TAIWAN AS THE ASIA-PACIFIC REGIONAL OPERATIONS CENTRE: ITS SIGNIFICANCE AND PROSPECTS

Kai Ma

INTRODUCTION

From the middle of the 1980s to the late 1990s the Asia-Pacific region exhibited a sparkling picture that attracted attention from people all over the world. The developing countries including Mainland China to the north and Thailand, Malaysia, and Indonesia in Southeast Asia showed extraordinarily high growth rates. Their situation in the decade up to the outbreak of the financial crisis in the summer of 1997 was both extraordinary in their own development history and admired by almost all other regions.

The region has been subject of many studies aimed at identifying the exact factors that push countries into rapid growth. Before the financial crisis, many countries around the world asked the more practical question of how they could accommodate themselves to this economic dynamism so they could prosper along with the rising stars. The answer that a group of Taiwan's scholars and bureaucrats came up with was to make the island the operations centre for the Asia-Pacific region. In 1995 the Taiwan administration announced a major national target with the slogan 'Making Taiwan the Asia-Pacific Regional Operations Centre' (APROC). Despite this bold announcement, few local people know the exact meaning of the term APROC. Project officials in the government claim that it means nothing more or less than the decade-old policy of market liberalisation and internationalisation. If so, the APROC is not worth the publicity efforts at home and abroad, and entrepreneurs will not continue to take it seriously. The bureaucratic slogan must hide a deeper significance that should be analysed to connect the words with the current position of Taiwan's economy and Taiwanese industries in the increasingly global economy.

The first section of this chapter examines the APROC as defined by government officials. The next section describes the economic development of the Asia region over the last decade as a 'megatrend' and relates this trend to Taiwan's experience from 1957 to 1986. Although the relationship needs to be established by further empirical studies, the idea of the connection is outlined here to introduce Taiwan's role as the APROC. The subsequent section describes the mission and chances of Taiwan in the Asia-Pacific region under this megatrend. It discusses what Taiwan needs in order to fulfil this role successfully and makes some suggestions about the future structure of the regional and world economies.

OFFICIAL DEFINITION OF THE APROC

The idea of making Taiwan the APROC was first officially advocated in 1993 by Vincent Siew, then-chairman of the Council for Economic Planning and Development. In a so-called economic revitalisation program aimed at boosting Taiwan's economy, he proposed a long-term goal to make

Taiwan an operations centre for the Asia-Pacific region. Although the concrete details of the regional operations centre were not spelled out, the main idea was that based on its strategic geographic location and economic background, Taiwan could be made a highly open and liberalised economy, so that personnel, funds, information, and merchandise could flow in and out freely. Taiwan could become a manufacturing centre, a financial centre, and a transportation centre for the region, a perfect location choice for international enterprises as their Asia-Pacific regional base.

In order to promote this long-term goal, the revitalisation program included a short-term project to establish an "Asia-Pacific regional operations zone" as a scaled down experiment for the much more ambitious APROC plan. The original reasoning behind the APROC was quite simple. The burgeoning of economic strength in the Asia-Pacific region since the mid-1980s has made it the world's production base. Any company that fails to establish itself in the area faces the greatest danger and, hence, many companies will have to set up operations centres to take care of their business activities in the Asia-Pacific region. With its strategic location, a strong manufacturing base, and well-developed trade and investment network, Taiwan stands out as the ideal candidate to host regional operations for international businesses and to be their gateway to the dynamic East Asian market. The operations zone proposal got no attention at all and the entire economic revitalisation program was soon forgotten.

In 1995, however, the new premier Lien announced that the primary goal of his administration was to establish the APROC, which would be a great reengineering mission to be carried out in three stages lasting beyond the year 2000. The concrete details of the APROC plan were spelled out for the first time with the help of the consulting firm, McKinsey and Company. With the underlying theme of promoting liberalisation and internationalisation of Taiwan's economy, the APROC was defined as a set of six centres: a manufacturing centre, a financial centre, a telecommunications centre, a media centre, a maritime transportation centre, and an air transportation centre. Thus, the faint idea hidden in the 1993 economic revitalisation program took on a clear and specific structure.

The choice of the six specific centres was harshly debated. Some critics of this structure doubted Taiwan's potential to compete with Hong Kong and Singapore as a regional financial and transportation centre. Some argued that Taiwan was too ambitious in aiming to develop all six centres all at once with limited resources. A heavy blow came from Michael Porter of Harvard Business School when he was invited by premier Lien to give a talk on the APROC. Porter bluntly stated that the six-centre plan was inappropriate and that Taiwan should aim at developing only one, a science and technology centre. Since then, although official documents still refer to six centres, the APROC project has mainly focused on liberalisation and internalisation, the old tune of the 1980s. Nevertheless some entrepreneurs and scholars still advocate building Taiwan into a "science and technology island" as a new theme playing along with the old tune.

Certainly, Taiwan should work toward liberalisation and internalisation; the whole world has been moving in this direction for decades. The question is why give this policy a fancy new label like APROC? Were bureaucrats simply trying to mislead the public by promising something imaginative, something able to boost the economy into a new era? If APROC is not just an empty slogan, then it must encompass some concrete activities to lead Taiwan into a new mode. Yet, when officials chose this title and claimed that in essence it meant no more and no less than liberalisation and internalisation, they gave no hint of such specific plans. We must dig out and examine the concrete contents of the APROC idea to understand its significance and to evaluate whether it offers a realisable blueprint for Taiwan to follow into the twenty-first century to re-engineer its economic destiny.

TAIWAN AND THE DEVELOPMENT MEGATREND IN EAST ASIA

During the decade up to 1997 Taiwan's economy was undergoing a dramatic restructuring at the same time that many Asian economies were surging. In only a few years' time Taiwan's export-processing industries, which had pushed the economy energetically forward since the second half of the 1950s by taking advantage of its comparative advantage in cheap labour, were exiled to neighbouring countries such as Thailand, Malaysia, and Mainland China, as Taiwan lost its comparative advantage to those economies. The industries that remained in Taiwan had to fill the gap so that the economy did not collapse. The restructuring of the Taiwan economy and the flourishing of the Southeast Asian economies appear to be closely connected because they occurred simultaneously and involved related activities. In this section we examine the connection more closely.

Taiwan 1957-1987

Taiwan's economy grew at an average rate of around 9.2 percent per year from the 1950s until the 1990s. The growth spurt began with a surge of foreign investment to Taiwan's export-processing industries. Over US$1 million of investment came from Japanese firms in 1958. The amount doubled by 1962, and stood at US$16 million a decade later. American firms acted even more quickly. As early as 1960 U.S. investment, which comprised almost all of private foreign investment in Taiwan, stood at around US$14 million, it surpassed US$35 million in 1965, and reached US$109 million in 1970. Taiwan's exports and imports increased rapidly along with FDI. The US$195 million of exports in 1961 was exactly double the amount in 1954. Exports exceeded US$330 million in 1963, and topped US$1 billion before the end of the 1960s. Imports surged even faster than exports, rising from less than US$300 million in 1960 to over US$800 million in 1967. During the 1960s when FDI, exports, imports, and GNP all grew at a rapid pace the trade deficit reached US$165 million, the largest level in five decades.

Taiwan's Export-oriented Development Strategy

Many factors contributed to Taiwan's extraordinary achievement, but the dominant one must be the adoption of an export-oriented development strategy. The economy's brilliant performance from the late 1950s to the late 1980s almost exactly coincided with that strategy.

Around 1960, the capital-scarce Taiwan economy faced a serious situation. The import-substitution policy had saturated the domestic market for industrial products and the growth rate of the manufacturing sector had dropped to 3.5 percent from double-digit rates. Manufacturing firms competed viciously to protect their market share and they called on the administration to bar new entrants to certain industries. Also, Taiwan needed to find a new source of foreign exchange to settle its swelling trade deficit, because U.S. aid was scheduled to end in the early 1960s.

The only hope was to increase exports, but rice and sugar were the only domestic products competitive in international markets. Taiwan had virtually no comparative advantage in any manufactured goods because it lacked capital and technology. It did have surplus labour due to the improving efficiency of the agricultural sector, however, and world demand for unskilled labour was outpacing supply because advanced economies were booming and because low-cost workers in developing economies were isolated from the world market by communist regimes or government policies. Taiwan took advantage of the shortage of unskilled labour by adopting an export-oriented development strategy. In lieu of exporting surplus workers, Taiwan mobilised their productivity by attracting foreign firms to set up local assembly lines and export the finished products. In 1954 it exempt export goods from taxes and in 1957 it made low-interest loans available as an additional incentive to export firms. The realmomentum came with the 1958 reform in the trade and exchange systems and the "19 -Point Program of Economic and Financial Reform" that began the following year. The surge of foreign investment turned the economy around.

Taiwan's strategy depended on markets in developed countries. Exports to the United States almost doubled from only US$5 million in 1957 (3.5 percent of total exports) to US$9.7 million the next year, and they increased rapidly every year from then on. Exports to the United States exceeded US$115 million in 1966 and they totalled US$278 million in 1968, and they reached US$1.25 billion in 1972 (42 percent of total exports). Moreover, imports increased even faster than exports because Taiwan's export-processing industries depended on advanced economies for machinery, critical parts, and intermediate products. Imports from Japan increased sharply in 1958, when Japan started FDI in Taiwan. They reached US$149 million in 1964 and had increased ten-times by 1973. Machinery was the largest category of imports. Besides leading to an increase in imports, Taiwan's focus on processing and assembly industries, meant that local producers retained only a small portion of the final value of exports. The bulk of value added went to the up-stream suppliers of equipment, parts, and materials, who were mostly in Japan. The division of labour was of course conducive to Taiwan's rapid growth, yet it was Japan that enjoyed the greatest share of benefits.

Restructuring of Taiwan 1987-97 and Relocation to East Asia

In the late 1980s the Taiwan economy faced a new and critical situation. Internal and external pressure led Taiwan to turn away from export-oriented development based on export-processing and to pursue economic liberalisation and industrial upgrading. Under strong pressure from the United States, the currency appreciated from 40 NT dollars per U.S. dollar in 1985 to around 26 NT dollars per U.S. dollar less than four years later. As a result, imports flooded the domestic market as import-substitution policies were weakened. At the same time, the Labour Standards Law passed in 1984 stimulated harsh confrontation between employers and employees. Environmental movements forced firms to undertake higher expenditures for pollution control. A boom in the stock and real estate markets lured thousands of workers from many industries to quit their jobs to earn easy money. It caused labour costs to escalate and simultaneously caused a severe labour shortage. The coincidence of these events took away the competitive edge of Taiwan's export-processing firms. The thirty-year momentum of export-oriented development finally waned, and Taiwan was suddenly pushed into a new era.

The growth momentum did not die, however, it simply migrated to other Asian economies. Although many Taiwanese producers went out of business, many others looked in neighbouring countries for more favourable locations in which to operate. Direct investment from Taiwan to Southeast Asia and Mainland China increased dramatically in the late 1980s (Table 8.1). According to local government statistics, Taiwan's investment in Thailand rose from US$300 million in 1987 to US$842 million the next year and it reached a peak of US$871 million in 1989. Similarly, Taiwan's investment in Malaysia soared from US$47 million in 1987 to US$815 million in 1989 and peaked at about US$2.4 billion in 1990.

Southeast Asia's Export-Oriented Strategy and a Megatrend

During the 1980s many Asian economies initiated export-oriented development strategies similar to Taiwan's. As the first to do so, Thailand enjoyed quick success similar to Taiwan's earlier experience. In the 1980s the Thai Board of Investment aggressively solicited export-oriented FDI, supported by a depreciation of the exchange rate. About 1986, Thailand adopted measures to improve the domestic investment environment and provide tax exemptions and subsidies to FDI in order to develop export-processing industries and utilise its abundance of cheap labour. Malaysia followed Thailand in 1987 and soon began to share in the same success. Between 1986 and 1988, the Malaysian government committed to relaxing state-led industrialisation and providing tax incentives for manufacturing exporters, including promulgating an Investment Act. Canton Province in Mainland China joined this club around the same time, adopting a similar strategy and India also undertook significant economic reforms to welcome FDI.

Foreign direct investment (FDI) poured into the Southeast Asian economies. In Thailand, FDI more than tripled between 1980 and 1988. In Malaysia, FDI approvals jumped from the modest level of around US$0.3 billion in 1980 to US$2 billion in 1988. Exports grew rapidly along with FDI. Thailand's annual exports doubled from around US$7 billion in the first half of the 1980s to US$15.8 billion in 1988, and they exceeded US$20 billion the next year. Thai exports jumped to US$32.5 billion in 1992 and reached a record high of US$54.3 billion in 1995. Malaysia's experience was similar. Malaysia's exports rose from US$11.7 billion, in 1987 to US$20.8 billion the next year, and they almost doubled to US$40.7 billion in 1992. They peaked in 1996 at US$79.6 billion, almost seven times their 1987 value. Imports expanded as fast as exports. Thailand's imports rose from around US$10 billion during the first half of the 1980s to over US$40 billion in 1992 and reached almost US$69 billion in 1996.[1] Malaysia's story is similar. Imports increased from around US$13 billion in the first half of the 1980s to almost US$40 billion in 1992, and doubled to US$79.8 billion just four years later.[2]

Southeast Asia's pattern of export-oriented development strategies, rising FDI, exports, and imports, and rapid economic growth replicated the earlier experience of Taiwan. Similar to Taiwan, these economies focused on the export-processing industries. Labour-intensive export-processing industries such as garments, footwear, toys, and electronics became the most dynamic industries in East and Southeast Asia, and these economies became the world's assembly line. In its influential study, *The East Asian Miracle*, the World Bank credited the active promotion of manufactured exports, more precisely, the export-processing industries, in addition to high investment rates and human capital endowments for the rapid growth of these economies.

Also as Taiwan had done, these economies imported intermediate inputs from more developed economies. Moreover, just as producers of upstream parts and equipment in Japan benefited from the growth of export-processing industry in Taiwan, so would suppliers of inputs to the Southeast Asian economies benefit from the growth of export-processing there. Importantly, these economies significantly increased their imports from Taiwan after Taiwanese producers began relocating production facilities in the late 1980s. For example, in 1987 the year after it started to receiving FDI from Taiwan, Thailand's imports from Taiwan (US$425 million) increased 52 percent (Tables 8.1 and 8.2). Thailand imported more than US$1.1 billion from Taiwan in 1989 and over US$2 billion in 1993, 4.9 times the amount in 1987. Similarly, Malaysia's imports from Taiwan increased 66 percent from 1987 to 1988, 54 percent from 1988 to 1989 and 58 percent from 1989 to 1990. They passed US$1.1 billion in 1990, and reached US$1.67 billion in 1993. Indonesia, the Philippines, and Mainland China had similar patterns of FDI and imports from Taiwan. Taiwan's exports to these Southeast Asian economies consisted almost entirely of manufactured goods, a large part of which was machinery and equipment (Table 8.3), the same items that Japan had exported to Taiwan during the 1960s and 1970s.

The model of FDI-driven, export-processing oriented growth was repeated in Indonesia, the Philippines, and Mainland China in the same period and it was repeated in Vietnam, India, and Cambodia soon after. These economies all showed a similar pattern that as soon as they opened the doors to foreign direct investment to develop the export-processing industries, their imports, exports, and growth rates all rose rapidly. Indeed, this pattern could be called the driving force, or 'megatrend', of the Asia-Pacific region.

THE PROSPECTS FOR THE ASIAN ECONOMIES AND THE ROLE OF TAIWAN

When these other Asian economies applied the export-oriented development strategy conditions were different than they had been for Taiwan. First, unlike Taiwan, the economies of Southeast Asia are not alone. By 1992, almost every Asian economy had adopted an export-oriented strategy and doors are open wide to FDI and intermediate products in almost every country in the region from Mainland China to India. Second, while the shortage of cheap labour on the world market and the fact that Taiwan was a virtual monopsonist (except for Hong Kong and Singapore) for three decades were critical to Taiwan's success, cheap labour is no longer scarce in the 1990s. The available supply of cheap labour on the world market now amounts to about three billion workers compared to the few million in past decades. Thailand, Malaysia, and Canton temporarily benefited for a few years from their position as relative early-comers in the supply of lower wage labour. But harsher competition among economies with surplus labour diminished their advantage bit by bit and shifted the competitive edge to developing countries with even lower wages. The outburst of the Asian financial crisis in Thailand and Malaysia in 1997 was simply a dramatic culmination of this miserable process. The crisis clearly indicates that the trend for the other East Asian economies is not as smooth as the pattern of Taiwan's experience.

The Asian economies face a different world economic structure than Taiwan faced at a similar point in its development. In the late 1990s the international division of labour between assemblers and up-stream producers that once involved mainly Taiwan and Japan now includes a much larger number of economies in the Asia-Pacific region and extends well beyond the region. Asian economies with a combined population in the billions now compete with each other to play the role of low-wage assembler of labour-intensive export products that Taiwan filled in the 1950s. Moreover, as they accepted FDI to develop their export-processing industries these Asian economies became linked to worldwide markets as the globalisation movement progressed in the last decade. Their huge supply of cheap labour will affect the world economic order, the global labour and capital markets, and economies within as well as outside of the region. Each country has to find a role and a place in this framework and take advantage of the megatrend to the greatest extent possible.

In order to succeed in export-oriented development based on export processing industries, East Asian economies need more than technology, capital, parts, and materials. They need

- entrepreneurs to connect the ever-increasing cheap unskilled labour to sophisticated manufacturing and marketing techniques. Industrial and commercial technologies have progressed so quickly that they are beyond the reach of newcomers to handle directly.

- mediators to transfer not-too-advanced technologies from the more advanced countries to the assemblers. (The way the Japanese entrepreneurs around 1960, transferred the not-too-advanced technologies and facilities to Taiwan to help develop Taiwan's export-processing industries).

- access to low-cost, appropriate machinery, parts, and material inputs. If up-stream producers located too far away from the export-processors the transportation cost is too high, either in time or money. Up-stream firms that lack experience are inefficient in the manufacturing and transporting businesses.

- entrepreneurs to develop commodities to suit market demand, to promote and market these products, to improve technologies, to rationalise production procedures, and to procure inputs. Such entrepreneurs effectively minimise transactions costs and expand world demand for processed products to accommodate the expansion of supply.

At one time Japanese entrepreneurs filled all these roles for Taiwanese export processors. Indeed, Japan could be described as the operations centre for Taiwan's export-processing industries. With abilities accumulated over four-decades of experience Taiwan is aiming to step into the position that Japan had in the 1950s. Taiwan aims to be the provider not only of up-stream materials, equipment, and parts, but also of know-how, marketing channels, brand names, financial support, and technologies. The role of regional operations centre is even more necessary and certainly more important today, when billions of people are competing to take Taiwan's place as export-processor. In short, Taiwan wants to be the APROC. This is the fundamental sense in which Taiwan aims to be the APROC.

Any economy that relies on export-processing industries to drive development has a strong motive to substitute domestically sourced parts and materials for up-stream inputs produced abroad. Such substitution not only allows the country to capture more added value and save time wasted in transportation, but also it enhances economic sovereignty and promotes upgrading the industrial structure. But it is difficult for such an economy to develop domestic upstream industries for two reasons. First, an economy that relies on the labour-intensive export-processing industries must lack capital and skilled personnel that are needed by capital- and technology-intensive up-stream industries. Processing industries do not add sufficient value to allow an economy to accumulate the minimum capital and technology required for up-stream industries, unless it has a large enough market share of exported goods to generate relatively abundant profits. Second, it takes time to establish up-stream industries. It takes a lot of time to acquire sophisticated know-how, to train appropriate personnel, and to climb up the ladder from the production of parts and material that are relatively simple in technical know-how and much less capital-intensive. Only if a country can stick to this course for a sufficiently long period can it reach a relatively high level and rely upon up-stream industries to support the upgrading of the economy.

Starting from the end of the 1950s to the end of the 1980s, Taiwan worked hard step-by-step to substitute locally made products for imported parts and material. Both quality and technology have improved continuously. Fortunately for Taiwan, its position as the sole supplier of low-cost labour-intensive goods for 30 years provided the extra resources it needed to invest in physical and human capital to upgrade from very low-end export-processing industries to more capital-intensive and technology-intensive up-stream ones.

After 1986, when more and more developing countries in East Asia with much cheaper labour began competing to create export-processing industries, Taiwan lost the industries that had supported the economy so vigorously. Taiwan's manufacturing output and export value continued to grow.

The up-stream industries that were supporting domestic down-stream partners are now supporting down-stream processors throughout East and Southeast Asia. Taiwan has automatically moved into the role of a regional operations centre since then, and is growing stronger along the time.

There is another dimension to the role of regional operations centre. The production procedure can be divided into many stages, from acquiring materials, hiring labour, establishing the factory, designing the appropriate process, to the research and development in technologies, know-how, to the design and marketing of the products. These activities do not need to be carried out in a single location or by a single firm. The mission of a capable entrepreneur is to locate each input--the labour, material, technical equipment--at the lowest cost, with greatest efficiency.

During the last decade, when Taiwanese export-processing enterprises shifted production to Thailand, Malaysia, Canton and other developing countries in East and South Asia, they typically continued to handle all their operations except the actual processing in Taiwan. In other words, these entrepreneurs made Taiwan their regional operations centres. As more and more entrepreneurs in the up-stream industries in the electronics and information industries join this group, they together are making Taiwan an important APROC.

Facing this energetic reshuffling situation, Taiwan's prospects for becoming a true and/or significant APROC depend on a number of factors. First Taiwan needs to strengthen the necessary conditions, such as the competitiveness of the up-stream manufacturing industries, the expansion and improvement of marketing channels, and the soundness and efficiency of its financial system. Second, it must offer as sufficient and efficient infrastructure as do Singapore, Hong Kong, and Japan. Third, Taiwan's decision-makers must have a proper understanding of the future of the Asia-Pacific economy. They must recognise that the way to fully utilise Taiwan's comparative advantages as the APROC is to allow more capital and firms to move to cultivate the neighbouring economies. Last, but not least, Taiwan's decision-makers have to predict the impact of such a revolutionary leap onto the future structure of the world economy in the century to come. The over-supply of cheap labour, the increasing scarcity of physical and human capital, the collapsing labour costs, the declining prices of processed products are all woven into a new web that covers the entire world. Most of what we know today will change significantly in the coming years. Without correct foresight, not only will Taiwan's chances to become the APROC be slim, but also Taiwan's own economic prospects would be dim.

CONCLUSION

Although the term "making Taiwan the Asia-Pacific Regional Operations Centre", the brainchild of scholars and bureaucrats, is not well defined, the phenomenon it describes is the natural outcome of the economic progress in Taiwan and in the Asia-Pacific region over the last half-century. The development strategy followed by Taiwan for almost three decades from the late 1950s has a significant connection to this phenomenon. On one hand it forced Taiwan to relocate production facilities to neighbouring economies. At the same time it helped Taiwan to upgrade from a major supplier of labour-intensive export-processing products to supplier of parts, equipment, and material for down-stream export-processing industries and to offer operations headquarters functions.

As the export-oriented strategy spread to almost all the developing economies in the Asia-Pacific region during the 1990s, a megatrend encompassing half of the world's population emerged. This megatrend will continue to play out in the rest of the world for many decades to come. Through its physical location at the centre of the Asia-Pacific region and its structural position in the megatrend of regional economic development, Taiwan has already become an APROC. Taiwan must use this position effectively so it can enjoy an era of development as glorious as the three decades following the late 1950s.

Notes

1. At the same time, Thailand's trade deficit increased to US$8.2 billion in 1992 from less than US$3 billion in 1982. Many analysts have cited Thailand's US$15 billion deficit for 1996 as one cause of the currency crisis.
2. Malaysia's trade deficit rose from almost zero in the first half of the 1980s to more than US$2.3 billion in 1991. Although the imbalance was smaller than in Thailand Malaysia's trade deficit reached almost US$4.2 billion in 1995.

References

In English:

Borensztein, E., J. De Gregorio, and Lee Jong-Wha. 1995. "How Does Foreign Direct Investment Affect Economic Growth?" Working Paper No.5057. National Bureau of Economic Research (NBER).

Chiu, Lee-in Chen. 1997. Toward an Interregional Integration of Habitat, Production and Ecosystem: Developing Taiwan into a Regional Operations Centre. *Industry of Free China* 41-78.

Chou, Tein-Chen. 1985. The Pattern and Strategy of Industrialization in Taiwan: Specialization and Offsetting Policy. *The Developing Economics* 23(2): 138-57.

Choudhury, Masudul Alam. 1999. Global Megatrends and the Community. *Asian Economic Revie*, 41(1): 43-58.

Collins, S. M. and B. P. Bosworth. 1996. "Economic Growth in East Asia: Accumulation versus Assimilation," *Brookings Papers on Economic Activity* 2:135-203.

Gunasekera, H. and Don B. H. 1989. Intra-industry Specialization in Production and Trade in Newly Industrializing Countries: A Conceptual Framework and Some Empirical Evidence from East Asia. *World Development* 1(8): 1279-87.

Hill, H. and P-C. Athuborala. 1998. Foreign Investment in East Asia. *Asian-Pacific Economic Literature* 12(2): 29-50.

Manning, Chris. 1999. Labor Markets in the ASEAN-4 and the NIEs. *Asian-Pacific Economic Literature* 13(1):50-68.

Radelet, S. and G. Sachs. 1998. The East Asian Financial Crisis: Diagnosis, Remedies and Prospects. *Brookings Papers on Economic Activity.* Vol. 1:1-90.

Ranis, Gustav, ed. 1992. *Taiwan: From Developing to Mature Economy*. Oxford: Westview Press.

Schive, Chi. 1994. Regional Operations Center and the ROC Economy in the 1990s. *Industry of Free China* April: 43-53.

Siew, Vincent C. 1994. The Changing Role of Taiwan in East Asian Economic Grouping. *Industry of Free China* April: 23-27.

Smith, H. 1995. Industry Policy in East Asia. *Asian-Pacific Economic Literature* 9(1): 17-19.

World Bank. 1993. *The East Asian Miracle: Economic Growth and Public Policy.* New York: Oxford University Press.

In Chinese:

Ma, Kai. 1994. "The Retrospect and Prospect of Taiwan's Economy." *Economic Outlook*, 9(1): 59-64.

__________. 1995. "Making Taiwan the APROC: Dream Comes True." *Economic Outlook* 10(5):10-15.

Pang, L. W. 1996. "An Evaluation of the Prospects of Three International Financial Centres: Taipei, Hong Kong and Shanghai." *Industry of Free China* December: 19-34.

Tu, Jen-hua and Chi Schive. 1995. *Theory and Practice of an Asia-Pacific Regional Operations Centre*. Taipei: Hua-Tai Publishing.

TABLE 8.1
Taiwan's Investment in ASEAN and Mainland China, 1987-99

	Thailand		Malaysia		Philippines		Indonesia		Mainland China	
	US$ million	Number	US$ million	Number	US$ million	Number	US$ million	Number	US$ million	Number
1987	5.4	5	5.8	5	2.6	3	1.0	1		
1988	11.9	15	2.7	5	36.2	7	1.9	3		
1989	51.6	23	158.6	25	66.3	13	0.3	1		
1990	149.4	39	184.9	36	123.6	16	61.9	18		
1991	86.4	33	442.0	35	1.3	2	160.3	25	174.1	237
1992	83.3	23	155.7	17	1.2	3	39.9	20	247.0	264
1993	109.2	19	64.5	18	6.5	12	25.5	11	3,168.4	9,329
1994	57.3	12	101.1	17	9.6	10	20.6	12	962.2	934
1995	51.2	15	67.3	13	35.7	17	32.1	8	1,092.7	490
1996	71.4	9	93.5	12	74.3	20	82.6	13	1,229.2	383
1997	57.5	13	85.1	13	127.0	11	55.9	22	4,334.3	8,725
1998	131.2	23	19.7	14	38.8	6	19.5	15	2,034.6	1,284
1999	112.7	12	13.7	10	29.4	9	7.3	5	1,252.8	488

Source: Investment Commission, Ministry of Economic Affairs, R.O.C. *Statistics on Overseas Chinese and Foreign Investment, Outward Investment, Outward Technical Co-operation, Indirect Mainland Investment, Guide of Mainland Industry Technology.*

TABLE 8.2
Taiwan's Trade with ASEAN and Mainland China, 1987-99

US$ million

	Thailand		Malaysia		Philippines		Indonesia		Mainland China	
	Exports	**Imports**	**Exports**	**Imports**	**Exports**	**Imports**	**Exports**	**Imports**	**Exports**	**Imports**
1987	424.6	200.4	272.1	729.0	459.7	194.4	445.5	567.2	1,227	289
1988	753.7	341.9	451.1	943.4	601.4	242.3	632.6	613.4	2,242	479
1989	1,110.2	390.2	694.8	887.5	778.1	238.5	934.1	706.2	2,897	587
1990	1,423.6	448.0	1,103.6	1,003.0	811.4	236.3	1,245.8	921.6	3,278	765
1991	1,444.9	586.1	1,464.9	1,409.4	848.0	235.3	1,207.2	1,234.3	4,667	1,126
1992	1,809.6	824.6	1,600.3	1,829.2	1,023.3	305.2	1,214.8	1,407.3	6,288	1,119
1993	2,019.0	973.0	1,671.8	1,938.9	1,031.1	364.8	1,284.5	1,624.0	7,585	1,104
1994	2,440.2	1,108.8	2,224.2	2,326.9	1,222.5	460.7	1,433.0	21,14.4	8,517	1,292
1995	3,071.7	1,485.3	2,898.6	2,953.7	1,653.6	623.2	1,868.9	2,150.4	9,883	1,574
1996	2,789.6	1,671.7	2,953.7	3,565.2	1,931.2	840.3	1,955.3	1,884.5	9,718	1,582
1997	2,562.1	1,926.9	3,035.5	4,228.3	2,242.5	1,374.6	2,133.8	2,184.7	9,715	1,744
1998	1,925.8	1,967.7	2,285.9	3,623.0	1,934.3	1,823.0	1,048.9	2,101.1	8,365	1,655
1999	2,104.5	2,383.4	2,848.1	3,882.0	2,611.4	2,172.5	1,298.6	2,291.4	8,175	1,628

Source: Ministry of Finance, R.O.C., *Monthly Statistics of Exports*, Taiwan Area, the Republic of China, various issues.

TABLE 8.3
Composition of Taiwan's Exports to ASEAN Countries, 1981-91

(Percent)

	Machinery and Transportation Equipment					Manufactures				
	1981	**1985**	**1988**	**1990**	**1991**	**1981**	**1985**	**1988**	**1990**	**1991**
Singapore	32.12	25.76	47.16	51.96	51.86	88.97	85.10	94.83	96.82	95.86
Malaysia	32.45	35.47	49.93	52.78	52.78	91.44	89.50	95.20	97.23	97.38
Thailand	40.80	26.55	51.24	45.04	45.04	89.09	72.68	91.18	91.57	93.09
Indonesia	40.53	38.51	41.87	45.25	45.25	80.73	82.12	85.43	92.33	93.13
Philippines	18.50	14.70	26.74	26.55	26.55	71.63	86.81	89.64	93.33	93.60
Total	33.01	27.40	42.59	46.72	46.72	84.32	83.74	92.00	94.55	94.91

Notes: Machinery and Transportation Equipment is SITC code 7; Manufactures includes SITC codes 5, 6, 7, 8. Figures are ratios of exports of listed products from Taiwan to ASEAN (excluding Brunei) over Taiwan's total exports.
Source: OECD.