INFLUENCE OF GERMAN, FRENCH, BRITISH AND DUTCH DIRECT INVESTMENT IN CHINA ON THE STRUCTURE OF BILATERAL TRADE

Hongyi BI
School of International Economics and Trade, Shandong University of Finance and Economics, Jinan, Shandong, China
hongyibi@163.com

Jing GAO
School of International Economics and Trade, Shandong University of Finance and Economics, Jinan, Shandong, China
gaojingshe@126.com

Linfeng YUAN
School of International Economics and Trade, Shandong University of Finance and Economics, Jinan, Shandong, China
1558373635@qq.com

Abstract
Based on the 2001-2010 panel data, this paper describes the German, French, British and Dutch investment in China and empirically studied the impact of the four countries' direct investment on China's import and export structure. Research shows that every 1% increase of the four countries' FDI in China's manufacturing industry causes a 0.44% growth in China's import from these countries and a 0.7% growth in export to these countries. Every 1% increase FDI in electrical machinery and equipment industry in investment causes a 0.45% growth in import and a 0.39% growth in export. Every 1% increase of FDI in transportation industry promotes a 0.39% growth in import and a 0.31% growth in export. And every 1% increase of FDI in leasing and business service industry every 1% increase in investment poses a 0.21% increase in import and a 0.25% growth in export. Therefore, we can see that major EU countries' direct investment in China plays an important role in improving the structure of China's import and export.

Keywords: Germany, France; Britain, Holland, FDI, Structure of Bilateral Trade

1. INTRODUCTION

China is the largest developing country in the world. European Union, as the core and main part of Europe which contains the world's most developed countries, is an irreplaceable force in the modern world development. In 2012, EU still remains China's largest trading partner and biggest source of imports. Despite the eurozone debt crisis, trade between China and EU still breaks the $500 billion mark

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for two consecutive years. The total value of bilateral trade between China and EU has reached $546.04 billion in 2012. EU is an important source of foreign investment and technology provider of China. In 2012, the number of invested enterprises newly set up by EU in China has reached 1698, making up 6.81% of the foreign-invested enterprise newly approved in China. And the amount of EU's direct investment actually used has come to $61.07 billion, accounting for 5.47% of the foreign investment actually used in the whole country [1]. EU's investment is of great significance to the economic development, technological progress and industrial upgrade of China.

Currently, studies on the relationship between trade and investment at home and abroad suggest that there're three kinds of relations: substitutive relation; complementary relation and uncertainty relation. In regard to the substitutive relation between trade and investment, Robert A.Mundell initially proposed the investment substituting trade model in 1957.And later studies suggesting FDI will substitute import trade when trade protection exists in the host country (Beldelbos & Sleuwaegen,1998), has supported Mundell's view. American scholar Vernon (1966) , Horst (1974) and famous British scholar John Dunning (1998) elaborate the internal relations between FDI and trade mainly from the theoretical aspect. Moreover, many scholars have carried on a great deal of empirical studies. Adler and Stevens(1974) ,Belderbos and Sleuwaegen(1996), Helpman Melitz and Yeaple (2004) have all come to the conclusion that there's a substitutive relation between trade and investment by data of different countries. With respect to the complementary relation between trade and investment, the marginal industry expansion theory proposed by Japanese economist K.Kojima(1981) is the most representative theory of trade and investment complementary theories ,and this view of marginal industry expansion has been supported by Markuson and Svensson's (1985) study. Patel.P.,Pavitt.K (1991) , Lipse and Weiss, Hufbauer (1994) have all carried on relevant empirical studies. Other Empirical studies towards Japan, Germany and Sweden have also drawn similar conclusion. Pfaffer-mayr(1994) has demonstrated the complementary relation between trade and investment using the quarterly data of the Austrian manufacturing industry. W·Hejazi and A.E.Safarian (2001) use gravity model while Joshua Aizenmana and Ilan Noy (2006) come to conclusion after empirical studies from different aspects: the correlation coefficient between investment and trade is plus in developing countries , but not so obvious in industrialized countries.

Many scholars find that the relation between FDI and trade is uncertain through their studies. Jun and Aingh (1995) have studied the relation between foreign investment and trade of 30 developing countries

[1] From the website of National Bureau of Statistics of the People's Republic of China

and revealed a uncertain relation. Nadiya Mankovaska(2001) research the impact of EU's FDI and Ukraine's foreign trade ,and the result shows that EU's investment in primary industry has promoted its export, but have substituted import in secondary industry. Gray (1998) points out that the market-oriented direct investment substitutes trade but production efficiency oriented direct investment promotes trade. Bedassa Tadesse and Michael Ryan (2004) research data of direct investment between 1989 and 1999 from 85 countries that are totally different from Japan in geographic position and level of development, and find that the relationship between FDI and trade under the impact of market maturity and exotic export openness level behave as uncertain relation.

Chinese scholars focus on studying the relation between foreign direct investment in China and trade of EU and China from an overall perspective. Li Xiaoguang(2002),Yao Zhanqi(2007) and Wang Hongqing (2007) research from different perspectives and suggest that the purpose of EU's direct investment in China is to explore the Chinese market. Li Jun,Cui Yanxin and Zhao Nannan(2007) analyze it using principal component factor method and multi-factor regression method and suggest that the inflow of EU's direct investment to China which gives rise to the international transfer of EU-China trade surplus is the main cause of trade surplus between China and EU. Shao Ling, Xie Jianguo (2008) believe that EU's FDI in China has greatly enhanced Chinese vertical intra-industry trade. Using the regression analysis with the panel data ,Ye Wenjia , Yu Jinping(2008) believe that EU's FDI in China has greatly promoted Sino-European trade ,the stock of investment has obviously enhanced export and the investment flow has facilitated import dramatically .Based on the international industry transfer, the research group named "Study on China's trade surplus with the EU"(2006) of Ministry of Commerce of the People's Republic of China makes qualitative analysis on China-EU trade surplus and draws the conclusion that international direct investment substitutes trade. There're numbers of studies discussing EU's direct investment in China or Sino-European trade separately, but there're few literatures involving targeted analysis of the relation towards investment and trade between the main countries of EU investment and China except those mentioned above.There's also a small number of Literatures with a clear conclusion describing the relations between EU's direct investment in China and bilateral trade through both qualitative and quantitative analysis method. In this paper, we mainly use direct investment data of EU's major countries such as Germany, France, Britain and Holland from 2001 to 2010 as sample. And this section measures the industries that these four countries choose to invest in China and its impact on China's trade by using the approach of panel data.

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2. ANALYSIS ON GERMAN, FRENCH, BRITISH AND DUTCH DIRECT INVESTMENT IN CHINA

Germany, France, Britain and Holland are the principal members of European Union. They are also the countries investing the most in China of all EU members all the time. In the early years of reform and opening up, only four countries made direct invest in China and small scale as well as little amount(the amount of investment was between $3 million and $100 million) made up the feature of investment in that time. Since the 1990s, the number of EU members which invest in China has begun to increase, and the amount of investment has grown significantly. By 2011, all the 27 members of EU have invested in China. And Germany, France, Britain, Luxembourg, Italy, Spain, Denmark, Sweden and Ireland rank the top ten in terms of its investment in China in 2011, whose investment accounting for 93.02% of the EU's total amount of direct investment in China.

1.GERMANY: Germany has been an important country of the EU that invests in China. From 2001 to 2010, the investment projects of Germany in China totals 4522 and the actual amount of investment has reached $11.328 billion, making up 1.3% and 1.6% of the investment in China at the same period respectively. The proportion of Germany's investment in China is relatively less than that of Germany's global investment. In 2010, the proportion only holds 0.85%, ranking 13 among the countries(areas) that invest in China. However, Germany's investment in China focuses on large projects, and this is especially distinct in the area of advanced technology. Viewing from the amount of investment towards a single project, Germany's investment in China comes mainly from its big scale enterprises. The average investment project size is relatively large and the amount of a single project is well above the national average.

TABLE 1 - GERMANY'S INVESTMENT IN CHINA (UNIT: $100 MILLION)

Year	FDI out flow	Proportion Counted in the global total (%)	The Number of Investment Project in China	Proportion Counted in the national total (%)	The amount of foreign investment actually used	Proportion Counted in the national total (%)
2001	396.84	4.81	280	1.07	12.13	2.59
2002	189.47	3.02	352	1.03	9.28	1.76
2003	58.22	1.03	451	1.10	8.57	1.60
2004	205.47	2.81	608	1.39	10.58	1.75
2005	758.93	8.60	650	1.48	15.3	2.54
2006	1187.01	8.45	576	1.39	20.03	3.04
2007	1706.17	7.85	548	1.45	7.34	0.98
2008	771.42	4.04	390	1.42	9.00	0.97
2009	782.00	6.68	303	1.29	12.17	1.35
2010	1048.57	7.92	364	1.33	8.88	0.84

Source of data: UNCTAD, Statistics from Ministry of Commerce of the People's Republic of China.

The industrial feature of Germany's investment in China is that it mainly focuses on manufacturing industry. From 2001 to 2010, the number of Germany's investment projects in China's manufacturing industry amounts to 2701 and the actual use of foreign investment adds up to $7.709 billion, counting 59.7% and 68.1% respectively in the national total of the same industry. The computer development industry, the pharmaceutical industry, the electrical and electronic industry, the machine building industry (including automobile industry) and the information appliance industry are the industries that attract most investment of Germany, and they are also Germany's most competitive industries. What's more, investment from Germany's service industry enterprises in China is also on the rise. The number of leasing and business service projects rises from 26 in 2001 to 65 in 2010 and the investment actually used increases from $9.51 million to $150 million. The number of investment projects in transportation industry, warehousing industry and postal industry has declined while the amount of investment actually used has increased.

2.FRANCE: The proportion of France's investment in China is relatively small. It is not only less than that of the countries which are foreign investment exporter such as America and Japan, but also obviously falls behind that of Britain and Germany. From 2001 to 2010, the investment projects of France in China totals 2473 and the actual amount of investment has reached $6.34 billion, making up 0.71% and 0.90% of the investment in China at the same period respectively. Since 2006, France's actual investment in China has increased, but only counts for a proportion of 1%. The France's investment in China also occupies a small proportion in its FDI outflow, with an average of only 0.6% from 2001 to 2010. Counted by the amount of investment of a single project, France's single investment increase steadily and is slightly above the national level. But in 2010, single investment of France has risen to $6.765 million and is well above the national level.

TABLE 2 - FRANCE'S INVESTMENT IN CHINA (UNIT: $100 MILLION)

Year	FDI out flow	Proportion Counted in the global total (%)	The Number of Investment Project in China	Proportion Counted in the national total (%)	The amount of foreign investment actually used	Proportion Counted in the national total (%)
2001	867.67	10.51	151	0.58	5.32	1.14
2002	504.41	8.03	162	0.47	5.76	1.09
2003	531.47	9.39	269	0.65	6.04	1.13
2004	567.35	7.75	289	0.66	6.57	1.08
2005	1149.78	13.03	342	0.78	6.15	1.02
2006	1106.73	7.87	338	0.81	3.95	0.60
2007	1643.10	7.56	268	0.71	4.56	0.61
2008	1550.47	8.12	199	0.72	5.88	0.64
2009	1029.49	8.80	272	1.16	6.79	0.75
2010	841.12	6.36	183	0.67	12.38	1.17

Source of data: UNCTAD, Statistics from Ministry of Commerce of the People's Republic of China.

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The industrial feature of France's investment in China is that it mainly focuses on manufacturing industry. From 2001 to 2010, the number of France's investment projects in China's manufacturing industry amounts to 1296 and the actual use of foreign investment adds up to $4.2239 billion, counting 52.3% and 66.6% respectively in the national total of the same time. Textile and garment industry, transportation equipment industry and communications equipment manufacturing industry are the industries that attract most France's investment. In 2010, China's actual use of investment of France is $543 million, accounting for 43.9%. From 2001 to 2010, wholesale and retail industry holds the most investment projects in service trade accumulatively, occupying 13.6% of the same term. And leasing and business service industries facilitate most of the investment accumulatively, accounting for 12.2%. In that decade, these two industries have grown quite rapidly. In 2010, the actual investment from France that are used in leasing and business service industry reaches $204 million with a portion of 16.5%, which is only secondary to manufacturing industry.

TABLE 3 - GREAT BRITAIN'S INVESTMENT IN CHINA (UNIT: $100 MILLION)

Year	FDI out flow	Proportion Counted in the global total (%)	The Number of Investment Project in China	Proportion Counted in the national total (%)	The amount of foreign investment actually used	Proportion Counted in the national total (%)
2001	588.55	7.13	269	1.03	10.52	2.24
2002	503.00	8.00	334	0.98	8.96	1.70
2003	621.87	10.99	438	1.07	7.42	1.39
2004	910.19	12.43	488	1.12	7.93	1.31
2005	808.33	9.16	553	1.26	9.65	1.60
2006	862.71	6.14	462	1.11	7.55	1.15
2007	2723.84	12.52	475	1.25	9.31	1.11
2008	1610.56	8.43	365	1.33	9.14	0.99
2009	443.81	3.79	272	1.16	6.79	0.75
2010	110.2	0.83	278	1.01	7.10	0.67

Source of data: UNCTAD, Statistics from Ministry of Commerce of the People's Republic of China.

3.GREAT BRITAIN: Great Britain's investment in China has been relatively stable, making up 1% of the total FDI inflow. From 2001 to 2010, the investment projects of Britain in China totals 3934 and the actual amount of investment has reached $8.337 billion. The proportion of Britain's actual investment in China has declined in recent years. In 2010, the investment projects of Britain in China totals 278 and the actual amount of investment has reached $710 million, making up 0.71% and 0.90% of the direct investment in China at the same term respectively. Counted by the amount of investment of a single project, Britain's single investment remains stable and is slightly above the national level. The industrial feature of Britain's investment in China is that it mainly focuses on manufacturing industry. From 2001 to 2010, the number of Britain's investment projects in China's manufacturing industry amounts to 2160 and the actual use of foreign investment adds up to $5.846 billion, occupying 52.3% and 66.6%

respectively in the national total of the same term. General purpose machinery, textile and garment industry and information transmission industry have attracted a lot of investment from Britain. Since 2005, the number of projects in manufacturing industry and the amount of investment actually used has been coming down year by year. In 2010, the number of investment projects is 99 and the investment actually used is $551 million, occupying 35.6% and 77.6% respectively. Leasing and business service industries have attracted most of the investment, and the amount of investment in these two industries has grown quite rapidly. In 2010, the actual investment from Britain that is used in leasing and business service industry reaches $40.53 million with a portion of 5.7%.

4.HOLLAND: In recent 10 years, the Dutch overall FDI outflow is in decline. Falling by 1.6 times, it drops from $50.592 billion in 2001 to $31.904 billion in 2010. Its proportion in global FDI outflow also falls from 6.13% in 2001 to 2.41% in 2010. Holland's overall investment in China is relatively small, but its portion in Holland's FDI outflow is on the rise. In 2001, it's 1.53% and in 2010 it reaches 2.86%. From 2001 to 2010, the investment projects of France in China totals 1684 and the actual amount of investment has reached 7.927 billion, making up 0.49% and 1.13% of the investment in China at the same period respectively.

TABLE 4 - HOLLAND'S INVESTMENT IN CHINA (UNIT: $100 MILLION)

ear	FDI out flow	Proportion Counted in the global total (%)	The Number of Investment Project in China	Proportion Counted in the national total (%)	The amount of foreign investment actually used	Proportion Counted in the national total (%)
2001	588.55	505.92	6.13	114	0.44	7.76
2002	503.00	320.19	5.1	127	0.37	5.72
2003	621.87	440.34	7.78	189	0.46	7.25
2004	910.19	291.64	3.98	199	0.46	8.11
2005	808.33	1230.71	13.95	234	0.53	10.44
2006	862.71	711.74	5.06	262	0.63	8.65
2007	2723.84	556.08	2.56	182	0.48	6.17
2008	1610.56	674.85	3.53	152	0.55	8.62
2009	443.81	269.27	2.30	108	0.46	7.41
2010	110.2	319.04	2.41	117	0.43	9.14

Source of data: UNCTAD, Statistics from Ministry of Commerce of the People's Republic of China.

In 2010, the number of investment project and the amount of investment that is actually used have increased to 117 and $914 million respectively. Counted by the amount of investment of a single project, Holland's single investment increase steadily and is well above the national level. The industrial feature of Holland's investment in China is that it mainly focuses on manufacturing industry. From 2001 to 2010, the number of Holland's investment projects in China's manufacturing industry amounts to 749 and the actual use of foreign investment adds up to $4.422 billion, counting 44.5% and 55.8% respectively in the

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national total of the same term. Since 2005, Holland's overall investment in China has decreased while the portion of investment in service trade is on the rise year by year. From 2001 to 2010, the number of projects in wholesale and retail industry rises from 7 to 31, the amount of investment actually used increases from $37.72 million to $216 million and the investment actually used in leasing and business service increases from $138 million to $278 million. In 2010 , Holland's investment in leasing and business service industry, wholesale and retail industries is only secondary to manufacturing industry.

Figures 1 and 2 show the trend of investment portion and scale of the four EU members that invest relatively large in China.

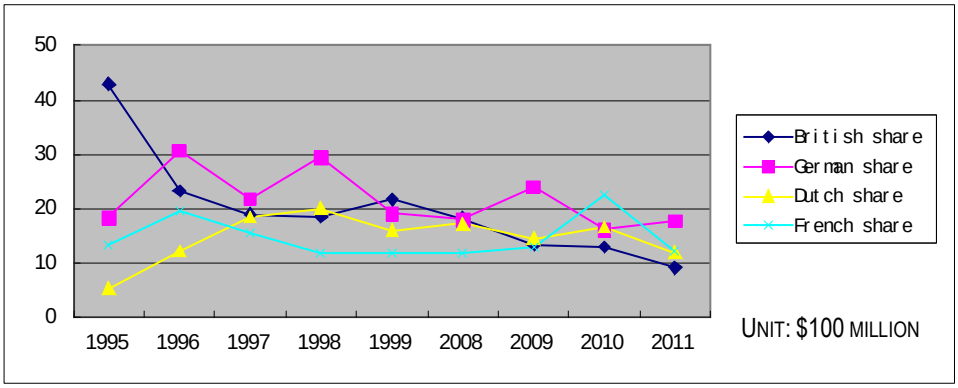

FIGURE 1 - TREND OF GERMAN, FRENCH, BRITISH AND DUTCH INVESTMENT PORTION IN CHINA (%)
Source: China's Foreign Investment Statistics

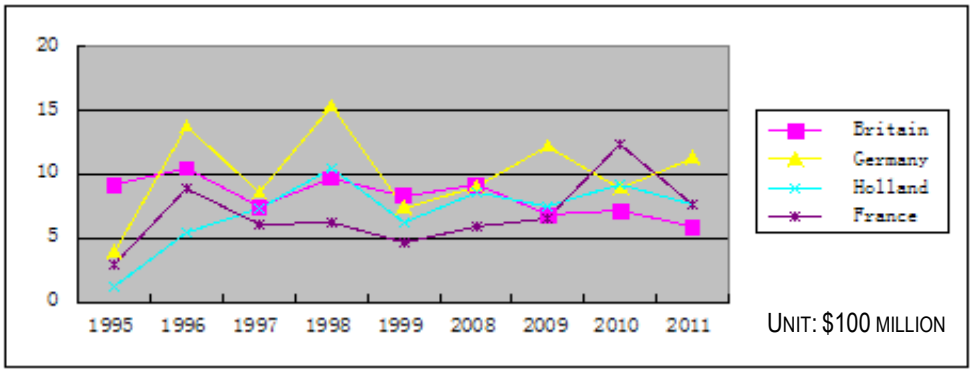

FIGURE 2 - TREND OF GERMAN, FRENCH, BRITISH AND DUTCH INVESTMENT SCALE IN CHINA
Source: China's Foreign Investment Statistics

It's worth noting that before 2011 the four countries' investment in China remains at a level above 60% but the portion is only 51.01% in 2011, resulting from the gradual investment expansion of other EU members in China which has squeezed out the portion of these four countries in recent years. In the past few years, other EU members' investment in China has increased rapidly and greatly. For instance, investment from countries like Greece, Denmark and Ireland has increased 100% in 2007 compared

with the last year, which is well beyond the other countries of EU. This shows that other EU member's investment in China has risen greatly and therefore China should pay attention to the leading role of investment from other EU countries for China's civil investment.

3. INFLUENCE OF THE FOUR COUNTRIES' DIRECT INVESTMENT IN CHINA ON THE STRUCTURE OF BILATERAL TRADE

3.1. Model building and variable selection

In 2010, there are four EU members among the top 15 countries investing in China, namely Germany, France, Britain and Holland. Among the industries these four countries invest in, manufacturing industry, transportation industry, electrical machinery and equipment industry and leasing and business service make up a large proportion. In this paper, we choose the amount of imports (IM) and amount of exports (*EX*) between China and these four EU members from 2001 to 2010 as dependent variable and select the FDI of these four countries in China's manufacturing industry, transportation industry , electrical machinery and equipment industry and leasing and business service industry(FDI_{Manu} , FDI_{Trans} , FDI_{Elec} , $FDI_{B\&S}$) from 2001 to 2010 as independent variable, thus analyzing the impact of the four countries' investment in these industries on the imports and exports between China and themselves. The statistics used in this paper come from China Statistical Yearbook and China's foreign investment statistics.

In this section, we'll use panel data analysis method to measure the influence of the industries in which these four countries invest on the trade of China and themselves. Panel data, also known as parallel data or time series and cross section data or pool data, refers to the sample data made up of observations taken from different cross sections on time series at the same time. Panel data is composed of section observations of several individuals at a certain time viewing from cross sections and looking from the profile is a time series. Generally, a panel data model can be expressed as follows:

$$Y_{jt} = \alpha_j + \beta_{1j} X_{1jt} + \beta_{2j} X_{2jt} + ... + \beta_{nj} X_{njt} + \varepsilon_{jt} (j = 1,2,..k; t = 1,2,..T.) \quad (1)$$

Y_{jt} is the numerical value of dependent variable on cross section i and time t . X_{ijt} is the numerical value of independent variable j on cross section i and time t . ε_{jt} is the random error on cross section i and time t. β_{ij} is the model parameter on cross section j. α_j is constant term or intercept term, standing for cross section j (the impact of the individual j). The quantity of independent variable i=l ,

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2 , … , N, the quantity of cross sections j=l , 2 , … , K and the length of time t=1 , 2 , … , T. *K* stands for the quantity of individual cross section , *T* stands for the quantity of periods of every member of cross section and *N* stands for the quantity of independent variable.

In order to fit the purpose of this paper and remedy autocorrelation of error term, we have developed the former model into model (2) by using logarithmic form:

$$\log(Y_t)=\alpha_0+\alpha_1\log(FDI_{Manu})+\alpha_2\log(FDI_{Trans})+\alpha_3\log(FDI_{Elec})+\alpha_4\log(FDI_{B\&S})+AR(1)$$

In equation (1) , α_0 is intercept parameter , α_1 α_2 α_3 and α_4 are correlation coefficients. FDI_{Manu} , FDI_{Trans} , FDI_{Elec} and $FDI_{B\&S}$ stand for the direct investment of Germany, France, Britain and Holland in China's manufacturing industry, transportation industry, electrical machinery and equipment industry and leasing and business service industry respectively.

3.2. Empirical analysis

In order to know about the impact of direct investment from different countries, we analyze the investment from Germany, France, Britain and Holland in China's manufacturing industry, transportation industry, electrical machinery and equipment industry and leasing and business service industry with the amount of import of China from these four countries from 2001-2010 using Eview6 by the method of panel data analysis. The estimating results of model 2 are listed in Table5 as follows.

TABLE 5 - MODEL ESTIMATING RESULTS

Variable	Coefficient	Std. Error	t-statistic	Prob.
$LOG(FDI_{Manu})$	0.443271	0.083875	5.284889	0.0000
$LOG(FDI_{Trans})$	0.385303	0.090952	4.236339	0.0002
$LOG(FDI_{Elec})$	0.445295	0.079322	5.613792	0.0000
$LOG(FDI_{B\&S})$	0.213394	0.109517	1.948505	0.0605
R-squared	0.653634	Durbin-Watson Statistic		2.192533

$$\log(IM)=\underset{(5.28^{***})}{0.44}\log(FDI_{Manu})+\underset{(4.24^{***})}{0.39}\log(FDI_{Trans})+\underset{(5.61^{***})}{0.45}\log(FDI_{Elec})+\underset{(1.95^{*})}{0.21}(FDI_{B\&S})$$

R^2=0.65 DW=2.19 AR (1) =0.166992

The numerical value of the intercept is 0 and we can see from the value of R-square that the fitting degree of the equation is relatively high. The DW Statistic shows that there is no autocorrelation sequence in the equation. We can see from the regression equation that the FDI of the four country in

China's manufacturing industry, transportation industry, electrical machinery and equipment industry and leasing and business service industry has a positive correlation with the amount of import of China from these four countries, which illustrates the FDI has promoted the import mentioned above. Viewing from the regression coefficient of the equation, the FDI of the four countries in China's electrical machinery and equipment industry has enhanced the import of China from these four countries most and every 1% increase in investment corresponds to a 0.45% growth in import. FDI in manufacturing industry plays the secondary role and every 1% increase in investment causes a 0.44% growth in import. FDI in transportation industry plays the tertiary role and every 1% increase in investment promotes a 0.39% growth in import. FDI in leasing and business service industry plays the least role and every 1% increase in investment poses a 0.21% growth in import.

Meanwhile, in order to know about the impact of direct investment from different countries on the amount of export in different industries, we analyze the investment from the four countries in China's manufacturing industry, transportation industry, electrical machinery and equipment industry and leasing and business service industry with the amount of export of China to these four countries from 2001-2010 using Eview6 by the method of panel data analysis. The estimating results of model 2 are listed in Table6 as follows.

TABLE 6 - MODEL ESTIMATING RESULTS

Variable	Coefficient	Std. Error	t-statistic	Prob.
$LOG(FDI_{Manu})$	0.700563	0.122684	5.710316	0.0000
$LOG(FDI_{Trans})$	0.309666	0.112278	2.758021	0.0097
$LOG(FDI_{Elec})$	0.389532	0.111753	3.485653	0.0015
$LOG(FDI_{B\&S})$	0.248357	0.110451	2.248576	0.0318
R-squared	0.701610	Durbin-Watson Statistic		2.388137

$$\log(EX) = \underset{(5.71***)}{0.70}\log(FDI_{Manu}) + \underset{(2.76**)}{0.31}\log(FDI_{Trans}) + \underset{(3.49***)}{0.39}\log(FDI_{Elec}) + \underset{(2.25**)}{0.25}\log(FDI_{B\&S})$$

R^2=0.7 DW=2.38 AR (1) =0.437455

The numerical value of the intercept is 0 and we can see from the value of R-square that the fitting degree of the equation is relatively high. The DW Statistic shows that there is no autocorrelation sequence in the equation. We can see from the regression equation that the FDI of the four countries in China's manufacturing industry, transportation industry, electrical machinery and equipment industry and leasing and business service industry has a positive correlation with the amount of export of China to these four countries, which illustrates the FDI has promoted the export mentioned above.

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Viewing from the regression coefficient of the equation, the FDI of the four countries in China's manufacturing industry has enhanced the export of China to these four countries most and every 1% increase in investment corresponds to a 0.7% growth in export. FDI in electrical machinery and equipment industry plays the secondary role and every 1% increase in investment causes a 0.39% growth in export. FDI in transportation industry plays the tertiary role and every 1% increase in investment promotes a 0.31% growth in export. FDI in leasing and business service industry plays the least role and every 1% increase in investment poses a 0.25% growth in export.

4. CONCLUSIONS

1. Direct investment in China from major EU countries such as Germany, France, Britain and Holland is of great significance to China's industrial structure upgrade

German, French, British and Dutch direct investment in China mainly focuses on manufacturing industry and this investment in important industries which are the pillars of economic development such as manufacturing industry mostly concentrates on capital-intensive industry, high-tech industry, automobile industry, pharmaceutical and medical equipment manufacturing, electronics, electrical appliances and communication manufacturing industry. The combination of equipment investment and technology export inside the direct investment in these industries of China from EU countries such as Germany, France Britain and Holland has become a significant source of advanced technology and key equipment in China. According to the statistics, the technology of three quarters of the projects is in the internationally advanced level and some are at the same level with civil technology Only a few projects are relatively backward in terms of technology and are in line with the international level of 1980s. The average fund of projects of EU in China is larger than that of America and Japan. In 2012, America's average fund of direct investment projects in China is $2.28 million, and EU's average is $3.60 million which is 1.6 times of that of America. The average fund of direct investment in China of ten countries/areas in Asia (Hong Kong, Macao, Taiwan, Japan, the Philippines, Thailand, Malaysia, Singapore, Indonesia and South Korea) totals $4.8133 million and EU's average is well beyond that of these ten countries/areas. EU countries tend to invest in technology-intensive and capital-intensive industries. Therefore, EU countries' investment will increase China's domestic capital and bring advanced technology and management experience to China by means of technology transfer and spillovers at the same time, which can improve the production efficiency of local enterprises, promote the upgrade of technology-intensive and capital-intensive industries and accelerate the enterprise transformation in China.

2. Direct investment in China from major EU countries such as Germany, France, Britain and Holland has optimized China's export commodity structure

This study shows that German, French, British and Dutch direct investment in China's manufacturing industry, transportation industry, electrical machinery and equipment industry and leasing and business service industry has promoted China's export of the commodities in these industries to the four countries. On account of the difference in economic development and industrial structure between China and EU, the trade structure of China and EU are remarkably complementary to one another. In former years, China's export to major EU countries such as Germany, France, Britain and Holland mainly focuses on low value-added textile and mechanical and electrical products such as textile and garment, shoes, bags, toys, plastic products, coke, tools, steel and so on. However, China mainly imports capital goods and high-tech products and secondarily industrial raw materials, transportation equipment and steel products, wheat, primary plastic, medicine et al from these countries. In recent years, trade in high-tech products develops very fast and the trade structure has been improved a lot. Statistics from *China's foreign investment statistics* shows that the portion of the export of China's electrical equipment of machines and recording accessories in its total export to EU has been maintained at around 45% and the export amount has been on the rise in the past few years.

FDI from major EU countries such as Germany, France, Britain and Holland in China mainly focuses on the secondary industry and tertiary industry while the proportion in primary industry is less than 1%. What's more, FDI in the secondary industry occupies about 70% on average in the former half of 21st century but the proportion has declined and transferred to tertiary industry, making the portion of investment in tertiary industry soar up to more than 50% from about 30% in the first half of the 21st century. The industrial transfer in the tertiary industry such as leasing and business service industry is very obvious. The FDI of the four countries in China's leasing and business service industry has enhanced the surplus of China in that industry and every 1% increase in investment corresponds to a 0.16% growth in surplus and this empirically verifies that investment can promote trade in those industries. EU's direct investment in China's service industry has increased greatly, which has dramatically promoted China's trade in service. Therefore, the Chinese government can release the investment restrictions in that industry properly.

3. Direct investment in China from major EU countries such as Germany, France, Britain and Holland has optimized China's import commodity structure

German, French, British and Dutch direct investment in China's manufacturing industry, transportation industry, electrical machinery and equipment industry and leasing and business service industry has

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promoted China's import of the commodities in these industries from the four countries. Statistics from *China's foreign investment statistics* shows that the amount of the import of China's mechanical equipment and machine parts has been on the rise but it has been in decline in the proportion of the amount of all the commodities imported from EU in the past few years. In 2010, the portion has decreased below 40%.The amount and proportion of transportation equipments, including high-tech products like aeronautical facilities have been increasing and the import amount base metals and chemical products has been on the rise in recent years. However, on account of the development of China's civil manufacturing industry, the portion of import in mechanical equipment and machine parts has been in decline. All these suggest that EU's direct investment in China has promoted the optimization of China's import structure, which is helpful to facilitate the further upgrade of China's civil industrial structure.

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