

Taiwan's Investment in China in the Age of Globalization
---- An Interim Assessment of the Impact of Taiwan's Investment in China
on Taiwan's Economic Development

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I. Introduction

Economic relations between Taiwan and China have developed rapidly. According to China's statistics, as of June 1999 Taiwan's cumulative realized FDI in China was \$22.5 billion. According to Taiwan's Ministry of Economic Affairs, as of July 1999 China was the largest recipient of Taiwan approval outward investment, accounting for 40.1%. According to an estimate by Taiwan's Mainland Affairs Council¹, two-way trade between Taiwan and China reached \$24 billion in 1998. As the same year, Taiwan enjoyed a tremendous trade surplus of \$15.7 billion with China, the third largest buyer of Taiwan's exports.

Taiwan's investment in China is part of a complex process of globalized economic development and the restructuring of the international division of labor. Cross-Strait economic exchange has accelerated the ongoing economic restructuring process in Taiwan. Therefore, many concerns of the cross-Strait exchange are raised from an economic perspective. The complications of cross-Strait economic exchange have been distorted in the political confrontation between Taiwan and China and thus impedes bilateral economic cooperation. To maximize mutual benefits for both Taiwan and China through economic exchange and/or cooperation, there is a need to clarify, in the context of globalization, the economic impact of Taiwan's investment in China on Taiwan's economic development.

This article will review how cross-Strait economic relations driven by Taiwan's foreign direct investment (FDI) in China contributes to Taiwan's economic transformation and constructs a new international labor division among Taiwan, China, and the rest of the world. Specifically, I will discuss seven principal issues:

¹ Mainland Affairs Council, Republic of China, "Table 6 Estimation of Indirect Trade between Taiwan and

1. Is Taiwan's investment in China leading to a crowding-out effect in Taiwan (i.e., what is the impact on Taiwan's balance of payments)?
2. Is Taiwan's investment in China contributing to the unwillingness of Taiwan's enterprises to invest domestically?
3. Is Taiwan's investment in China contributing to Taiwan's inability or hesitancy to upgrade its industry?
4. Is Taiwan's investment in China contributing to Taiwan's industrial hollowing-out?
5. Is Taiwan's investment in China contributing to higher unemployment in Taiwan?
6. Is freer trade between Taiwan and China contributing to Taiwan's wage inequality?
7. Are Taiwan's manufacturing goods competing with China's in the international market?

II. The Evolution of Taiwan's Outward Investment

Not until 1987 did Taiwan's government deregulate control over foreign exchange, which led to a rapid increase in outward investment. (See Table 1.) Before the mid-1980s, Taiwan's FDI focused on the United States. But as Taiwan's labor-intensive industries began to lose their comparative advantage, Taiwan firms began investing in Southeast Asian countries (SEACs)². According to the Taiwan Economic Ministry's Investment Commission, Taiwan's FDI into the SEACs was 15% of Taiwan's total FDI in 1987 and was 39% of total FDI at its highest point in 1991, far exceeding 16% for the United States. By the end of 1997, Taiwan's accumulative FDI in the SEACs was \$3.7 billion, 14% of Taiwan's total FDI, exceeding \$3.5 billion for the United States.

Mainland China," *Cross-Strait Economic Statistics Monthly*, No. 84, August 1999, p. 20.

Although Taiwan's entrepreneurs began investing in China in the late 1980s, Taiwan's Investment Commission did not compute formal statistics until 1991. In 1991, Taiwan's FDI into China was \$0.17 billion according to Taiwan's official figures. In 1993, it jumped to nearly \$3.2 billion, which was 66% of Taiwan's total FDI for that year. By the end of 1997, Taiwan's cumulative FDI in China was \$11.2 billion, 42% of Taiwan's total FDI. In a short 7 years, China became the place with the most accumulated Taiwanese FDI. It's worth noting that Taiwan's FDI in both China and the SEACs amounted to 56% of the total FDI. Altogether, the United States, China, and the SEACs, accounted for 70% of Taiwan's total FDI. Therefore, Taiwan's FDI significantly focused in these three areas. Overall, Taiwan's FDI in the late 1980s and early 1990s involved mainly small-medium labor-intensive enterprises looking for overseas manufacturing bases, mostly in the SEACs and China.³

III. Taiwan's FDI in China Increases Taiwan's Balance of Payments

Surplus

According to a UN formula, the direct effect of Taiwan's FDI on its balance of payments can be estimated using the following formula⁴:

Change in balance of payments = (-outflow of FDI) + (FDI-driven exports) + (FDI income)

² The SEACs include the Philippines, Indonesia, Thailand, Malaysia, and Vietnam.

³ Wen-Chen Kuo, "The Review and Future Prospect of Taiwan's Outward Investment," *Economic Outlook*, No. 54, 11/5/1997, pp. 57-59.

⁴ United Nations, *Transnational Corporations from Developing Countries: Impact on Their Home Countries*. (New York: United Nations, 1993), p.59.

Beijing's figures for Taiwan FDI in China are more accurate than those kept by Taipei since Taiwan firms must report their investments to Chinese authorities but often fail to notify the Taiwan government. From 1991 to 1997, Taiwan's realized FDI in China averaged \$2.6 billion per year. Although Beijing's figures might be exaggerated, an inflated figure for the Taiwan's FDI in China would give us a more negative estimate of its impact on Taiwan's balance of payments since the first item (-outflow of FDI) in the formula is negative.

Taiwan does not keep official statistics of FDI income from China (including payments of royalties, fees and salaries to the patent and repatriation of dividends, equity interest and loan principal). Therefore, the income from Taiwan's FDI in China can be estimated using figures for Taiwan's total FDI income. For Taiwan's total FDI, the income-investment ratio is 0.71 dollar/ per dollar of investment. (See Table 2.) The amount of Taiwan's FDI in China multiplied by this ratio would indicate that Taiwan's income from its FDI in China averaged \$1.9 billion every year from 1991 to 1997. (See Table 3.)

As for FDI-driven exports, there are many different estimates. According to the Chung-Hua Institution for Economic Research, FDI-driven exports in 1990 accounted for 34% of Taiwan's total transit-exports to China.⁵ According to the Economic Research Section of Taiwan's Economic Ministry, the figure was 32.9% in 1990.⁶ According to Chang Kao, it was 32% in 1990.⁷ According to S. Gao et al., it was 46% in 1991;

⁵ Chung-Hua Institution for Economic Research, *Cross-Strait Economic Yearbook: Cross-Strait Economic Relations*, 1993, p. 176.

⁶ Kong-Lien Kao, *The Current Situation and Development of Cross-Strait Economic Relations* (Taipei: Mainland Affairs Council, 1994), p. 26.

⁷ Chang Kao, *Mainland Economic Reform and Cross-Strait Economic Relations* (Taipei: Wu-Nan, 1994), pp. 164-166.

according to Chin Chung et al., it was 41% in 1991.⁸ According to various investigations, 68% to 86% of machinery and equipment used by Taiwan-funded enterprises in China is purchased from Taiwan and 36% to 71% of raw materials, parts, and semi-finished products is purchased from Taiwan.⁹ Most of Taiwan's exports to China consists of raw materials, parts, machinery and equipment. If we use the 34% figure calculated by the Chung-Hua Institution for Economic Research as a multiplier, we can derive a fair estimate of Taiwan's FDI-driven exports to China as averaging \$5.4 billion every year.

In summary, from 1991 to 1997 Taiwan's FDI in China contributed an average of \$4.6 billion per year in net foreign exchange to Taiwan's balance of payments. (See Table 3.) The UN study in 1993 also argues that Taiwan's outward FDI contributed to its overall favorable balance of payments.¹⁰

In addition, Taiwan had an average \$13.6 billion trade surplus with China from 1991 to 1997. Subtracting \$5.4 billion/year of Taiwan's FDI-driven exports to China, Taiwan still enjoyed an average \$8.2 billion trade surplus per year from 1991 to 1997. Although it's hard to analyze the direct relations between the surplus and Taiwan's FDI, they should have some kind of indirect relationship. The situation can also be seen in Taiwan's trade surpluses with the SEACs, where Taiwan has huge FDI. Taiwan's trade surplus with the SEACs increased from \$0.3 billion in 1988 to \$1.2 billion in 1997 (\$3.2 billion in 1996);

⁸ Chin Chung, "Double-Edged Trade Effects of Foreign Direct Investment and Firm-Specific Assets: Evidence from the Chinese Trio," in Y.Y. Kuen (ed.), *The Political Economy of Sino-American Relations* (Hong Kong: Hong Kong University Press, 1997), p. 143.

⁹ Chin Chung, "Double-Edged Trade," p. 147. Charng Kao and Chi-Tsung Huang, "The Analysis on the Relationship between Taiwan's Investment in Mainland and Cross-Strait Trade," in Kuang-Shen Liao (ed.), *The Potential Danger and Opportunity in the Cross-Strait Economic Interaction* (Hong Kong: Hong Kong University Press, 1995), p. 105. Taiwan's Economic Ministry, *The Investigation Report on the Outward Investment by Manufacturing Industry*, 1997, pp. 89, 92, 95, 98. Taiwan's Economic Ministry, *The Investigation Report on the Outward Investment by Manufacturing Industry*, 1998, pp. 132, 135, 138.

¹⁰ United Nations, *Transnational Corporations from Developing Countries*, p.64.

Taiwan's trade surplus with China increased from \$1.8 billion in 1988 to \$18.5 billion in 1997.

In recent years, Taiwan's global trade surplus has continued to decline from \$18.7 billion at its highest point in 1987 to \$7.7 billion in 1997, but its trade surplus with China has increased extraordinarily. In fact, Taiwan's entrepreneurs are re-organizing to take advantage of cheap labor and other resource, shifting the production of goods --- which used to be produced in Taiwan and exported to the United States, Japan, and Europe --- to China. The final destination is the same. China provides a place for Taiwan's entrepreneurs to expand labor-intensive production, and Taiwan's large enterprises continue to provide intermediate and capital goods to these same downstream enterprises.¹¹

In 1986, Taiwan's exports to the United States accounted for 48% of Taiwan's total exports, and Taiwan's exports to the SEACs and China combined accounted for just 5%. In 1995, Taiwan's exports to the United States accounted for 24% of Taiwan's total exports, and Taiwan's exports to both the SEACs and China accounted for 26%. Re-organization of the international division of labor contributes to Taiwan's huge trade surplus with the SEACs and China and reduces its trade surplus with the United States.

IV. Taiwan's FDI in China Does Not Negatively Affect Domestic

¹¹ Taiwan's experience is similar to Japan's early experience with investment in the newly industrialized economies (NICs) and the SEACs. Outward FDI facilitated a new wave of international labor division. Economists use the "Flying-Geese Paradigm" to explain FDI-driven economic relations among Asian countries. Jonathan Morris (ed.), *Japan and the Global Economy: Issues and Trends in the 1990s* (London: Routledge, 1991), pp. 135-171. Partha Gangopadhyay, "Patterns of Trade, Investment, and Migration in the Asia-Pacific Region," in Grahame Thompson (ed.), *Economic Dynamism in the Asia-Pacific: the Growth of Integration and Competitiveness* (London: Routledge, 1998). Kiyohiko Fukushima and C.H. Kwan, "Foreign Direct Investment and Regional Industrial Restructuring in Asia," in Nomura Research Institute and Institute of Southeast Asian Studies (compiled), *The New Wave of Foreign Direct Investment in Asia* (Singapore: Institute of Southeast Asian Studies, 1995), pp. 3-86.

Investment

The above section explains that Taiwan's FDI in China does not create a so-called "capital crowding-out effect;" on the contrary, it has increased foreign exchange earnings by an average of \$4.6 billion per year, which was 60% of Taiwan's trade surplus in 1997. Therefore, if Taiwan's domestic investment did not increase, Taiwan's FDI in China is not to blame.

Taiwan's Economic Ministry has conducted two major surveys¹² of enterprise managers to determine their motivation to invest in foreign countries. In 1996 managers from 2,800 companies were asked to respond to a multiple choice questionnaire and the survey was repeated with 3,280 enterprises in 1998. 50% to 60% of respondents indicated they were motivated to invest abroad by cheap labor and market potential, one-third of them wanted to invest outside Taiwan because of a deteriorating domestic operating environment, which is the third reason Taiwan's firms conduct FDI.

Furthermore, managers perceived a further deterioration of the domestic operating environment between 1996 and 1998. The smaller the enterprises are, the more sensitive they are to perceive deterioration of the domestic operating environment. 35% to 50% of small enterprises with FDI in the SEACs and China cited such deterioration versus 30% for large enterprises. Looking at when the companies began to invest outward, 35% to 37% of the enterprises that began to invest outward from 1987 to 1994 perceived a deterioration of the domestic operating environment, far exceeding 10% of enterprises that began to conduct FDI before 1986. Hence, although external attraction is a major reason for

¹² Taiwan's Economic Ministry, *The Investigation Report on the Outward Investment by Manufacturing*

Taiwan's entrepreneurs to invest abroad (or not to invest domestically), the deteriorating domestic operating environment is also an important reason.

In reality, Taiwan's gross domestic investment was already declining rapidly before 1986, from 33.8% of GDP in 1980 to 17.5% at its lowest point in 1986. Thereafter, it increased slightly to 25.2% at its new high point in 1993 and 22.4% in 1998, still higher than the level in 1986. The annual rate of change in private gross fixed capital formation was -3.5% in 1982 and -6.2% in 1985. It was an average of 4.8% for the period between 1980 and 1986. By comparison, although the annual growth rate for private gross fixed capital formation was -7.7% in 1990, it was 10.7% on the average from 1987 to 1998. Hence, while Taiwan's entrepreneurs were investing heavily overseas, they did not halt their domestic investment; rather, they expanded both FDI and domestic investment simultaneously.

According to the 1996 and 1998 Economic Ministry studies, after enterprises began investing abroad, only a minority of small enterprises lessened their domestic investment. The index of the FDI impact on domestic investment¹³ by small enterprises was -5.8% in 1996 and -6.6% in 1998, and most (around 55%) of them still maintained the original scale of their domestic operations.¹⁴ For the larger enterprises, the index of the FDI impact was

Industry, 1997 and 1998.

¹³ According to Taiwan's Economic Ministry studies, the index of the FDI on domestic investment = (the ratio of expanding domestic investment - the ratio of suspending or planning to suspend domestic all operation - the ratio of reducing the current scale of domestic enterprise) ÷ 2. Taiwan's Economic Ministry, *The Investigation Report*, 1998, p. 21.

¹⁴ In addition, according to Chong-ta Yen et. al. (1992), only 12.8% of enterprises terminated their business in Taiwan after investing in China. According to Charng Kao et. al.(1995) and His-Chung Kao (1993), more than 80% of home enterprises in Taiwan continued to operate after investing in China. Tain-Jy Chen and I-Ping Chen, "Outward FDI impact on Taiwan's Industrial Development", in Ya-Huei Yang (ed.), *Taiwan's Industrial Development and Policy* (Taipei: Chung-Hua Institution for Economic Research, 1995), p. 442. Charng Kao, "Taiwan Entrepreneur Investment of Manufacturing Industry in Mainland and Cross-Strait Industrial Labor Division", in Mee-kau Nyaw et. al. (eds.), *Economic China* (Hong Kong: Chinese University Press, 1998), p. 242.

more positive, 11.7% and 18.2% for medium and large enterprises in 1996, and 24.4% and 25% in 1998, respectively. Hence, after investing abroad, some small enterprises were forced to reduce or terminate domestic operation because of a lack of capital and managers. However, for medium-large enterprises, outward investment was done for the purpose of increasing competitiveness by taking advantage of the international division of labor. They did not sacrifice domestic investment but rather expanded both domestic and foreign operations.

The index of the FDI impact on domestic investment was 2.5% for them who began to invest abroad before 1986, -2.8% for those from 1987 to 1991, 0.9% for those from 1992 to 1994, and 8.7% for those from 1995 to 1996.¹⁵ These results are very consistent with the trend of Taiwan's overall outward investment. From the mid-1980s to the early 1990s, most enterprises with FDI were labor-intensive small firms. Some of these smaller companies closed their Taiwan production bases and shifted to overseas operation. This kind FDI can be called "defensive FDI." After the mid-1990s, the scale of the enterprises investing abroad grew larger and larger. This investment can be called "expansionary FDI," conducted to facilitate international labor division, not to close domestic factories. This kind of FDI expanded such that the index became 8.7% in 1995 and 1996. This kind of FDI did not crowd out domestic investment but both of outward and domestic investment increased simultaneously.

For all enterprises, the index was 1% in 1996, that is, after investing abroad, the portion that continued to invest domestically and expand domestic production exceeded the portion that reduced or terminated their domestic operations. In 1998, the index reached

¹⁵ Taiwan's Economic Ministry, *The Investigation Report*, 1997, p. 188.

5.9%. Taiwan's FDI expanded along with domestic investment. Looking at FDI recipient countries, the index for Taiwan's FDI in China was -3.5% in 1996, but turned out to be positive 1.8% in 1998. By contrast, the indexes for Taiwan's FDI in Vietnam and Indonesia were still negative in 1998.¹⁶ Taiwan should have more concerns with these negative indexes.

To sum up, when Taiwan's entrepreneurs conducted outward investment, except for a few small-medium enterprises that reduced or closed domestic production and thus reduced domestic investment, the majority of enterprises did not reduce domestic investment. Some small-medium enterprises that did cut domestic investment were mostly in labor-intensive industries that began to invest abroad from 1987 to the early 1990s because they perceived a deterioration of the domestic operating environment. They could not help but close or reduce their original factories because of a lack of capital and managerial base. However, the impact was very limited. The annual growth rate in private investment of this period was still higher than before 1987. In addition, these migrating enterprises would acquire investment income and increase Taiwan's FDI-driven exports. It's thus very hard to say that Taiwan's FDI in China had a crowding-out effect on domestic investment.

V. Taiwan's FDI in China Has Facilitated Taiwan's Industrial Upgrading

The question of whether or not Taiwan's FDI in China facilitates Taiwan's industrial upgrading should be answered in two parts: First, did Taiwan experience industrial upgrading? Second, if Taiwan experienced industrial upgrading, what was its relationship with Taiwan's FDI in China?

¹⁶ Taiwan's Economic Ministry, *The Investigation Report*, 1997, p. 188. Taiwan's Economic Ministry, *The*

First, did Taiwan experience industrial upgrading?

According to “The Index of Manufacturing Industrial Upgrading” made by Taiwan’s Economic Ministry, there are three concrete indexes to measure whether or not Taiwan’s industries are upgrading: the ratio of the output of heavy-chemical and technology-intensive industries to the total output of manufacturing industries (output ratio); the ratio of the exports of heavy-chemical and technology-intensive industries to the total exports of manufacturing industries (export ratio); and labor productivity in manufacturing industries (productivity).

The output ratio was 56.5% in 1982 and 76.5% in 1997. The export ratio was 49.8% in 1982 and 73.6% in 1997. Thus, both the output and export ratios increased dramatically in the last 15 years, rising 30% and 24% respectively. The productivity (in constant 1991 dollars) was \$9,600 in 1982 and \$31,000 in 1997, increasing by \$25,000 or 2.6 times. These simple figures have explicitly shown how fast Taiwan’s industries have upgraded.¹⁷ (See Table 4.)

Second, what was the relationship between Taiwan’s industrial upgrading and its FDI in China?

A closer examination of the output and export ratios and productivity reveals a link between Taiwan’s industrial upgrading and FDI. The output ratio increased 3.7% from 1982

Investigation Report, 1998, p. 21.

¹⁷ Ya-Huei Yang et. al., “The Adjustment and Upgrading of Industrial Structure”, in Chung-Hua Institution for Economic Research, *The Study of Industrial Policy on Taiwan’s March toward a Developed Country Conclusion Report*, 1997, pp. 7-67.

to 1986, 5.8% from 1986 to 1990, 5.5% from 1990 to 1994, and 7% from 1994 to 1998. The export ratio increased 5.1% from 1982 to 1986, 9.1% from 1986 to 1990, 5.7% from 1990 to 1994, and 4.3% from 1994 to 1998. Productivity (in 1991 prices) increased \$2,800 from 1982 to 1986, \$8,600 from 1986 to 1990, \$6,300 from 1990 to 1994, and \$3,700 from 1994 to 1997¹⁸.

Taiwan's entrepreneurs began to invest heavily in China (and the SEACs) after the mid-1980s. Labor-intensive industries migrated to China (and the SEACs) in mass between the mid-1980s and early 1990s. The period from 1986 to 1994 coincided with the period when Taiwan's industries were upgrading the most rapidly. Explicitly there is a positive relationship between Taiwan's FDI in China and industrial upgrading.

Before the mid-1980s, Taiwan always had a "dual economic structure". That is, Taiwan's small-medium enterprises produced labor-intensive goods for export and large enterprises were in charge of supplying intermediate and capital goods in a monopolized domestic market. After 1987, when Taiwan began to invest abroad heavily, the domestic economic structure changed significantly: labor-intensive, small-medium enterprises migrated, and capital- and technology-intensive large enterprises replaced small-medium enterprises as Taiwan's prime exporters.¹⁹ In 1987, the share of exports of the small-medium enterprises to Taiwan's total exports was 67%, and that of large enterprises was 33%; in 1997 the share of the small-medium enterprises was only 49%, and that of large enterprises increased significantly to 51%. Compared with the period from 1982 to

¹⁸ The labor productivity in 1998 was \$27,792 (in 1991 dollar), which deviated significantly from the trend. Therefore, this article adopts the 1997 figure.

¹⁹ Kai Ma, "Prospect and Recommendation of Industrial Development", in Chung-Hua Institution for Economic Research, *The Study of Industrial Policy on Taiwan's March toward a Developed Country* Conclusion Report, 1997, pp. 391-392.

1987, the share of the small-medium enterprises declined by only 2.6%, and that of large enterprises increased by 2.6%. In the next decade, the share of the small-medium enterprises declined by 18.3%, and that of large enterprises increased by 18.3%. Hence, there is a positive relationship between Taiwan's FDI and the enormous increase in the proportion of exports of large enterprises to Taiwan's total exports.

Regarding Taiwan's export structure -- if divided into labor intensity, capital intensity, technology intensity, heavy-industrial products, and high-technology products -- Taiwan's export structure has shifted in the past decade to less labor-intensive, higher capital-intensive, and higher technology-intensive products. The share of heavy-industrial and high-technology exports increased tremendously. From 1982 to 1988, the share of the heavy-industrial products to total exports increased by 7.4%, and the share of the exports of high-technology products increased by 7.7%. In the next decade from 1988 to 1998, the share of the exports of heavy-industrial products increased by 21.6%, and the share of the exports of high-technology products increased by 16.1%.

In addition, there was another explicit change in Taiwan's export structure. From 1987 to 1998 the share of intermediate goods in Taiwan's total exports increased by 26.4% (to 60% in 1998) and the share of machinery exports increased by 7.8%. In the same period, the share of Taiwan's consumer goods in Taiwan's total exports declined by 31%. Particularly, the share of consumer non-durable goods decreased significantly by 23.2%. By comparison, from 1981 to 1987, the export share of intermediate goods decreased by 3%, that of consumer goods decreased by 2%, and the share of machinery increased by 6.9%. Hence, there is a close positive correlation between increased Taiwan's FDI on the one hand, and the enormous increase in the share of exports of capital- and

technology-intensive intermediate and capital goods (and a decrease of consumer goods exports) on the other hand.

In summary, the momentum of Taiwan's industrial upgrading came from the enormous export expansion of heavy-chemical, capital- and technology-intensive products, or intermediate goods and machinery, which were mainly supplied by large enterprises. As analyzed in section III, the destination of Taiwan's exports changed after the mid-1980s. Prior to the mid-1980s, the main market of Taiwan's exports was the United States; after Taiwan's huge FDI, the market has shifted significantly to China and the SEACs, where Taiwan's exports mainly consist of FDI-driven sales of intermediate and capital goods. That is, the labor division existing inside Taiwan before the mid-1980s has been transformed into an international labor division driven mainly by the FDI of Taiwan's small-medium enterprises. Labor-intensive, small-medium enterprises established production bases overseas (including in China), with the provision of intermediate and capital goods by large enterprises, and then the products of Taiwan's overseas affiliates were exported to the United States, Japan, and Europe. Therefore, the output ratio of heavy-chemical and technology-intensive industries, which are primarily composed of large enterprises, increased rapidly by 16.3% and the export ratio of these industries increased by 18.7% from 1986 to 1997. The expanded demand for intermediate and capital goods by the small-medium enterprises which invested overseas (including in China) led to the expanded output of these goods produced by Taiwan's large enterprises. This new international (inter-firm) labor-division had considerable benefits for Taiwan's industrial upgrading.²⁰

²⁰ Charng Kao and Shi-Ying Wu, "The Impact of Cross-Strait Economic Relations on Taiwan's Industrial Development," in Ya-Huei Yang (ed.), *Taiwan's Industrial Development and Policy* (Taipei: Chung-Hua Institution for Economic Research, 1995), pp. 402, 408-411, 415-416. Kai Ma, "Prospect and Recommendation," pp. 383-419. Charng Kao, "Taiwan Entrepreneur Investment," pp. 237-253. Allen Y. Tso, "An Analysis of the Trade-Investment Relationship across the Taiwan Strait," *Mainland China Studies*, Vol. 39, No. 5, May 1996, pp. 7-11. Ying-Yi Tu, "The Retrospect and Prospect of Industrial

In addition to the inter-firm (inter-industry and intra-industry) international labor division discussed above, there was intra-firm international labor division.²¹ According to the 1998 investigation report by Taiwan's Economic Ministry, 32% of Taiwan's enterprises with FDI explicitly stated that their products produced in Taiwan are superior or more value-added than those made by their overseas bases, and only 4% gave the opposite response. Divided by the scale of enterprises, 44% of large enterprises with FDI said that their products in Taiwan were more superior or more value-added with only 2% saying the opposite. By comparison, only 27% of small enterprises with FDI said that Taiwan made goods higher quality with 5% saying the opposite. That is, there still exist some forms of internal labor division within small enterprises, although the degree is less than in large enterprises. Divided by major investment area, among Taiwan's entrepreneurs investing in China and the SEACs, 26% to 44% said that their products in Taiwan were superior or more value-added, while at most 7% said the opposite.

Moreover, according to the 1996 investigation report by Taiwan's Economic Ministry (in a multiple choice question), more than a quarter of enterprises said that their FDI was done in response to the era of internationalization. Larger enterprises were more likely to cite "internationalization" as their reason for conducting FDI, 45% of large firms said internationalization was a motivating factor compared with just 20% for small enterprises.²² Therefore, the larger the enterprises are, the more they tend to have an intra-firm division of labor. That is, they manufacture more labor-intensive products in China and produce

Internationalization Policy," *Economic Outlook*, No. 55, 1/5/1998, p. 98.

²¹ FDI may result in three kinds of industrial restructuring: intra-firm, intra-industry, and inter-industry. Tain-Jy Chen, Yi-Ping Chen, and Ying-Hua Ku, "Taiwan's Outward Direct Investment: Has the Domestic Industry been Hollowed Out?," in Nomura Research Institute and Institute of Southeast Asian Studies (compiled), *The New Wave of Foreign Direct Investment in Asia* (Singapore: Institute of Southeast Asian Studies, 1995), pp. 103-104.

superior or more value-added goods in Taiwan.

According to the 1998 report, when enterprises with FDI were asked how they respond to international competition, 47% to 61% of them answered that they “reinforce personnel training,” “develop more value-added products,” “reinforce the acquisition of raw material and marketing service,” and increase “automation of production;” only 27% answered “enlarge outward investment.” These results were true even for companies with major FDI in China.²³

Therefore, “outward investment” is a secondary response to greater international competition. Its goal is to increase intra-firm labor division and international competitiveness so that enterprises can utilize production factors (including capital, skilled labor, and technology) more efficiently, expand production capacity, and exploit economies of scale in overseas markets. Hence, FDI is not just a means to passively survive overseas, but is a complementary factor to promote the whole enterprises’ competitiveness and technological upgrading.

The third possibility is that after Taiwan’s labor-intensive industries invest heavily abroad, they will release domestic resources (including labor, land, and capital) that used to be employed in those industries. Adding investment income repatriated by overseas production and FDI-driven export income, this will facilitate the more efficient use of Taiwan’s factors of production and lead to expanded production capacity.

As general international trade theory argues, when a country opens up for free trade,

²² Taiwan’s Economic Ministry, *The Investigation Report*, 1998, p. 140-141.

this country will specialize in industries where it has a comparative advantage, and the industries where it has less comparative advantage will decline and their resources will be absorbed by the more competitive industries. The opening country thus acquires benefits from both commodity exchange and specialization of production.

Similarly, when its wage-rental ratio increases, Taiwan's labor-intensive industries can no longer compete with those of the SEACs and China, and hence lose their comparative advantage. Entrepreneurs and managers can achieve higher returns by investing part of their capital and utilizing limited technology in China's export-processing industries. In turn, the entrepreneurs repatriate investment income, which facilitates domestic capital accumulation. In addition, FDI-driven exports expand foreign markets for domestic products (referring to intermediate and capital goods), which promote economies of scale in domestic industrial development.

On the other hand, a large amount of labors, land, and capital employed by the original labor-intensive industries can be transferred into capital- and technology-intensive industries. Because Taiwan's wage-rental ratio is higher than China's and the SEACs', its capital rental cost, relatively speaking, is cheaper and the ratio of highly trained technicians is higher. Therefore, Taiwan's enterprises would tend to employ capital- and technology-intensive production factors.²⁴ Of course, this process involves transformation and re-training of the labor force, and Taiwan would suffer certain transition costs.

However, if they do not migrate overseas, the labor-intensive industries would face

²³ Taiwan's Economic Ministry, *The Investigation Report*, 1998, p. 13.

²⁴ Chu-Chia Lin, "The Comparison of Production Functions for the Cross-Strait Taiwan's Entrepreneurs", in Mee-kau Nyaw et. al. (eds.), *Economic China* (Hong Kong: Chinese University Press, 1998), pp. 139-151.

intense international competition and Taiwan would eventually have to pay an even higher price, including increased trade protection, subsidies for non-competitive business, and consumer loss and reduced competitiveness of domestic enterprises. Even if protected, these industries might still have been eliminated in the long run.

By contrast, if these traditional labor-intensive industries can migrate overseas, Taiwan's government can relocate resources to promote industrial upgrading and transformation of the labor force. At the same time, the migration of these industries would facilitate forming a domestic environment in favor of technology- and capital- intensive industries, and this in turn would attract foreign multinational companies (MNCs) in such industries to invest in Taiwan. All of this would facilitate Taiwan's industrial upgrading. Basically, this conclusion is compatible with the conclusion of the UN study.²⁵

As for FDI of capital- and technology-intensive industries, Taiwan's investment style is similar to the FDI experiences of developed countries. Much international literature has analyzed these experiences, and basically has concluded that outward FDI makes a positive contribution to the home countries. Japan is a good example of this phenomenon. For Taiwan, capital- and technology-intensive enterprises engaged in FDI are essentially large and medium enterprises. Their FDI is intended to expand production capacity, expand market base, increase competitiveness, and establish a global production network and labor division. These FDIs can be called "expansionary" or "aggressive" FDIs, and would essentially contribute to Taiwan's economic development, especially industrial upgrading.²⁶

²⁵ United Nations, *Transnational Corporations from Developing Countries*, pp. 64-67.

²⁶ Tain-Jy Chen and I-Ping Chen, "Outward FDI impact," pp. 433-462. Chong-tse Lee and Fong-Chen Fu, "The Theory and Practice of Cross-Strait Industrial Labor Division", in Chung-Hua Institution for Economic Research, *The Study of Industrial Policy on Taiwan's March toward a Developed Country* Conclusion Report, 1997, pp. 5-6. Charng Kao, *Mainland Economic Reform*, pp. 219-227.

VI. Only Industrial Upgrading, No Industrial Hollowing-Out

There is yet no precise definition of the term “industrial hollowing-out,” and this phrase easily leads itself to misunderstanding. Taiwan’s industrial structure has experienced a great transformation. One of the major characteristics of this change is that the share of the manufacturing industry’s output to GDP has declined significantly and that of service industry has increased tremendously. From 1982 to 1986, the manufacturing industry’s contribution to total GDP increased from 35.2% to 39.4%. Nevertheless, the ratio declined after 1987 to 27% in 1998, a reduction of 12.4% in past 11 years. Relatively, the service sector’s share of GDP increased from 47.3% in 1986 to 63.1% in 1998, an increase of 15.8% over 11 years.

It’s a very natural phenomenon that the service sectors grows as an economy becomes more developed. According to an International Monetary Fund study, deindustrialization is principally the result of higher productivity in manufacturing than in services.²⁷ For example, the share of the output of the service sector in the UK and the United States was over 70% of GDP in 1993, in France nearly 70%, in Hong Kong (in 1994) 83%, and in Singapore (in 1995) 63%. Taiwan is no exception. In addition, along with the rapid development of the service sector, trade in services has increased more rapidly than trade in commodities. Currently, trade in services is 23% of world total trade.

Furthermore, Taiwan began to promote the “Asia-Pacific Regional Operation Center” (APROC) plan in 1995 in hopes of establishing six major operation centers. Five of these

²⁷ Robert Rowthorn and Ramana Ramaswamy, *Deindustrialization --- Its Causes and Implications*, Economic

centers belong to the service sector.²⁸ Therefore, we cannot assert that Taiwan has an “industrial hollowing-out” syndrome just because the service sector’s share of GDP has increased rapidly while the manufacturing sector’s share has gone down.²⁹

Nevertheless, the dramatic change in economic structure leads to suspicions that capital outflows are creating either an unwillingness to upgrade or non-competitiveness without upgrading, which is reducing the manufacturing sector’s share of GDP. As explained in section V, Taiwan’s industries have been upgrading over the past decade and Taiwan’s FDI explicitly contributes to the upgrading process. Compared with other countries, Taiwan’s performance is quite satisfactory: from 1993 to 1998, the annual growth rate of Taiwan’s industrial output was 4.5%, slightly below that of the United States, but far exceeding the –0.1% to 2% on average for other industrial countries.³⁰ Therefore, Taiwan’s industries are still strongly competitive, and there is not a so-called “hollowing-out” syndrome.

VII. No Higher Unemployment

In the past, there was always concern that Taiwan’s FDI would increase the domestic unemployment rate since most labor-intensive industries would move abroad. As a matter of fact, Taiwan’s unemployment rate did not increase along with the increase of its FDI overseas (including in China). Taiwan’s unemployment rate averaged 2.6% from 1982 to

Issues 10, (Washington, D.C.: International Monetary Fund, 1997).

²⁸ Including financial center, telecommunication center, media center, navigation transit center, and aviation transit center.

²⁹ Charng Kao and Shi-Ying Wu, “The Impact of Cross-Strait Economic Relations,” p. 415. Taiwan’s Economic Ministry, “Fuwuyue zai Jingji Fazhan zhong de Jiaose” [The Role of Service Industry in the Economic Development], <<http://www.moea.gov.tw/~meco/paper/issue/15.htm>>, 2000/4/6 07:57 PM .

³⁰ Taiwan’s Economic Ministry, “Biao A-12 Zhuyao Guojia Gongye Shengchan Zengjialu” [Table A-12 The Growth Rate of the Industrial Output in Major Countries],

1986, 1.6% from 1987 to 1994, and 2.5% from 1995 to 1998. The labor reallocation problem would have been most serious from 1987 to 1994, when the migration of labor-intensive industries was at its peak, yet in this period Taiwan's unemployment rate was 1% lower than the averages from the 1982-to-1986 and 1995-to-1998 periods. Hence, FDI did not have a direct negative impact on Taiwan's unemployment rate. As mentioned in the UN study, the real problem was labor reallocation.³¹

Furthermore, it is the declining international competitiveness of some domestic industries that creates the need for labor reallocation and FDI. It is not the case that FDI leads to higher unemployment. We should not confuse the cause with the result.³²

VIII. No Worsening Wage Inequality

From 1987 to 1997 Taiwan did increase its imports from developing countries, including Southeast Asian countries and China, while reducing its imports from developed countries. In 1987, the OECD-7³³ share of Taiwan's total imports was 67.1% and that of both the ASEAN-4³⁴ and China was 5.6%. In 1997, the OECD-7 share shrank to 59% and that of both the ASEAN-4 and China increased to 11.9%. In terms of value, Taiwan imported \$2.14 billion from both the ASEAN-4 and China in 1988, while importing \$13.6 billion in 1997. The absolute value of Taiwan's imports from both the ASEAN-4 and China increased by 6.4 times over 10 years.

<<http://www.moea.gov.tw/~meco/stat/four/a-12.htm>>, 1999/5/18 09:45 AM.

³¹ United Nations, *Transnational Corporations from Developing Countries*, pp. 57-88.

³² United Nations, *Transnational Corporations from Developing Countries*, p. 68. Allen Y. Tso, "An Analysis," p. 21.

³³ The OECD-7 includes Japan, the USA, Germany, United Kingdom, France, Canada, and Netherlands.

³⁴ The ASEAN-4 includes Malaysia, Indonesia, Thailand, and the Philippines.

Although some theories predict increased trade between Taiwan and developing countries would lead to worsening wage inequality³⁵, from 1987 to 1996 Taiwan's wage inequality did not worsen. (See Table 5.) In 1987, the average monthly earnings of employees with below college education was NT\$12,755 and that for college graduates NT\$23,503.³⁶ That is, the ratio of wage inequality was 0.84 $[(23,503-12,755)/12,755]$. Thereafter, the wage inequality lessened significantly through 1995. In 1995, average monthly earnings of non-college graduates was NT\$28,730 and that for college graduates was NT\$44,770. The ratio of the wage inequality was 0.56. In 1996, the wage inequality ratio worsened slightly to 0.62.

Nevertheless, one policy concern is apparent in expanding trade with developing countries: the displacement of unskilled workers. Even analysts who conclude that freer trade (globalization) is to blame for wage inequality still emphasize that trade (protection) policies are poor tools to use in assisting Taiwanese workers. Instead, most economists suggest attention should focus on directly assisting displaced workers with unemployment insurance, education and training program, and even subsidies to unskilled laborers. Such solutions would be appropriate for helping less-skilled workers cope with declining real earnings in situations where less-skilled wages are indeed negatively affected by freer trade.³⁷

³⁵ Chen-yuan Tung, "Does Freer Trade between Taiwan and Developing Countries Worsen Wage Inequality in Taiwan?," Paper presented at the 2000 Taipei International Conference on Industrial Economics, sponsored by the Institute of Economics, Academia Sinica (IEAS) from June 15-17, 2000.

³⁶ Richardson and some other economists suggest the measurement by differentiating workers with and without 12 years of education. J. David Richardson, "Income Inequality and Trade: How to Think, What to Conclude," *Journal of Economic Perspectives*, Vol. 9, No. 3, Summer 1995, p. 44.

³⁷ Susan M. Collins, "Economic Integration and the American Worker: An Overview", in Susan M. Collins (ed.), *Imports, Exports, and the American Worker* (Washington, D.C.: Brookings Institution Press, 1998), chapter 1, pp. 9, 36-41. Adrian Wood, *North-South Trade, Employment, And Inequality: Changing Fortunes In A Skill-Driven World* (Oxford: Clarendon Press, 1994), pp. 22-24. Adrian Wood, "Globalization and the Rise in Labour Market Inequalities", *Economic Journal*, no. 108, September 1998, p. 1479. J. David Richardson, "Income Inequality and Trade: How to Think, What to Conclude," *Journal of Economic Perspectives*, Vol. 9, No. 3, Summer, 1995, pp. 51-53.

IX. Competition in International Market

In the international market, Taiwan has lost much of its share of the traditional labor-intensive products market to China and the SEACs. Nevertheless, Taiwan's current exports, generally speaking, have different factor intensities than China's exports. Regarding competition in the United States market, Taiwan's exports of computer and information products basically compete with those of the SEACs (especially Malaysia) and South Korea. As for Japan's market, the competition between Taiwan and China is among different levels and industries.³⁸

Competition between Taiwan's labor-intensive exports and China's exports which are manufactured by foreign-funded labor-intensive industries is unavoidable. Some of this competition is between Taiwan-funded enterprises in China and enterprises still operating in Taiwan,³⁹ This kind of competition, however, would facilitate Taiwan moving to more technology-intensive and capital-intensive industries.

Taiwan's export structure has changed dramatically since Taiwan began investing heavily abroad in 1987. In the past, labor-intensive consumer goods were manufactured by small-medium enterprises and were then exported to developed countries such as the United States, Japan, and Europe. Now, it is very common for small-medium enterprises to establish overseas bases to produce labor-intensive consumer goods, with the inputs of intermediate and capital goods coming from Taiwan's large enterprises. The final products

³⁸Taiwan's Mainland Affairs Council, *Analysis on Cross-Strait Economic Situation*, October 1997, pp. 114 to 139.

³⁹ *Ibid*, p. 140.

are still exported to the United States, Japan, and Europe.

For example, according to the author's estimate, in 1996 Taiwan-funded entrepreneurs in China exported \$27.8 billion worth of goods to the United States, Japan, and Europe, about \$7.2 billion to \$11.2 billion of which was exported to the U.S. market alone. This would mean that Taiwan enterprises accounted for 14% to 22% of China's exports to the United States.⁴⁰ Therefore, Taiwan's shrinking market share in developed countries is because of the change in Taiwan's role in the international division of labor in which Taiwan no longer produces most of competing labor-intensive goods, not because Taiwan's exports are less competitive.⁴¹

Some Taiwan enterprises argue that the Taiwan government's restrictions on the "three direct links"⁴² and its policy of "no haste, be patient"⁴³ lessen their competitiveness. Therefore, Taiwan's own government might be one of the important reasons for making Taiwan's enterprises compete at a disadvantage in the international market.⁴⁴

X. Conclusion

According to China's statistics, as of June 1999 Taiwan's cumulative realized FDI in

⁴⁰ Chen-yuan Tung, "General Analysis of the Economic Relations between Taiwan and China---- The Tradeoff between Economics and Security," Paper for delivery at the 14th annual conference of the Association of Chinese Political Studies on China Entering the New Millennium in Washington, D.C. on November 6-7, 1999, pp. 38, 41. Chen-yuan Tung, "Trilateral Economic Relations among Taiwan, China, and the United States", *Asian Affairs: An American Review*, Vol. 25, No. 4, Winter 1999, pp. 220-235.

⁴¹ Ya-Huei Yang et. al., "The Adjustment and Upgrading," p. 15.

⁴² Refer to direct links in mail, transportation and trading between Taiwan and China.

⁴³ Refer to a policy of constrained economic exchange between Taiwan and China adopted by Taiwan since 1996, especially limiting some categories and scale of Taiwan's investment in China.

⁴⁴ As early as December 1993, Economics Minister P. K. Chiang, with support of the minister of transportation and communication, publicly advocated establishing direct shipping links between Taiwanese and Chinese ports on the grounds that it would reduce transportation costs and make Taiwan's industries more competitive. Ralph N. Clough, *Cooperation or Conflict in the Taiwan Strait ?* (Lanham,

China was \$22.5 billion. According to Taiwan's Mainland Affairs Council's estimate, trade between Taiwan and China reached \$24 billion in 1998. Many concerns arise from the complex process of Taiwan's globalized economic development, and are exacerbated by the political confrontation between Taiwan and China. However, these concerns are not realized so far. This article argues that Taiwan's investment in China is a part of the global division of labor and provides an interim assessment of its impact on Taiwan's economic development. It concludes that Taiwan's investment in China has a net positive contribution to Taiwan's economic development.

This article analyzes seven major concerns voiced in Taiwan about cross-Strait economic exchange using empirical evidence. Cross-Strait economic exchange driven by Taiwan's FDI did contribute positively to Taiwan's balance of payments and did not crowd out domestic investment. From 1991 to 1997 Taiwan's FDI in China contributed \$4.6 billion net foreign exchange on average every year for Taiwan's balance of payments. When Taiwan's entrepreneurs conducted outward investment, except for a few small-medium enterprises that reduced or closed domestic production and thus reduced domestic investment, the majority of enterprises expanded both the FDI and domestic investment simultaneously.

In addition, Taiwan's FDI in China helped domestic industrial upgrading and did not lead to industrial hollowing-out. The expanded demand for intermediate and capital goods by the small-medium enterprises which invested overseas (including in China) led to the expanded output of these goods produced by Taiwan's large enterprises. This new international (inter-firm) labor-division had considerable benefits for Taiwan's industrial

Maryland: Rowman & Littlefield Publishers, Inc., 1999), p. 41.

upgrading. Furthermore, intra-firm division of labor exists: Taiwan's MNCs produce superior or more value-added goods while their subsidiaries in China manufacture labor-intensive products. The more efficient reallocation of resources in Taiwan triggered by the outward investment also contributed to Taiwan's industrial upgrading. As for FDI of capital- and technology-intensive industries, Taiwan's investment style is similar to the FDI experience of developed countries. This expansionary FDI contributes positively to Taiwan's economic development, especially to industrial upgrading. Finally, Taiwan's industries are still strongly competitive, and there is no so-called "hollowing-out."

Taiwan's FDI in China did not increase unemployment and worsen wage inequality from the mid-1980s to the mid-1990s. From 1987 to 1994, when the migration of labor-intensive industries was at its peak, Taiwan's average unemployment rate was 1% lower than it was from 1982 to 1986 or from 1995 to 1998. Further, the ratio of wage inequality in Taiwan fell from 0.84 in 1987 to 0.56 in 1995 and 0.62 in 1996.

Finally, China and Taiwan did not compete head-to-head in the international market because they basically produced different types of products. There was some competition between Taiwan-funded enterprises in China and enterprises in Taiwan. At the same time, Taiwan's shifting position in the global labor-division explains why Taiwan's market share in developed countries is shrinking.

Appendix

(Table 1) Taiwan's FDI by Region or Country

unit: \$million

	1952-1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
China ^a	n.a.	n.a.	n.a.	n.a.	n.a.	174	247	3168	962	1093	1229	4334	11208
SEACs ^b	62	15	53	277	520	707	300	364	297	294	422	411	3722
The US	163	70	123	509	429	298	193	529	144	248	271	547	3524
Europe	4	2	12	2	96	60	46	256	22	60	12	59	630
Japan	1	3	2	0	2	3	5	63	23	8	7	32	151
Others	42	15	29	143	505	588	343	449	1131	747	1453	1845	7287
Total	272	103	219	931	1552	1830	1134	4829	2579	2450	3394	7228	26522

Note: a: excluding Hong Kong

b: including Philippines, Indonesia, Thailand, Malaysia, and Vietnam.

Source: Investment Commission, Ministry of Economic Affairs (ROC), *Statistics on Overseas Chinese & Foreign Investment, Outward Investment, Outward Technical Cooperation, Indirect Mainland Investment, Guide of Mainland Industry Technology, May 97 and October 98.*

(Table 2) The income of Taiwan's Outward Investment

unit: \$million

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Average
Direct investment	263	261	10	-3160	-5347	-3913	-734	-1088	-1694	-1265	-1424	-1979	-2974	-1772.6
FDI outflow	-79	-65	-705	-4121	-6951	-5243	-2005	-1967	-2611	-2640	-2983	-3843	-5222	-2956.5
FDI inflow	342	326	715	961	1604	1330	1271	879	917	1375	1559	1864	2248	1183.9
Portfolio investment	-46	71	-372	-1712	-902	-1006	45	444	1067	905	493	-1112	-8283	-800.6
Assets	0	-4	-363	-1171	-967	-937	-741	-705	-1332	-1997	-2236	-4368	-6729	-1657.7
Liabilities	-46	75	-9	-541	65	-69	786	1149	2399	2902	2729	3256	-1554	857.1
Investment income, credit	2115	2875	3759	5260	6598	6878	7300	7327	6674	7007	7977	7586	7857	6093.3
Investment income, debit	-1000	-892	-1478	-1860	-2775	-2490	-2282	-2549	-2338	-2869	-3675	-3349	-4396	-2457.9
Net investment income	1115	1983	2281	3400	3823	4388	5018	4778	4336	4138	4302	4237	3461	3635.4

Steps of estimation as following:

A: 1987 as base year, assume the income of the investment taken place before 1987 is \$2875 million per year after 1987.

B: Cumulative direct investment was \$38291 million from 1987 to 1997; portfolio investment assets was \$21546 million; total cumulative outward investment was \$59837 million.

C: Total investment income (credit) was \$74223 million from 1987 to 1997.

D: Net investment income (subtracting investment income for the investment before 1987) was \$42598 million ($74223 - 2875 \times 11$) from 1987 to 1997.E: Every dollar of outward investment from 1987 to 1997 was \$0.71 ($=42598/59837$).F: The annual average income of direct investment was \$2478.1 million ($=[0.71 \times 38291]/11$) from 1987 to 1997.Source: Economic Research Department, The Central Bank of China (Taiwan), *Balance of Payments Quarterly*, February 1999.

(Table 3) The Impact of Taiwan's FDI in China on Its Balance of Payment

unit: \$millions

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total	Average ^e
A: Taiwan's FDI in China ^a	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-869	-1050	-3139	-3391	-3162	-3475	-3289	-18375	-2625
B: Investment income ^b	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	617	746	2229	2408	2245	2467	2335	13046	1864
C: Taiwan's trade surplus with China ^c	870	667	937	1764	2745	3629	6368	9429	12890	14164	16342	17668	18540	106013	13629
D: Taiwan's exports to China ^c	986.8	811	1227	2242	3332	4395	7494	10548	13993	16023	19434	20727	22455	123668	15811
E: the FDI-driven Exports with the ratio of 34% ^d	336	276	417	762	1133	1494	2548	3586	4758	5448	6608	7047	7635	42047	5376
F: Impact on Taiwan's Balance of Payment ^f	336	276	417	762	1133	1494	2296	3282	3847	4464	5691	6039	6681	36718	4614

Note:a:Use China's statistics about Taiwan's realized investment; the 1991 figure includes the investment before 1991.

b:See Figure 2. The income per dollar of investment is \$0.71.

c:According to the estimate of Taiwan's Mainland Affairs Council.

d:According to the 1993 estimate of the Chung-hua Institution for Economic Research.

e:From 1991 to 1997.

f:A+B+E

Source: Taiwan Economic Institute, *Cross-Strait Economic Statistics Monthly*, No. 73, September 1998.

Economic Research Department, The Central Bank of China (Taiwan), *Balance of Payments Quarterly*, February 1999.

Chung-Hua Institution for Economic Research, *Cross-Strait Economic Yearbook: Cross-Strait Economic Relations*, May 1993.

(Table 4) Taiwan's FDI and Industrial Upgrading

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
Taiwan's FDI in non-China areas (\$million)	n.a.	n.a.	n.a.	n.a.	272a	103	219	931	1552	1656	887	1661	1617	1357	2165	2894	n.a.	15314
Taiwan's FDI in China (\$million)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	174	247	3168	962	1093	1229	4334	n.a.	11208
Taiwan's total FDI (first and second items) (\$million)	n.a.	n.a.	n.a.	n.a.	272	103	219	931	1552	1830	1134	4829	2579	2450	3394	7228	n.a.	26522
The share of the industrial output of heavy-chemical and technological industries to total output (%)	56.5	58.4	59.5	59.5	60.2	61.1	64.3	64.9	65.8	66.8	67.5	69.2	70.5	73.3	74	76.5	77.5	n.a.
The share of the exports of heavy-chemical and technological industries to total exports (%)	49.8	51.2	53.6	54.3	54.9	57.2	61.3	62.5	64.3	64.8	68.2	69.2	69.7	69.9	71.3	73.6	74	n.a.
The labor productivities of manufacturing industry (fixed 1991 price)(\$ thousand)	9.6	9.9	10.5	10.8	12.4	15.6	18.2	20.5	21.1	23	24.5	25.9	27.3	29.9	30.8	31	27.8	n.a.
Approved investment by overseas Chinese and foreigners (\$ million)	n.a.	n.a.	n.a.	n.a.	n.a.	7349b	1183	2418	2301	1778	1461	1213	1630	2925	2461	4267	n.a.	28988

Note:a:1952-1986.

b:1952-1987.

Source: Ministry of Economic Affairs (Taiwan), "Biao D-3 Wuoguo Zhizaoye Shengji zhi Hengliang Zhibiao" [Figure D-3 The Measure Index of Taiwan's Upgrading in the Manufacturing Industry], <<http://www.moea.gov.tw/~meco/stat/four/d-3t.htm>>, 1999/5/9 04:01 PM.

Investment Commission, Ministry of Economic Affairs (ROC), *Statistics on Overseas Chinese & Foreign Investment, Outward Investment, Outward Technical Cooperation, Indirect Mainland Investment, Guide of Mainland Industry Technology*, May 97 and October 98.

Table 5

Average Monthly Earnings of Employees by Educational Attainment

unit: NT \$

	1987	1988	1989	1990	1992	1993	1994	1995	1996
Below college (A)	12755	14218	16481	18699	23249	25470	27501	28730	29292
College graduate (B)	23503	24815	28360	31253	37514	41570	43665	44770	47324
Ratio of wage inequality (C)	0.84	0.75	0.72	0.67	0.61	0.63	0.59	0.56	0.62

Note: C=(B-A)/A

Below college includes illiterate, self-educated, primary school, junior and senior high school, senior vocational school.

College graduate includes junior college, college, and graduate school.

Source: Council of Labor Affairs, Republic of China, *Yearbook of Labor Statistics*, 1987--1996.