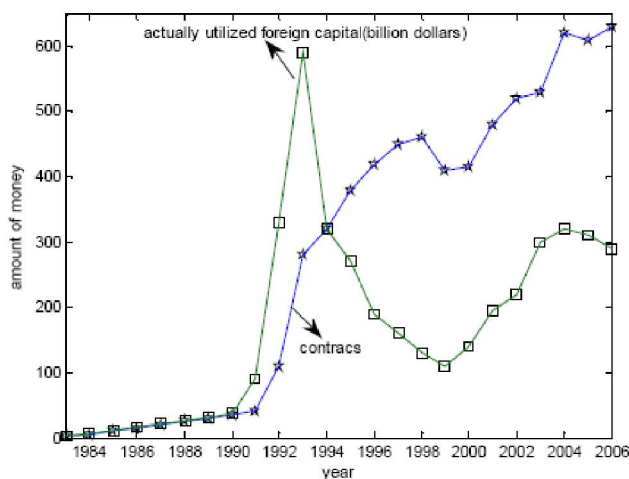**Figure 1 : GDP and FDI calendar growth change over the years**

Figure 2 : China's FDI absorption Graph from year 1983 to 2006

As can be seen, with the GDP growth in China since the reform and opening up, China's three industrial structures is also undergoing evolution. As is shown in figure 2, foreign investments lead a growing scale of economic and elevate to a stable state. China's industrial structure shows the following forms. Compared with previous years, the proportion of the primary industry descends. Along with the introduction of efficient cash crops, animal husbandry and fisheries have a rapid and stable growth. The rural economic structure has been further optimized. The second industrial mode remains continue to rise, while traditional industries are converse to modern industrial. The high-tech industry has become an important driving force of economic growth of the secondary industry. Adhering to the principle of high efficiency, environmental protection and highly social, the development of China's manufacturing industry ranks fourth in the world. And the tertiary industry, i.e. the service industry, has rapidly developed and rose, in which the most obvious improvement is the share of the labor factor, focusing on the quality of the service personnel.

However, foreign direct investment is still in large part on the type and quantity mainly check-market of our country's economy. The direction of foreign investment offsets seriously. In some ways only the investor can control the investing industry technology, and the government macro-control fails, so that domestic enterprises have been marginalized. Thus the ability of independent innovation has been weakened, threatening the profits of China's sustainable development. Foreign investors' fundamental purpose of benefit maximization

runs counter to the strategic transformation goals of China's foreign policy. The guarantee of the stable development of the manufacturing sector, the continual rising of service sector, and optimizing the reform of the structure of foreign investment are related to the reform and innovation of the three major industries in our country. Foreign direct investment has a critical role on the development of the three industries. Therefore the mechanisms and pathways of foreign direct investment from the theoretical level to the actual use phase are researched. The experiment with the overall data of FDI is analyzed by the Eview 3.0 software. The Engle-Granger two-step method is also applied. According to different foreign investments, the elaborate impact on reform and innovation capability of China's three major industries is demonstrated. Thus it will be a more scientific and rational way to promote economic and social development in China. It will maintain the consistency of the development in China's three industries and also guarantee the profits of foreign direct investment.

CASE MODEL

In this article, some scientific data of the "China Statistical Yearbook" published in 2007 is selected. From the year 1987 to 2006, the explanatory variables are the three major industrial output value ratios. And first, second and third respectively represent the output value of the first, secondary and tertiary industry. In order to analyze the impact of the different sources of FDI on the structure of China's three major industries more accurately, the paper distinguishes FDI overall. Three aspects, namely FDI1 FDI2, FDI3 is selected to represent the share of foreign investment in the primary, secondary and tertiary industry. The regression model is shown in Equation 1.

The self-created function is expressed as follows

I = f (first, second, third, FDI1, FDI2, FDI3)   (1)

Among them, I is the results of research development, and is mainly used to measure the economic benefits China's three major industrial reform and innovation.

When performing parameter estimation, a logarithmic model is used. The logarithmic form is chose for after the logarithm is taken, the coefficient of the explanatory variables is elastic. Comprehensively con-

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sidering the stability of the time series and accuracy of the results, the corresponding values are recorded as Lnfirst, Lnsecond, Lnthird, LnFDI1, LnFDI2 and LnFDI2. It is worth mentioning that the fees, material costs are included in the total expenditure of industrial enterprises within the expenditures of scientific and technological activities, building fees, fixed assets, technological innovation, the introduction of technology, digestion and absorption and purchase of domestic technology, etc. But other expenses under the technical activities expenditure are not included in the internal total expenditure of the funding for scientific and technological activities for different representation. A different analysis method is adopted.

The empirical method is taken as follows. First use the Eview 3.0 simulation software based on the ADF unit root test and co integration test. The stationary test the sequence of events is derived, as is shown in Table 1. Second, take Engle-Granger two-step method, ac-cording to Granger causality test and analysis, the experimental results are derived in TABLE 2, TABLE 3 and TABLE 4.

TABLE 1 : The sequence of events stationary test

parameter	Inspection Form (C,T,P)	ADF Test statistic	5% Critical value	remarks
LnFDI1	(C,T,O)	-2.22	-3.67	unit root exists
DLnFDI1	(C,T,O)	-4.11	-1.96	-
LnFDI2	(C,T,O)	-4.60	-3.67	-
DLnFDI2	(C,T,O)	-6.27	-1.96	-
LnFDI3	(C,T,O)	-4.23	-1.96	unit root exists
DLnFDI3	(C,T,O)	-2.68	-3.67	-
Lnfirst	(C,T,O)	-2.68	-3.67	unit root exists
DLnfirst	(C,T,O)	-2.44	-1.96	-
Lnsecond	(C,T,O)	-1.49	-3.67	unit root exists
DLnsecond	(C,T,O)	-2.60	-1.96	-
Lnthird	(C,T,O)	-1.19	-3.67	unit root exists
DLnthird	(C,T,O)	-2.47	-1.96	-

TABLE 2 : Causality test of LnFD1 and first

Null hypothesis	Fimpact value	Lag period	probability	Decision making	Consequences conclusions
LnFDI1<LNfirst	1.82	2	0.99	accept	LnFDI1<LNfirst
LNfirst<LnFDI1	0.01	2	0.20	reject	LNfirst=>LnFDI1

TABLE 3 : Causality test of LNFDI2 and Second

null hypothesis	F impact value	Lag period	probability	decision-making	Consequences conclusions
LnFDI2<LNsecond	3.82			Reject	LnFDI2=>LNsecond
LNsecond<LnFDI2	1.33	2	2	reject	LNfsecond<LnFDI2

TABLE 4 : Causality test of LnFDI3 and third

null hypothesis	F impact value	lag period	probability	decision-making	Consequences conclusions
LnFDI3<LNthird	0.28	2	0.76	accept	LnFDI3=>LNthird
LNthird<LnFDI3	2.13	2	0.55	reject	LNthird=>LnFDI3

CASE ANALYSIS

Use case analysis model and the use of regression function model evaluation function, the case analysis model of the causal relationship between inspections, specific as follows.

From the Granger causality test and analysis, we can get LNFDI1 with the first causality test results as shown in Table 2. The expression "LNFDI1 < LNfirst" means FDI1 does not Granger Cause first, the value of P represents the probability of "FDI1 does not Granger Cause first ".

Experimental conclusion 1: From TABLE 2, when the value of lag period is 2, the probability of foreign direct investment causing the changes of China's primary industry accounted for 90% or more, which indicates that only ten percent probability can guarantee FDI1 drives changes in the industry. Meanwhile, when the value of lag period is 2, the probability of that the foreign direct investment does not affect the primary industry in China accounts for 20%. From the side reaction, we can see that only when the foreign direct investment accounts for more than 80%, FDI can be affected by the primary industry. Therefore, it is said that the changes of the primary industry in the GDP is

affected less by the changes of foreign direct investment. The relationship of the two has only a single causal relationship.

Experimental conclusion 2: From Granger causality test and analysis, LNFDI2 and Second causality test results are shown in TABLE 2. The expression "LNFDI2 <Lnsecond" means "FDI2 does not Granger Cause second". The value of P represents the probability of "FDI2 does not Granger Cause second ".

It can be drawn from TABLE 3 that when the value of lag period is 2, the probability of that the changes of the foreign direct investment does not cause the changes of the secondary industry in GDP accounts for less than ten percent. That means we can ensure that FDI leads to changes in the secondary industry above ninety percent. Meanwhile, when the value of lag period is 2, the probability of that the foreign direct investment does not affect the secondary industry in China accounts for less than 30%. This means when the foreign direct investment accounts for more than 70%, FDI can be affected by the secondary industry. Therefore, it can be said that the foreign direct investment affects changes in the proportion of China's secondary industry in GDP. The proportion of China's secondary industry in GDP has also affected the changes in composition of foreign direct investment in the secondary industry. There exists a two-way causal relationship between the two.

Experimental conclusion 3: From Granger causality analysis, the causal relationship between LNFDI3 and third is shown in table 4. The expression "DLNthird <LNFDI3" means "third does not Granger Cause FDI". And the value of P represents the probability of "the third does not Granger Cause FDI3 ".

It can be drawn from table 4 that when the value of lag period is 2, the probability of that the changes of the foreign direct investment does not cause the changes of the tertiary industry in GDP accounts for less than 70%. That means we can ensure that FDI leads to changes in the tertiary industry above 30%. Meanwhile, when the value of lag period is 2, the probability of that the foreign direct investment does not affect the tertiary industry in China accounts for more than 50%. This means when the foreign direct investment accounts for less than 50%, FDI can be affected by the tertiary industry. Therefore, it can be said that the foreign direct investment has little effects in the proportion of China's tertiary industry in

GDP. The proportion of China's tertiary industry in GDP promotes foreign investment to a certain extent. The relationship of the two has only a single causal relationship.

It can be concluded from the above three tables that the primary, secondary and tertiary industry with foreign direct investment has a corresponding causality. So it is a scientific and rational guidance for the reform and innovation of China's industrial structure. It is better to focus to infrastructure facilities actively and steadily. The technology transfer and innovation capacity of Chinese enterprises are also needed to nurture to ensure foreign investment maximum. A scientific and reasonable system and healthy market competition mechanism should be established to ensure that the foreign direct investment achieve win-win with the adjustment of the industrial structure of China's three major state.

EXPERIMENTAL ANALYSIS

In order to further validation of foreign direct investment in China the promoting function of the industrial structure, this paper through the experiment to the nation's 2000-20100 the first industry, secondary industry and tertiary industry, China's economy in foreign direct investment situation in the industrial structure promotion efficient, produce the value of the corresponding results of efficiency, respectively with figure 3 and figure 4 description.
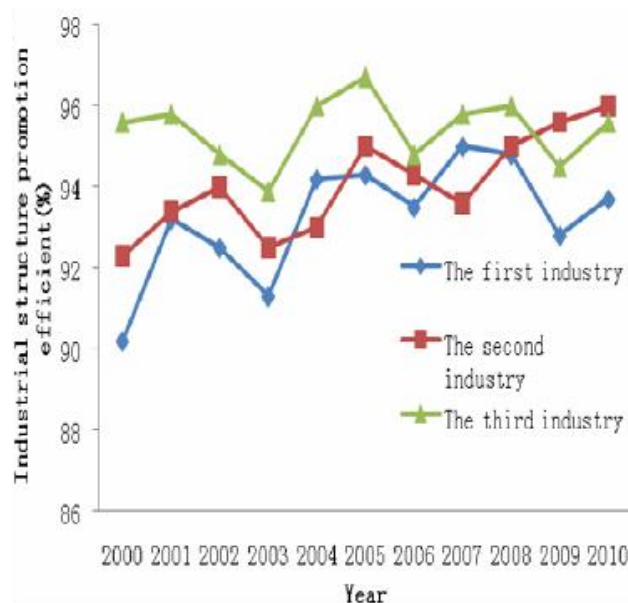

Figure 3 : Foreign investment circumstances three industry structure adjustments efficiently

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The foreign investment can create effective value of the third industry structure adjustment, so relate of the three industry structure table as follow:
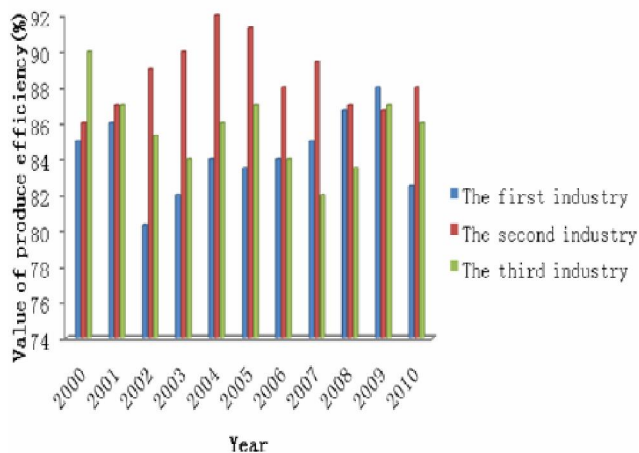

Figure 4 : Foreign investment circumstances three industry structure adjustment create value of efficient

Analysis chart 3 and figure 4, 2000-2010 in China between due to the use of foreign direct investment measures, which the country's first industry, secondary industry and tertiary industry industrial structure adjustment, and the efficient industry adjust the value of produce efficiency, achieve high standard that foreign yourself investment can promote the innovation of the industrial structure of our country, and has important application value.

So, according to the circumstances model and the case analysis, we can have a basic of conclusion about the foreign entreaty investment our county companies, especially the foreign investment circumstances three industry structure adjustment create value of efficient, in these ways, our company can adapt the foreign investment which it belongs the three industry, we can consider the investment way can bring to our industry structure how to change efficiently in the industry value.

CONCLUSIONS

In summary, the majority of China's direct investment abroad made significant achievements and interests, but there are a lot of problems in the progress of China's economic and social. It is not difficult to see that it has a complementary relationship between foreign direct investment and the adjustment of the industrial structure of China's three major. Generally speak-

ing, it has a tremendous potential space for China's direct investment on the industrial structure adjustment and social development. It is necessary to focus on the economic benefits of foreign direct investment for China's current industrial structure and further enhanced comprehensive national strength. And it needs to optimize the structure of the domestic industry continually and strengthen the development of China's enterprises, in order to integrate China's economic market with the world market.

Industrial structure adjustment on employment pattern, economic globalization on the industry investment benefit maximization influence on motivation, foreign investment in China, the main investment areas in China for the second and the third industry, and in the second and the third industry investment configuration and resource utilization is not reasonable, this kind of circumstance is not fully in conformity with our country industrial structure adjustment goal. At present, China's industrial structure adjustment and the investment basically has realized the structure of the coordination and optimization work, was in positive to industrial upgrading Angle and direction development, China's industrial structure adjustment and upgrading.

The main point in three aspects is a strong promote the first industry labor orientation change and labor surplus to the solution of the problem, it is mainly because the first industry of many employees, the population proportion is on the high side, which seriously restrict the Chinese industry high centralization, so must be in the rural labor force transfer at the same time, considering the countryside surplus labor force utilization and non-agricultural industry transfer, the other is to adjust the industrial structure.

REFERENCES

[1] Tao Sun, Jian Sha, Lin Feng; A GPU-based parallel algorithm for time series pattern mining, JCIT, **6(12)**, 163-170 **(2011)**.

[2] Liang jingmin; Color Image Segmentation of Foreground and Background based on Mean Shift Algorithm, IJACT, **4(1)**, 127-135 **(2012)**.

[3] Min-Yuan Ma, Yi-Chen Chen, Shyue-Ran Li; How to Build Design Strategy for Attractiveness of New Products (DSANP), AISS, **3(11)**, 17-26 **(2011)**.

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[4] Changsheng Zhang, Jing Ruan, Yanhua Tan; An Incremental Feature Subset Selection Algorithm Based on Boolean Matrix in Decision System, JCIT, **6(12)**, 16-23 **(2011)**.

[5] Ning Zhou, Xinyan Gao, Jinzhao Wu; Applying Wu's Method to Symbolic Simulation for Boolean Layer PSL Assertion Checking, JCIT, **7(4)**, 272-279 **(2012)**.

[6] Gaofeng Ge; City Information Network Construction—Discuss Based on The Idea of Intelligent City, AISS, **4(10)**, 1-7 **(2012)**.

[7] Leina Zheng, Tiejun Pan, Xinyue Chen, Tiedong Ma, Guoting Fang; Innovative Foot Bones Orthodontic Treatment System for Smarter Healthcare in Intelligent Community, IJACT, **4(11)**, 1-10 **(2012)**.