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# The Impact and Countermeasures of Foreign Multinational Investment in Shandong Province of Industry Safety

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**Abstract:** *Shandong province is the large economic province of China, has an important position in China. The decade since 2003, significant changes has been showed in the distribution industry of Shandong, the share of GDP, and the share of the primary sector has continued to decline, while the second and tertiary industry in the share of GDP show a gradual upward trend, more and more reasonable industrial structures. In the process of foreign investment, foreign investment in Shandong province, brings abundant capital and advanced production and management technologies, driven by the province-owned enterprises to improve my technique, so as to promote the upgrading in industrial structure. This article analyzes the status of other aspects of the utility and the impact of foreign investment, and its impact on the industrial structure in Shandong province by the method of empirical analysis that foreign multinational investment of upgrading the status of Shandong province in the international economic competition has important role.*

**Keywords:** *Industrial Safety;Empirical Analysis;Countermeasures*

## 1. INTRODUCTION

Located in the eastern coast of China's Shandong province, is a major economic province of China, occupies an important position in China's economic development. Since reform and opening in China, Shandong province, with superior geographical and environmental advantages, has gained rapid economic growth in the country's rising status and become an important growth area in eastern coastal areas. As the economy continues to develop, Shandong province, the scale of the use of foreign investment in the continuing growth of foreign investment in the industrial structure, regional distribution shows remarkable properties, it is precisely that these characteristics give us the understandings and the status of foreign investment in Shandong province in exploring and find the best viewing angle of corresponding measures on this basis. Research on the relationship among foreign investments in Shandong province, the problems and appropriate countermeasures, Shandong province, is active, rational and effective for attracting and utilizing foreign investment, and trying to promote sustained and stable economic growth as important significance.

This article analyzes the impacts of FDI in Shandong province, the three industrial structures of theoretical analysis and study on the factors affecting the industrial structures. By measurement of software testing, analysis of the impact of FDI on the industrial structure in Shandong province, according to the empirical analysis that positive role in promoting FDI will be generated, and thus made better use of FDI to adjust and optimize the industrial structure of Shandong countermeasures and suggestions.

## 2. THE STATUS OF UTILIZATION OF FOREIGN INVESTMENT IN SHANDONG PROVINCE

In 2003, Shandong province, the actual utilization of foreign investment reached $11.26 billion, the first time exceeded ten billion U.S. dollars mark, an increase of 72.66 percent over 2002. Over the past decade, Shandong province was expanding the use of foreign capital. 2013 newly approved foreign direct investment projects for 1333; contractual foreign is $16.56 billion, an increase of 4.9 percent over the previous year; actually arrive foreign $ 12.35 billion, an increase of 10.7 percent.

### 2.1. The Actual Use of Foreign Investment in Shandong Province

Utility of foreign capital in Shandong province showed stable structure, main characteristics: Firstly, the use of foreign capital remained stable. Secondly, further enhance the quality of projects. Thirdly is

to improve the service sector accounted for. Fourthly, investment in Japan, Korea, Europe and America are growing rapidly.

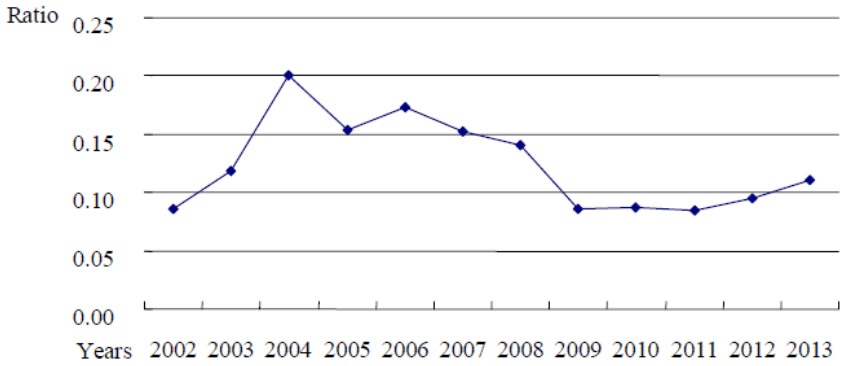


**Figure1.** *Shandong Province accounted for the proportion of foreign capital in actually utilizing*

As can be seen from the chart, the utility of foreign capital in Shandong province in China is occupied a larger proportion, in 2002, the actual use of foreign investment reached 6.521 billion U.S. dollars, accounting for 12 percent of China's actual use of foreign capital, the province's actual use of foreign investment in 2012 broke $ 12 billion, and reached $ 13.59 billion, an increase of 20 percent.

### 2.2. Iindustrial Structure of Foreign Capital Utilization in Distribution in Shandong Province

According to the above table, the author makes chart of three industries below:

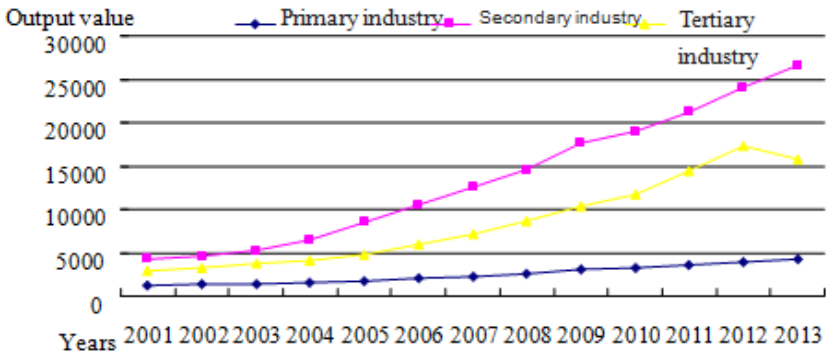


**Figure2.** *2001-2013 Annual Output Value of Shandong Province, the Proportion of the Three Industries(Unit: Hundred Million U.S. Dollars)*

From the graph we can see that the first, second, third industries in Shandong province are in growth absolutely in volume trend. Basically, stable and unchanging primary industry increases slightly, secondary and tertiary industries are showed continue to rise, become the growth rate of the second largest industry. For each industry, the proportion of the trend, the proportion of primary industry gradually reduced to around 9 percent. Secondary industry generally accounts for about 50 percent, is the largest part of proportion. Tertiary industry is basically stable at around 30 percent -40 percent, with a slight increase trend be seen in three industrial structure in Shandong province and gradually optimize and perfect.

### 2.3. Use of Foreign Capital in Region of Shandong Province

Foreign investment has concentrated in Shandong province, especially in Qingdao, Yantai, Weihai and other coastal areas, foreign direct investment with a high degree of clustering, and this feature has become increasingly evident. With the opening of the three cities of superior geographical advantages, the use of the rapid development in foreign investment is efficiency. Economic development in Shandong province presents the eastern, central and western geographical features, while the area of foreign investment is mainly concentrated in the eastern region, the actual utilization of foreign capital accounts for 57.83 percent of the province's total actual use of foreign capital.

## 3. The Problems Inusage of Foreign Capital in Shandong Province

### 3.1. Way of Using Foreign Capital Presents a Unified Style

East-Asia is the main source of foreign investment in Shandong province, in which Japan, South Korea, Shandong province, have been investing more countries, nearly the size of its annual investment

is relatively high, and Shandong province utilizes foreign capital in these countries are mainly manufacturing transfer, capital low technology-intensity. Europe and other developed countries are the main source of regional high-tech and advanced management philosophy, its high capital and technological intensity, but Shandong less uses foreign investment in these countries, because it limits the quality and scale of foreign investment.

### 3.2. Irrational Industrial Structure of Foreign Capital Utilization

Utilization of foreign capital in Shandong province is mostly concentrated in the second and tertiary industries, especially the manufacturing sector accounts for a large proportion of the total foreign capital utilization, and requires a lot of capital investment, a relatively long payback period agriculture, transportation, energy and other basic industries and facilities of investment areas are less, these are inadequacy of foreign capital in Shandong province.

### 3.3. Unbalanced Regional Distribution of Foreign Capital Utilization

Economic development in Shandong province presents the eastern, central and western geographical features, while the area of foreign investment was mainly concentrated in the eastern region, such as Qingdao, Yantai, Weihai, the actual utilization of foreign capital accounts for 57.83 percent of the province's total actual use of foreign capital, while the sum of Dezhou, Binzhou, Liaocheng, Heze of the western region in the actual utilization of foreign investment are small, account for 12.63 percent. This imbalance exacerbates the imbalance of economic development in Shandong province, thus make the entire industrial structure irrational.

### 3.4. Utilization of Foreign Capital Contribution to GDP is not High

The actual utilization of foreign capital increases each percentage point, GDP will increase 0.52 percentage points in Shandong. While China actually utilizes foreign capital increased by one percentage point each, the country's GDP will increase by 0.85 percentage points, so the utilization of foreign capital contribution to economic growth in Shandong province is lower than the national average.

### 3.5. Inperfect Environment for Foreign Investment

Road transport, supply in water and electricity, other infrastructure in Shandong province are not enough; market system is not perfect, especially in finance, information market imperfections, less financing channels for enterprises; low level of government services, combined with foreign investment laws and regulations are not perfect, and occurs a sense of law enforcement officers; lack of policy implementation, lower work sector efficiency, poor awareness of other hardware and software environment can not meet the demand for effective using of foreign capital

## 4. Empirical Analysis on the Security of Foreign Investment in the Industry in Shandong Province

In this paper, GDP data and three corresponding major industries of FDI data are used as an explanatory variable, this will increase the value of the first, second and third industries as explained variables. Build the model $\mathrm{Log}(GDP_i)=C+\beta \mathrm{Log}(FDI_i)$,($i$=1、2、3) represent the first, second and third industries.

### 4.1. Firstly, Stationary Time Series in ADF Test

Make sequences of Log ($FDI_1$), Log$FDI_2$), Log ($FDI_3$), Log ($GDP_1$), Log ($GDP_2$) and Log ($GDP_3$) in ADF test, the results in the following table:

**Table1.** *Time Series in Stationary Test*

| Variable | Detection type | Differential order | t-value | Threshold（5%） | Result |
|---|---|---|---|---|---|
| Log ($GDP_1$) | Number of impermanence | 2 | -1.98 | -1.97 | Smooth |
| Log ($GDP_2$) | Number of impermanence | 2 | -1.86 | -1.98 | Smooth |
| Log ($GDP_3$) | Number of impermanence | 2 | -2.87 | -1.97 | Smooth |
| Log ($FDI_1$) | Number of impermanence | 2 | -4.58 | -1.98 | Smooth |
| Log ($FDI_2$) | Number of impermanence | 2 | -5.89 | -1.98 | Smooth |
| Log ($FDI_3$) | Number of impermanence | 2 | -6.57 | -1.97 | Smooth |

As for above variables, the absolute value of second-order differential sequences (t statistics) are greater than the significance level of 5 percent threshold, indicates that 5 percent significance level is remarkable, so the model rejects the null hypothesis, the second-order differential sequence is stationary, Log ($FDI_1$), Log ($FDI_2$), Log ($FDI_3$), Log ($GDP_1$), Log ($GDP_2$) and Log ($GDP_3$) are second-order single cointegration.

### 4.2. The Tertiary Cointegration in Third Industry

T statistic is -5.33 of ADF test, the critical values: 1 percent in significance level is -3.56; under the 5 percent in the significance level is -2.16; 10 percent significance level is -1.61. From the results, test value less than 10 percent in the threshold level, the residual term stable, the third industry and selected economic variables relate to the continuous existence of long run equilibrium relationship.

### 4.3. The Tertiary Industry of Heteroscedasticity Test

It does not exist heteroscedasticity in the significance level of 10 percent, so t statistic and F statistic can be used.

**Table2.** *Heteroscedasticity test*

| | | | |
|---|---|---|---|
| F statistic | 0.039 | P values | 0.998 |
| Obs*R-squared | 0.468 | P values | 0.993 |

### 4.4. Establish the Model for the Quantitative Analysis

According to statistical yearbook in Shandong province, which data is in processing and computing, obtains results in using E-views 6.0 as follows:

GDP and FDI in the primary industry:

$$\text{Log}(GDP_1) = 5.86 + 0.61\ \text{Log}(FDI_1)$$
$$(0.86) \qquad (0.28)$$
$$R^2 = 0.86,\ \text{Adjusted}\ R^2 = 0.89,\ F = 4.56$$

Among them, the goodness of fit equation is well, these results show that: the usage of the first industrial of FDI for each one percent will increase 0.61 percent in added industrial value. GDP and FDI in the secondary industry obtain the following regression equation:

$$\text{Log}(GDP_2) = 3.78 + 0.92\ \text{Log}(FDI_2)$$
$$(2.16) \qquad (0.36)$$
$$R^2 = 0.91,\ \text{Adjusted}\ R^2 = 0.95,\ F = 6.43$$

Among them, fit of the equation is better, these results show that: the usage of FDI in the second industry increases each one percent, will have 0.92 percent increase in industrial added value.

The tertiary industry in GDP and FDI regression equation:

$$\text{Log}(GDP_3) = 4.10 + 1.01\ \text{Log}(FDI_3)$$
$$(0.51) \qquad (0.11)$$
$$R^2 = 0.88,\ \text{Adjusted}\ R^2 = 0.87,\ F = 84.56$$

Among them, fit of the equation is better, these results show that: the usage of FDI in the tertiary industry increases each one percent, will have 1.01 percent increase in industrial added value.

In summary, the role of the first industrial utility of FDI in promoting economic development is little, the role of second and tertiary industries in promoting FDI is greater than the primary industry. The contribution of the role in the secondary and tertiary industries is similar, but also reveals the FDI will help optimize the industrial structure in Shandong province. If the rational allocation of FDI in Shandong province can use the three industries, so that the total amount of FDI will continue to grow and increase the proportion of industrial restructuring and upgrading of a good role.

## 5. POLICY RECOMMENDATIONS

### 5.1. Improve the Capability of Independent Innovation, and Enhance the Level of Industrial Technology

Increase investment in technological research and development, through the deepening reform of enterprises, and the implementation of various policies and measures to encourage innovation, guide enterprises to increase investment in technology development. This is to maintain the security

industries in Shandong province, the formation of core technologies with independent intellectual property can make enterprises invincible in Shandong province.

### 5.2. Optimize the Distribution of Foreign Origin, and Expand the Scope of Foreign Capital

Actively guide foreign investment from the eastern coastal areas to central and western regions, make the development of the east and west should coordinate in regional economic stability. Make efforts to improve the environment of foreign investment, and actively develop competitive industries, improve efficiencies and quality of foreign investment, promote coordinated economic development in the province. Through attracting investment in Europe and other developed countries, actively absorb the capital of neighboring countries in order to introduce advanced foreign technologies and management concepts, expand the region to build multilateral economic cooperation.

### 5.3. Improve the Industrial Structure, Optimize the Environment of Investment

Reasonable guide in the direction of foreign investment in appropriate with policies, which needs plans to guide foreign capital, advanced technology and experience of management, at same time, make use of foreign capital and industrial restructure. The government should continue to expand openness in Shandong province, optimize the investment environment and create an open, fair, stable and transparent policy environment.

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