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U.S. INVESTMENT IN CHINA WORSENS TRADE DEFICIT

U.S. firms build export-oriented production base in China's low-wage, low labor-protection economy

by James Burke

Despite China's disregard for basic human rights and labor standards and its unwillingness to open its markets to U.S. goods, the Clinton Administration is currently pushing Congress to grant China permanent normal trade relations (PNTR) status as part of a recently negotiated trade pact. If approved, PNTR would help pave the way for China's entry into the World Trade Organization (WTO).

But this pact is as much about making it easier for U.S. multinationals to invest and operate in China as it is about trade. A U.S. International Trade Commission report stresses that China's WTO entry would significantly increase investment by U.S. multinationals inside China (USITC 1999). If investment by U.S. multinationals increases, China's production base for exporting goods back to the United States will continue to broaden, resulting in an even greater U.S. trade deficit with China. In the past decade, China has seen an explosion of foreign direct investment (FDI) by firms from the United States and other countries. In fact, between 1992 and 1999, a total of more than $270 billion has been invested in China by thousands of foreign firms.[1]

An analysis of U.S.-China trade and FDI data shows that:

- The rapidly growing U.S. trade deficit with China is directly linked to the growth of multinational firms operating in China. Of China's more than $200 billion in exports in 1998, over 40% had their source in multinational firms operating in China (Ministry of Foreign Trade and Economic Cooperation 2000).
- The activities of U.S. multinational firms, together with China's protectionist trade policies, have had a significant role in increasing the U.S. trade deficit with China. A 10% increase in the level

of U.S. direct investment in an industry in China is associated with a 7.3% increase in the volume of U.S. imports from China and a 2.1% decline in U.S. exports to China in that industry.

- Supporters of China's WTO and PNTR agenda typically assert that jobs lost to China trade threaten only low-skill, low-wage jobs in the United States, while expanded exports to China will create high-wage U.S. jobs. However, the changing composition of imports from China over the last 10 years has led increasingly to job losses among higher-wage and more-skilled U.S. manufacturing workers. Although in 1989 only 30% of imports from China competed against goods produced by high-wage industries in the U.S. market, by 1999 that percentage had risen to 50%.[2] To make matters worse, although U.S. workers are five times as productive as their Chinese counterparts, average compensation in the United States is at least 10 and maybe even 20 times larger than that paid by U.S. multinationals to Chinese workers. Thus, U.S. workers will be unable to compete with the much cheaper labor in China despite their higher levels of productivity.

U.S. firms build export-oriented production base in China

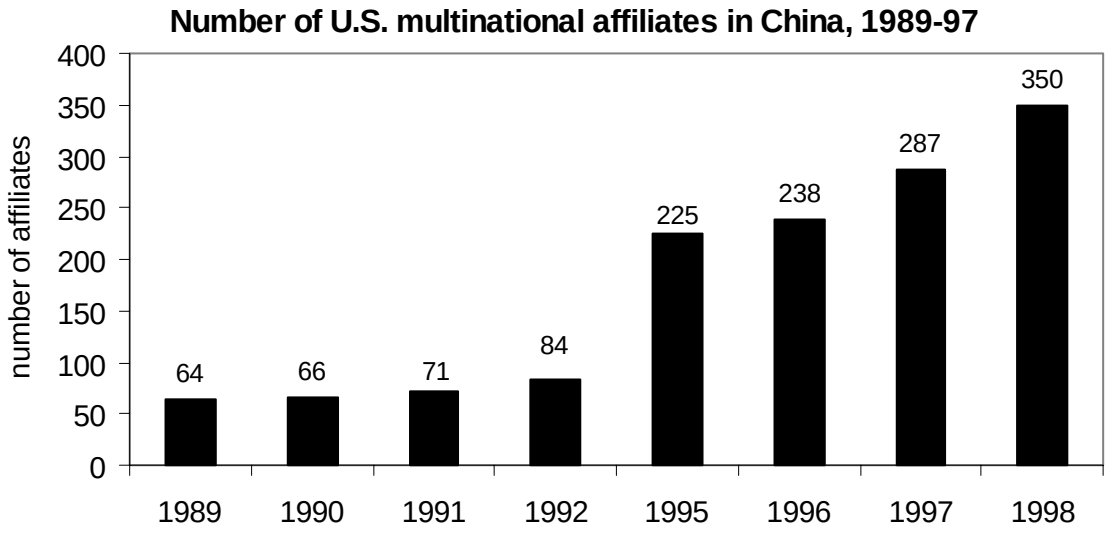
Firms from the United States and other industrialized countries have invested in China — and thus expanded its base of export-oriented production facilities — in order to take advantage of China's large low-wage and poorly protected workforce. China's manufacturing workers are among the world's lowest paid, with an average monthly wage of about $60 in 1997 (ILO 1998). Chinese production workers in U.S. multinational firms were the lowest paid of any production workers employed by U.S. multinational firms in the world, earning less than a dollar an hour in 1994 (U.S. Bureau of Economic Analysis 1994). China's workers also fare poorly when measured against international labor standards. The U.S. State Department's *Human Rights Report 1999* for China states that the right of Chinese workers to organize and carry out collective bargaining is severely restricted (U.S. Department of State 2000). Among other human rights problems, the State Department report documents that free and independent trade unions are illegal, that there is no legal provision for the right to strike by workers, and that "forced labor is a serious problem." The United Nations' International Labor Organization is currently reviewing a complaint brought by the International Confederation of Free Trade Unions against China alleging the detention of trade unionists and violations of the right to organize (ILO 1998b).

Cheap labor is certainly one reason why U.S. multinational corporations in China have increased dramatically in size and number since 1989 (and especially in the last five or six years). The U.S. direct investment position in the manufacturing sector of China (that is, the value of investments in China by U.S. multinationals) has grown from about $123 million in 1989 to nearly $4 billion by 1998.[3]

The sales generated by the affiliates of U.S. multinationals undertaking production in China have increased even more dramatically. The sales of U.S. foreign affiliates rose from $121 million in 1989 to over $8 billion in 1997 (the latest year for which data are available). **Figure 1** shows the growth in the number of U.S. affiliate firms in China — starting from a total of 64 in 1989, the number of U.S. affiliates manufacturing goods in China increased more than five-fold to 350 in 1997.

The growth of U.S. multinationals in China in the past decade started slowly but surged with increased investment beginning in the mid-1990s. From a relatively small number of manufacturing affiliates in 1989, the U.S. multinational presence in China has emerged to become a broader business

FIGURE 1



Source: U.S. Bureau of Economic Analysis, *U.S. Direct Investment Abroad Surveys*, various years.

community that now includes financial services and, more recently, industries that use high-skilled and high-wage workers.

In emerging economies, multinational financial firms tend to provide an important part of the infrastructure needed to support the growth of a foreign-owned business community (Weller 2000). China is no different — the number of multinational banks and financial services mushroomed, with U.S. direct investment in China's financial sector growing from $1.5 million in 1989 to almost $900 million by 1998 (U.S. Bureau of Economic Analysis). But because Chinese law severely limits its residents from using the services of foreign financial firms (*Economist* 2000)**,** it is clear that the growth of U.S. direct investment in this sector is aimed almost exclusively at providing services to multinational firms. The development of U.S. multinational banks and financial services in China is essential for U.S. firms to be able to use China as a production base for exporting goods back to the U.S. market.

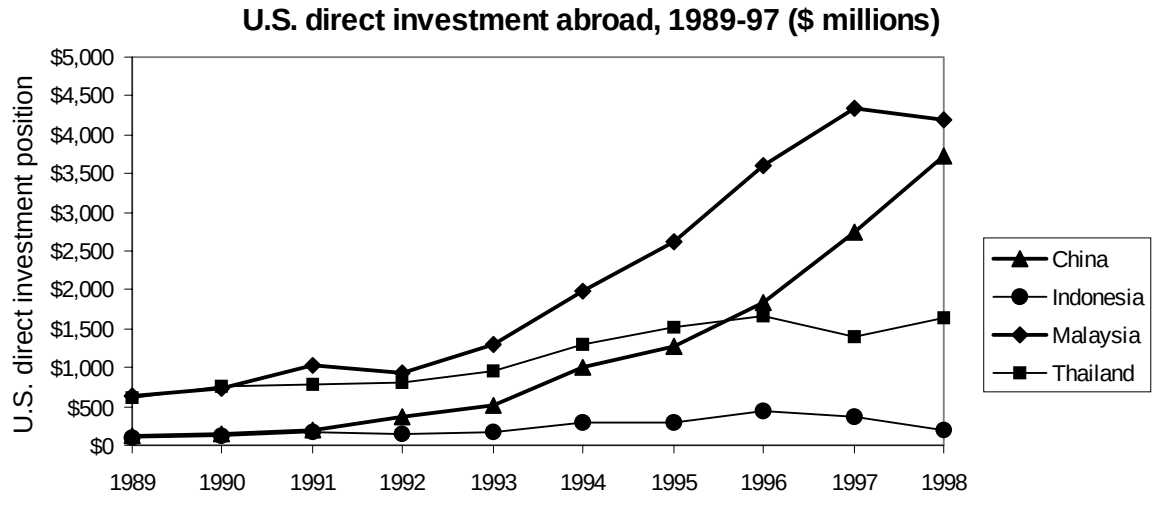
The fairly recent burst of investment by U.S. multinationals in China has been fueled by the anticipation of a trade pact that would secure China's wider access to the U.S. market. This anticipation of increased access is borne out by comparing the growth of U.S. direct investment in China since 1989 against three other emerging East Asian economies — Indonesia, Thailand, and Malaysia — all of which have possessed WTO membership and PNTR status for many years. **Figure 2** shows that China's level of U.S. direct investment has swelled from being the lowest among those countries in 1989 to a level second only to Malaysia by 1998. Even though U.S. direct investment abroad data for 1999 are not yet available, preliminary reports suggest that China, with an estimated $1.5 billion in FDI, has likely surpassed even Malaysia, which was estimated to have received $415 million (U.S. Bureau of Economic Analysis 2000).

U.S. FDI in China is linked to growing imports

The presence of multinational corporations in emerging economies can substantially boost the competitiveness of their export industries in a number of ways (UNCTAD 1999). In China's case, U.S. multinationals contribute to the growth and competitiveness of China's export sector by spreading the knowledge of production technologies; by building up its financial, marketing, and distribution infrastructure; and by helping it to establish a network of intermediary merchants and trading companies. U.S. exports to China are also affected — U.S. production firms in China can displace the sale of U.S. exports to that country. But at least in theory, U.S. multinationals in China can increase the flow of U.S. exports to China, either by supplying inputs to the production carried out by these firms or by building a distribution or marketing base for U.S. goods abroad (Lipsey 1998). Unfortunately, the evidence shows that, in practice, these potential gains are more than offset by the increase in U.S. imports from China directly attributable to increased FDI in China.

Figure 3 compares exports shipped to U.S. affiliate firms in China to imports back to the United States from these affiliates, from 1989 to 1997 (the latest year for which data are available). Since 1995, the value of imports from U.S. affiliates in China has surpassed the value of U.S. exports to these foreign affiliates. Over the course of a few years, U.S. multinationals operating in China have turned from net exporters to China to net exporters to the United States, a gap that will only widen with increased FDI to China, further contributing to the growing U.S. trade deficit. By 1997, almost one-sixth of total sales by these affiliates consisted of sales back to the United States, and, in one sector — electronic and electrical equipment — as much as one-fourth of all sales were to the United States. The shift by foreign affiliates toward producing for the U.S. market and away from importing goods from the United States is the direct result of the development of a more sophisticated and integrated U.S. business community based in China and the move toward using more highly skilled Chinese workers in U.S. foreign affiliates.[4]

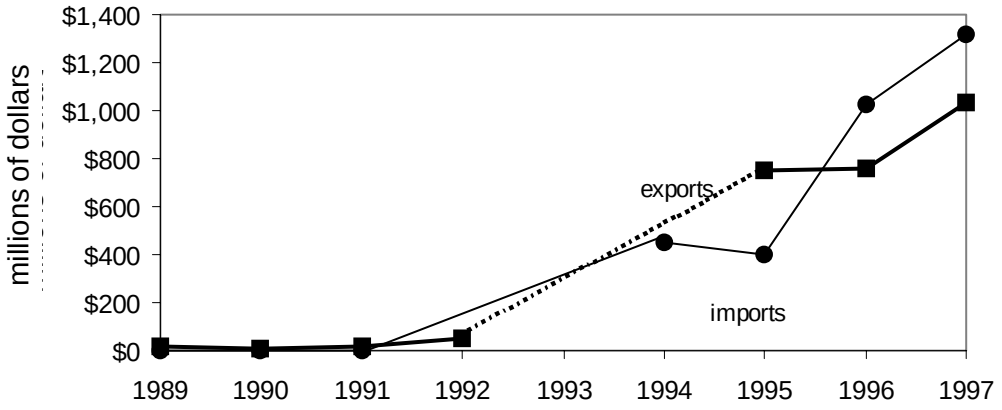
FIGURE 2



Source: U.S. Bureau of Economic Analysis, *U.S. Direct Investment Abroad Surveys*, various years.

FIGURE 3

U.S. exports compared to imports from U.S. multinational affiliates in China, 1989-97* (millions of current dollars)



Source: U.S. Bureau of Economic Analysis, *U.S. Direct Investment Abroad Surveys*, various years.
*For exports, no data exist for 1993 and 1994. For imports, no data exist for 1992 and 1993.

By spreading and building the business infrastructure needed for trade to grow between countries, U.S. multinational firms increase trade flows beyond merely those directly involving their own affiliates. Analyzing U.S. trade and foreign investment data helps determine if U.S. multinational firms in China act to promote Chinese exports to the U.S. more than these firms aid the sale of U.S. goods to China. The effect U.S. multinational activity in China has on trade can be calculated by examining the correlation between U.S. direct investment in China and exports to and imports from China, respectively. Between 1994 and 1998, for seven industry subgroups[5] the correlation between U.S. direct investment in China and imports from China is significantly stronger than between U.S. direct investment in China and exports to China.[6]

Using a regression analysis, the impact of U.S. direct investment on exports to China and imports from China can then be calculated more precisely. (Information on the data and methodology used to estimate these trade equations are presented in the appendix.) The results of this analysis show a strong relationship between higher levels of investment by U.S. firms in China in a given industry and greater levels of imports from China in that industry. In fact, a 10% increase in U.S. direct investment in China is associated with a 7.3% increase in the volume of imports from China as well as a 2.1% decline in U.S. exports to China in that industry.

There are several reasons why multinational firms in China have promoted China's exports to the United States more than they have stimulated the sale of U.S. goods there. First, given China's low level of economic development, only a small fraction of its people are rich enough to afford most goods produced by U.S. firms. Despite the Chinese economy's overall size, it is still a desperately poor country with its per capita income ranking 145th (out of 205) among all countries in 1998 (World Bank 2000). Despite the inflated claims by advocates for China's WTO bid, in reality only a small share of China's consumers have sufficient income to purchase U.S. goods.[7] As the huge U.S. trade deficit with China makes clear, U.S. goods are simply too expensive for most of China's population.

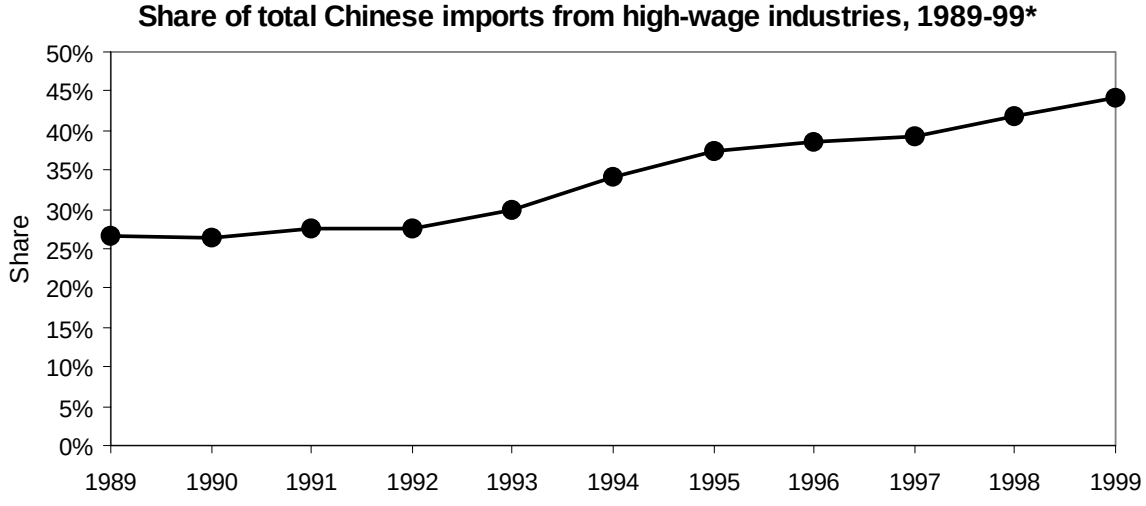
Although the growing production base established by U.S. firms in China has been a contributor to the U.S. trade deficit (by boosting China's exports and displacing U.S. imports), the matter is made even worse by China's unfair trade policies. A number of China's government policies toward foreign firms are aimed at promoting the export sector and discouraging imports. These market-distorting policies include requirements forcing foreign firms to share technological knowledge with Chinese firms; local content and offset requirements; restrictions on imports; and government-mandated export levels (USITC 1999). An inefficient national distribution system outside of the coastal regions also limits the ability of U.S. brands to reach Chinese consumers, as do the laws prohibiting foreigners from establishing their own independent distribution networks. High levels of pirating of successful U.S. retail products also undermine the successful marketing of imported U.S. goods. Finally, as is often the case in poor countries, a high share of production carried out by U.S. firms in China is shipped back for sale to the United States.[8]

Import competition from China is moving up the wage and skills ladder

Trade and direct investment data suggest that China's export sector and the operations of U.S. firms in China are both rapidly shifting toward production that uses higher-skilled and more productive workers. In **Figure 4**, U.S. imports from industries in which U.S. workers are paid higher wages are shown as a percentage of total U.S. imports from China for the years 1989 to 1999.[9] During this time period the share of high-wage industry imports from China grew from about 27% to almost 45%.

Figure 5 shows the average productivity and compensation of all employees in the foreign affiliates of U.S. multinationals in China measured as a percentage of the average labor productivity and compensation of all employees in the U.S. domestic operations of these firms. The average productivity of

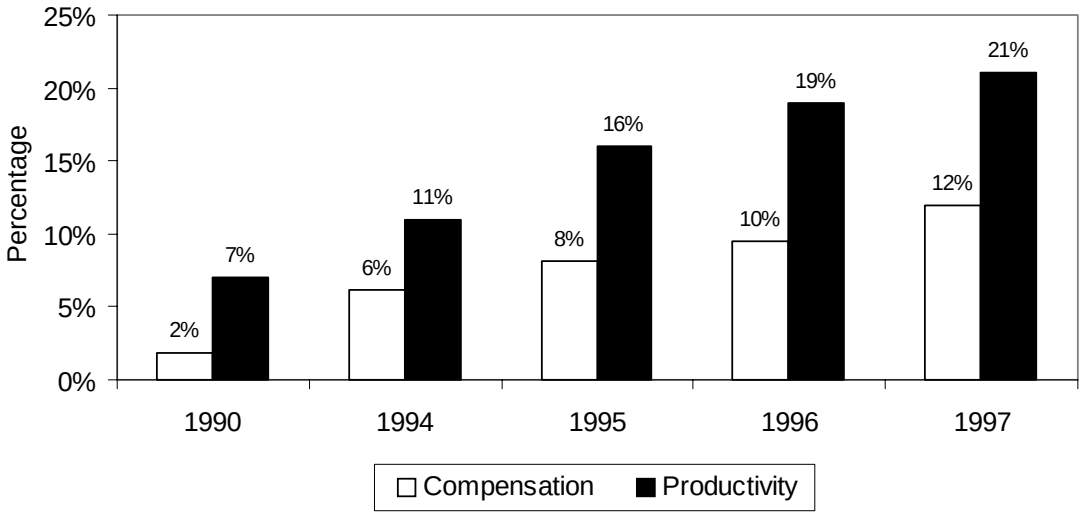
FIGURE 4



*High-wage industries are manufacturing industries in which average worker compensation was above the average for the sector as a whole in 1997.
Source: U.S. Census Bureau, Economic Census. U.S. Bureau of Economic Analysis, *U.S. Direct Investment Abroad Surveys*.

FIGURE 5

Average worker compensation and productivity of U.S. multinational affiliates in China (as share of worker compensation and productivity in U.S. parent firms)



Source: U.S. Bureau of Economic Analysis, *U.S. Direct Investment Abroad Surveys*, various years.

Chinese workers at U.S. affiliate firms has increased: in 1999 Chinese workers were 7% as productive as comparable U.S. workers, but by 1997 that number had grown to 21%. This growth in productivity means even stiffer import competition in the United States, as Chinese workers become more skilled. The compensation differential between comparable U.S. and Chinese workers is close to 1-to-10, creating a situation in which U.S. firms can get Chinese workers who are one-fifth as productive as U.S. workers for one-tenth of the compensation costs.

Since the compensation data include supervisors and managers, it likely understates the actual difference in the wages of U.S. production workers and their Chinese counterparts working for U.S. multinationals. In 1994 (the last year for which data are available), Chinese production workers in U.S. multinationals received an hourly compensation of $0.83 compared to $16.87 for the average U.S. manufacturing worker (BLS 2000). Thus, Chinese workers probably make closer to one-twentieth rather than one-tenth what their U.S. counterparts receive in total compensation. Furthermore, when the comparison is limited to wages instead of total compensation, the ratio becomes 40-to-1.[10] In other words, even though there is a significant productivity differential between Chinese and U.S. workers working for U.S. multinationals, the wage differential is at least twice as large as the productivity differential, and possibly four times as great.

Conclusion

Proponents of PNTR with China and of China's entry into the WTO make the deal sound like a sure-fire winner for U.S. workers. In particular, the deal's supporters argue that expanded trade relations with China will lead solely to more exports to China. A closer look at the U.S. government's own data reveals that the opposite is likely to happen.

One of the most important consequences of the China trade agreement will be greater capital mobility into China. U.S. multinationals are eager to deliver goods and services to the Chinese market, and, even more so, to produce goods cheaply that can then be exported to the United States and other markets. The evidence shows that the rapidly growing U.S. trade deficit with China is directly linked to the growth of U.S. multinationals there. More precisely, a 10% increase in U.S. direct investment in an industry in China is associated with a 7.3% increase in the volume of imports from China and a 2.1% decline of U.S. exports to China in that industry.

What makes the connection between the surge of investment by U.S. firms in China and the U.S. trade deficit with China even more worrisome is the fact that import competition from China involves different industries than in the past. It is no longer only low-skilled, low-wage jobs that are being displaced by cheap imports from China. The changing composition of imports from China over the last 10 years has led increasingly to job losses among higher-wage and more skilled manufacturing workers in the United States, as imports from China have increasingly come from these sorts of industries. Chinese workers employed by U.S. multinationals are also gaining ground on their U.S. counterparts in terms of productivity, hence increasing competitive pressure on U.S. workers at all skill levels — even more so because the Chinese workers at U.S. afilliate firms are among the lowest paid of all.

May 2000

Appendix

This report uses a regression analysis to examine the relationship between the surge of direct investment into China and the growth of U.S. manufacturing exports and imports with China in recent years. An export equation and an import equation were estimated using standard gravity equations in which U.S. direct investment in China was added as an independent variable. In estimating bilateral trade flows, gravity equations typically include characteristics of each country, the distance between trading partners, other factors that may inhibit or aid trade, and price variables such as exchange rates (Bergstrand 1985). The method of analysis used here is similar to the one developed in Goldberg and Klein (1997) on trade-direct investment linkages between the United States and Japan, on one side, and a number of countries in Asia and Latin America on the other.

The trade and direct investment variables are annual and on the manufacturing industry level; the data is a panel of seven industry groups from 1994 to 1998. The seven manufacturing industry groups are food and kindred products; chemical and allied products; primary and fabricated metals; machinery except electrical; electronic and electrical equipment; transportation equipment; and other manufacturing. The five years from 1994 to 1998 were chosen because the U.S. direct investment position in China was not at substantial levels prior to 1994. With seven manufacturing industry groups and five years, the total possible number of observations is 35. However, because eight observations are lost due to some of the industry direct investment data being suppressed to maintain firm confidentiality, there are 27 observations in the sample.

The model is estimated with fixed effects for each industry subgroup. A fixed-effects model was chosen over a random effects model because the data represent the universe—not just a sample—of the

population (U.S. manufacturing firms investing in China) that we were interested in studying. The equations are log-linear (a standard form for estimating trade equations). Because each variable enters the equation as a logarithm, the estimated coefficients can be interpreted as elasticities.

The export equation is shown below:

$$USEXP_{it} = CONSTANT + INDFIX + USDIA_{it} + CGDP_{t} + USGDP_{t} + RERt + e_{it,}$$

Where $USEXP_{it}$ = U.S. exports to industry i in year t in 1990 dollars;
$CONSTANT$ = constant term;
$INDFIX$ = industry intercepts;
$USDIA_{it}$ = U.S. direct investment position in industry I in year t in 1990 dollars;
RER_{t} = the real U.S. – China exchange rate in year t;
[RER = (E x P*)/P where E is the dollar-yuan exchange rate, P* is the consumer price index in China, and P is the consumer price index in the U.S.]
$USGDP_{t}$ = GDP for the U.S. in 1990 dollars in year t;
$CGDP_{t}$ = China's GDP in 1990 dollars in year t;
And e_{it} = error term for observation I,t.

The import equation is in the same form except that U.S. imports replaces U.S. exports as the dependent variable. The trade data were provided by the U.S. Department of the Census; the direct investment position is from the U.S. Bureau of Economic Analysis' *U.S. Direct Investment Abroad Surveys* for the years 1994 through 1998; GDP, exchange rates, and price levels are from the International Monetary Fund's *International Financial Statistics*.

Table 1 shows the regression results from the two trade equations. None of the standard gravity model variables (the GNP and real exchange rate variables) have significant coefficients in either equation. This is probably largely explained by the fact that data from only two countries are being used, so that variability both in country GNP and the exchange rate was limited. In fact, in the five-year period of the panel, the mostly fixed dollar-yuan nominal exchange rate and relatively stable prices in both countries meant there was particularly little variability in the real exchange rate in this period. Nonetheless, the F-statistic and adjusted R^2 indicate that the equations have significant explanatory power.

The import equation results in Table 1 show that a 1% increase in U.S. direct investment into an industry in China expands the volume of imports back to the United States by 0.73 percent. On the other hand, the export equation results show that an increase in U.S. direct investment has a negative effect on U.S. exports to China; a 1% increase in U.S. direct investment in China in an industry lowers the volume of U.S. exports in that industry by 0.21 percent.

The estimation results are consistent with direct investment in China by U.S. firms primarily serving to boost China's exports to the United States while displacing, at least to some extent, the export of goods to China by firms based in the United States.

TABLE 1:
U.S.–CHINA TRADE EQUATIONS

	U.S. imports from China	U.S. exports to China
Constant	57.08 (0.880)	7.481 (0.371)
USDIA position	0.726** (2.147)	-0.214** (-2.036)
Real exchange rate	-1.947 (-0.170)	2.960 (0.829)
U.S. GDP	-9.234 (-0.441)	2.387 (0.367)
China GDP	4.296 (0.197)	-2.467 (-0.364)
Adjusted R^2	0.766	0.885
Number of observations	27	27
F statistic	9.514***	20.958***

t-scores in parenthesis.
Significance: * 10% level; ** 5% level; ***1% level.

Endnotes

1. The U.S. trade data are from the U.S. Bureau of the Census. China's FDI data are from the International Monetary Fund's *International Financial Statistics*. U.S. multinationals are the third largest source of FDI into China following Hong Kong and Japan.

2. High-wage U.S. industries are classified here as industries where the average compensation was above the average compensation of the U.S. manufacturing sector as a whole in 1997. These industries include: chemicals and allied products; fabricated metal products – except machinery; machinery except electrical; electrical machinery, equipment, and supplies; transportation equipment, printing, publishing, and allied products; scientific and professional instruments; photo, optical goods, watches, and clocks.

3. The data for U.S. direct investment abroad are measured on a historical cost basis – alternatively, measuring in current cost or market cost would inflate the figures. All data on foreign direct investment or foreign affiliates in China in this paper refer to activity in the manufacturing sector unless otherwise noted.

4. This shift is consistent with Raymond Vernon's explanation of multinational firm behavior as resulting from a product cycle in which U.S. goods are replaced by foreign-produced goods as U.S. firms become more established abroad and it becomes easier to integrate foreign labor into their operations (Vernon 1966).

5. The industries are: food and kindred products; chemical and allied products; primary and fabricated metals; machinery – except electrical; electronic and electrical equipment; transportation equipment; and other manufacturing.

6. The R^2, a standard correlation measure, for USDIA and imports to the United States is 0.23, whereas it is only 0.07 for USDIA and exports to China. Thus, there is a stronger connection between USDIA and imports to the United States from China than between USDIA and exports to China from the United States. R^2 relates variance of one variable, in this case USDIA, against that one of another variable, here exports to or imports from China. Since it is a ratio, it can be interpreted as fraction or percentage. Its minimum value is zero, or 0%, and its maximum value is 1, or 100%. For instance, a value of 0.5 means that 50% of the variance of one variable is explained by the variance in another variable.

7. Even the richest 10% of China's population (about 130 million people) have a per capita income of only about $2,300 a year – making this market roughly equivalent in size and income to that of Russia or, alternatively, to twice that of Thailand. (Figures are author's calculations based on the World Bank's *World Development Indicators* (2000).)

8. Exports to the U.S. made up 22% of U.S. affiliate sales in developing countries versus 12% in developed countries in 1994 (analysis of Bureau of Economic Analysis data by author).

9. See endnote 2 above.

10. Chinese workers at U.S. plants on average have to earn more than eight times what their counterparts at domestic plants make, such that their earnings differential to U.S. workers could be in line with their productivity differential. This seems wholly unrealistic. Average monthly earnings (in Chinese year) are taken from the ILO Yearbook of Labor Statistics 1998, p. 902 and are converted by using the period average official exchange take from the International Monetary Fund's *International Financial Statistics*, released October 1999 (p. 214). Data for U.S. workers are calculated for the average weekly earnings and average weekly hours data series, both seasonally adjusted, from the Bureau of Labor Statistics' Current Population Survey.

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