How Does FDI Affect a Host Country's Export Performance? The Case of China

Kevin Honglin Zhang*

Abstract

From the 32nd in 1978 to the 3rd largest exporting country in the world in 2004, China's export boom was accompanied by substantial inflows of foreign direct investment (FDI) in the same period. Exports by foreign-invested enterprises in 2004 were $339 billion, comprising 57% of China's total exports. While there are considerable theoretical treatments of the FDI-export linkage, relevant empirical analyses have been limited. This paper attempts to close the gap by investigating the issue with the Chinese industrial data. The estimates indicate that FDI indeed has had a positive impact on China's export performance, its export-promoting effect is much greater than that of domestic capital, and its effect is larger in labor-intensive industries, as one might anticipate.

JEL Code: F21; F23; O53
Key Words: Foreign direct investment (FDI), Exports, Foreign-Invested Enterprises (FIEs), Multinational Corporations (MNCs)

* Department of Economics, Illinois State University, Normal, IL 61790-4200, USA. Phone: (309) 438-8928, Fax: (309) 438-5228, and Email: khzhang@ilstu.edu. Yufei Liu and Zheng Xu, my research assistants, provided valuable assistance in data entry. Of course, the usual caveat applies.

1. Introduction

An empirical assessment of the role of foreign direct investment (FDI) in a host country's export performance is important, since exports have been for a long time viewed as an engine of economic growth. There is a widely shared view that FDI promotes exports of host countries by (a) augmenting domestic capital for exports, (b) helping transfer of technology and new products for exports, (c) facilitating access to new and large foreign markets, and (d) providing training for the local workforce and upgrading technical and management skills. On the other hand, however, it is sometimes suggested that FDI may (a) lower or replace domestic savings and investment; (b) transfer technologies that are low level or inappropriate for the host country's factor proportions; (c) target primarily the host country's domestic market and thus not increase exports; (d) inhibit the expansion of indigenous firms that might become exporters; and (e) not help developing the host country's dynamic comparative advantages by focusing solely on local cheap labor and raw materials.[1] While further theoretical insights would be valuable, empirical analyses of the issue are needed as well for a better understanding of the FDI-export link. This paper attempts to work in this direction by using the Chinese industrial data.

Besides the intrinsic importance of the topic, the case of China is of special significance. China's export boom, from $18 billion in 1980 to $593 billion in 2004, was accompanied by a substantial rise in FDI inflows from almost zero to $61 billion in the same period, with the accumulated FDI being as much as $560 billion by the end of 2004 (Figure 1 and Table 1). The exports generated by foreign-invested enterprises (FIEs) rose much faster than those by domestic firms, resulting FIE share of 57% in China's total exports in 2004.

[1] A detailed discussion on the role of FDI in a host-country's export performance may be found in *World Investment Report 2002: Transnational Corporations and Export Competitiveness* (UNCTAD, 2002). Caves (1996) offered a brief survey on the topic as well.

Figure 1 and Table 1 may be inserted here.

There has been a growing literature on the FDI-export link in China (for example, Lardy, 1994; Nauthgton, 1996; UNCTAD, 2002; Zhang, 2002 and 2005; Zhang and Song, 2000). While qualitative analyses offered by most of the existing work are useful and informative, econometric treatments of this issue have been limited. The main purpose of this study is to provide estimates of a log-linear model of the FDI-export linkage for 186 industries. Taking advantage of the relatively large number of industries used in the work, we report not only estimates of the model with the full sample of industries, but also estimates of the model with two sub-samples of labor-intensive and capital-intensive industries.

2. The Role of FDI in China's Exports

China has great potential to become a significant exporter of labor-intensive products, such as textiles and other consumer goods. However, the Chinese firms faced immense difficulties at the initial stage in setting up a distribution network, keeping in close touch with rapid changes in consumer tastes, mastering the technicalities of industrial norms and safety standards, and building up a new product image. In many cases, the design, packaging, distribution and servicing of the products are as important as the ability to produce them at, or below, ruling prices in world markets. The lack of such skills constituted a key barrier for China to enter the world markets.

What role does FDI play in China's export performance? Theoretically, the simulative effects of FDI on exports of the host country derive from the additional capital, technology, and managerial know-how the multinational corporations (MNCs) bring with them, along with access to global, regional, and especially home-country, markets (UNCTAD, 2002). These

resources and market access brought with FDI have complemented China's resources and capabilities and provided some of the missing elements for greater competitiveness. China therefore has built upon these to enter new export activities and improved its performance in existing ones.

FDI helps exports by investing capital in the exploitation of China’s low-cost labor, especially in the 1980s, when domestic investment was limited by financial constraints. Such FDI bridged the resource gap and took the risk of developing new exports. The provision of additional capital has been critical for China to build up its initial base of labor-intensive manufacturing exports.

FDI provides China with competitive assets for export-oriented production in technology-intensive and dynamic products in the world trade (Zhang and Song, 2000). Such assets are often firm-specific, costly and difficult for the Chinese firms to acquire independently. The transfer of such assets by foreign affiliates or non-equity partners in China through training, skills development and knowledge diffusion opens up prospects for further dissemination to other enterprises and the economy at large. Thus more firms (including domestic enterprises) can develop their exports and the factors underlying competitiveness get rooted in the Chinese economy.

FDI promotes exports by facilitating China access to new and larger markets. This involves foreign affiliates' privileged access to not only MNCs' international production systems, but also MNCs' intra-firm markets and access at arm's length to MNCs' customers in global, regional and home-country markets. Moreover, these links to world markets extend to suppliers and other domestic firms. In addition, as happened in the US, China also benefited from the lobbying activities of MNCs in their home countries for favorable treatment of exports from their

affiliates abroad.

Export-oriented foreign affiliates provide training for the local workforce and upgrade technical and managerial skills that benefit the Chinese exports. This is especially true for export-oriented investments in advanced technological capabilities. China has already attracted significant MNC export activities at labor-intensive and low-technology levels. The strategic challenge facing China is that its future competitiveness depends on the host government's ability to boost the human capital and technological infrastructure. In turn, MNCs feed benefits back into local skill and technology systems, providing information, assistance and contracts.

The positive role of FDI in China's exports may be summarized in terms of direct and indirect effects. The direct effects refer to exports by foreign affiliates themselves. The spillovers of FDI on export activities of local firms make up the indirect effects (Blomstrom et al., 2000; UNCTAD, 2002).

The contributions of foreign affiliates to China's exports include the following four aspects: (a) Exports through processing and assembling: By processing components and assembling in which domestic firms import unfinished and intermediate goods, China became a dominant exporter of labor intensive products (toys, shoes, clothes, and sporting goods) and some technology-intensive products (machinery and equipments, including electronic circuits, automatic data-processing machines, and mobile phones) (UNCTAD, 2002). Generally, these exports are organized by MNCs within vertically integrated international production network (Zhang and Markusen, 1999). Most of the exports created by FDI (80% in 2002) take place in this form, which constitutes three quarters of China's total processing-assembling exports (SSB, 2003). (b) Exports through converting import-substituting industries: Many developing countries including China restrict imports of manufacturing products but may allow FDI in these sectors.

With well-designed policies, China started and increased exports of the import-substituting products by combining its cheap labor with advanced technology embodied in FDI (Zhang, 2005). This has been happening in home appliances (TV sets, VCD, DVD players, cameras, refrigerators, and washers) and the automobile industry. (c) Exports of new labor-intensive final products: The success of some Chinese brand names of light consumer goods in entering world markets is partly due to FDI providing links to final buyers, especially in the US markets (Zhang, 2002 and 2005). (d) Exports of local raw materials processing: In the processing of locally produced raw materials, foreign affiliates may have better export potential than indigenous firms, because of their business contacts abroad, marketing skills, and superior technology, both in product and processes, and greater general know-how. This is especially true in the 1980s, when the Chinese firms lacked these assets and FDI was the only means, at least for the time being, of increasing exports.

FDI enhances as well China's manufacturing exports through spillover effects on local firms' exporting activities. For instance, local firms increase their exports by observing the export activities of foreign affiliates ("learning by watching") and by making use of the infrastructure of transport, communications and financial services that develops to support those activities. The second spillover effect involves the influence of FDI on the competitiveness of domestic firms' exports and the diffusion of new technologies. By bringing their advanced product-process technology, management, and marketing competence, MNCs may increase competition in the Chinese markets and force local firms to adopt more efficient methods. The third spillovers are related to the linkage between foreign and local firms. If export-oriented foreign subsidiaries increase their purchase of inputs from local firms as the subsidiary matures, China's exports increase (UNCTAD, 2001 and 2002).

3. The Model, the Data, and the Main Results

The preceding discussions of the general theory and the role of foreign affiliates in China's export suggest that FDI has contributed substantially in China's export boom. Several empirical specifications can be considered in a study of the determinants of a country's export performance. The focus of the paper on the role of FDI, however, necessitates the use of a model that could capture and isolate the basics of the FDI-export link. Therefore FDI may be treated as an additional factor to the conventional framework in which the country's export performance is determined by factor endowments and scale economies. One can then specify an export function fairly simply as:

(1) $$X_i = f(K_i^F, K_i^D, W_i, SE_i, D_i)$$

where X_i is export volume in industry *i*, K_i^F and K_i^D are foreign capital (i.e., FDI) and domestic capital in the industry, respectively, *W* represents wage rate, and *SE* measures scale economies. *D* is industrial dummy based on factor intensity, which is discussed in details below.

The rationale for each independent variable rather than FDI (K_i^F) is as follows. Domestic capital has significant influence on the capability and competitiveness of a industry and therefore its export performance. Thus more capital can enhance the industry's productivity and exporting ability. A negative link between exports and labor costs (*W*) is suggested by the conventional factor-proportion model, from which China is expected to export labor-intensive products because it has abundant labor. The factor-intensity dummy (*D*) is included as well in the equation based on the model's prediction that countries tend to export goods whose production is intensive in factors with which they are abundantly endowed. The new trade theory suggests scale economies at the firm-level as a determinant of exports. Large firms tend to export more,

since they have strong incentives to take advantages of scale economies and more resources to overcome additional difficulties in entering foreign markets, such as collecting market information, launching oversea sales-promoting campaigns and adapting products to foreign markets.

Addition of a constant term and a stochastic component to equation (1) yields the econometric specification

$$X_i = \beta_0 + \beta_1 K_i^F + \beta_2 K_i^D + \beta_3 W_i + \beta_4 SE_i + \beta_5 D_i + \varepsilon_i \quad (2)$$

where β_1, β_2, β_3, and β_4 are the elasticities of exports with respect to FDI, domestic capital, labor costs, and scale economies, as all variables except dummy are taken in form of natural logarithm to reduce possible heteroscedasticity.

Equation (2) constitutes the basis for our cross-section analysis of the FDI-export link data on 186 industries in 1995. All data are taken from *The Data of the Third National Industrial Census of People's Republic of China in 1995* (Office of the 3rd National Industrial Census, 1997). Exports (X) are measured by total export value in the industry, foreign capital stock (i.e., FDI stock, K^F) is current value of total foreign-invested capital stock, and domestic capital stock (K^D) is current value of total domestic capital formation. Wage rate (W) is proxied by the ratio of total wages to the number of employees in that industry. The average firm size (the ratio of gross output value of the industry to the total number of firms in the industry) is taken as a proxy for economies of scale (SE). Industry dummy (D) takes value one if the industry is labor intensive and zero for capital intensive. Every industry for which data for the relevant variables are available in the source cited has been included. Thus, there is no direct selection bias in the sample. The industries included are listed in the appendix. The descriptive statistics for all variables used in the regressions are presented in Table 2.

Table 2 may be inserted here.

For the purpose of comparison, we estimate two variants of the model for the full sample (186 industries): the one with dummy and the other without dummy (Table 3). To capture some details about whether or not FDI has different effects on exports of labor-intensive and capital-intensive industries, we estimate the FDI-export model for a sub-sample of 107 labor-intensive industries and a sub-sample of 79 capital-intensive industries separately (Table 4).[2] In each case, we run an additional regression (Model 1 in Tables 3 and 4) that includes FDI as the sole explanatory variable to show how important FDI is to an industry's export performance.

The main regression results are presented in Tables 3 and 4, from which the following points are easily discerned. First, the overall performance of the econometric models is quite satisfactory. The fit of the regressions is good with significant F-statistics at the 1% level in all cases. The explanatory power of the regressions is reasonably high, 0.59-0.67 for the full sample and 0.47-0.69 for the sub-samples.

Tables 3 and 4 may be inserted here.

Second, FDI seems to have the predominant influence on China's export performance, and its effect is much larger than that of domestic capital. In all cases, the FDI variable has relatively large and statistically significant coefficients. In the full sample regressions (model 2 in Table 3), the coefficients of FDI and domestic capital are 0.69-0.73 and 0.18-0.19, respectively, the former being three times larger. The t-statistics for FDI are much larger (7.21-8.61) than those for domestic capital (2.01-2.14). Moreover, the adjusted R^2 (0.59) of model 1 in Table 3 suggests that about 60% of the variance in exports is explained by FDI only.

[2] The criteria used for the division is the capita-labor ratio of ￥23,000 (RMB of the Chinese currency) per worker, which is consistent with the Chinese government's classifications of industries. The capital- and labor-intensive industries are indicated in the appendix.

Third, the effect of FDI on exports is clearly larger in labor-intensive industries than capital-intensive industries. The coefficients of the factor-intensity dummy are statistically significant and have the expected sign (Table 3), suggesting some differences in FDI effects on the two industry groups. The estimates of the two sub-samples in Table 4 appear revealing. In model 1, not only is the impact of FDI on exports larger for the labor-intensive industries (0.91 vs. 0.73 of the coefficients), but also the regression accounts for much more variance in exports (64%) than that of capital-intensive industries (47%). The estimates of model 2 indicate the same pattern, suggesting that FDI indeed has stronger effects on exports from labor-intensive sectors.

Fourth, the estimates of other independent variables are consistent with the theoretical prediction and widely held belief. The coefficients of domestic capital stock, wage rate, and scale economies are statistically significant and have correct signs (Table 3). Therefore, industries with more capital stock, lower labor costs, and larger size tend to export more. In the regression of sub-samples (Table 4), since the difference in wage rates and domestic capital stock almost vanishes in each group or smaller size of the samples, the coefficients of the two variables are no longer statistically significant.

It should be noted that at least two aspects of the estimates reported here might seem troublesome. One is the possibility of heteroscedasticity in the disturbance term. The other is the feedback from the dependent variable. While a full scale treatment of the second issue may require causality tests with reasonably-long time-series data, and is thus impossible for the present work due to unavailability of the data, we can test, based on the approach suggested by White (1980), at a simple level whether there are specification errors of the kinds mentioned. The result of White test indicates that the values of the test statistic are too small to justify non-

acceptance of the null hypothesis of heteroscedasticity and correct model specifications, suggesting absence of both heteroscedasticity and other major specification errors.

4. Concluding Remarks

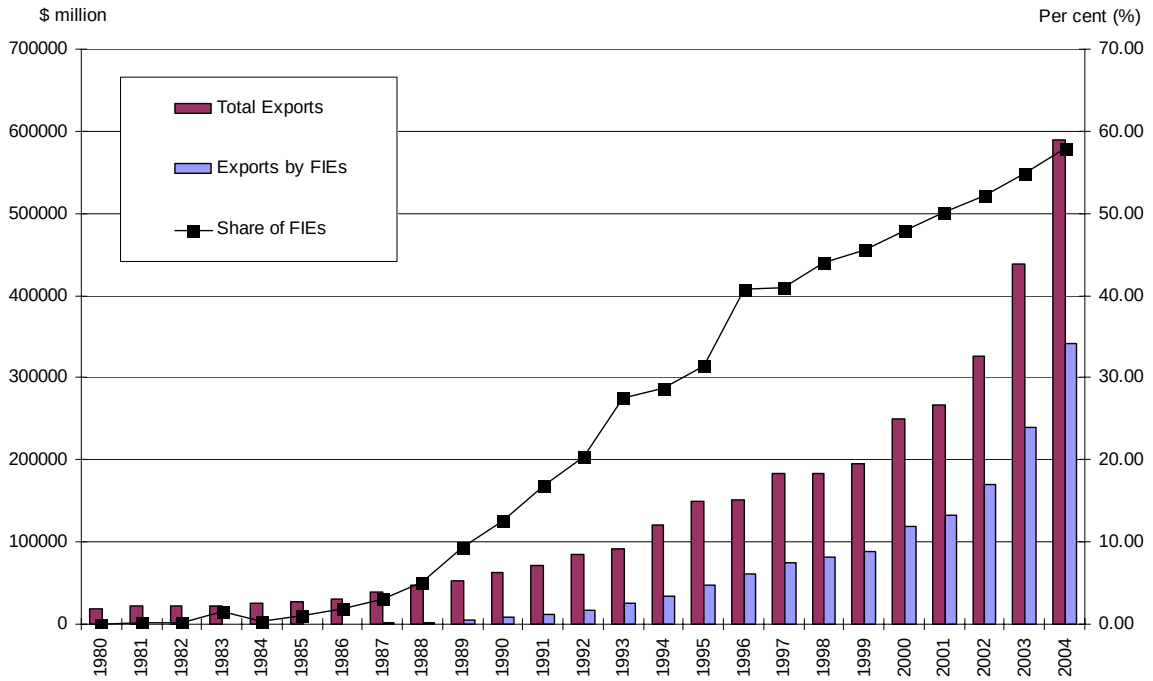
FDI has been viewed as an accelerator of host countries' economic growth. One of its major potential growth-contribution is to promote host countries' exports. This study attempts to empirically investigate the issue by using the Chinese industrial data. The estimates indicate that FDI indeed has a positive impact on China's export boom, its effects are much larger than those of domestic capital, and its effects are larger in labor-intensive industries, as one might anticipate.

China's success in promoting exports through FDI reported here might be somewhat special due to its unique advantage over other developing countries in bargaining with multinational corporations. While FDI has potentials in helping host countries' exports, the benefits do not accrue automatically or evenly across countries. National policies and host government bargaining power relative to multinational corporations matter for attracting export-oriented FDI and for reaping its full benefits for exports. China's unique advantages in large country-size, strong centralized government, large amount of rich overseas Chinese who set up most of the export-oriented affiliates, and well-designed FDI strategy, have provided it with negotiating power to minimize the adverse effects and realize positive effects of FDI.

Some additional comments are worth mentioning. First, it should be noted that other determinants of China's exports may exist but were excluded from the investigation. This work, therefore, should not be treated as an exhaustive study of export performance in China but, rather, as a narrowly focused investigation of the merits of FDI. Second, the focus of this study is

on the role of FDI in China's export boom, not on the impact of FDI on trade, or on the assessment of benefits and costs of FDI in trade. In fact, as exports created by FDI rose, imports by foreign affiliates in China had grown faster than their exports until 1997 (SSB, 2003). The topics beyond the export-promoting effects of FDI merit additional studies.

Figure 1 Foreign-Invested Enterprise (FIEs) and China's Exports: 1980-2004



Sources: *China Statistical Yearbook 2004* (SSB, 2004) and *China Foreign Economic Statistical Yearbook 1979-2003* (SSB, 1979-2003). The data for 2004 are taken form the official website of China's ministry of Commerce (http://www.mofcom.gov.cn).

Table 1 FDI Flows, Total Exports, and Exports by Foreign Invested Enterprises (FIEs) 1980-2004

Year	FDI Inflows ($ Billion)	Cumulative FDI ($ Billion)	Total Exports ($ Billion)	Exports by FIEs ($ Billion)	Share of FIEs (%)
1980	0.036	0.570	18.119	0.082	0.05
1985	1.661	4.587	27.350	0.297	1.08
1990	3.487	18.848	62.091	7.814	12.58
1995	37.521	133.024	148.797	46.876	31.51
2000	40.715	346.634	249.211	119.441	47.93
2001	46.878	393.512	266.150	133.218	50.05
2002	52.743	446.255	325.570	169.985	52.21
2003	53.505	499.760	438.370	240.340	54.83
2004	60.630	560.390	593.370	338.610	57.07

Sources: *China Statistical Yearbook 2004* (SSB, 2004) and *China Foreign Economic Statistical Yearbook 1979-2003* (SSB, 1979-2004). The data for 2004 are taken form the official website of China's ministry of Commerce (http://www.mofcom.gov.cn).

Table 2 Descriptive Statistics of the Variables Used in the Study

	Mean	St. Deviation	Maximum	Minimum
Full sample (N=186)				
X	4008.24	87.52	73917.00	0.10
K^F	1618.09	24.09	17651.00	0.10
K^D	11332.79	190.75	175399.00	25.00
W	5054.70	1268.54	9575.84	2824.56
SE	24.48	0.90	1126.38	0.91
Labor-intensive industries (N=107)				
X	3693.11	102.08	73917.00	0.10
K^F	1137.77	20.03	14294.00	0.10
K^D	7686.24	111.65	72906.00	25.00
W	4553.47	887.60	7782.44	2824.56
SE	11.27	0.24	218.22	0.91
Capital-intensive industries (N=79)				
X	4435.06	63.06	37162.00	8.00
K^F	2268.73	27.51	17651.00	6.00
K^D	16271.78	255.07	175399.00	59.00
W	5733.58	1390.90	9575.84	3780.80
SE	42.38	1.33	1126.38	3.20

Notes: X, K^F, K^D, and SE are in millions of the Chinese currency (RMB). W is in unit of RMB.

Table 3 Estimates of the FDI-Export Link for All Industries

Independent Variables	Without Dummy		With Dummy	
	Model 1	Model 2	Model 1	Model 2
Constant (C)	1.01***	13.53***	1.08***	10.01*
	(7.83)	(2.86)	(7.39)	(1.94)
FDI Stock (K^F)	0.83***	0.69***	0.90***	0.73***
	(16.20)	(10.97)	(14.11)	(11.54)
Domestic Capital Stock (K^D)		0.19**		0.18**
		(2.14)		(2.01)
Wage Rate (W)		-1.37**		-0.91*
		(-2.57)		(1.67)
Scale Economies (SE)		0.61***		0.65***
		(4.86)		(5.28)
Dummy (D)			0.21*	0.61***
			(1.86)	(2.87)
Adjusted R^2	0.59	0.66	0.59	0.67
F-Statistic	262.48***	90.92***	134.73***	77.31
Sample	186	186	186	186

Notes: The dependent variable is exports (X) in an industry. Figures in parentheses are t-statistics. The asterisks *, **, and *** indicate significant levels at 10%, 5%, and 1%.

Table 4 Estimates of the FDI-Export Link for Labor- and Capital-Intensive Industries

Independent Variables	Labor-Intensive Industries		Capital-Intensive Industries	
	Model 1	Model 2	Model 1	Model 2
Constant (C)	1.01***	11.31*	1.12***	8.29
	(6.59)	(1.77)	(4.58)	(1.05)
FDI Stock (K^F)	0.91***	0.78***	0.73***	0.68***
	(13.64)	(8.61)	(8.43)	(7.21)
Domestic Capital Stock (K^D)		0.19		0.11
		(1.54)		(0.87)
Wage Rate (W)		-1.09		-0.73
		(-1.50)		(-0.81)
Scale Economies (SE)		0.61***		0.69***
		(3.59)		(3.71)
Adjusted R^2	0.64	0.69	0.47	0.61
F-Statistic	186.09***	60.92***	71.02***	31.04***
Sample	107	107	79	79

Notes: The dependent variable is exports (X) in an industry. Figures in parentheses are t-statistics. The asterisks *, **, and *** indicate significant levels at 10%, 5%, and 1%.

Appendix : List of Industries Used in the Sample

Coal extraction
Coal washing
Natural crude oil extraction*
Iron mining*
Other mining industries
Heavy metal mining
Light metal mining
Precious metal mining
Rare metal mining
Stone mining
Chemical mining
Salt mining
Other non-metal mining
Timber & timber transporting
Grain & feed material processing*
Vegetable oil processing*
Sugar processing*
Meat & egg processing
Aquatic product processing*
Salt processing*
Other food processing*
Candy & cakes*
Dairy products*
Canned food
Yeast products*
Cooking sauces
Other food products*
Alcohol*
Soft drink*
Tea products
Other beverage*
Tobacco leaf*
Cigarette*
Tobacco processing
Fiber material processing
Cotton textiles
Woolen textiles
Linen textiles
Silk textiles
Knit products
Other textiles*
Clothes
Hats
Footwear
Other fiber
Leather tanning*
Leather & leather products*
Furs & products
Feather products
Timber processing
Man-made board
Wood products
Bamboo & cane products
Wood furniture
Bamboo furniture
Metal furniture
Plastic furniture*
Other furniture*
Paper pulp
Paper processing
Paper products
Printing
Copying*
Stationery products
Sports products*
Musical instruments
Toys
Game equipment
Other products excluding toys
Crude oil processing*
Petroleum products*
Petroleum refining
Basic chemical material
Chemical fertilizer
Agricultural chemicals*
Organic chemicals*
Synthetic materials*
Special chemical products*
Daily used chemical products*
Chemical pharmaceutical preparation*
Chemical pharmaceutical products*
Chinese medicine processing*
Medicine for animals*
Biological products*
Chemical fibers*
Synthetic fibers*
Fishing tools*
Rubber tire products*
Special tire products
Rubber belt & tubes
Rubber spare parts
Recycling rubber products
Rubber footwear products
Daily used rubber products
Rubber product repair
Other rubber industries
Plastic film*
Plastic board & tube*
Plastic strings & knitting products
Foamed plastic & synthetic leather*
Plastic packaging materials & containers*
Plastic footwear products
Daily used plastic products*
Plastic spare parts*
Other plastic products*
Cement products*
Cement & asbestos products
Brick & light building materials
Glass & glass products*
Pottery products
Fire resistance products
Gypsum products
Mineral fiber products
Other products excluding mineral non-metallic products
Refining iron
Refining steel*
Steel processing*

Refining Iron alloy
Heavy metal refining*
Light metal refining*
Precious metal refining
Rare metal refining*
Ferrous metal alloy
Ferrous metal processing*
Metal structure
Iron casing tubes
Metal tools
Metal containers & packaging materials*
Metal wires
Metal products for construction
Metal surface processing
Daily used metal products
Other metal products
Boilers & engines
Metal processing machinery
General equipment
Bearing & valve
Others in general spare parts
Forging products*
General industrial machinery & equipment
Other ordinary machinery
Special equipment for refining & mining
Special equipment for petroleum
Special equipment for textiles
Equipment for agriculture, forestry & fishing
Medical equipment*
Other special equipment
Special equipment machinery repair
Equipment for railway transporting*
Automobiles*
Motorcycle*
Bicycles*
Shipping
Aerospace
Transport equipment repair
Other transport equipment
Electrical machinery
Equipment for controlling & transmitting electricity
Electrical industrial apparatus*
Daily used electrical equipment*
Lighting equipment
Electrical equipment repair
Other electrical machinery
Communications equipment*
Radar equipment
Radio & TV equipment*
Electronic computers*
Electronic apparatus*
Electronic components*
Daily used electronic apparatus & tools*
Electronic equipment repair*
Other electronic equipment*
General apparatus & meter equipment
Special apparatus & meter equipment
Electronic measurement equipment
Calculators
Office instrument machinery*
Watches & clocks
Instruments for testing of electricity& electrical signals
Other apparatus & meters
Generation of electricity*
Electricity supply*
Gas production*
Gas delivery*
Water supply*
Water delivery*

Note: An asterisk indicates a capital-intensive industry.

References

Blomstrom, Magnus, Ari Kokko, and Mario Zejan (2000), *Foreign Direct Investment: Firm and Host Country Strategies,* London: Macmillan Press.

Caves, Richard (1996), *Multinational Enterprises and Economic Analysis*, the 2nd edition, Cambridge, MA: Cambridge University Press.

Lardy, Nicholas R., 1994, *China in the World Economy*, Washington, DC: Institute for International Economics.

Naughton, Barry (1996), "China's Emergence and Prospects as A Trading Nation", *Brookings Papers on Economic Activity*, 2: 273-344.

Office of the 3rd National Industrial Census (1997), *The Data of the 3rd National Industrial Census of the People's Republic of China in 1995*, Beijing: China Statistical Press.

State Statistical Bureau (SSB) (2004), *China Statistical Yearbook 2004*, Beijing: China Statistical Press.

State Statistical Bureau (SSB) (1979-2003), *China Foreign Economic Statistical Yearbook* (various years), Beijing: China Statistical Press.

United Nations Conference on Trade and Development (UNCTAD) (2001-2002), *World Investment Report* (2001 and 2002), New York: United Nations.

White, Halbert (1980), "A Heteroscedasticity-Consistent covariance matrix estimator and a direct test for heteroscedasticity," *Econometrica*, 48: 817-838.

Zhang, Kevin H. (2002), "China as A New Power in World Trade," in Fung, Pei, and Johnson ed., *China's Access to WTO and Global Economy*, Beijing: Yuhang Publishing House, 32-49.

Zhang, Kevin H. (2005), "China's Export Competitiveness," in Kevin H. Zhang ed., *China as An World Factory*, London: Routledge, forthcoming.

Zhang, Kevin H. and Shunfeng Song (2000), Promoting Exports: The Role of Inward FDI in China," *China Economic Review*, 11(4): 385-396.

Zhang, Kevin H. and James R. Markusen (1999), "Vertical Multinationals and Host-Country Characteristics," *Journal of Development Economics*, 59: 233-252.