



温州肯恩大学  
WENZHOU-KEAN UNIVERSITY

**The relationship between foreign direct investment and export performance in China**

In Partial Fulfillment of the Requirements  
for the Bachelor of Science in Accounting

by

WANG Ying

1025874

May, 2020

# The Relationship between Foreign Direct Investment and Export Performance in China

WangYing (1025874)

**Abstract:** The objective of this research is to investigate the impact of FDI on the total manufacturing export and high-technology manufacturing export performance in China. Using the related data retrieved from the Chinese statistical yearbook of 2006 to 2016 covering an 11-year period and regression model, this study finds out that FDI has a positive impact on the total manufacturing export performance and high-technology manufacturing export performance. The results establish a positive linkage between FDI and export performance of China based on a new economic condition which is different from previous researches. While the inferences are limited to China, the study may be of significance to researchers exploring the same topic in other countries within similar economic conditions.

**Keywords:** Foreign Direct Investment (FDI); China; Manufactured Exports.

## 1. INTRODUCTION

In this paper, we exam the relationship between FDI and total manufacturing and high-technology manufacturing export performance based on the Chinese economic condition. There is Extensive researches suggesting the significant impact of FDI on the export performance in different countries (Kutan & Vuksic, 2007). Since China's reform and opening up, numerous researches investigate the impact of FDI on export performance in China. The research that indicates the FDI has a positive impact on export performance in China has been published (Zhang & Song, 2000). Further research exploring the impact of FDI on provincial level export performance differences also has been taken, which shows the different linear relationships and diverse degrees of FDI 's impact on export performance in different regions of China (Sun, 2001). According to India's economic situation during the same period, research on the specific impact of FDI on the performance of total manufacturing and high-tech manufacturing export performance has also been published (Prasanna, 2010).

After ten years of reform and opening-up, China's economic condition has undergone major changes. Especially, the industrial construction of China has significant changes in the recent 11 years. Previous related research has not continued and published. Significant changes in China 's economic condition is not considered in previous studies, so that different results and research conclusions may come out under the same research process and methodology. Also, previous researches only focus on the impact of FDI on China's overall export performance and regional export performance differences. Research that focuses on China's growing high-technology manufacturing industry and manufacturing industry export performances in recent years, to explore the FDI's specific effect on specific manufacturing industry, does not exist. Research about the Indian economy that illustrates the impact of foreign direct investment on total manufacturing and high-technology manufacturing exports has been published by Prasanna (2010).

As such, this research extends the previous studies that explore the relationship between FDI and export performance of China and explores the specific impact of FDI to the manufacturing industry and high-technology manufacturing industry export performances based on the Chinese economic condition from 2006 to 2016.

Since China has increasing international trades including export volume in the global market and closer business relationship with more countries, FDI has a stronger effect on China's future development and becomes one of important resources enhancing domestic industry development, income growth, and export performance. It is important to understand the impact of FDI on the export performance of China in recent years to predict the future and make scientific FDI policy. Also, the impact of FDI on China's export performance specific to different industries is also different, which is also of great significance for studying the role of FDI in the adjustment of China's industrial structure and make a further scientific industrial adjustment. In this case, exploring how to attract more FDI and utilizing its positive impact is necessary.

The methodology of this research is enlightened by the regression model used in previous research published by Prasanna (2010) which focuses on the same objective based on Indian economic condition. The main expected result is that FDI still has a positive impact on the total manufacturing exports and high-technology manufacturing export performances according to China's economic condition during the period from 2006 to 2016. Regression analysis is the basic methodology in this research. For this research, the basic regression model and two specific functions are created based on the research's objective and realistic economic condition of China. All the data are collected from the Chinese statistical yearbook from 2006 to 2018. This result indicates the widely received belief that FDI has a positive impact on export performance fit the recent economic condition of China from 2006 to 2016. The expansion of

FDI increases the total manufacturing export and high-technology manufacturing export volume.

This study contributes to the literature in several ways. Firstly, this research finds out the relationship between FDI and total manufacturing and high-technology manufacturing exports. There are numerous researches exploring the impact of FDI on the percipient countries' export performance of different regions, specific industry or business areas. Also, since the "open door" policy launched in China, studies focusing on the expansion of FDI and its effect on the export performance according to China's economic condition grows. However, most previous studies emphasize more on the regional impact and did not restrict the research content to the total manufacturing export and high-technology manufacturing export performances. Further, this study expands the related research data from 2006 to 2016 based on the state of China. Most previous researches only cover economic data from 1979-2000 and continuous research is limited consistent with the new economic data of China. This study aims to find out the relationship between FDI and the total manufacturing and high-technology manufacturing export performance of China covering 2006 to 2016.

The remaining of the research is organized as follows. The second section demonstrates a brief summary of the studies on the topic of the impact of FDI on export performance. The third section demonstrates the regression model used in the essay, the fourth section provides the result after analyzing the data and the discussion provides the explanation and opinions on the data retrieved in the fifth section. Finally, the conclusion of the research was drawn in the sixth section.

## **2. LITERATURE REVIEW**

### **FDI in China**

FDI inflow has a rapid increase from almost zero to 0-45 billion per year through the period from the reform in the late 1970s to the second half of the 1990s. Based on the particularity of the Chinese market, FDI in the Chinese market has some characteristics and influence the Chinese economy in several ways. According to Tseng and Zebregs (2002), manufacturing took up 60 percent of total FDI used, the eastern region occupied almost 88 percent of FDI showing the regional disparity. The positive impact of FDI cannot be ignored in the Chinese economic market. Zhang (2001) suggests that FDI may positively stimulate income growth. The growth effect is likely to increase over time and is stronger in coastal regions than in inland areas.

The inward FDI's impact on China's export performance has a close relationship with China's "open door" policy. In the study conducted by Hu and Khan (1997), the researchers assert that the market-oriented reforms brought a significant development for foreign trade of China and attracted considerable inward FDI to the Chinese domestic market. This change contributes to the accelerated growth rate of the Chinese economy during 1952 and 1994. This result shows the positive impact of FDI on international trade including export performance in the Chinese market.

### **Export Performance in China**

The determinants of Chinese export performance are complicated, and several factors are studied by academic researchers. Labor costs, foreign direct investment, and firm size are important determinant factors that influence the export performance of different industries. In order to obtain sustainable growth, promoting export structure is of significance matching the upgraded industrial sectors (Liu & Shu, 2003).

Chinese tax rebate is also a special factor influencing export performance. Higher export rebate rate makes the export performance increases and the foreign investment reduces. Empirical analysis results show that China's export rebate policy has a positive impact on

export performance, domestic consumption and foreign exchange reserve. The finding also shows that the optimum rebate rate is positive and more than 1, implying government not only refunds the domestic firms considering export tax but also offers specific subsidies to encourage the export performance of domestic companies (Chen, et al., 2006).

### **Relationship between FDI and Export Performance**

A study that estimates the effects of inward foreign direct investment (FDI) in 12 economies in Central and Eastern European between 1996 and 2004 published by Kutun and Vuksic (2007). The research shows the positive relationship between FDI and export performance based on the economic conditions of twelve specific developed countries in Europe. The research explains that FDI increases the percipient country's production and supply capacity which contributes to the export supply potential. FDI also brings superior knowledge and technology, better information which benefits the export performance of the new members of the European Union (Kutan & Vuksic, 2007).

In the same direction, Zhang and Song (2000) published the research exploring the role of inward FDI on promoting exports in China. The researchers expanded the limitation in literature and systematically empirical analyses by using provincial panel data from 1986 - 1997 to explore the FDI export linkage in China. The result confirms the widely supported belief, the FDI has a positive impact on the expansion of domestic manufacturing export performance of China.

A further study explores the impact of FDI on the export performance of provincial units in China and the degree of impact. Researchers divided all provinces in China into three regions based on their geographical distance from the coast. Based on data from 1984-1997, the paper studied the impact of foreign direct investment on the export performance of the three regions and explored the differences in impact levels of different regions if specific FDI export linkage confirmed. The findings reveal that the impact differs from region to region and it turns out that the impact of the FDI is more significant and stronger in the coastal region than the inland region (Sun, 2001).

However, UNCTAD (1998) proposed the doubt on the positive relationship between the inward FDI and the manufacturing export performance. It launched an opinion that the export earnings generated decreases because the profit cut since some capital and consumption goods are not available in the domestic market. Based on the analytical framework created according to UNCTAD's analysis on the export performance of developing countries, Prasanna (2010) explored the impact of FDI on the export performance of Indian. The study focuses on the total manufacturing and high-technology manufacturing export performance and finds out the impact of FDI on the performance change. The study shows that the relationship between FDI and total manufacturing and high-technology manufacturing export performance is positive based on the Indian economic condition from 1991 to 2007.

However, the research of the Wen (2005) indicates that foreign direct investment not only has a positive impact on the export of a country but also has a negative trend. The coastal geographical advantage of the eastern region of China attracted the inflow of FDI, promoted the export performance growth of the eastern region, and improved the contribution share of the eastern region in the total national output value. Despite the crowding out benefits between FDI and domestic investment, the positive effects still offset the negative effect on the regional export performance and still promote the income growth of eastern China. The difference is that the negative impact on FDI in the central region of China is stronger than the positive one, which leads to a weaker contribution to export performance resulting in worse income growth.

### 3. RESEARCH METHODOLOGY

#### Data Source

Chinese statistical yearbook covering the 11-year period from 2006 to 2016 is the primary data source of this study. The data includes FDI inflow of China, GDP of China, total manufacturing export volume, high-technology manufacturing export volume, manufacturing value-added and sector total production amount.

UNCAD's (1998) analysis of the export performance in developing countries is the foundation of the research analytical framework. In the previous research, Prasanna (2010) explored the impact of the FDI on the total manufacturing and high-technology manufacturing export performances based on the economic condition of India. To analyze the impact of FDI on total manufacturing and high-technology manufacturing export performances of China, the methodology used in this research is based on the methodology conducted in the previous research published by Prasanna (2010). There are two objectives of this study: the first objective is to find out the impact of FDI on total manufacturing export performance of China from 2006 to 2016; the second objective is to find out the impact of FDI on high-technology manufacturing export performance of China from 2006 to 2016.

The data of total manufactured exports, high technology manufactured exports, and FDI was collected in the unit of 100M US dollars. Data of manufactured value-added was collected in the unit of 100M RMB. The data was analyzed by using data analysis function in excel application and stata application to get the measured value revealing the regression relationship between the variables.

#### Main Model

According to the objectives of this study, the total manufactured exports and high-technology manufactured exports are respective dependent variables in the first and second experimental equations. The independent variables in both equations are FDI inflow and manufacturing value-added. Manufacturing value added is an indicator to measure a country's efforts on expanding domestic manufacturing which is the control variable in the regression model. The modal is regression modal and the basic equations are expressed as:

$$EX_t = \alpha + \beta_1 FDI_t + \varepsilon \quad (1)$$

$$EX_t = \alpha + \beta_1 MVA_t + \varepsilon \quad (2)$$

In this modal,  $\alpha$  is the constant,  $\beta_1$  is the coefficient of FDI inflow, and  $\beta_2$  is the coefficient of MVA. EX represents the export of commodities, FDI is the foreign direct investment inflow of China and MVA denotes the manufacturing value-added. Based on the basic equation above, to explore the objective of this study, further equations transferred to make total manufactured exports and high-technology manufactured exports as dependent variables. The one-year lag was considered as the lag in the implementation of foreign direct investment projects. Hence, the modal designed for this research was expressed as:

$$MANX_t = \alpha + \beta_1 F_{t-1} + \beta_2 MVA_t + \varepsilon \quad (3)$$

The definitions of the variables in equation (3) are as follows. MANX is the ratio of total manufactured exports to GDP; F is the ratio of FDI to GDP; MVA is the percentage of manufacturing value-added.  $\alpha$  is the regression constant;  $\beta_s$  are the respective coefficient of variables; t is the time period in years.

$$HIMANX_t = \alpha + \beta_1 F_{t-1} + \beta_2 MVA_t + \varepsilon \quad (4)$$

The definitions of the variables in equation (4) are as follows. HIMANX is the ratio of high-technology manufactured exports to GDP; the other variables are the same as in equation (3).

## 4. RESULTS

### Description of Statistics

To mitigate the undue influences of extreme values, the abnormality of data is investigated. Descriptive statistics of all variables included in the regression models are shown in Table 1.

**TABLE 1**  
Descriptive Statistics for the Variables Used in the Regression Models

<u>Variable</u>	<u>Mean</u>	<u>STD</u>	<u>Min.</u>	<u>Max.</u>
<i>EX</i>	17516.882	4661.991	8689.8	23422.9
<i>FDI</i>	1041.723	196.678	658.21	1262.666
<i>MVA</i>	14161.95	46993.759	71212.898	214289.3
<i>MANX<sub>t</sub></i>	0.2452	0.0484	0.1788	0.3328
<i>HIMANX<sub>t</sub></i>	0.0758	0.0148	0.0542	0.1022
<i>F<sub>t-1</sub></i>	0.0173	0.0049	0.0115	0.0264
<i>MVA<sub>t</sub></i>	0.3145	0.0146	0.2882	0.3360

n=11

Variable Definitions:

*EX* = total export amount, in the unit of 100M US dollars;

*FDI* = foreign direct investment inflow amount, in the unit of 100M US dollars

*MVA* = manufacturing value added, in the unit of 100M RMB;

*MANX<sub>t</sub>* = the ratio of total manufactured exports to GDP, which is computed as  $\frac{MANX_t}{GDP}$ ;

*HIMANX<sub>t</sub>* = the ratio of high-technology manufactured exports to GDP, which is computed as  $\frac{HIMANX_t}{GDP}$ ;

*F<sub>t-1</sub>* = the ratio of *FDI* to *GDP*, which is computed as  $\frac{FDI}{GDP}$ ;

*MVA<sub>t</sub>* = the percentage of manufacturing value-added, which is computed as  $\frac{MVA}{Sector\ Total}$ .

For the dependent variables *MANX<sub>t</sub>* and *HIMANX<sub>t</sub>* which represent the ratio of total manufacturing export and high-technology export performance to GDP, the mean value is 0.2425 and 0.0758 respectively. The mean value of *F<sub>t-1</sub>* which represents the ratio of FDI to GDP is 0.0173. the mean value of the control variable *MVA<sub>t</sub>* which represents the percentage of manufacturing value-added is 0.3145.

### Matrix Correlation

All the correlation data is displayed in table 2. Panel A shows the correlation between export, FDI and manufacturing value-added. “0.943” shows the positive relationship between *EX* and *FDI*. Panel B shows the correlation between manufacturing export, FDI and manufacturing value-added. “0.929” shows the positive relationship between manufacturing export and FDI. Panel C shows the correlation between high-technology manufacturing export,

**TABLE 2**  
**Matrix Correlations of Variables in the Regression Models**

**Panel A: correlation of variables in model 1 and model 2**

<u>Variable</u>	<u>(1)</u>	<u>(2)</u>	<u>(3)</u>
(1) <i>EX</i>	1.000		
(2) <i>FDI</i>	0.943*	1.000	
(3) <i>MVA</i>	0.955	0.958**	1.000

**Panel B: correlation of variables in model 3**

<u>Variable</u>	<u>(1)</u>	<u>(2)</u>	<u>(3)</u>
(1) <i>MANX<sub>t</sub></i>	1.000		
(2) <i>Ft-1</i>	0.929*	1.000	
(3) <i>MVA<sub>t</sub></i>	0.878	0.941*	1.000

**Panel C: correlation of variables in model 4**

<u>Variable</u>	<u>(1)</u>	<u>(2)</u>	<u>(3)</u>
(1) <i>HIMAX<sub>t</sub></i>	1.000		
(2) <i>Ft-1</i>	0.956**	1.000	
(3) <i>MVA<sub>t</sub></i>	0.932*	0.941*	1.000

\*\*\*, \*\*, \* denote significance level at the 1 percent, 5 percent and 10 percent, respectively.

FDI and manufacturing value-added. “0.956” shows the positive relationship between FDI and high-technology manufacturing export.

**Regression Results**

The result of the basic equation 1 is displayed in table 3 panel A. The result of equation 2 is displayed in table 3 panel B. The value of R square is 0.921 which means that 92.21 percent of changes of dependent variable, the total exports in the equation 1, is caused by the independent variable included in the model. The related F value is 73.75 and the corresponding P-value is 0.00. Therefore, the model created is suitable for the data involved. The results of equation (2) are displayed in table 3 panel B. The value of R square is 0.911 which means that 91.1 percent of changes in dependent variable, the total exports in the equation 2, is caused by the independent variable included in the model. The related F value is 92.57 and the corresponding P-value is 0.00. The model fits for the data.

In panel A, the ‘t’ statistic related to the regression coefficient of the variable FDI is 8.588 with the corresponding P-value is 0.00. It suggests that the significance of the coefficient is high and the variable FDI is a positive determinant to the dependent variable Ext. The value of the coefficient of the variable FDI which is 22.435 represents that a unit change in FDI causes 22.435 units to increase in total exports.

In panel B, the ‘t’ statistic related to the regression coefficient of the other variable MVA<sub>t</sub> is 9.621 with the corresponding P-value is 0.00. It means that the significance of the coefficient is high. However, the coefficient of this variable is 0.095 which means that the manufacturing value-added has a slightly positive influence on the total exports which is the control variable in third and fourth equations.



---

**TABLE 3****The Impact of FDI and Manufactured Value Added to Total Export Performance****Panel A: Regression Result of Equation 1**

<u>Variable</u>	<u>Y</u>
MVA <sub>t</sub>	22.435*** (14.423)
Constant	-5,858.875*** (-3.958)
Observations	11
R-Squared	0.921
Year FE	YES
Industry FE	YES
Adjusted R-square	0.913
F	73.75
tStat	8.588

**Panel B: Regression Result of Equation 2**

<u>Variable</u>	<u>Y</u>
MVA <sub>t</sub>	0.095*** (8.633)
Constant	3,674.253** (2.556)
Observations	11
R-Squared	0.911
Year FE	YES
Industry FE	YES
Adjusted R-square	0.902
F	92.57
tStat	9.621

---

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

---

The result of equation 3 is displayed in table 4. The value of R square is 0.8627 which means that 86.27 percent of changes in dependent variable, the total manufactured exports (MANX<sub>t</sub>) in equation 3, is caused by the independent variables included in the model. The related 'F' value is 25.1361 and the corresponding P-value is 0.0492. Therefore, it shows that the model created is suitable for the data involved.

The 't' statistic related to the partial regression coefficient of the variable Ft-1 is 2.3162 with the corresponding P-value is 0.0492. It suggests that the significance of the coefficient is high and the variable Ft-1 is a positive determinant to the dependent variable MANX<sub>t</sub> which is also the exploratory variable in the third equation. The value of the coefficient of the variable Ft-1 which is 8.8465 represents that a unit change in FDI causes 8.8465 units to increase in total manufactured exports.

The 't' statistic related to the partial regression coefficient of the other variable MVA<sub>t</sub> is 0.0948 with the corresponding P-value is 0.9268. It means that the significance of the coefficient is not high, and it is not the determinant of the dependent variable MANX<sub>t</sub>. However, the effect of the variable cannot be eliminated through the coefficient of this control

**TABLE 4**  
**The Impact of FDI on Total Manufactured Exports**

<u>Independent Variable</u>	<u><math>\beta</math></u>	<u>t</u>	<u>Sig.</u>
(constant)		0.1586	0.8779
$F_{t-1}$	8.8465	2.3162	0.0492**
$MVA_t$	0.1213	0.0948	0.9268

Dependent variable: total manufactured exports as % of GDP  
R Square=0.8627      F Value=25.1361      P Value=0.0492 \*\*      Sig. F= 0.0004  
Robust t-statistics in parentheses: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

variable is 0.1213 which means that the manufacturing value-added has a slightly positive influence on the total manufactured exports.

The results of equation 4 are displayed in table 5. The value of R square in the regression model equation is 0.9236 which suggests that that 92 percent of the variation in the dependent variation high-technology manufactured exports (HIMANX) is caused by the variables included in the equation. The value of related 'F' statistic is equal to 48.3222 with the corresponding P-value 0.0441. Therefore, the model fits the data well.

The 't' statistic matches the partial regression coefficient of the variable  $F_{t-1}$  is 2.3865 with the corresponding P-value equal to 0.0441. It indicates that the significance of the coefficient is high and the exploratory variable  $F_{t-1}$  is a positive determinant to the dependent variable HIMANX<sub>t</sub> and functions as the only significant determinant to the high-technology manufactured exports (HIMANX<sub>t</sub>) in the fourth equation. The value of the coefficient of the variable  $F_{t-1}$  which is 2.0802 represents that a unit change in FDI causes 2.0802 units to increase in total manufactured exports. The impact of FDI on the high-technology manufactured exports is lower compared to the total manufactured exports in the fourth equation.

The value of 't' statistic related to the other partial regression coefficient in the model  $MVA_t$  equals 0.9907 with the corresponding P-value is 0.3509. It means that the significance of the coefficient is not high, and it is not the determinant of the dependent variable MANX<sub>t</sub>. The coefficient of this control variable equals 0.1213 which means that the manufacturing value-added has a slightly positive influence on the total manufactured exports. It implies that one unit change in  $MVA_t$  causes a 0.1213 increase to the high-technology manufactured exports (HIMANX<sub>t</sub>). Though the influence is slighter compared to FDI, it cannot be omitted as a significant control variable that has an impact on the dependent variable high-technology manufactured exports (HIMANX<sub>t</sub>).

**TABLE 5**  
**The Impact of FDI on High Technology Manufactured Exports**

<u>Independent Variable</u>	<u><math>\beta</math></u>	<u>t</u>	<u>Sig.</u>
(constant)		-0.6563	0.5300
$F_{t-1}$	2.0802	2.3865	0.0441**
$MVA_t$	0.2894	0.9907	0.3509

Dependent Variable: high technology manufactured exports as % of GDP  
R Square=0.9236      F Value=48.3222      P Value=0.0441\*\*      Sig. F= 0.00003  
Robust t-statistics in parentheses: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Comparing the results of the two equations, the coefficient of  $F_{t-1}$  in equation 3 is 8.8467 which is higher than 2.0802 in equation 3. It shows the impact of FDI on high-technology manufacturing export is weaker compared to total manufacturing export performance. Also, the coefficient of MVA in equation 3 is 0.1213 which is 0.2894 in equation 4 is lower. It shows the effect of domestic investment on high-technology manufacturing export development is more obvious compared to the total manufacturing export.

There are also some limitations exist in this study. It is meant to include the data of 2017 and 2018 for the research result for the timeliness of the research. However, data of MVA of 2017 is not available which may reduce the timely meaning of the research since the economic condition change of China. Also, the GDP is obtained in the unit of 100M US dollars. In this study, the average exchange rate is used to get GDP accord with the FDI amount unit. this adjustment may also lead to some slight difference.

## 5.DISCUSSION

### Main Result

The result confirms the widely accepted belief that FDI has a positive impact on export performance based on China's economic condition from 2006 to 2016. This study finds out the positive relationship between inward FDI and total manufacturing export and high-technology manufacturing export performance. The positive relationship between FDI and export performance is the same as the previous expectation. However, the relatively high coefficient of FDI is slightly different from the expectation. Also, the large difference between the contribution effect of FDI on total manufacturing and high-technology manufacturing export performance is also out of expectation.

There are numerous literatures revealed the positive impact of FDI on the export performance of a percipient country. The multinational corporation is the usual form of FDI that achieve effect in percipient countries. Zhang and Song (2000) divide the impact of FDI on the export performance of the host countries into two ways: direct and indirect. The direct impact stems from the export achieved by FDI itself through the creation of commercial entities in the host country. It adds to the export performance of host countries directly. The indirect impact of FDI on local manufacturing enterprises promotes the export performance of local enterprises. The indirect impact increases the export volume of local enterprises, which contributes to the total export performance of host countries indirectly.

Firstly, the advantage of material processing of FDI in host countries is one of important factors resulting in its direct impact on export performance. An adequate supply of materials and access to special materials are the guarantee of normal operation and high output of manufacturing enterprises. The transnational nature of FDI makes the manufacturing enterprises established by FDI in host countries obtain more abundant and diverse material access channels than domestic enterprises (Zhang & Song, 2000). The increase in manufacturing output contributed to the increase in export performance.

Secondly, the manufacturing industry of developing countries usually are labor-intensive industry, and the labor force is the core competitive factor of the manufacturing industry. The capital brought by the FDI gives the manufacturing industry a good chance to develop its capacity and expand the business in this area. More labor and more resources invested in the manufacturing industry give it a better chance to thrive and better capacity to meet the external demand which equals better export performance (Zhang , 1999). High-technology is the new promising develop direction for the future manufacturing industry. To catch further development chance, the potential of this developing industry aspect attracts the FDI to invest and to get potential immerse profit. The investment itself gives it a good resource to develop.

Thirdly, the manufacturing industry of developing countries is always searching for a larger external world market to improve its export performance. However, difficulties exist

when facing the world market such as rapid market norms changes, the complication of setting up a distribution network and workable marketing strategies. In this case, how to achieve better product design, packaging, distribution, service quality, and obtain reasonable pricing is more important. The experience of FDI in responding to the international market effectively promotes manufacturing industry exporters of a host country to enter the international market. These experiences include establishing a logistical distribution system, responding to rapid changes in market consumer demand, establishing efficient management and production enterprise specifications, and creating a good corporate image. The advantage brought by FDI helps MNC established by FDI directly become more likely to obtain better export performance and resulting in better export performance of the host countries (Zheng , et al., 2007).

The Indirect way is also important for FDI to achieve its positive impact on export performance. FDI can benefit local export performance in different ways indirectly. The multinational company(MNC) is the main form that foreign direct investment enters into a market. The technology, management skills and immerse information knowledge give MNC advantages in the host countries' market compared to local companies. In this way, FDI brings advanced technology and diffuses it through the competition with local companies to host countries. In this case, FDI not only makes the manufacturing export increase by its own production capacity but also enhance the local companies' export capacity. Also, profit is basically the intention forcing FDI to enter into a new market. Tracing for lower input costs makes MNC bought material or parts from the local companies which also increase the production volume of local enterprises, giving a positive effect on the local export performance (Zhang & Song, 2000).

### **Unexpected Results**

The coefficient of FDI is 8.8465 and 2.0802 in equations 3 and 4 separately, and the coefficient of MVA is 0.1213 and 0.2894 in equations 3 and 4 separately. The result shows both FDI and domestic investment contributed to total manufacturing and high-technology manufacturing export performances positively. However, the impact of domestic effort is weaker compared to FDI. Since the reform and opening up, China has always attached importance to the development of the manufacturing industry and the attraction of the Chinese market to FDI is a slow process because of the particularity of the Chinese market. The large difference between the coefficient of FDI and MVA is unexpected. The proportion of domestic investment in infrastructure construction is relatively high, so its effect on export performance improvement is relatively slow since domestic investment considers the future development of the manufacturing industry in a more long-term way (D émurger, 2001).

Another noticing result is that the contribution of FDI to the export performance of high-tech manufacturing industry is obviously weaker than the total export performance of the manufacturing industry. However, the impact of domestic investment on the export performance of the high-tech manufacturing industry has been strengthened compared to total manufacturing export performance. It may result from the change of domestic development policy of China which emphasizes high-quality development rather than pursuing the production volume merely (Wang, et al., 2016). And high-technology manufacturing is a promising direction for the manufacturing industry. The profit-seeking nature of FDI and the uncertainty of the development of high-tech manufacturing in the Chinese market may make FDI have a certain caution attitude towards its investment in high-tech manufacturing industry compared to domestic investment.

### **Comparison to Previous Research**

Using the same methodology, compared to the previous study which explored the same topic based on Indian economic condition, the same result comes out which confirmed the

positive linkage between the FDI and total manufacturing export and high-technology manufacturing export performance of India. However, comparing the coefficient data of both models the coefficient of FDI under Chinese circumstances is higher than the coefficient of FDI under Indian circumstances. The difference shows that FDI has a stronger effect on manufacturing export performance in China. Both studies get similar low efficient data of the control variable—manufacturing value-added, which implies that the domestic investment effect is much weaker compared to the FDI of the manufacturing export and high-technology manufacturing export performance. The slight difference between the two countries is that China's domestic investment increases its investment impact on high-tech manufacturing compared to its overall investment impact on manufacturing, while FDI declines. Prasanna (2010) suggests that domestic investment should strengthen its effect on the manufacturing industry to match the FDI level in the export under the domestic FDI policy and avoid the negative effect that may be brought by the dominant effect of FDI to future manufacturing export performance.

### **Limitations of the Research**

Too few variables in the model is the main limitation of the experimental design of this paper, because many control variables are difficult to quantify and data is difficult to obtain. In the real market environment, there are many variables that affect export performance, so there should be more control variables in the model.

The initial research intends to cover the period from 2006 to 2018. However, the related data of 2017 and 2018 is not disclosed by the official agency. This may reduce the timeliness of this research.

### **Reliability and Validity of the Results**

The data source is the Chinese statistical yearbook covering the 11-year period from 2006 to 2016. The analytical techniques are based on the analysis of export performance in developing countries by UNCTAD (1999) and the methodology conducted in the previous research published by Prasanna (2010). The main results are generally the same as previous researches which confirmed the positive relationship between FDI and the total manufacturing export and high-technology manufacturing export performances. The slight difference appears because of the different realistic economic conditions of economies.

As for the validity of this research, numerous previous studies find out that FDI facilitates the export performance of recipient countries (Kutan & Vuksic, 2007) and the basic regression model which tests the causal relationship between FDI and export performance conformed by previous academic studies.

### **Theoretical Contribution**

There are numerous researches exploring the impact of FDI on the recipient countries' export performance based on different areas and the specific industry or business area. Also, since the "open door" policy launched in China, studies exploring the linkage between the FDI inflow and export performance grows. However, most previous studies only cover economic data from 1979-2000 in China and do not continue since the economic condition takes big changes. Exploring the relationship between FDI and China's export performance is important as China became a more and more significant economic entity in the world market. The manufacturing industry is regarded as the gigantic part and meaning full part in the substantial economy and high-technology manufacturing industry is a promising area in the business. Studies that focus on the linkage of high-technology manufacturing export and FDI appears while similar research is limited based on China's economic condition. Thus, this study aims to

fill the gap and find out the relationship between FDI and the total manufacturing and high-technology manufacturing export performance of China covering 2006-2016.

With China's closer connection with the international market, export trade is an important part of international trade. At the same time, with the development of China's economy in recent years, China's industrial structure has undergone important changes, gradually changing from the pursuit of the quantity to high-quality development (Wang, et al., 2016). The development of China's economy and the strengthening of its links with the world market also make foreign direct investment an important force in promoting the development of China's economy and industry (Long, 2005). As an important economy in the world market, China has an important economic research value. Therefore, it is of great academic and practical significance to study the impact of FDI on manufacturing and high-tech manufacturing exports of China from 2006 to 2016. This paper will enrich the research field on the relationship between FDI and export performance and expand the research field to China's economic performance from 2006 to 2016 and specific manufacturing and high-tech manufacturing industries. Provide inspiration for the goal and direction of future research.

The methodology of this paper is based on the regression model used in previous researches. The Model is created based on a scientific foundation and fit the data used in this research. The scientific methodology leads to reliable results. However, the limitation on the data resource results in the limited control variables in the model of this research.

The data used in the research include the 11-year period from 2006 to 2016, which is sufficient for scientific research, and the timeliness of the data enables the research conclusion to be used as the latest research results for reference and have practical application significance in the real economic world.

This research attracts researchers who are interested in the relevant fields, provides some scientific guidance for market policymakers, and provides information on relevant fields for economies with similar economic conditions.

## **6. CONCLUSION**

Due to the need of deepening the research on the relationship between FDI and export in the economic academic field and the lack of relevant research considering the change of China's economic situation in recent years, this study aims to investigate the relationship between FDI and total manufacturing and high-technology manufacturing export performances based on China's new economic condition. The results suggest that the expansion of FDI benefits local total manufacturing and high-technology manufacturing export performances. This finding is beneficial to get a better understanding of the relationship between FDI and export performance under the new China's economic condition and enlighten the further FDI policy to improve China's future high-technology export development. However, this study investigates the relationship based on China's economic condition and uses the data from 2006 to 2016 which makes the findings do not necessarily generalize to other countries. Also, the regression model used in this study has limited control variables since it is hard to get related data to quantify the result, which may influence the accuracy of this study's finding. The lack of data from 2017 to 2018 may also reduce the timeliness of this study. Future research can explore the relationship between FDI and export performance focusing on other specific industries areas or specific regions in China.

## REFERENCES

- Chen, C., Mai, C. & Yu, H., 2006. The effect of export tax rebates on export performance: Theory and evidence from China. *China Economic Review*, Volume 17, pp. 226-235.
- D'émurger, S., 2001. Infrastructure Development and Economic Growth: An Explanation for Regional Disparities in China?. *Journal of Comparative Economics*, pp. 95-117.
- Hu, Z. F. & Khan, M. S., 1997. Why Is China Growing So Fast?. *IMF Staff Papers*, pp. 103-131.
- Kutan, A. M. & Vuksic, G., 2007. Foreign Direct Investment and Export Performance: Empirical Evidence. *Comparative Economic Studies*, pp. 430-445.
- Liu, X. & Shu, C., 2003. Determinants of Export Performance: Evidence from Chinese Industries. *Economics of Planning*, Volume 36, pp. 45-67.
- Long, G., 2005. China's Policies on FDI: Review and Evaluation. In: *Does Foreign Direct Investment Promote Development?*. Washington, DC: s.n.
- Prasanna, N., 2010. Impact of Foreign Direct Investment on Export Performance in India. *J Soc Sci*, pp. 65-71.
- Sun, H., 2001. Foreign Direct Investment and Regional Export Performance in China. *Journal of Regional Science*, pp. 317-336.
- Tseng, W. & Zebregs, H., 2002. Foreign Direct Investment in China: Some Lessons for Other Countries. *International Monetary Fund*, pp. 1-25.
- UNCTAD, 1998. *The Financial Crisis in Asia and Foreign Direct Investment: An Assessment*. New York: New York and Geneva: United Nations.
- Wang, Y., Li, G. & Wang, B., 2016. China: Economic Structure Change and Outward Direct Investment (ODI). In: *Moving Up The Ladder: Development Challenges For Low And Middle-income Asia*. Beijing: World Scientific.
- Wen, M., 2005. Foreign Direct Investment, Regional Geographical and Market Conditions, and Regional Development: A Panel Study on China. *ANU Working Paper on Trade and Development*.
- Zhang, K. H., 1999. How does FDI interact with economic growth in a large developing country? The case of China. *Economic Systems*, 23(4), pp. 291-303.
- Zhang, H. & Song, S., 2000. Promoting exports The role of inward FDI in China. *China Economic Review*, pp. 385-396.
- Zhang, K. H., 2001. How does Foreign Direct Investment affect Economic Growth in China?. *Economics of Transition*, 9(3), pp. 679-693.
- Zheng, P., Siler, P. & Giorgioni, G., 2007. FDI and the Export Performance of Chinese Indigenous Firms: a Regional Approach. *Journal of Chinese Economic and Business Studies*, pp. 55-71.