Issues & Studies© 43, no. 3 (September 2007): 165-197.

How East Asian Industry Transfer Affects the U.S.-China Trade Imbalance: Economic Mechanisms and Policy Implications*

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Over the last three decades, the East Asian industry transfer has, via foreign direct investment (FDI), transformed China from an autarky into an integral player in the East Asian production chain. As a last-stage assembler in this value-added chain, China is maintaining an increasingly high trade surplus with the United States. The worsening U.S.-China trade disputes are addressed in such a politicized way that "fair" trade has become the central issue of bilateral trade consultation. However, due to its enormous labor force and impressive macroeconomic prospects, China will continue to play its current role as a world assembly center. Our statistical analysis further substantiates the theoretical hypothesis that the

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*This research was funded by the Asia Research Center, Renmin University of China. The authors are grateful to the anonymous reviewers from *Issues & Studies* for their constructive comments on the draft of the paper.

East Asian industry transfer has a strong export transfer effect. Therefore, it is unlikely that the U.S.-China trade imbalance will be alleviated fundamentally in the next five to ten years. Trade disputes between Beijing and Washington will continue to be a big headache and both sides need to tackle the problem through more dialogue and negotiation..

KEYWORDS: industry transfer; U.S.-China trade imbalance; trade dispute; trade policy; foreign direct investment (FDI).

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U.S.-China Trade Imbalance and Its Political Impact

In recent years, the U.S.-China trade imbalance[1] has become an increasingly sensitive issue attracting the attention of not only the United States and China, but many other trading giants, such as the European Union and Japan. The issue has become highly politicized, and the two countries have encountered great difficulties in coping with it. Trade disagreements seem to have become a normal part of relations between China and the United States. How the two countries deal with the issue matters not only for themselves, but also for the well-being of the entire international community.

U.S.-China commodity trade has been growing fast since China implemented the "reform and opening-up" (**改革開放**) policy in the late 1970s. Chinese statistics show that the volume of U.S.-China trade soared from US$2 billion in 1979 to US$263 billion in 2006.[2] The 2006 figure is even larger by American calculations—US$343 billion.[3] The difference between the Chinese and U.S. figures is largely due to differences in calculating trade statistics and trans-shipment trade via Hong Kong, which is treated as a part of China in U.S. statistics.[4]

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[1]International trade includes the trade in goods (or interchangeably, commodities) and services. However, the term "trade" in this paper refers only to the international trade in goods (commodities).

[2]PRC Ministry of Commerce (**商務部**), http://www.mofcom.gov.cn/tongjiziliao/.

[3]U.S. Census Bureau, http://www.census.gov/foreign-trade/. All the U.S. trade statistics in this paper are as reported by the U.S. Census Bureau, unless stated otherwise.

[4]Lawrence Lau and Kwok-Chiu Fung, "New Estimates of the United States-China Bilateral

From any perspective, the United States and China have become mutually important trading partners. By 2006, with U.S.-China trade accounting for 11.9 percent of the total trade volume of the United States, China had become the U.S.'s second largest trading partner, second only to Canada (18.5 percent). The United States was also China's second largest trading partner (14.9 percent of the total) after the European Union (15.5 percent).

As U.S.-China trade has increased rapidly, the nature of the U.S.-China trade imbalance has changed dramatically as well. The United States has had a trade deficit with China since 1983 (U.S. statistics). Since 2000, China has replaced Japan and become the country with the largest trade deficit with the United States. In 2006, the U.S.-China trade deficit reached US$233 billion, which accounts for 30 percent of the total U.S. deficit and is 2.6 times as much as the U.S. trade deficit with its second largest deficit partner, Japan. The deficit shows no sign of declining.

In recent years, China's growing trade surplus with the United States has caused Washington to increase its pressure on China to revalue the *Renminbi* (RMB, 人民幣). Washington has long expected that a revaluation of the currency would lead to a fall in Chinese exports to the United States, thus alleviating the pressure of unemployment in traditional industries such as steel and textiles. On July 21, 2005, China announced a new "floating management foreign exchange regime." However, this did not reduce U.S. pressure for further appreciation of the RMB.

The trade imbalance has also triggered U.S. accusations of Chinese protectionism. China has faced increasing pressure to lower its tariff level and remove non-tariff barriers, and to open its domestic market further to U.S. imports.

Moreover, trade disputes between the two giants are often politicized due to domestic politics. Some industrial interest groups in the United States have evoked the special terms in the World Trade Organization's

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Trade Balances," *Journal of the Japanese and International Economies* 15, no. 1 (March 2001): 102-30; and Nicholas Lardy, *China in the World Economy* (Washington, D.C.: Institute for International Economics, 1994).

(WTO's) "Protocol on the Accession of the People's Republic of China" and adopted antidumping measures and other safeguards to reduce imports of such items as televisions and textiles.[5]

Chinese leaders are aware of the significance of such disputes and have taken measures to address the issue. For example, in his speech at the Asia-Pacific Economic Cooperation (APEC) summit in Pusan, South Korea, on November 11, 2005, President Hu Jintao (**胡錦濤**) expressed the determination of the Chinese government to introduce changes into the current trade regime and expand imports in pursuit of a mutual "win-win" solution.[6]

Despite China having taken measures such as purchasing a large number of planes from Boeing—120 contracted orders in 2005 and another 112 in 2006, with orders from Hong Kong and Macau excluded[7]—the U.S. trade deficit with China continues to grow, and this trend seems unlikely to change in the foreseeable future. With growing globalization and regionalization, the U.S.-China trade deficit is becoming an increasingly complicated issue.

Among many factors that have affected the U.S.-China trade imbalance (e.g., U.S. export controls, China's poor record of intellectual property rights protection, and non-trade barriers),[8] East Asian industry transfer is one of the most fundamental, although it is often overlooked as relatively trivial, especially among policymakers.[9] In dealing with their trade disputes, both governments will have to take this factor into account. Need-

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[5]For a complete overview of the U.S. government's evaluation of U.S.-China trade relations, see the remarks of U.S. Commerce Secretary Carlos Gutierrez to the Shanghai American Chamber of Commerce, Shanghai, China, November 15, 2006 (http://www.commerce.gov/); U.S. Trade Representative, *U.S.-China Trade Relations: Entering a New Phase of Greater Accountability and Enforcement* (Washington, D.C., February 2006); and U.S. Trade Representative, *Report to Congress on China's WTO Compliance 2006* (Washington, D.C., December 11, 2006).

[6]PRC Ministry of Foreign Affairs, "Hu Jintao Addresses the APEC CEO Summit" (November 18, 2005), http://www.fmprc.gov.cn.

[7]The Boeing Company, "Boeing in China" (2007), http://www.boeing.com/companyoffices/aboutus/boechina.html.

[8]Lardy, *China in the World Economy*, 73-83, 129-31.

[9]For example: U.S. Trade Representative, *U.S.-China Trade Relations*.

less to say, it has also made U.S.-China trade issues relevant to other East Asian economies.

East Asian FDI in China

East Asian industrial transfer has historical origins. After World War II, Japan implemented an export-oriented strategy in order to revive its shattered economy. It concentrated on labor-intensive industries with the aid of the United States and exported labor-intensive products, e.g., textiles and toys, to that country. However, labor costs rose as exports grew because of the usual production factor price equalization effect.[10]

Consequently, the gap between labor costs in Japan and other East Asian economies became wider. In the 1960s, although hourly wages in the Japanese manufacturing sector were only one quarter of the U.S. level, they were still very high compared to other East Asian economies. If the wage level of Japan was 100, the levels of Taiwan and Korea were only 22 and 25, respectively.[11] Due to such a large gap, Japanese multinationals began to transfer labor-intensive industries to the four newly industrialized economies of South Korea, Taiwan, Hong Kong, and Singapore (hereafter the NIE-4, or NIEs). In addition, multinationals in the United States and Europe also gradually transferred their mature manufacturing sectors to the NIEs, which experienced strong growth at that time.

The strength of Japanese domestic manufacturing faded gradually in the post-Plaza Accord (1985) era. From 1985 to 1988, the yen appreciated

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[10]Factor price equalization is an effect observed in international trade whereby the prices of factors of production in different countries (e.g., wages) are driven toward equality in the absence of high barriers to trade. This occurs, among other reasons, because price incentives cause countries to choose to specialize in the production of goods whose factors of production are abundant there, which raises the prices of the factors toward equality with the prices in countries where those factors are not abundant. See Paul Samuelson, "International Trade and the Equalization of Factor Prices," *Economic Journal* 58, no. 230 (June 1948): 163-84.

[11]Terutomo Ozawa, "Foreign Direct Investment and Structural Transformation: Japan as a Recycler of Market and Industry," *Business & the Contemporary World* 5, no. 3 (Summer 1993): 129-50.

46 percent against the dollar[12] and the average price of Japanese export commodities increased.[13] During the 1990s, Japan finished its industrial upgrading and by the end of the last century had transferred almost all of its labor-intensive manufacturing centers to the NIEs, the Southeast Asian countries, and China.

This process of industry transfer was copied by the NIEs. In the 1970s, the NIEs industrialized rapidly and witnessed a gradual increase in labor costs, just as Japan had done previously. Thus the NIEs transferred the production of their labor-intensive industries and some capital-intensive industries to ASEAN and China.

With its almost unlimited labor supply, stable political and economic environment, and pro-export trade regime and FDI policies, China has become a hot FDI destination. Since the mid-1990s, China has been the largest recipient of FDI among the developing countries, and in 2003 it became the largest FDI recipient in the world. In 2005, China was still the world's third largest destination for FDI, second only to the United Kingdom and the United States. Since the majority of FDI flows between developed countries,[14] it is amazing that China holds such a strong attraction for foreign capital, despite the fact that more than one quarter of its FDI inflow is speculative "hot money" and "round-tripping"[15] capital.

China's actual (utilized) FDI volume shot up from US$0.9 billion in 1983 to US$69.5 billion in 2006 and the proportion of assembly trade increased from 10 percent in the late 1970s to 47 percent in 2006. This rapid development of FDI and assembly trade helped China find its niche in a wide range of manufacturing sectors.

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[12]U.S. Board of Governors of the Federal Reserve System, http://www.federalreserve.gov/.

[13]See note 11 above.

[14]James Markusen, *Multinational Firms and the Theory of International Trade* (Cambridge, Mass.: MIT Press, 2002).

[15]"Round tripping" FDI refers to cross-border investment motivated by the more favorable treatment of foreign capital. Domestic investors can transfer their capital out of, and then invest back into, the domestic market in the new form of "FDI." See United Nations Conference on Trade and Development (2007): *UNCTAD Investment Brief*, UNCTAD/PRESS/PR/2007/002.

Due to the relatively low purchasing power of Chinese consumers and low labor costs, most of the FDI coming into China falls into the resource-seeking or efficiency-seeking categories rather than the market-seeking category. FDI has transferred industries to China and brought significant technology spillover effects.[16]

The accumulated FDI flowing into China from the five East Asian economies of Japan, Hong Kong, Taiwan, Singapore, and South Korea, from 1979 to 2006, accounted for 67.4 percent of the total accumulated FDI in China,[17] implying that most of China's FDI originated from the East Asian region.

In the period 1979-2005 more than 65 percent of China's accumulated contract FDI inflow went to the manufacturing sector (see figure 1). This shows that multinationals have been, via FDI, transferring their manufacturing industries to China.

The East Asian industry transfer process discussed above can be tentatively explained by two theories, namely the "product life-cycle theory"[18] and the "flying geese model."[19] According to the former, a product's life-cycle can be divided into three stages: new product, mature product, and

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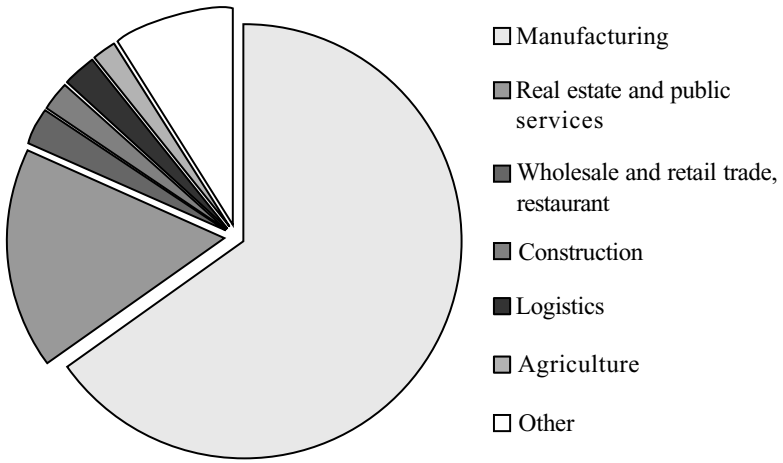
[16]Technology spillover or diffusion is an economic externality which represents the technological benefits (e.g., the demonstration effect) that indigenous firms can gain from multinational affiliates in the host country. This has been a major incentive for host country governments to implement favorable FDI policies. The rich literature has been recently reviewed by Holger Görg and David Greenaway, "Much Ado about Nothing? Do Domestic Firms Really Benefit from Foreign Direct Investment?" *The World Bank Research Observer* 19, no. 2 (Fall 2004): 171-97. The latest research on FDI spillover effects in China can be found in Sourafel Girma and Yundan Gong, "FDI, Linkages, and the Efficiency of State-Owned Enterprises in China," *Journal of Development Studies* (2007, forthcoming); and Peter Buckley, Jeremy Clegg, and Chengqi Wang, "Is the Relationship between Inward FDI and Spillover Effects Linear? An Empirical Examination of the Case of China," *Journal of International Business Studies* 38, no. 3 (May 2007): 447-59.

[17]Authors' calculation based on data from *China Foreign Economic Statistical Yearbook* (**中國對外經濟統計年鑒**) (Beijing: Zhongguo tongji chubanshe, various years).

[18]Raymond Vernon, "International Investment and International Trade in the Product Cycle," *Quarterly Journal of Economics* 80, no. 2 (May 1966): 190-207.

[19]Kaname Akamatsu, "Waga Kuni Keizai Hatten No Sogo Benshoho" (Synthetic dialectics of industrial development of Japan), *Shogyo Keizai Ronso* (Journal of Nagoya Commercial High School) 15 (1937): 179-210; and Kiyoshi Kojima, "The 'Flying Geese' Model of Asian Economic Development: Origin, Theoretical Extensions, and Regional Policy Implications," *Journal of Asian Economics* 11, no. 4 (Autumn 2000): 375-401.

Figure 1
Industry Distribution of Accumulated Contract FDI Inflow in China 1979-2005



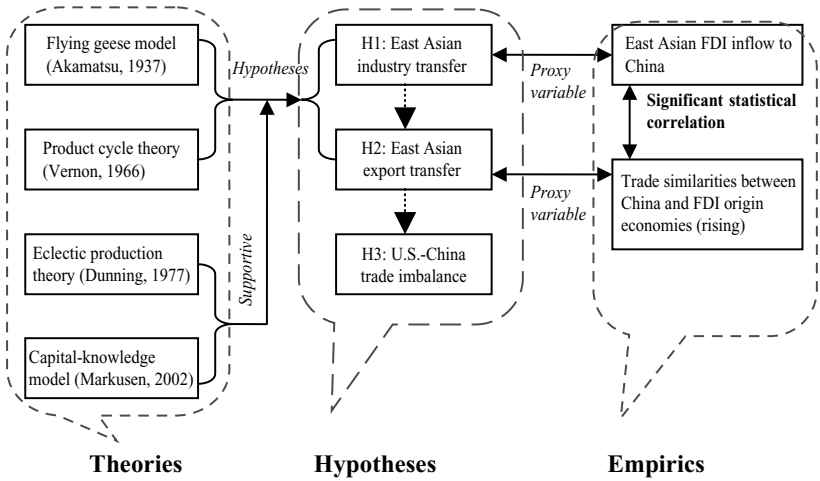
Source: PRC Ministry of Commerce, http://www.fdi.gov.cn/ (2006).

standard product. There is usually a time gap for various products between different countries, a gap which reflects a country's level of technological development and which determines that country's position in international competition. Therefore, this gap also determines the pattern of international investment and trade. The flying geese model is usually understood as the development pattern of the East Asian economy in which Japan was the "leading goose" and completed its industrialization first, with the NIEs forming the second-tier industrialized economies, and ASEAN and China bringing up the rear.[20] There has been some research done on the "shifting comparative advantage" and industry transfer in Asia[21] within

[20]Mitchell Bernard and John Ravenhill, "Beyond Product Cycles and Flying Geese: Regionalization, Hierarchy, and the Industrialization of East Asia," *World Politics* 47, no. 2 (January 1995): 171-209.

[21]Malcolm Dowling and Chia Tien Cheang, "Shifting Comparative Advantage in Asia: New Tests of the 'Flying Geese' Model," *Journal of Asian Economics* 11, no. 4 (Autumn 2000): 443-63; Harvey Cutler, David J. Berri, and Terutomo Ozawa, "Market Recycling in Labor-Intensive Goods, Flying-Geese Style: An Empirical Analysis of East Asian Exports to the U.S.," ibid. 14, no. 1 (February 2003): 35-50; and Xinpeng Xu and Ligang Song, "Export

Figure 2
Substantiation of Theoretical Hypotheses



Notes: Kaname Akamatsu, "Waga Kuni Keizai Hatten No Sogo Benshoho" (Synthetic dialectics of industrial development of Japan), *Shogyo Keizai Ronso* (Journal of Nagoya Commercial High School) 15 (1937): 179-210; Raymond Vernon, "International Investment and International Trade in the Product Cycle," *Quarterly Journal of Economics* 80, no. 2 (May 1966): 190-207; John Dunning, "Trade, Location of Economic Activity, and the Multinational Enterprise: A Search for an Eclectic Approach," in *The International Allocation of Economic Activity*, ed. Bertil Ohlin, Per-Ove Hesselborn, and Per Magnus Wijkman (London: Macmillan, 1977), 395-418; and James Markusen, *Multinational Firms and the Theory of International Trade* (Cambridge, Mass.: MIT Press, 2002).

the paradigm of the flying geese model.

The hypothetical industry and trade transfer effects proposed by the flying geese model and the product life-cycle theory have been supported by the "eclectic theory of international production"[22] and the more recently developed "knowledge capital model"[23] (see figure 2). Both of these

Similarity and the Pattern of East Asia Development," in *China in the Global Economy*, ed. Peter Lloyd and Xiaoguang Zhang (Cheltenham: Edward Elgar, 2000), 145-64.

[22]John Dunning, "Trade, Location of Economic Activity, and the Multinational Enterprise: A Search for an Eclectic Approach," in *The International Allocation of Economic Activity*, ed. Bertil Ohlin, Per-Ove Hesselborn, and Per Magnus Wijkman (London: Macmillan, 1977), 395-418.

[23]See note 14 above.

new theories argue that multinational firms that have a strong advantage in intangible assets (e.g., trademarks, blueprints, and know-how) can invest overseas and isolate the production of knowledge capital and final products.

However, to our knowledge, barely any research has been done that explores the detailed *economic mechanisms* and corresponding *policy implications* of the impact of East Asian industry transfer on the U.S.-China trade imbalance.[24] To close this gap is the purpose of our paper. We identify two proxy variables for East Asian industry transfer and trade transfer, respectively. They are East Asian FDI in China, and trade similarity between China and the FDI origin economies. To check whether the East Asian industry transfer has caused the large-scale trade transfer effects and the resulting huge U.S.-China trade deficit, we now simply need to check whether FDI in China has pushed up the trade similarity level. By doing this, we can overcome the obstacle of quantifying the obscure term "transfer" and can thus test whether the theoretical hypotheses of industry transfer and trade transfer are valid. Data from various sources have been collected, compiled, and subjected to serious statistical analysis. The results are overwhelmingly convincing and therefore substantiate the theoretical hypotheses (see figure 2).

FDI Promotes Trade to the United States and Lifts the Trade Similarity[25]

The huge inflow of FDI to China has caused Chinese exports to grow dramatically. Although FDI has accounted for a relatively small per-

[24]Nicholas Lardy has identified the industry and trade transfers and has briefly explored the causality between them. See Lardy, *China in the World Economy*, 71-72, 77-79, 110-14; and Nicholas Lardy, *Integrating China into the Global Economy* (Washington, D.C.: Brookings Institution Press, 2002), 158-61.

[25]"Trade similarity" refers to the similarity of U.S. imports from China and other East Asian economies. We will present the result of calculation of the "import similarity" index later in the paper. The index ranges from 0 to 2, with 0 for completely differentiated import structure and 2 for exactly the same import structure. See Appendix A1 for details.

centage of total fixed investment (just over 10 percent after 2000) and the manufacturing output generated by FDI is only about 30 percent of the total volume, FDI has stimulated both imports and exports on a disproportionate scale due to the characteristics of China assembly trade—namely, large-scale imports and exports with low value-added in China (**兩頭在外，大進大出**, *liangtou zaiwai, dajin dachu*). The foreign trade generated by FDI firms accounted for only 4 percent of total foreign trade in 1986. However, this grew steadily at a rate of 2.5 percent annually and reached a record 59 percent in 2006, distributed fairly evenly—imports 60 percent, exports 58 percent.

There is a mutually beneficial nexus between FDI and trade in China. Increased exports enhance economies of scale and improve the performance of export-oriented and FDI-related firms. Thus China is able to attract more FDI from other East Asian economies. Interestingly, there is a very significant correlation between East Asian (or world) FDI and U.S. imports from the Chinese manufacturing sector from 1983 to 2006. When East Asian or world FDI in China increases 1 percent, U.S. imports from Chinese manufacturing grow by almost the same proportion (0.97 percent).[26] This indicates that U.S. manufactured imports from China are very sensitive to FDI inflows to China. Thus, FDI inflow to China is a qualified "barometer" for U.S. manufactured imports.

East Asian economies have transferred export-oriented manufacturing industries to China via FDI, making exports from China on the one hand and those from the FDI origin economies on the other increasingly similar in structure. We used the data of the top one hundred commodities imported by the United States from China and nine other major FDI origin economies, i.e., Japan, South Korea, Hong Kong, Taiwan, Singapore, Malaysia, the Philippines, Thailand, and Indonesia, in the twenty-six years from 1981 to 2006 to calculate the trade similarity. We found that the similarity between U.S. imports from China and those from most of the East Asian FDI origin economies increased gradually over this period

[26]See Appendix A2 for a detailed econometric analysis.

(see the upper panels of figures A2 and A3). For example, the similarity at Standard International Trade Classification (SITC)[27] 3-digit level between U.S. imports from China and from Japan increased from 0.21 in 1981 to 0.68 in 2006.

Taking into account the "flying geese model," we further scrutinized the import-weighted trade similarities between China and the disaggregated East Asian *economic blocs*—NIE-4 (South Korea, Taiwan, Singapore, and Hong Kong) and ASEAN-4 (Malaysia, the Philippines, Thailand, and Indonesia). Data show that the trade similarities at SITC 3-digit level of China with NIE-4 and ASEAN-4 increased significantly from 1981 to 2006. The trade similarities of China with NIE-4 and ASEAN-4 increased from 0.62 and 0.21, respectively, in 1981 to 0.90 and 1.00 in 2006.[28]

The trade similarity of China with the NIE-4 declined temporarily from 1990 to 1996 before gradually increasing from 1997 to 2006. This is partly due to the fact that in the 1990s there was a sharp increase in intra-industry specialization.[29] In the post-industrialization era, the NIEs have specialized in higher-end products and R&D while China has specialized in lower-end products or assembly. Consequently, China and the NIEs exported different types of goods to the United States, causing trade similarities to decrease temporarily in the 1990s.

This comparison enables us to see that, in general, the trade similarity of China and Japan is not as great as that of China and the ASEAN-4. Prior to 1990, the trade similarity of China and the ASEAN-4 was not as great as that of China with the NIE-4, but it was higher than the latter after 1990.

This dynamic change in the trade similarity between China and the NIEs and the ASEAN-4 can be explained by the export structure of these economies. In the early 1980s, manufacturing in China was as developed

[27]SITC is the international trade statistics standard most widely adopted by member countries of the United Nations. The trade statistics are available from 1-digit to 6-digit. We select 1-digit and 3-digit in the data compilation.

[28]See the lower panel of figure A2 for reference. The lower panel of figure A3 provides another comparison based on a higher data aggregation level.

[29]This explanation is proposed by Xinpeng Xu and Ligang Song. See to Xu and Song, "Export Similarity and the Pattern of East Asia Development," 145-64.

as that in the ASEAN-4. However, after the NIEs had poured enormous quantities of export-oriented investment into China and the ASEAN-4, the trade similarity between China and the NIEs and the ASEAN-4 increased rapidly. As the recipient of FDI from the NIEs, the ASEAN-4 exported goods to the United States in a similar pattern to China since they were upgrading their trade structure just as China was, and the share of manufactured commodities increased in exports of both the ASEAN-4 and China.

One interesting question here is that if Japan and the NIEs are upgrading and specializing in higher-end products, while transferring labor-intensive product manufacturing to the Chinese mainland, why is the trade similarity still rising? There are three factors behind this phenomenon. First, the industry transfer does *not* completely *hollow out* the industries concerned. Second, the FDI spillover effects, coupled with Chinese domestic R&D inputs and improved human capital, have been pushing the Chinese industry and export structures to converge with those of Japan and the NIEs. The final factor is a statistical one. In comparing figures A2 and A3, we find that trade similarities calculated at SITC 1-digit level are higher than those based on SITC 3-digit level, *ceteris paribus*. This is because SITC 1-digit statistics exhibit a lower degree of commodity heterogeneity. Even among SITC 3-digit statistics, some commodities with quite different labor-capital input ratios may be grouped into a single category, and this also causes a slight inflation of the trade similarity index used here.[30]

In comparing the trade similarity of China with economies such as the G8 countries, Latin America (Mexico, Brazil, and Venezuela), Australia, Nigeria, and Russia, we found, as expected, that the trade similarities between China and the developed economies are rising at a considerable speed, while those between China and transitional economies and less developed countries such as Russia and Nigeria are declining. This implies that by accepting FDI and industry transfer, China is catching up with the

[30]For example, both SITC-821.2 (mattress supports) and SITC-821.5 (wooden furniture) are grouped into category SITC-821 (furniture). However, these two types of commodities might vary a great deal in terms of labor-capital input composition.

developed countries in the trade structure hierarchy. Moreover, as FDI recipients, the ASEAN-4 and the Latin American economies have successfully embraced industries transferred from abroad and achieved convergence with the industry structure of developed countries.

There is a very significant correlation between FDI inflows from different origins and the similarities of U.S. imports from China and other FDI origins. When the FDI inflow from an East Asian economy (e.g., South Korea) increases by 1 percent, the similarity of U.S. imports from China and the East Asian economy will increase by 0.07 percent.[31] This implies that the more East Asian economies invest in China, the more evident the accumulated industry transfer effects and subsequent impact on the trade similarities will become.

U.S. Import Structure

Aggregate Imports

Since the 1980s, as China's trade similarities with other East Asian economies have increased, the United States has imported more and more from China. In 2002, China surpassed Japan to become the U.S.'s largest East Asian trading partner. As the share of imports from the East Asian region (Japan, the NIE-4, the ASEAN-4, and China) fluctuated within a very narrow band of 32 percent ± 4 percent from 1983 to 2004, the import share from China skyrocketed from 0.9 percent in 1983 to 12.9 percent in 2004. In the same period, the market share of East Asian economies such as Japan and the NIE-4 underwent a dramatic decline in the United States. This decline shows that China has been receiving industry transfers via FDI from other East Asian economies, especially from Japan and the NIE-4. As they upgraded their industries, these economies transferred their export potential to China. Therefore, exports from China have been

[31]The estimation is based on the authors' statistical analysis of a large pooled time-series and cross-section data set. See Appendix A4 for details.

replacing other East Asian labor-intensive commodities and some capital-intensive commodities in the U.S. market.

Although the structure of imports from the East Asia region has been redistributed among China and other economies due to industry transfers, the value-added in China only accounts for a small portion of the total export volume because China is only an assembly center. According to Li Deshui (**李德水**), the former director of PRC National Bureau of Statistics (NBS, **國家統計局**), China only earns a small profit margin ("**過路財神**," *guolu caishen*) from these exports.[32]

U.S. Imports of Capital-Intensive Commodities[33]

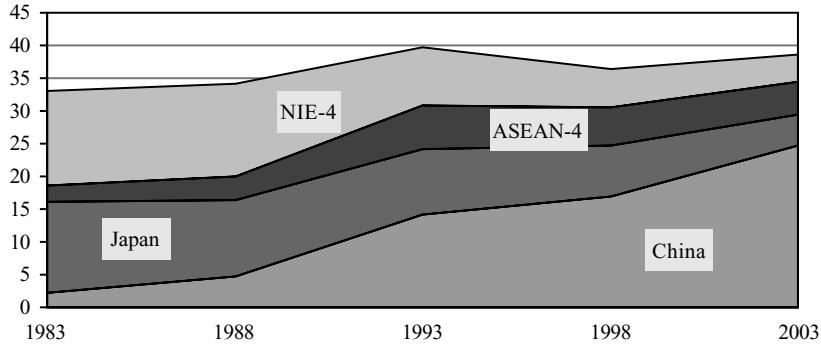
U.S. imports of capital-intensive commodities from East Asia have remained at a relatively stable level of around 42 percent. However, China's share has grown rapidly, rising from 0.1 percent in 1983 to 14.8 percent in 2004, indicating that by hosting FDI, China received capital- and technology-intensive industries from other East Asian economies, thus taking over some of the share of the FDI origin economies in the U.S. market. The transfer of capital- and technology-intensive industries into China and the industrial upgrading from labor-intensive to capital- and technology-intensive are directly related to the fact that FDI-related firms imported high-tech products on a larger scale.

However, there is a tendency for China's manufacturing sector to export a greater proportion of capital- and technology-intensive commodities thanks to the technology spillover effects of the East Asian industry transfer. In 2002, foreign-invested firms were responsible for 66 percent of

[32]"NBS Press Conference on National Economic Performance in 2005," January 25, 2006, www.gov.cn. Li Deshui's viewpoint is echoed by Yang Zhengwei (**楊正位**), an economist from the PRC Ministry of Commerce, who estimates that the actual U.S. "trade deficit" with China is pretty trivial considering the tremendous amount of assembly trade and the profits of U.S. multinational affiliates in China. See Yang Zhengwei, "Quanqiuhua shidai de chanye zhuanyi shi Mei dui Hua maoyi nicha de genben yuanyin" (Industry transfer in the age of globalization is the fundamental reason for the U.S. trade deficit with China), *Guoji maoyi luntan* (International Trade Forum) (Beijing), July 2005, no. 4:15-23.

[33]Capital-intensive commodities are machinery and equipment (SITC 7), while labor-intensive commodities are light manufacturing products (SITC 6 + 8).

Figure 3
The Share of Labor-Intensive Commodities in U.S. Imports



Sources: United Nations Commodity Trade Statistics Database (http://comtrade.un.org/) and U.S. Census Bureau (http://www.census.gov/foreign-trade/).

high-tech imports. In 2003, this rose to a record 71 percent. High-tech products imported by foreign-invested enterprises from Japan, Taiwan, South Korea, and Malaysia accounted for 56 percent of total imported high-tech products. The "geographic technology intensity" of the technology imports induced by FDI from the East Asian economies is far higher than the corresponding "geographic intensity" of FDI. Since East Asian FDI is becoming technology-intensive, the consequent industrial transfer is likely to be technology-intensive as well. If technology-intensive industrial transfer continues, the large technology spillover effect will prompt the upgrading of the industry and export structure to a capital- and technology-intensive one.

U.S. Imports of Labor-Intensive Commodities

There has been even faster growth in imports of labor-intensive commodities, which reflects the comparative advantage of China's enormous army of cheap labor. While the share of such imports from the Asian economies fluctuated within a narrow band of 36 percent ± 4 percent from 1983 to 2003, the market share of imports from China leapt from 2.2 percent in 1983 to 25.1 percent in 2003 (see figure 3). Labor-intensive products from

China "supported" total East Asian export volumes more strongly than capital- and technology-intensive products.

Therefore, the labor-intensive industry transfer effects are more significant than the capital- and technology-intensive industry transfer effects, and this is related to the fact that FDI inflows still focus on labor-intensive industries. Low labor costs, rather than high-tech skills and R&D capacity, are still the major factor attracting FDI inflows. Most of the multinationals investing in China use it as a manufacturing center rather than an R&D center.

"Made in China"[34] commodities have a strong comparative advantage in the U.S. market. Among the top twenty-five commodities imported from China in 2001 (76.6 percent of total imports from that country), only one shows a weaker comparative advantage[35] than those imported from other countries. Of these top twenty-five goods, capital- and technology-intensive commodities account for only 25 percent of total U.S. imports from China, while the share of labor-intensive commodities is 49 percent. In 2006, only three commodities dropped out of the top 25 list, which implies that the commodity composition of imports from China is quite stable.

Perspective on U.S.-China Trade

History is repeating itself, exhibiting a close analogy to the "product life-cycle." The current industrial transfer to China from the East Asian economies is one of the three main industrial structure adjustments and transfers that have occurred since World War II. Japan inherited many labor-intensive industries from the United States in the 1950s and 1960s,

[34]According to the characteristics of the international production networks in East Asia presented in previous discussions, a "Made in China" label is misleading, as the products are actually "Assembled in China" rather than being entirely "Made in China."

[35]For a certain commodity, e.g., toys, assume that its share in imports from China is *S1*, and its share in total imports from the whole world is *S2*. If *S1* is greater than *S2*, then we can say that this commodity imported from China exhibits a stronger comparative advantage than the same commodity imported from other countries.

during which Japan-U.S. trade expanded rapidly and triggered the notorious "Japan-U.S. trade wars." In the 1960s and 1970s, Japan, together with the United States, transferred mature industries to the NIEs. This process was repeated as Japan and the NIEs transferred industries to ASEAN, China, India, and Vietnam from the 1980s. From this perspective, it is quite reasonable and natural for China to receive transferred industries from other East Asian economies, causing the subsequent transfer of the trade surplus with the United States.

Due to dynamic changes in labor costs and other factors, the East Asian economies, as important commodity suppliers in the "dollar standard" era, are transferring their labor-intensive industries by relocating their assembly lines to China. Geographically, Japan and the NIEs are the major origins of industrial transfer. In terms of sectoral distribution, industrial transfer has focused on labor-intensive industries. Industrial transfer has a strong trade transfer effect and has exacerbated the growing U.S.-China commodity trade imbalance.

The future of industrial transfer and the subsequent trade transfer is predictable, though slightly mixed. In the first instance, the transfer has been overwhelmingly supported by China's almost unlimited supply of labor and its pro-trade FDI policies. Industrial transfer is inevitable in such an international industrial upgrading and adjustment context and China will no doubt still be the ideal host for East Asian FDI over the next five to ten years. In particular, ethnic Chinese entrepreneurs in Taiwan, Hong Kong, Macau, and Singapore are the main driving force for investment in China. Moreover, to preclude disastrous levels of unemployment caused by urbanization and the radical restructuring of state-owned industries, the Chinese government decided to make best use of China's "comparative advantage" in cheap labor by boosting labor-intensive industries.[36] This policy is very attractive to resource-seeking FDI from East Asia. As long as there is large-volume East Asian FDI coming into China, the trade surplus transfer effects will continue.

[36]Jiang Zemin, "Keynote Speech Delivered at the 16th National Congress of the Communist Party of China" (November 8, 2002).

However, the effect of FDI in promoting exports to the United States could be affected by rising labor costs in China. As China is pushed to achieve "fair trade," labor costs in some manufacturing industries are growing. Many factories in China's southeastern coastal provinces have been facing a chilling shortage of labor, especially rural workers (民工, *mingong*),[37] in recent years.[38]

Finally, FDI inflows are helping Chinese labor-intensive industries to upgrade and become capital- and technology-intensive. The "export-oriented" FDI from the East Asian economies has been declining gradually over the last ten years, giving way to "market-seeking" FDI and capital- and technology-intensive FDI, not only from Asia, but also from North America and Europe.

Policy Implications

The U.S.-China trade imbalance is a *structural* one, reflecting the nature of complementarity between the industry structures of China and the United States. Sunset industries in the United States, such as those producing steel, textiles, and TV sets, will gradually shrink as their products lose their cost advantage in international markets. The capacity of these industries to absorb labor is declining and this is causing serious structural unemployment. This will trigger vigorous lobbying activity and cause economic tension between these two giants on either side of the Pacific. No matter how many high-tech products, such as Boeing aircraft, China buys from the United States, it is still safe to predict that the structural U.S.-China trade imbalance will not be altered fundamentally and

[37]"Rural workers" are a special group in big cities in China, engaged in low-paid, badly insured, dirty, and dangerous work as construction workers, restaurant staff, security guards, manufacturing employees, etc. They are willing to take such jobs because their income would be even lower if they stayed in the countryside.

[38]Knowledge@Wharton, "Does a Growing Worker Shortage Threaten China's Low-Cost Advantage?" May 15, 2006; and "Labor Shortage Puzzles Experts," *China Daily*, August 25, 2004.

there will continue to be many economic disputes between them. Moreover, the politicized voice from Washington urging Beijing to implement reforms on the rule of law, transparency, fairness and open competition, and the enforcement of intellectual property rights protection will never be silenced.

EU-China trade is facing a similar problem. China is the second largest trading partner, after the United States, of the EU; and the EU's deficit with China, €106 billion (US$132 billion) in 2005, is its largest trade deficit with any trading partner.[39] The EU blames this deficit on obstacles to market access in China,[40] while China attributes it to protectionist European policies. Fortunately, the issue of the EU-China trade deficit has not become as politicized as the U.S.-China trade deficit. To avoid getting into "lose-lose" trade disputes such as the so-called "bra wars"[41] of 2005, both sides need to negotiate more. However, much like the U.S.-China structural trade imbalance, the EU-China trade imbalance will also be long-lasting and trade disputes between China and the EU are unlikely to be avoided.

The Chinese government has realized that the trade imbalance and the resultant RMB revaluation pressure are the two most important economic concerns in its external relations. Thus, the government is actively considering how to optimize China's trade structure by increasing imports in order to alleviate economic tensions. China's Ministry of Commerce (MOFCOM) has strengthened its functional ability to remedy trade disputes and to handle issues such as industrial injury investigations in order to prepare for more intense trade conflict in the future. Also, MOFCOM is

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[39]EU-China trade deficit data come from the website of the European Commission http://ec.europa.eu/trade/issues/bilateral/data.htm), while the dollar/euro exchange rate data for 2005 is collected from the Board of Governors of the U.S. Federal Reserve System: http://www.federalreserve.gov/.

[40]The EU Gateway website lists nine obstacles such as price controls, discriminatory registration requirements, arbitrary sanitary standards, geographical restrictions, joint venture requirements, and discriminatory licensing procedures. http://europa.eu.int/comm/external_relations/china/intro/.

[41]Maxine Frith, "Revealed: How Bra Wars Devastate World's Poor," *The Independent*, August 27, 2005.

taking preventive measures to deal with severe price competition among key Chinese commodities in overseas markets. Such intense price competition frequently triggers antidumping retaliation and causes major economic losses for Chinese export firms.[42]

China has also stepped up its lobbying efforts on Capitol Hill since 1997 to achieve more stable U.S.-China political and economic relations, particularly since the failure of the state-controlled petroleum company CNOOC (**中國海洋石油有限公司**) to acquire the American petroleum company Unocal (Union Oil Company of California) in 2005. The Chinese embassy in Washington, MOFCOM, and its affiliated state-owned companies are hiring the best firms in the United States to lobby on China's behalf.[43] These lobbying activities are expected to counterbalance the great pressure coming from the American sunset sectors and protectionist interest groups.

As for monetary policy, although the RMB had been revalued by only 8.5 percent by July 2007,[44] it seems pointless for the United States or the European Union to urge China to further revalue its currency dramatically. Non-monetary solutions are arguably a better remedy for trade disputes.[45] As discussed in previous sections of this paper, the East Asian industry transfer over the last three decades has transformed China into an integral assembler in the East Asian production chain. The proportion of value-

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[42]The value of Chinese motorcycle exports was US$2.4 billion in 2005, which made China the world's top producer. In 2006, MOFCOM issued a notice requiring motorcycle exporting to be "standardized," which is expected to counter the practice of Chinese motorcycle manufacturers exporting at extremely low prices. MOFCOM, January 5, 2006, http://www.mofcom.gov.cn.

[43]Marina Walker Guevara and Bob Williams, "China Steps up Its Lobbying Game: The Chinese Government is Hiring the Best of the Best to Advance Its Agenda," Center for Public Integrity, September 13, 2005, http://www.publicintegrity.org/lobby/report.aspx? aid=734; and Michael Forsythe, "China Steps up Lobbying Efforts in U.S. Congress (Update 1)," April 19, 2006, http://www.bloomberg.com/apps/news? pid=10000080&sid=atLgA.zbUAYg&refer=asia.

[44]Source: People's Bank of China (**中國人民銀行**).

[45]In testimony delivered before the Committee of Finance of the U.S. Senate on June 23, 2005, Alan Greenspan, who was the chairman of the Board of Governors of the U.S. Federal Reserve, said that some observers' policy suggestions on RMB revaluation and a higher tariff on Chinese imports were counterproductive and pointless.

added in China is respectable, but far from extraordinary or dominant. Therefore, a drastic revaluation of the RMB cannot fundamentally alleviate the U.S.-China trade imbalance, and the impact of RMB appreciation on the U.S.-China trade deficit has so far been insignificant. We can learn a good lesson if we look back at the Japan-U.S. trade relationship. Although the value of the yen rose from 235 to the dollar in 1985 to 128 in 1988,[46] the U.S. trade deficit with Japan continued to rise, somewhat counter-intuitively, from US$46 billion to US$51 billion during that period.

Concluding Remarks

With rapid growth in the U.S.-China trade in goods, the bilateral trade imbalance has deteriorated dramatically, becoming an increasingly sensitive issue in U.S.-China relations. Since 2000, China rather than Japan has been the country with which the United States has its largest trade deficit. China's huge trade surplus with the United States has led to increasingly strong American pressure for a revaluation of the RMB, as well as criticism of Chinese protectionism and the politicization of trade disputes between the two countries. Among the many important factors that have affected the U.S.-China trade imbalance, the transfer to China of East Asian industry is undoubtedly one of the most fundamental, yet it is usually underestimated.

The accumulated FDI inflow to China from the major East Asian economies between 1979 and 2006 accounted for 67 percent of China's total accumulated FDI. More than 60 percent of this inflow went to the manufacturing sector. These two figures indicate that FDI from East Asia has caused the transfer of mature labor-intensive industries to China due to continuously rising labor costs in the East Asian industrialized economies.

This large FDI inflow in turn greatly increased Chinese exports to the United States. Fifty-nine percent of China's foreign trade was accounted

[46]See note 12 above.

for by FDI in 2006, including that from East Asian countries which have transferred export-oriented manufacturing industries to China. Such industrial transfer via FDI has caused the export structures of China and the FDI origin economies to become increasingly similar. The hypothetical positive correlation between industry transfer and export transfer has been subjected to statistical analysis, and the results are overwhelmingly convincing.

Geographically, Japan and the NIEs are the main sources of industrial transfer to China. This transfer has a strong trade transfer effect and exacerbates the growing U.S.-China commodity trade imbalance.

The future of industrial transfers and subsequent trade transfers is slightly mixed due to uncertainties about China's labor costs and the upgrading of the FDI inflow structure, coupled with RMB appreciation. However, much like the U.S.-Japan trade wars of the past, the U.S.-China trade imbalance and the subsequent politicized trade disputes cannot be solved fundamentally until the next industry transfer, when mature industries will be relocated out of China. It is safe to predict that in the next five to ten years, the trade disputes between China and the United States will continue to be a big headache for both Beijing and Washington due to the perfect complementarity of these two economic giants. Both governments need to be fully prepared, physically and psychologically, to build a better mutual understanding and cooperation through dialogues, negotiations, and the removal of trade barriers. This suggestion is equally valid for EU-China trade relations.

Historically, the U.S. trade deficit is not a new problem at all, and there is a clear consensus concerning the ultimate reason for it—the dollar's role as the dominant international currency.[47] However, the recent transfer of industry from East Asia to China, attracted by China's huge labor force and stable policy infrastructure, has allowed China to play a significant role

[47]Paul Krugman and Richard Baldwin, "The Persistence of the U.S. Trade Deficit," *Brookings Papers on Economic Activity*, 1987, no. 1:1-43; and Ronald I. McKinnon, "The International Dollar Standard and the Sustainability of the U.S. Current Account Deficit," ibid., 2001, no. 1:227-39.

in restructuring the East Asian production and exporting system on an unprecedented scale. As the "negotiation representative" for this system in international trade disputes, China undoubtedly has less bargaining power given the fact that its "socialist market economy" is still in its infancy.

As a rising economic power in the sea of mercantilist revitalization, China is experiencing great pressure to optimize its trade structure and implement institutional reforms of its trade regime. However, China still has a long way to go in that its economic development and stability is still highly dependent on labor-intensive manufacturing and commodity exports.

APPENDIX

Appendix A1
Trade Similarity Index

We developed the "trade similarity index" from the structural similarity index proposed by Paul Krugman.* This index measures the degree of similarity of U.S. imports from two import origin economies. The formula is:

$$S = 2 - \sum^{i} |S_i - S_i^*| \qquad \text{(A1)}$$

where S_i stands for the share of commodity i in the total imports from country 1, while S_i^* stands for the share of commodity i in the total imports from country 2. The value of this index ranges from 0 to 2. It is clear that the closer it is to 0, the less similar are the structures of the imports from the two origin economies; and the closer to 2, the more similar are the import structures.

We collected U.S. import data from the United Nations Commodity Trade Statistics Database (http://comtrade.un.org/) and the U.S. Census Bureau (http://www.census.gov/foreign-trade/) during 1981-2006 for the calculation of the trade similarity index.

*Paul Krugman, *Geography and Trade* (Leuven: Leuven University Press; London: MIT Press, 1991), 75-83.

Appendix A2
Correlation between FDI and U.S. Imports of Manufactured Goods from China

We construct econometric analysis models specified as follow:

$$\ln(MEX_t) = C_1 + \alpha_1 * \ln(ASIA_t) + \varepsilon_{1,t} \quad \text{(A2)}$$
$$\ln(MEX_t) = C_2 + \alpha_2 * \ln(WORLD_t) + \varepsilon_{2,t} \quad \text{(A3)}$$
$$\ln(MEX_t) = C_3 + \alpha_3 * \ln(ASIA_t) + \ln(GDP_t) + \varepsilon_{3,t} \quad \text{(A4)}$$
$$\ln(MEX_t) = C_4 + \alpha_4 * \ln(WORLD_t) + \ln(GDP_t) + \varepsilon_{4,t} \quad \text{(A5)}$$

where MEX_t denotes the values of U.S. imports of manufactured goods from China; "$ASIA_t$" denotes the sum of accumulated actual FDI from Japan, NIE-4, and ASEAN-4 to China; "$WORLD_t$" denotes the sum of accumulated actual FDI from all over the world to China; "GDP_t" denotes the average nominal GDP of the United States and China. t = 1983, $\cdots$, 2006. The data for MEX_t, $ASIA_t$ ($WORLD_t$), U.S. GDP, and China GDP are originally collected from the United Nations Commodity Trade Statistics Database (http://comtrade.un.org/) and the U.S. Census Bureau (http://www.census.gov/foreign-trade/), China's Ministry of Commerce (MOFCOM), the U.S. Department of Commerce, and China's National Bureau of Statistics, respectively.

Estimations (A2) and (A3) show that the correlations between FDI inflows to China and U.S. imports of manufactured goods from China are very significant (See figure A1, and the 2nd and 4th columns in table A1). These correlations are robust when a control variable, ln(GDP_t), capturing the macroeconomic impact is included, as shown in the 3rd and 5th columns in table A1.

Figure A1
Correlation between FDI and U.S. Imports of Manufactured Goods from China (1983-2006)

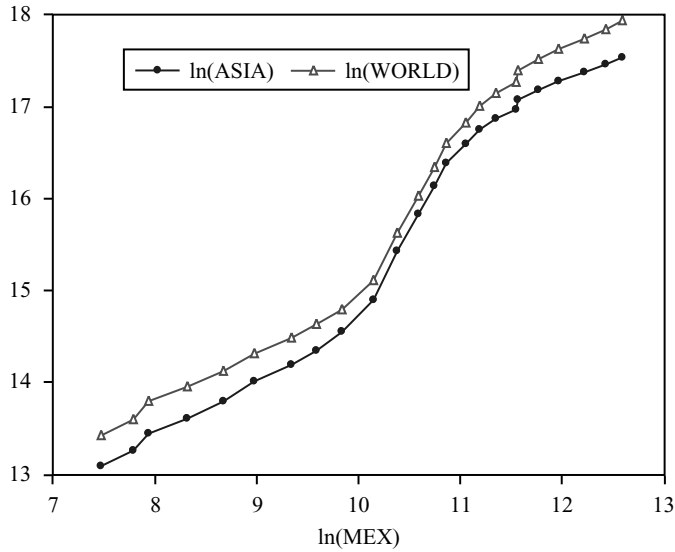


Table A1
Correlation between FDI and U.S. Imports of Manufactured Goods from China

	Manufacturing imports and *Asian* FDI		**Manufacturing imports and *All* FDI**	
	(A2)	(A4)	(A3)	(A5)
C	–4.730 (–7.760)***	–7.751 (–3.532)***	–4.976 (–7.810)***	–7.713 (–2.942)***
$ln(ASIA_t)$		0.678 (3.672)**		
$ln(WORLD_t)$				0.695 (–3.009)***
$ln(GDP_t)$		0.847 (1.526)		0.790 (1.140)
R^2	0.97	0.97	0.96	0.96

Note: Dependent variable is natural logarithm of the values of U.S. imports of manufactured goods from China ln(MEX_t); robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.

Appendix A3
Trade Similarity: A Closer Look

Figure A2
Trade Similarity (SITC 3) - to be continued

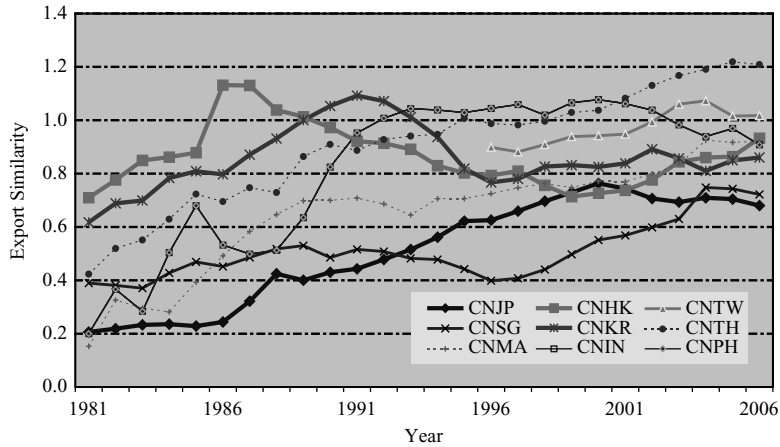
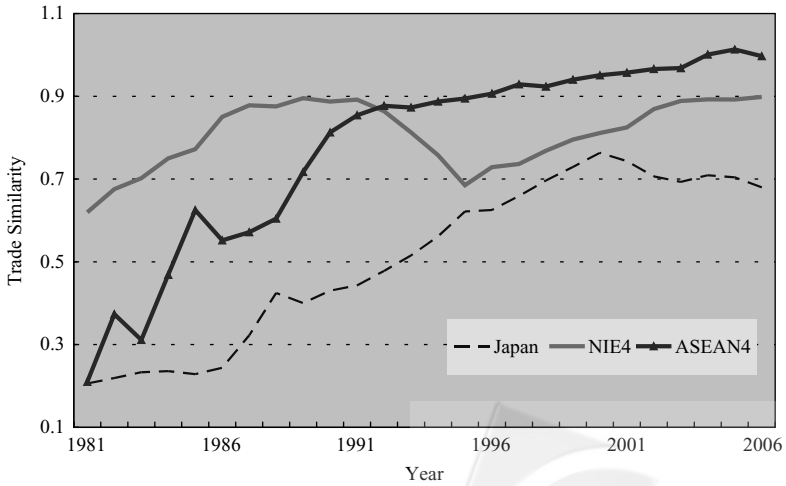


Figure A2
Trade Similarity (SITC 3) - continued



Sources: United Nations Commodity Trade Statistics Database and U.S. Census Bureau.
Note: SITC 3-digit denotes Standard International Trade Classification at 3-digit level.

Figure A3
Trade Similarity (SITC 1) - to be continued

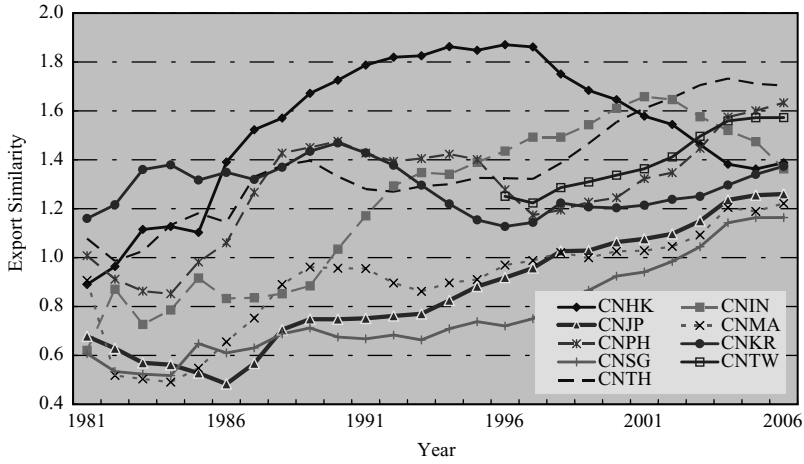
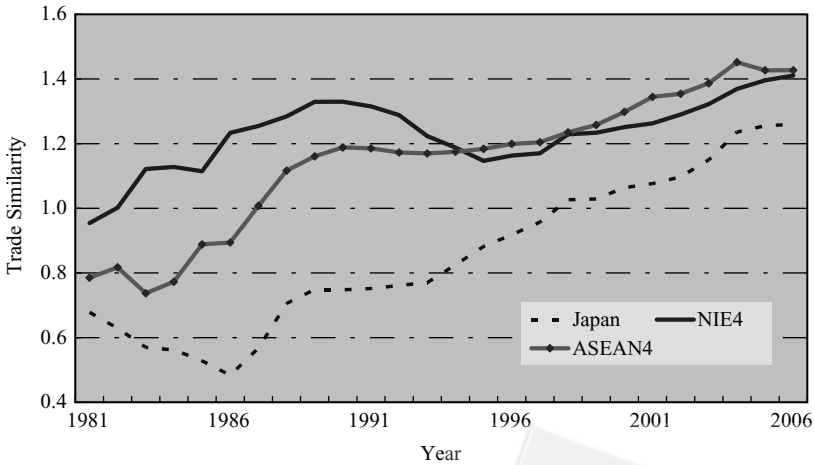


Figure A3
Trade Similarity (SITC 1) - continued



Sources: Same as figure A2.

Note: SITC 1-digit denotes Standard International Trade Classification at 1-digit level. It represents a higher data aggregation level compared to SITC 3-digit aggregation.

Appendix A4
Correlation between FDI and Trade Similarity

We constructed pooled least squares models specified as follow:

$$\ln(TS_{i,t}) = C_5 + \alpha_5 * \ln(FDI_{i,t}) + \varepsilon_{5,i,t} \quad \text{(A5)}$$

$$\ln(TS_{i,t}) = C_6 + \alpha_6 * \ln(FDI_{i,t}) + WTO_t + \varepsilon_{6,i,t} \quad \text{(A6)}$$

$$\ln(TS_{i,t}) = C_7 + \alpha_7 * \ln(FDI_{i,t}) + WTO_t + RMB_t + \varepsilon_{7,i,t} \quad \text{(A7)}$$

where $TS_{i,t}$ denotes the trade similarity index. i = Japan, Korea, Taiwan, Hong Kong, Singapore, Malaysia, Indonesia, Thailand, and Philippines. t = 1983, ⋯, 2006; $FDI_{i,t}$ denotes the accumulative FDI from the corresponding origin economies; WTO_t is a dummy variable which is equal to 1 after 2001, which measures the impact of China's entry into WTO; RMB_t is another dummy variable which is equal to 1 after 1994, which captures the effects of RMB depreciation in that year.

The data for $TS_{i,t}$ is calculated based on trade data collected from the United Nations Commodity Trade Statistics Database and the U.S. Census Bureau. The data for $FDI_{i,t}$ is based on data collected from China's Ministry of Commerce.

Estimation (A5) shows that the correlations between FDI inflows to China and trade similarity are very significant (see the 2nd and 3rd columns in tables A2 and A3). These correlations are robust when two control variables, WTO_t and RMB_t, capturing the macroeconomic impact are included, as shown in the 4th, 5th, 6th, and 7th columns in tables A2 and A3.

Table A2
Correlation between FDI and Trade Similarity (SITC 3-digit)

	Model (A5)		Model (A6)		Model (A7)	
	Fixed effect	**Random effect**	**Fixed effect**	**Random effect**	**Fixed effect**	**Random effect**
C		**–1.135 (–9.595)*****	–1.156 (–13.226)***	–1.112 (–9.152)***	–1.247 (–9.946)***	–1.156 (–7.660)***
$ln(FDI_{i,t})$		**0.072 (11.316)****	0.073 (9.277)***	0.070 (9.040)***	0.084 (6.309)***	0.075 (5.885)***
WTO_t			0.010 (0.267)	0.020 (0.511)	0.011 (0.279)	0.020 (0.502)
RMB_t					–0.060 (–1.014)	–0.027 (–0.476)
R^2	0.70	0.40	0.70	0.40	0.70	0.40

Note: Dependent variable is natural logarithm of the trade similarity index $\ln(TS_{i,t})$; robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.

Table A3
Correlation between FDI and Trade Similarity (SITC 1-digit)

	Model (A5)		Model (A6)		Model (A7)	
	Fixed effect	**Random effect**	**Fixed effect**	**Random effect**	**Fixed effect**	**Random effect**
C		**–0.642 (–6.016)*****	–0.560 (–9.340)***	–0.551 (–4.925)***	–0.603 (–7.303)***	–0.586 (–4.527)***
$ln(FDI_{i,t})$		**0.067 (14.851)*****	0.058 (10.964)***	0.057 (10.919)***	0.063 (7.450)***	0.061 (7.364)***
WTO_t			0.063 (2.344)**	0.065 (2.412)**	0.065 (2.399)**	0.066 (2.449)**
RMB_t					–0.028 (–0.755)	–0.023 (–0.609)
R^2	0.82	0.54	0.82	0.53	0.82	0.53

Notes: Same as table A2.

BIBLIOGRAPHY

Akamatsu, Kaname. 1937. "Waga Kuni Keizai Hatten No Sogo Benshoho" (Synthetic dialectics of industrial development of Japan). *Shogyo Keizai Ronso* (Journal of Nagoya Commercial High School) 15, no. 1 (July): 179-210.

Bernard, Mitchell, and John Ravenhill. 1995. "Beyond Product Cycles and Flying Geese: Regionalization, Hierarchy, and the Industrialization of East Asia." *World Politics* 47, no. 2 (January): 171-209.

Buckley, Peter, Jeremy Clegg, and Chengqi Wang (王成岐). 2007. "Is the Relationship between Inward FDI and Spillover Effects Linear? An Empirical Examination of the Case of China." *Journal of International Business Studies* 38, no. 3 (May): 447-59.

Cutler, Harvey, David J. Berri, and Terutomo Ozawa. 2003. "Market Recycling in Labor-Intensive Goods, Flying-Geese Style: An Empirical Analysis of East Asian Exports to the U.S." *Journal of Asian Economics* 14, no. 1 (February): 35-50.

Dowling, Malcolm, and Chia Tien Cheang. 2000. "Shifting Comparative Advantage in Asia: New Tests of the 'Flying Geese' Model." *Journal of Asian Economics* 11, no. 4 (Autumn): 443-63.

Dunning, John. 1977. "Trade, Location of Economic Activity, and the Multinational Enterprise: A Search for an Eclectic Approach." In *The International Allocation of Economic Activity*, ed. Bertil Ohlin, Per-Ove Hesselborn, and Per Magnus Wijkman, 395-418. London: Macmillan.

Forsythe, Michael. 2006. "China Steps up Lobbying Efforts in U.S. Congress (Update 1)." April 19. Bloomberg.com.

Girma, Sourafel, and Yundan Gong (龔雲丹). 2007. "FDI, Linkages, and the Efficiency of State-Owned Enterprises in China." *Journal of Development Studies*, Forthcoming.

Görg, Holger, and David Greenaway. 2004. "Much Ado about Nothing? Do Domestic Firms Really Benefit from Foreign Direct Investment?" *The World Bank Research Observer* 19, no. 2 (Fall): 171-97.

Guevara, Marina Walker, and Bob Williams. 2005. "China Steps up Its Lobbying Game: The Chinese Government Is Hiring the Best of the Best to Advance Its Agenda." Centre for Public Integrity, September 13.

Gutierrez, Carlos. 2006. "Remark to Shanghai American Chamber of Commerce." Shanghai, November 15. http://www.commerce.gov/.

Jiang, Zemin (江澤民). 2002. "Keynote Speech Delivered at the 16th National Congress of the Communist Party of China." November 8.

Kojima, Kiyoshi. 2000. "The 'Flying Geese' Model of Asian Economic Development: Origin, Theoretical Extensions, and Regional Policy Implications." *Journal of Asian Economics* 11, no. 4 (Autumn): 375-401.

Krugman, Paul. 1991. *Geography and Trade*. Leuven: Leuven University Press; London: MIT Press.

_____, and Richard Baldwin. 1987. "The Persistence of the U.S. Trade Deficit." *Brookings Papers on Economic Activity*, no. 1:1-43.

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

_____. 2002. *Integrating China into the Global Economy*. Washington, D.C.: Brookings Institution Press.

Lau, Lawrence (劉遵義), Kwok-Chiu Fung (馮國釗). 2001. "New Estimates of the United States-China Bilateral Trade Balances." *Journal of the Japanese and International Economies* 15, no. 1 (March): 102-30.

McKinnon, Ronald I. 2001. "The International Dollar Standard and the Sustainability of the U.S. Current Account Deficit." *Brookings Papers on Economic Activity*, no. 1:227-39.

Markusen, James. 2002. *Multinational Firms and the Theory of International Trade*. Cambridge, Mass.: MIT Press.

Ozawa, Terutomo. 1993. "Foreign Direct Investment and Structural Transformation: Japan as a Recycler of Market and Industry." *Business & the Contemporary World* 5, no. 3 (Summer): 129-50.

PRC Ministry of Foreign Affairs. 2005. "Hu Jintao Addresses the APEC CEO Summit." November 18. http://www.fmprc.gov.cn.

Samuelson, Paul. 1948. "International Trade and the Equalization of Factor Prices." *Economic Journal* 58, no. 230 (June): 163-84.

United Nations Conference on Trade and Development. 2007. *UNCTAD Investment Brief*, UNCTAD/PRESS/PR/2007/002.

United States Trade Representative. 2006. *U.S.-China Trade Relations: Entering a New Phase of Greater Accountability and Enforcement*. Washington, D.C. February.

_____. 2006. *Report to Congress on China's WTO Compliance 2006*. Washing-

ton, D.C. December 11.

Vernon, Raymond. 1966. "International Investment and International Trade in the Product Cycle." *Quarterly Journal of Economics* 80, no. 2 (May): 190-207.

Xu, Xinpeng (**許心鵬**), and Ligang Song (**宋立剛**). 2000. "Export Similarity and the Pattern of East Asia Development." In *China in the Global Economy*, ed. Peter Lloyd and Xiaoguang Zhang (**張曉光**), 145-64. Cheltenham: Edward Elgar.

Yang, Zhengwei (**楊正位**). 2005. "Quanqiuhua shidai de chanye zhuanyi shi Mei dui Hua maoyi nicha de genben yuanyin" (**全球化時代的產業轉移是美對華貿易逆差的根本原因**, Industry transfer in globalization is the fundamental reason for the U.S. trade deficit with China). *Guoji maoyi luntan* (**國際貿易論壇**, International Trade Forum) (Beijing), July, no. 4:15-23.