



Asian Affairs: An American Review

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/vasa20>

Trilateral Economic Relations among Taiwan, China, and the United States

Chen-Yuan Tung

Published online: 24 Mar 2010.

To cite this article: Chen-Yuan Tung (1999) Trilateral Economic Relations among Taiwan, China, and the United States, *Asian Affairs: An American Review*, 25:4, 220-235

To link to this article: <http://dx.doi.org/10.1080/00927679909601455>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

Trilateral Economic Relations among Taiwan, China, and the United States

CHEN-YUAN TUNG

Since the mid-1980s, Taiwan has engaged in large-scale investment in response to a strong New Taiwan dollar, the high cost of labor and land, environmental controversies, and growing trade friction with the United States. The huge trade deficit between Taiwan and the United States made the U.S. government require Taiwan's authorities to appreciate the exchange rate of the New Taiwan dollar from 39.85 per U.S. dollar in 1985 to 28.55 per U.S. dollar by the end of 1987, an increase of almost 40 percent in just two years. From 1986 to 1995, the unit labor cost increased two to three times in most labor-intensive industries such as apparel, textiles, wood and bamboo, and furniture and fixtures. Also, the average unit labor cost in Taiwan increased 51 percent in three years (1986 to 1989). Land cost increased several times as a result of the 1980s real estate bubble. The cost of pollution prevention for firms also increased by 200 percent between 1987 and 1988. Taiwanese enterprises, especially the labor-intensive small-to-medium-sized firms, began to invest abroad to keep their competitive edge.

From 1952 to 1986, Taiwan's total outward investment was \$272 million.¹ During this period, Taiwan was a net recipient of foreign direct investment from advanced countries. After 1986, Taiwan's investment abroad increased rapidly to \$103 million in 1987 and \$219 million in 1988, reaching \$1.8 billion and \$3.4 billion for 1990 and 1996, respectively. Taiwan has become a big capital exporter.

Taiwan's Investment in China

China has been the biggest recipient of Taiwan's outward investment since 1993.² Before 1991, the Taiwanese government did not allow investment in

China; most of Taiwan's outward investment went to Southeast Asian countries.³ Since the early 1990s, however, Taiwan's investors have shifted their attention to China, and their investments there soon overshadowed those in Southeast Asia. Between 1991 and 1993, Taiwan's investment in China increased seventeenfold; in 1993, Taiwan invested \$3.2 billion in China. As of 1996, the Chinese share of Taiwan's cumulative outward investment since 1952 had reached \$6.9 billion, or 36 percent (see table 1). Because Taiwan's government still prohibits direct investment in China without going through third countries, there is a gap between Taiwan's and China's statistics. According to Chinese statistics, Taiwan's cumulative investment in China in 1996 was more than \$34.5 billion, and its actual investment for that year was more than \$14.9 billion.

Since the early 1990s, China has been more attractive to Taiwanese investors because of its abundant labor force, common language and culture, preferential treatment for Taiwanese investors, and huge potential market. The language and cultural similarities were especially important to Taiwan's labor-intensive, small-to-medium enterprises because managers of those firms often lacked international experience and foreign-language fluency. Taiwanese enterprises investing in China were smaller than those investing in Southeast Asia. From 1987 to 1996, the average investment of Taiwan businesses in Southeast Asian countries was \$4.6 million; by comparison, their average investment in China was only \$0.6 million. The small-to-medium firms investing in China had two advantages: the ability to organize production efficiently and stable market access stemming from their experience with original equipment manufacturing. Without the obvious advantages of advanced technology, patents or trademarks, and the like, Taiwanese businesses were attracted to China rather than Southeast Asia by the lower costs stemming from cultural and linguistic proximity. There was another impetus for Taiwan's investors: In the Fourteenth Party Congress in late 1992, China adopted a clearer policy toward direct foreign investment as well as a reform agenda to open its domestic markets.

Especially between 1988 and 1992, most of Taiwan's investment in China was concentrated in labor-intensive industries such as toys, footwear, textiles, clothing, plastics, and electronics.⁴ As of 1996, according to Taiwan's Ministry of Economic Affairs, Taiwan's cumulative investment in China was 17 percent in electronics and electrical appliances, 11 percent in foods and beverages, 9 percent in plastics, 9 percent in basic metals and metal products, 6 percent in textiles, and 4 percent in rubber products. In the electronic and electric appliance industry, manufactured goods involve predominantly processing and assembly. That industry is also labor intensive because imported components account for about four-fifths of the cost of manufacturing.⁵ The aforementioned industries accounted for 56 percent of Taiwan's investment in China.

Table 1. Taiwan's Approved Outward Investment (in Millions of Dollars)

Country	Year												Share (%)
	1952-1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total	
China ^a	n.a.	n.a.	n.a.	n.a.	n.a.	174	247	3,168	962	1,093	1,229	6,874	36
Southeast Asia ^b	62	15	53	277	520	707	300	364	297	294	422	3,311	17
United States	163	70	123	508	428	297	193	529	143	248	271	2,977	15
Others	47	18	43	146	604	652	394	768	1,177	815	1,472	6,135	32
Total amount	272	103	219	931	1,552	1,830	1,134	4,829	2,579	2,450	3,395	19,293	100

^aNot including Hong Kong.^bIncluding Philippines, Indonesia, Thailand, Malaysia, Vietnam.Source: *Statistics on Outward Investment* (Taipei: Ministry of Economic Affairs, Republic of China, May 1997).

Taiwan's Trade with China

Along with impressive expansion in Taiwan's investment in China, there was also a significant alteration in its foreign trade, especially in the destinations of its exports. From 1986 to 1995, Taiwan's trade with Japan increased three and a half times, trade with the United States doubled, and trade with Southeast Asian countries increased eightfold.

Taiwan's trade with China increased sixfold, from \$3.9 billion in 1989 to \$22.5 billion, or one-tenth of the total trade, in 1995 (see table 2). By contrast, the U.S. share of Taiwan's trade declined during that period from 38 percent to 22 percent. Moreover, China's share of Taiwan's exports increased from 2 percent in 1986 to 17 percent in 1995. In 1996, China became Taiwan's second-largest export partner, second only to the United States; Taiwan was also China's second-largest import source, second only to Japan.⁶ The U.S. share of Taiwan's exports declined from 48 percent in 1986 to 24 percent in 1995, as exports to Southeast Asia, China, and Europe rose. Taiwan's imports from China rose from \$144 million in 1986 to \$3.1 billion in 1996.

The general pattern of Taiwan's exports also changed dramatically in terms of input intensity and categories of exports. Before the mid-1980s, Taiwan's exported goods were characterized by high labor, medium capital, and low technology intensity. By contrast, after the mid-1980s, the labor intensity of Taiwan's exported goods was medium, and the capital and technology intensities were both high. From 1988 to 1996, the labor-intensity index decreased from 66 to 58, the capital-intensity index increased from 52 to 62, and the technology-intensity index rose from 45 to 62. Moreover, the proportion of heavy industrial products in Taiwan's total exports increased from 43 percent in 1988 to 52 percent in 1993; the share of high-technology products rose from 34 percent in 1988 to 42 percent in 1993 (see table 3).

During this period, Taiwan began exporting more intermediate goods and machinery and fewer consumer products. The proportion of intermediate goods in Taiwan's total exports increased from 33 percent in 1987 to 49 percent in 1993. Nondurable consumer goods declined from 34 percent in 1987 to 18 percent in 1993. There was little variation in other product categories (see table 4).

The changes in Taiwan's export pattern were driven principally by the need for overseas affiliates in China as well as Southeast Asia. The boom in Taiwanese exports was attributable mainly to purchases of intermediate and capital goods by China and Southeast Asian countries. In 1996, plastics accounted for 12 percent of Taiwan's total exports to China; textiles, 25 percent; and electronics, machinery, equipment, and parts, 29 percent (see table 5). More precisely, Taiwan's exports to China consisted primarily of goods from heavy-chemical and capital-intensive industries, such as manmade fibers, machinery, and raw materials.⁷

According to an investigation by Taiwan's government, Taiwanese factories

Table 2. Shares of Taiwan's Total Imports and Exports (in Percentages), and Trade (in Billions of Dollars)

Year	Japan			United States			Southeast Asia ^a			China		
	Imports	Exports	Trade	Imports	Exports	Trade	Imports	Exports	Trade	Imports	Exports	Total Trade
1980	27.1	11	7.6	23.7	34.1	11.5	5.9	5.2	2.19	0.35*	1.7 ^b	39.5
1983	27.5	9.9	8.1	22.9	45.1	15.9	4.9	4.7	2.15	0.44	0.8	45.4
1986	34.1	11.4	12.8	22.5	47.7	24.4	4.9	3	2.38	0.6	2.04	64.1
1989	30.7	13.7	25.1	23	36.3	36	4.3	5.3	5.74	1.12	5.03	118.6
1992	30.2	10.9	30.7	21.9	28.8	39.3	6	7	9.98	1.55	12.95	153.5
1995	29.2	11.8	43.4	20.1	23.7	47.2	7	8.6	16.83	2.98	17.4	215.3

^a1981 figure.^bExcluding Vietnam.

Sources: *Liang-An Economic Statistical Monthly* (Taipei: Mainland Affairs Council, Republic of China, no. 47, July 1996); and *Taiwan Statistical Databook* (Taipei: Council for Economic Planning and Development, Republic of China, 1997).

Table 3. Intensity of Input Factors in Taiwan's Exported Commodities^a

Year	Labor Intensity	Capital Intensity	Technology Intensity	Share of Exports (in Percentages)	
				Heavy Industry Products	High Technology Products
1982	64.8	52.4	39.5	35.4 ^b	26 ^b
1985	65.6	51.5	40.4	36.5	27
1988	66.4	51.8	45.2	42.8	33.7
1991	62.1	57.2	49.9	46.7	36.3
1994	60.8	60	58.6	51.9 ^c	41.6 ^c
1996	58	61.6	61.7	n.a.	n.a.

^aScale from 10 to 100; the highest level is 100. This was weighted by the author.

^b1983 figure.

^c1993 figure.

Sources: *Taiwan Statistical Databook* (Taipei: Council for Economic Planning and Development, Republic of China, 1997); and *Monthly Statistics of Exports and Imports* (Taipei: Ministry of Finance, Republic of China, March 1994).

Table 4. Taiwan's Exports by Industry Classification (in Percentages)

Industry	1981	1984	1987	1990	1993
Agriculture ^a	2.7	2	1.4	0.8	0.9
Processed food	4.9	4	4.5	3.5	3.6
Beverage and tobacco	0.1	0	0	0	0.1
Energy and minerals	0.1	0	0.1	0.1	0.1
Construction materials	0.4	0.6	0.3	0.3	0.2
Intermediate goods					
A ^b	9.9	9.1	6.9	9.5	11.1
B ^c	26.5	25.6	26.7	35	37.8
Consumer non-durable goods	35.3	36.8	33.5	23.7	18.1
Consumer durable goods	11.9	11	11.4	8.7	8.2
Machinery	6.2	9	13.2	16.3	17.5
Transportation equipment	1.9	1.6	1.9	2.1	2.6

^aIncluding agriculture, forestry, fishery, livestock, and hunting products.

^bProducts that can be used for consumer goods or producer goods after processing.

^cProducts that can be used for consumer goods or producer goods without processing.

Source: *Report on the Characteristic Classifications of Tradable Commodities* (Taipei: Ministry of Finance, Republic of China, 1993).

Table 5. Taiwan's Main Exports to China (in Percentages)

Export	Year					
	1994		1995		1996	
	Share	Growth Rate	Share	Growth Rate	Share	Growth Rate
Plastics	12	21	13	22	12	-1
Textiles	28	33	27	12	25	-2
Electronics, machinery, equipment, and parts	28	6	27	11	29	15
Subtotal	68		67		66	

Source: *Economic Situation Review of the Two Sides of the Taiwan Strait (1995/1996)* (Taipei: Mainland Affairs Council, Republic of China, 1997).

Table 6. Sources of Input for Taiwan-funded Enterprises in China (in Percentages)

	Raw Material		Parts and Semifinished Products	
	1995	1996	1995	1996
Taiwan	53	46	56	51
Taiwan-funded enterprises in China	17	21	18	21
Non-Taiwan-funded enterprises in China ^a	18	21	19	21
Other countries	12	13	7	7

^aIncluding Chinese enterprises and other foreign-funded enterprises.
Source: *The Investigation Report on Outward Investment of Manufacturing Industry* (Taipei: Ministry of Economic Affairs, March 1997).

abroad prefer to obtain raw material from Taiwan. In 1995 and 1996, Taiwan supplied 53 percent and 46 percent, respectively, of the raw material for its affiliates in China. During the same period, 56 percent and 51 percent of parts and semifinished products, respectively, also came from Taiwan (see table 6). Those figures have since declined because Taiwan's factories have established production bases in response to the demands of its enterprises in China.

China's Trade with the United States

U.S. trade with China rose rapidly after 1980, when the two nations granted mutual most-favored-nation trade status. According to the U.S. Department of

Commerce, total trade between the two nations rose from \$4.8 billion in 1980 to \$63.5 billion in 1996. In particular, U.S. imports from China have increased since the late 1980s; they grew more than threefold between 1990 and 1996. In 1996, the value of U.S. exports to China was \$12 billion, and the value of imports from China was \$51.5 billion—a U.S. trade deficit of \$39.5 billion (see table 7). Many of the imports were low-value, labor-intensive products such as toys, games, sporting goods, electric machinery, garments, footwear, and textile products.

According to reports from the U.S. Commerce Department and the United States–China Business Council, the total U.S. deficit of trade with Taiwan, Singapore, South Korea, and Hong Kong fell from \$34 billion in 1987 to \$7.8 billion in 1995. During the same period, the U.S. trade deficit with China increased proportionally from \$2.8 billion to \$33.8 billion. Those figures reflect the effects of diverted exports stemming from investments in China by Taiwan, Singapore, South Korea, and Hong Kong.⁸

In fact, Taiwanese firms in China produce a significant amount of U.S. imports from China. Taiwan has shifted a large share of its labor-intensive, export-oriented industries (such as shoes, toys, textiles, and electronic products) to China to take advantage of the relatively low cost of labor. As a result, many products formerly manufactured in Taiwan and exported to the United States are now produced and exported by Taiwanese firms operating in China.⁹

According to a 1992 study by economist Chong-da Yen, 85 percent of the products produced by Taiwan's overseas enterprises were exported to third countries. Economist Chang Kao found that by 1994, the average export rate was up to 85 percent for most Taiwanese firms in China; for some, it was 100 percent, compared with a 27 percent average export rate for other foreign enterprises.¹⁰ Accord-

Table 7. U.S. Trade with China, 1986–1996 (in Billions of Dollars)

Year	Exports	Imports	Trade Balance
1986	3.1	4.8	–1.7
1987	3.5	6.3	–2.8
1988	5.0	8.5	–3.5
1989	5.8	12.0	–6.2
1990	4.8	15.2	–10.4
1991	6.3	19.0	–12.7
1992	7.4	25.7	–18.3
1993	8.8	31.5	–22.8
1994	9.3	38.8	–29.5
1995	11.7	45.6	–33.8
1996	12.0	51.5	–39.5

Source: U.S. Department of Commerce.

ing to a Taiwan government report, in both 1995 and 1996, about 50 percent of products were shipped to third countries, including the United States.¹¹ According to Taiwan's Board of Foreign Trade, 70 percent of the products turned out by Taiwan factories in China are shipped to the United States.¹²

According to the People's Republic of China State Council's white paper "On the Issue of the Sino-US Trade Balance," China's processed-manufactured exports rose from \$25.4 billion in 1990 to \$84.3 billion in 1996, an average annual growth rate of 22 percent. In 1996, foreign-funded enterprises accounted for 64 percent of China's processed-manufactured exports. In the same year, the processed-manufactured exports, the most important source of China's trade surplus with the United States, amounted to 70 percent of China's total U.S. exports.¹³ In fact, the Chinese figure underestimates the importance of the U.S. market. According to Nicholas Lardy, more than 70 percent of Chinese exports to the United States are routed through and re-exported from Hong Kong.¹⁴ This is the main reason for the huge differences between U.S. and Chinese statistics.

Furthermore, there is very strong evidence of a triangular economic interdependence among Taiwan, China, and the United States in sectors such as toys, sports equipment, footwear, and electronic goods in which Taiwan has invested heavily in China. Before Taiwanese investors began to direct considerable resources to China in these areas, China's exports of those commodities had been insignificant. According to Taiwanese and Chinese government statistics, Taiwan's exportation of toys in 1988 was valued at \$3.4 billion, whereas Chinese exportation of toys amounted to \$394 million. By comparison, Taiwan's exports of toys in 1995 declined to \$2.7 billion, whereas Chinese exports of toys increased to \$3.4 billion, an almost ninefold increase since 1988. Likewise, China's exports of toys and sports equipment to the United States totaled \$1 billion in 1988 and \$6.2 billion in 1995, an average growth rate of 30 percent per year.

Statistics on footwear exports are similar. In 1986, Taiwan's exports of shoes to the United States reached \$2.2 billion, whereas China's exports to the United States amounted to only \$100 million. The United States was a major export market for the Taiwan footwear industry before Taiwan transferred such facilities to China. Thereafter, China's exports of footwear to the United States multiplied at an average annual rate of 55 percent, from \$100 million in 1986 to \$5.8 billion in 1995. In contrast, Taiwanese exports of footwear to the United States declined in the same proportion from \$2.2 billion in 1986 to \$400 million in 1995. According to figures published by the Chung-hua Institution for Economic Research, in 1991 China's exports of footwear made by foreign-funded enterprises, the majority of which were Taiwanese, accounted for about 50 percent of the total footwear exports.

China's exports of electronics also multiplied with the rapid growth of Taiwan's investment in that industry. China's exports of electronics expanded from \$921 million in 1988 to \$2.6 billion in 1991, to \$4.4 billion in 1993, and to \$7.9

billion in 1995. According to Taiwan statistics, Taiwan's cumulative investment in the electronics industry in China amounted to \$66 million in 1991 and 1992. It surged to \$445 million in 1993, fell to \$157 million in 1994, and rose again to \$214 million in 1995 and \$239 million from January to November 1996. Taiwan's investment in the electronics industry in China has had a strong positive correlation with China's exports of electronics to the United States. For instance, according to a report by Taiwan's Market Intelligence Center, by 1993 China's share of Taiwan's offshore production of PC hardware had already risen to 34.6 percent or \$585 million. At that time, Taiwan's cumulative foreign direct investment in China in the electronics industry was only \$511 million.¹⁵ Proportionally, Taiwan's production of PC hardware in China was about \$1,327 million in 1996.

The proportions and composition of U.S. imports from Taiwan and China have changed markedly over the past ten years. The top five U.S. imports from Taiwan in 1986 were (a) apparel and clothing; (b) miscellaneous manufactured products; (c) footwear; (d) telecommunications, sound, and recording equipment; and (e) electrical machinery and appliances. By 1995, all those products except electrical machinery and appliances had slipped from their high 1986 rankings. Over the same period, U.S. imports from China of those five commodities rose sharply. The commodities that had been the top five U.S. imports from Taiwan in 1986 were the top five U.S. imports from China in 1995 (see table 8).

Chinese Exports of Taiwanese Products to the United States

There is no official figure for Chinese exports to the United States of the goods produced by Taiwan enterprises. I have used three bases for estimates of those exports: Chinese statistics, U.S. statistics, and weighted calculation (see appendix for explanation of estimates). All three methods of estimation are based on Taiwan's share of the total foreign investment in China's manufacturing industry. In 1996, Taiwan's total contracted investment in China was \$5,141 million, \$4,112.8 million (80 percent) of which was in manufacturing. In 1996, the total contracted foreign investment in Chinese manufacturing was \$50,485.9 million,¹⁶ and Taiwan's share of that total was 8.15 percent.

Chinese Statistics

According to Chinese statistics, the total value of its exports produced by foreign enterprises in China in 1996 was \$61.5 billion; according to my calculations the value of exports of Taiwanese products should be \$5 billion (8.15 percent). The total amount of China's exports in 1996 was \$151 billion, \$26.7 billion (17.7 percent) of which went to the United States. Therefore, the same year, the value of Chinese exports of Taiwanese products to the United States should be \$0.9 billion (17.7 percent of \$5 billion).

**Table 8. U.S. Imports of Selected Commodities from Taiwan and China
(in Billions of Dollars)**

Commodity	1986				1995			
	Taiwan		China		Taiwan		China	
	Value	Rank*	Value	Rank*	Value	Rank*	Value	Rank*
All commodities	19.8		4.8		29		45.6	
Clothing and accessories	2.6	1	1.7	1	2.2	5	5.9	2
Miscellaneous manufactured articles, n.e.s.	2.6	2	0.7	2	2.5	3	10.3	1
Footwear	2.2	3	0.1	7	0.4	13	5.8	3
Telecommunications and sound	1.9	4	0.1	12	1.2	6	4.3	4
Electrical apparatus	1.4	5	a	16	5.2	2	3.1	5
Total (five commodities)	10.7		2.6		11.5		29.4	

Note: Rank is the ranking of each commodity in relation to U.S. imports from Taiwan and China.

*Less than 100 million.

Source: U.S. Department of Commerce.

U.S. Statistics

According to U.S. statistics, China's exports to the United States in 1996 amounted to \$51.2 billion, as compared with the \$26.7 billion reported in China's statistics. If U.S. statistics are correct, China's exports to the United States should have accounted for 34 percent of the total exports (\$151 billion); China's exports of Taiwanese products should have been \$9.6 billion (rather than \$5 billion based on Chinese statistics), \$3.2 billion of which went to the United States.

Weighted Calculation

According to Chang Kao and the Taiwanese government's survey discussed earlier, Taiwan's enterprises in China tend to have export ratios higher than those of other foreign enterprises. If the export ratio for Taiwan-funded enterprises was 75 percent, compared with 30 percent for other foreign enterprises, the weighted share of the 1996 exports of Taiwan enterprises in relation to the total exports of foreign enterprises in China would be as high as 18 percent. Therefore, the value of 1996 exports of Taiwan-funded enterprises in China would be \$21.3 billion.

Adjusted according to U.S. statistics, the exports of Taiwanese enterprises in China to the United States should be \$7.2 billion (34 percent).

Three variables will influence the accuracy of the three aforementioned estimates of Chinese exports to the United States of products of Taiwanese enterprises. First, it is difficult to estimate the ratio of exports of Taiwanese products to exports of other foreign products. There are data for foreign investment in industry as a whole but not specifically for manufacturing. Second, Taiwanese and other foreign enterprises have different export propensities. Taiwanese enterprises in China tend to have a higher export ratio. Third, even China's official figures of its exports of foreign enterprises are questionable because they do not take into account re-exports through Hong Kong. The U.S. figures for Chinese exports are twice as high as China's figures.

There was an econometric model developed by Chin Chung to estimate Chinese exports of Taiwanese products to the United States. Taiwanese cumulative realized investment in China amounted to \$4.2 billion in early 1993. According to Chung's estimate, all output of manufactured products by Taiwan-funded enterprises in China was \$14 billion in 1992. Of the Taiwanese output, about \$9.3 billion (11.6 percent of China's total exports for 1992) was exported to the world market. To manufacture this output, however, intermediate goods with an estimated value of \$5.9 billion were imported from Taiwan. Last, imports from China to Taiwan valued at an estimated \$2.4 billion were created in the form of foreign direct investment sellbacks.¹⁷ According to this model, output and exports could also be estimated for 1996. Until 1996, Taiwanese cumulative realized investment in China amounted to \$14.9 billion. On the assumption that output and exports will be proportional to Taiwan's cumulative investment, all output of manufactured products produced by Taiwan-funded enterprises in China would have been \$49.5 billion in 1996. Of this output, about \$33 billion (21.8 percent of China's total exports in 1996) would have been exported to the world market from China. According to U.S. statistics, the share of China's exports to the United States was 34 percent of total exports. Exports of Taiwan-funded enterprises in China to the United States in 1996 should be \$11.2 billion, or 34 percent of \$33 billion (see table 9).

In 1996, the Clinton administration announced that because of intellectual property rights issues, it would levy a 100 percent tariff on imports of Chinese textiles, garments, electronics, and sports equipment. Enforcement of such sanctions was expected to reduce the aggregate value of Chinese shipments to the U.S. by as much as \$3 billion annually. According to Taiwan's Board of Foreign Trade, Taiwan manufacturers operating in China would have suffered annual business losses estimated at \$600 million (one-fifth of China's total exports in the sanctioned categories) as a result of the U.S. trade sanctions.¹⁸ In 1996, according to U.S. government statistics, China's exports to the United States totaled \$51.5 billion. According to China's white paper "On the Issue of the Sino-U.S. Trade Bal-

Table 9. Estimates of Output, Exports, and Imports of Taiwan-Funded Enterprises (in Billions of Dollars)

	1992	1996
Taiwan's cumulative investment in China	4.2 ^a	14.9 ^b
Output of Taiwan-funded enterprises	14.0	49.5
Exports of Taiwan-funded enterprises	9.3	33.0
Imports of Taiwan-funded enterprises	5.9	20.9
FDI sellbacks to Taiwan	2.4	8.51

Note: The 1996 figures were estimated by the author.

^aTaiwanese cumulative realized investment in China as of early 1993.

^bTaiwanese cumulative realized investment in China from 1979 to 1996.

Source: Chin Chung, "Division of Labor across the Taiwan Strait: Macro Overview and Analysis of the Electronics Industry," in Barry Naughton, ed., *The China Circle* (Washington, DC: Brookings Institution Press, 1997), 171. Reprinted by permission of the publisher.

ance," China's processed manufactured exports to the United States in 1996 amounted to \$36.1 billion, or 70 percent of the total exports (\$51 billion) to the United States. The value of China's exports to the United States manufactured by Taiwan-funded enterprises was \$7.2 billion (20 percent of \$36.1 billion).

For 1996, the reasonable estimate of Chinese exports of products of Taiwan-funded enterprises to the United States should fall between \$7.2 billion and \$11.2 billion. The estimate based on weighted calculation is probably more credible than the estimates based on Chinese or U.S. statistics because it takes more variables into consideration.

Conclusion

Since the early 1990s, Taiwan's enterprises have invested heavily in China. According to Taiwan's official statistics, in 1996 Taiwan's cumulative foreign direct investment in China was around \$7 billion. According to China's official statistics, Taiwan's cumulative realized foreign direct investment in China was over \$14 billion. Most of these enterprises were small to medium-sized, labor intensive, and export oriented.

Along with this impressive foreign direct investment, Taiwan exported considerable intermediate goods and raw material to China to supply the operation of Taiwan-funded firms in that country. At the same time, Taiwan's share of exports to the United States declined sharply, and China's exports to the United States increased significantly as a result of new international labor divisions. Because they received most of their intermediate goods and raw material from Taiwan, Taiwan's manufacturers in China continued to export labor-intensive goods

to the United States. Also, the reasonable estimate for China's 1996 exports to the United States produced by Taiwan-funded enterprises should fall between \$7.2 billion and \$11.2 billion.

NOTES

1. *Statistics on Outward Investment* (Taipei: Ministry of Economic Affairs, Republic of China, May 1997).
2. In this paper, China excludes Hong Kong.
3. From 1987 to 1992, Taiwan's enterprises invested \$1.9 billion in Southeast Asian countries to use their abundant labor resources. During the same period, Taiwan's investment in China was only \$0.4 billion.
4. Some capital-intensive, heavy-chemical industries later migrated to China. They were supposed to supply intermediate and capital goods primarily to Taiwan's overseas labor-intensive affiliates.
5. See Nicholas R. Lardy, *China in the World Economy* (Washington, DC: Institute for International Economics, 1994), 32.
6. According to the estimate of Taiwan's Mainland Affairs Council, in 1996, the value of Taiwan's exports to Hong Kong was \$15.8 billion, and the value of its exports to China was \$20.7 billion after adjustment for the statistical difference between Hong Kong and Taiwan.
7. See Kai Ma, "Prospect and Policy of Industrial Development," in *Comprehensive Research on Taiwan's Industrial Policies toward a Developed Economy*, ed. Ya-hwei Yang (Taipei: Chung-hua Institution for Economic Research, 1997), 386.
8. In 1996, the value of China's exports of goods produced by foreign enterprises was \$61.5 billion, 33.6 percent of its total exports.
9. See Wayne M. Morrison and John P. Hardt, "Major Issues in U.S.-China Commercial Relations," in *China's Economic Future: Challenges to US Policy* (Washington, DC: GPO, 1996), 474-76.
10. See Chang Kao, *Mainland Economic Reforms and Cross-Strait Economic and Trade Relations* (Taipei: Wu-nan, 1994), 140-43.
11. However, the Chinese local market accounted for 60 to 70 percent of the market for food and beverage processing products, chemical products, and machinery products.
12. See Kelly Her, "Losses Loom as US Targets Mainland," *Free China Journal*, 24 May 1996, 3.
13. See State Council, "Sino-American Trade Deficit," *People's Daily*, 22 March 1997, overseas edition, 4.
14. See Lardy, *China in the World Economy*, 75.
15. See Chin Chung, "Division of Labor across the Taiwan Strait: Macro Overview and Analysis of the Electronics Industry," in *The China Circle*, ed. Barry Naughton (Washington, DC: Brookings Institution Press, 1997), 186-87.
16. Chinese statistics on foreign investment in manufacturing were not available.
17. See Chung, "Division of Labor," 168-72.
18. See Her, "Losses Loom."

SOURCES

Analytical Report on Indirect Investment toward Mainland Area. Investment Commission, Ministry of Economic Affairs, Republic of China. May 1996.
China Statistical Yearbook, 1985-1996. State Statistical Bureau, People's Republic of China.

APPENDIX

1996 Chinese Exports Produced by Taiwan-Funded Enterprises to the United States: Three Estimates

The following summarizes three approaches I took in estimating 1996 Chinese exports produced by Taiwan-funded enterprises to the United States: In the first estimate I used Chinese figures for

China's exports to the United States; in the second I used U.S. figures for China's exports to the United States; and in the third I used a weighted calculation based partly on U.S. figures. The Chinese figures produced a total of \$0.9 billion for Chinese exports produced by Taiwan-funded enterprises to the United States; the U.S. figures produced a total of \$3.2 billion; the weighted calculation produced a total of \$7.2 billion.

All figures are for 1996 only, unless otherwise indicated.

Premises for the Three Estimates

Steps P1–P8, which are based on Chinese statistics, were applied in all three estimates.

- P1. Taiwan's total contracted investment in China was \$5,141 million.
- P2. Taiwan's investment in China's manufacturing industry from 1979 through 1996 made up 80% of its total contracted investment in China.
- P3. Therefore, Taiwan's total investment in China's manufacturing industry in 1996 was \$4,112.8 million. (See steps P1 and P2 [$5,141 \times .80$].)
- P4. Total contracted FDI (foreign direct investment) in China's manufacturing industry was \$50,485.9 million.
- P5. Taiwan's share of the total contracted FDI in China's manufacturing industry was 8.15%. (See steps P3 and P4 [$4,112.8 / 50,485.9$].)
- P6. Exports produced by foreign-funded enterprises in China were \$61.5 billion.
- P7. Exports produced by Taiwan-funded enterprises in China were \$5 billion. (See steps P5 and P6 [$61.5 \times .0815$].)
- P8. China's total exports were \$151 billion.

Calculation Based on Chinese Figures

- A1. China's total exports to the United States were \$26.7 billion (Chinese figure).
- A2. Of China's total exports, the share of exports to the United States was 17.7%. (See steps P8 and A1 [$26.7 / 151$].)
- A3. Therefore, according to the Chinese figure, Chinese exports produced by Taiwan-funded enterprises to the United States were \$0.9 billion. (See steps P7 and A2 [$5 \times .177$].)

Calculation Based on U.S. Figures

- B1. China's total exports to the United States were \$51.2 billion (U.S. figure).
- B2. The ratio of the U.S. figure in step B1 (51.2 billion) to the Chinese figure in step A1 (26.7 billion) is 1.92 to 1.
- B3. Exports produced by Taiwan-funded enterprises in China were \$9.6 billion. (See steps P7 and B2 [5×1.92].)
- B4. Of China's total exports, the share of exports to the United States was 34%. (See steps P8 and B1 [$51.2 / 151$].)
- B5. Therefore, according to U.S. figures, Chinese exports produced by Taiwan-funded enterprises to the United States were \$3.2 billion. (See steps B3 and B4 [$9.6 \times .34$].)

Weighted Calculation

- C1. Of the total Chinese exports of foreign-funded enterprises, the weighted share of Taiwan-funded enterprises was 18%. I arrived at this percentage by the following steps, assuming that the average export ratio (the percentage of output that is exported rather than sold inside China) is 75% for Taiwan-funded enterprises and 30% for other foreign-funded enterprises. (T = total products of foreign-funded enterprises in China.)
 - a. $8.15\% =$ Taiwan's original share of total products of foreign-funded enterprises in China (see step P5)
 - b. $T \times .0815 =$ products of Taiwan-funded enterprises in China

- c. 75% = export ratio of Taiwan-funded enterprises in China
- d. $T \times .0815 \times .75$ = exports of Taiwan-funded enterprises in China
- e. 91.85% = share of total products of other foreign-funded enterprises ($100\% - 8.15\% = 91.85\%$)
- f. $T \times .9185$ = products of other foreign-funded enterprises
- g. 30% = export ratio of other foreign-funded enterprises
- h. $T \times .9185 \times .30$ = exports of other foreign-funded enterprises
- i. $(T \times .0815 \times .75) + (T \times .9185 \times .30)$ = total exports of foreign-funded enterprises (including Taiwan-funded ones) in China
- j. $(T \times .0815 \times .75) / [(T \times .0815 \times .75) + (T \times .9185 \times .30)] = (.0815 \times .75) / [(.0815 \times .75) + (.9185 \times .30)] = .18$ = weighted share of Taiwan-funded enterprises
- C2. Exports of Taiwan-funded enterprises in China were \$21.3 billion. (See steps P6, C1, and B2 [$61.5 \times .18 \times 1.92$].)
- C3. Adjusted for the export ratios used in C1, Chinese exports produced by Taiwan-funded enterprises to the United States were \$7.2 billion. (See steps B4 and C2 [$21.3 \times .34$].)