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Trade and Investment: East Asian Strategies for Economic Growth

Introduction

For the last thirty years East and Southeast Asia (hereafter referred to as East Asia, which includes ANIEs4 [Asian newly industrialized economies],¹ ASEAN4,² China, and Japan) experienced rapid economic growth, led primarily by exports. Foremost, ANIEs4's policy shift from an inward-looking orientation to an outward-looking one at its early stage of development, along with its continuous emphasis on investment and exports in the manufacturing sector, brought about one of the most unprecedented economic performances in recent history. An investment-cum-exports development strategy was the salient characteristic of this success.

However, economic liberalization did not take place at once. In East Asia, particularly in the Republic of Korea and Taiwan, it was a step-by-step process, as the domestic economic structures prepared for it. The policy shifts from import substitution to export promotion during the 1960s were the first step toward liberalization. The liberalization process expanded during the 1970s through the further opening up of trade and investment because the domestic economy showed steady growth due to a smooth transition from agriculture to industry, and because of the virtuous circle between investment and exports. External factors such as the United States decision to cut its aid to Korea and Taiwan, the Vietnam War, and the oil shock, also triggered structural adjustments that furthered the outward orientation.

During the 1980s, another round of external shocks—such as the second oil shock, the external debt crisis, and above all, the exchange rate adjustments against the U.S. dollar—made the region's transformation spurt. Internal factors, especially the changing labor market condition, also required a fundamental change in economic structure.

Thus, as learnt from East Asia's experience, to be internationally competitive, lib-

eralization is the only way. The structural adjustments caused by the drastic internal and external changes, particularly the relative factor prices and exchange rates, led to the dramatic changes in trade and investment flows. New investment flows to the ASEAN4 countries and to China during the late 1980s drastically changed their trade patterns. A new form of economic integration through investment between ANIEs4 and ASEAN4, and between ANIEs4 and China, created one of the most powerful export bases in world trade. An international division of labor was established in the region with ASEAN4 and China primarily serving as parts and semi-finished goods producers, with ANIEs4 also working as finished goods producers, and Japan serving as a capital goods supplier as well as consumer market. Intra-industry trade also increased because of differentiated products in terms of standardized goods such as apparel and electric domestic appliance products.

Although many trade constraints remain, the region now offers a rather free market, where intra-regional trade within the region—excluding Japan (i.e., ANIEs4, ASEAN4, and China)—reached 4 per cent of total world trade in 1990. This contrasts sharply with Latin America's 0.5 per cent share the same year.

This trade openness led to an efficient economic structure because international markets sent signals to producers regarding cost and quality. Technology was one of the essential elements in the drive to produce high-quality products. In this context, foreign direct investment (FDI) played a vital role in the introduction of new technology and management know-how. Apart from in-house production methods, the close relationship in East Asia between assemblers and parts suppliers, and between large/medium and small enterprises (subcontracting or supply chains) turned out to be an extremely efficient production system, bringing about remarkable inter-process, inter-industry trade flows in the region. In addition, the transfer of standardized production methods to developing East Asian countries, along with horizontal integration, paved the way to increased trade of differentiated products (i.e., intra-industry trade).

In the meantime, governments developed "indicative" plans to guide their private sectors, following long-term national objectives combined with a rather conservative macroeconomic management strategy. Their intervention, though it differed from country to country, remained within the market mechanism in general.

The first section of this chapter presents an overview of East Asian trade for commodities and manufactured products using trade matrix data. Section 2 deals with the trade and investment policies that led the way from partial to full liberalization. Growth aspects, especially the relationship between exports and investment, will be illustrated in Section 3. East Asia, particularly ANIEs4, emphasized its international competitiveness by exploiting economies of scale, and by catching up in modern technology. Section 4 concentrates on the changes of relative-factor prices and exchange rates that took place during the 1980s. These structural adjustments created new flows of FDI, which then generated new trade flows within East Asia, and between the region and the rest of the world. The role of FDI, and ANIEs4's double role as receptor and transmitter in terms of investment and technology, are especially emphasized.

In Section 5, various industrial organizational aspects are addressed to better understand inter-process and inter-industry transactions as well as production efficiency. Here, the importance of small-scale enterprises and their ties with large-scale assemblers—in other words, the formation of supply chains of supporting industries—is explained. Lastly, the final section draws on several lessons learnt from East Asia's experience, and its implications for economic development.

1. Overview of East Asian Trade

Exports of All Commodities

From 1970 to 1990 the rapid expansion of trade was the salient economic characteristic of East Asia. The region expanded its trade faster than the world average in both exports and imports. Global trade grew at an average annual rate of 13.1 per cent between 1970 and 1990, reaching U.S.\$3,332 billion in 1990. During this period, East Asian exports grew 16.7 per cent annually, reaching U.S. \$699 billion, and its imports grew 16.4 per cent annually, reaching U.S.\$654 billion in 1990. The region's export share reached 21.0 per cent of the world total in 1990, up from 11.3 per cent in 1970.

ANIEs4 and China recorded the highest growth rate for exports, averaging approximately 20 per cent growth per year for twenty years. ANIEs4's expansion was unprecedented. World trade grew at an annual 21.6 per cent rate between 1970 and 1980, then slowed to a 5.3 per cent rate between 1980 and 1990. ANIEs4's trade, on the other hand, expanded at an annual 28.3 per cent rate between 1970 and 1980, and at a 13.1 per cent rate between 1980 and 1990. No other single region in the world experienced this rapid growth in exports. This growth, particularly in the 1980s, was notable since world trade was stagnating during this period. One of the reasons for this rapid expansion was attributable to an increase of exports to East Asia, including ANIEs4 itself. Although the United States was the single largest importer of ANIEs4's products, the U.S. market's share of total ANIEs4 exports decreased from 32.1 to 27.5 per cent (see Table 1–1).

Between 1970 and 1990, intra-regional trade in East Asia expanded from U.S.\$9.8 billion to U.S.\$273 billion. ANIEs4 again contributed to this increase by expanding its trade to the region at an annual rate of 22 per cent. The emergence of trade with China, although small in value, also contributed to the region's expansion. The trade interdependence between ANIEs4 and ASEAN4, and between ANIEs4 and China grew stronger during this period, thus explaining the rapid evolution of trade within the region. East Asia's intra-regional share of world trade amounted to 8.2 per cent in 1990, as compared to 3.5 per cent in 1970.

In trade between Japan and the rest of East Asia, the nine countries of ANIEs4, ASEAN4, and China, Japan's exports accounted for 20 per cent of the region's imports, while Japan absorbed 15 per cent of the region's exports. Japan primarily exported capital goods and high-tech parts, while it imported semi-assembled and assembled goods as well as primary products.³ It is striking that the region's share of

TABLE 1-1
TRADE MATRIX FOR ALL COMMODITIES

From	East Asia					U.S.A.	EC12	World	Share	
	To	Subtotal	Japan	ANIEs4	ASEAN4					China
East Asia	1970	9,771	2,234	4,534	2,379	624	8,949	4,401	31,841	11.3
	1980	94,963	28,264	39,787	19,887	7,025	60,668	39,845	271,147	13.6
	1990	272,969	60,714	133,309	50,201	28,745	186,744	111,325	698,963	21.0
Japan	1970	4,611		2,647	1,395	569	6,015	2,332	19,318	6.8
	1980	33,494		19,303	9,113	5,078	31,649	18,025	129,542	6.5
	1990	84,611		57,226	21,240	6,145	91,120	54,045	287,678	8.6
ANIEs4	1970	1,936	746	502	655	33	2,029	1,021	6,331	2.2
	1980	24,400	7,673	6,990	8,176	1,561	19,025	12,655	76,344	3.8
	1990	103,323	30,005	30,142	22,023	21,153	71,543	37,292	260,651	7.8
ASEAN4	1970	2,367	1,260	851	234	22	904	742	4,512	1.6
	1980	26,634	16,268	8,470	1,510	386	8,833	6,417	47,141	2.4
	1990	45,971	21,382	17,890	5,252	1,447	16,626	13,268	84,116	2.5
China	1970	857	228	534	95		1	306	1,680	0.6
	1980	10,435	4,323	5,024	1,088		1,161	2,748	18,120	0.9
	1990	39,064	9,327	28,051	1,686		7,455	6,720	66,518	2.0
U.S.A.	1970	6,901	4,569	1,486	846	0		11,952	42,590	15.1
	1980	44,501	20,457	14,560	5,735	3,749	55,731	55,731	212,887	10.7
	1990	105,935	48,586	41,759	10,783	4,807	98,035	98,035	393,113	11.8
EC12	1970	3,912	1,410	1,116	931	455	9,612	61,893	116,037	41.1
	1980	22,308	6,617	8,301	4,946	2,444	37,532	381,562	688,113	34.5
	1990	77,301	28,713	29,315	12,545	6,728	96,173	889,742	1,364,346	41.0
World	1970	31,196	16,993	7,990	4,317	1,896	35,956	111,893	282,638	100.0
	1980	287,147	139,892	87,921	39,314	20,020	250,280	768,328	1,993,312	100.0
	1990	654,229	235,307	265,258	98,286	55,378	517,093	1,419,062	3,332,100	100.0
Share '90	19.6	7.1	8.0	3.0	1.7	15.5	42.6	100.0		

Source: AIDXT of the Institute of Developing Economies.

Notes: ANIEs4 comprises Hong Kong, Korea, Singapore, and Taiwan; ASEAN4 comprises Indonesia, Malaysia, the Philippines, and Thailand.

world exports expanded from 4.4 per cent in 1970 to 12.3 per cent in 1990, and that the intra-regional share of world trade grew from 1.0 per cent to 3.8 per cent.⁴

Although Asian countries, especially ASEAN4, have long been considered as primary-product exporting countries, the rapid expansion of trade was mainly achieved from increases in manufactured exports.

Exports of Manufactured Goods

Manufactured exports were calculated by summing the one-digit SITC classification from five to eight. World manufactured trade grew at an amazingly high rate of 13.7 per cent per year between 1970 and 1987, reaching U.S.\$1,839 billion in 1987, or 78 per cent of world trade (see Table 1–2). In 1987, EC12 had the largest share of exports with 42 per cent, followed by East Asia with 24 per cent (in which Japan had 12 per cent), and the United States with 10 per cent. The relative shares of the EC12 and the United States of world manufactured exports decreased as compared with those of seventeen years ago, while East Asia increased its share notably. ANIEs4 experienced the fastest growth of exports at 23.2 per cent per year, followed by ASEAN4 at 22.5 per cent.

The 1987 import structure of manufactured goods shows that EC12 was once again the greatest importer of goods (33 per cent), followed by the United States (16 per cent), and East Asia (12 per cent). ANIEs4 had a 6 per cent share, which substantially surpassed Japan's 3 per cent share. ANIEs4 again recorded the highest growth rate, 19.6 per cent annually, during the period.

The importance of the U.S. market is pronounced. Thirty-six per cent of East Asia's manufactured exports went to the United States, making it the largest market for East Asian manufactured goods. Within the U.S. import structure, East Asia gained the most, expanding its share from 32 per cent in 1970 to 52 per cent in 1987, while EC12 lost ground, going from 34 to 24 per cent during the same period.

In intra-regional transactions, East Asia made up 6.8 per cent in 1987, totaling U.S.\$126 billion, compared to 2.8 per cent in 1970. Of this total, ANIEs4 imported the greatest amount—U.S.\$69 billion—from the region. China, Japan, and ASEAN4 imported approximately the same amount—U.S.\$19 billion each—from the region. On the other hand, the biggest contributor to the region in terms of intra-regional exports was Japan (U.S.\$55 billion), followed by ANIEs4 (U.S.\$47 billion) and China (U.S.\$15 billion). ANIEs4 became an important player in trade, especially with ASEAN4 and China. From 1970 to 1987, bilateral trade between ANIEs4 and China (both exports and imports) expanded 88-fold, and that between ANIEs4 and ASEAN4 grew 25-fold. These facts show that industrial interdependence among countries in the region has been strengthening.

In sum, some distinctive features can be depicted from the manufactured trade in East Asia:

- (a) ANIEs4 emerged as a vital exporter of manufactured goods;
- (b) ASEAN4 and China expanded their exports remarkably, although their value is not yet large;

TABLE 1-2
TRADE MATRIX FOR MANUFACTURED GOODS

(U.S\$ million)

From	To	East Asia					U.S.A.	EC12	World
		Subtotal	Japan	ANIEs4	ASEAN4	China			
East Asia (subtotal)	1970	5,945	501	3,053	1,833	558	7,929	3,066	24,672
Share	1987	125,945	18,855	69,286	18,660	19,144	156,452	69,336	432,889
Imp. Exp.	1970	39 24	10 2	61 12	59 7	29 2	32 32	5 12	12 100
Imp. Exp.	1987	56 29	34 4	66 16	61 4	59 4	52 36	11 16	24 100
	1987/1970	21.2	37.6	22.7	10.2	34.3	19.7	22.6	17.5
Japan	1970	4,232		2,368	1,309	555	5,833	2,128	18,270
Share	1987	55,014		37,779	9,213	8,022	83,647	37,564	225,228
Imp. Exp.	1970	28 23		47 13	42 7	29 3	24 32	3 12	9 100
Imp. Exp.	1987	25 24		36 17	30 4	25 4	28 37	6 17	12 100
	1987/1970	13.0		16.0	7.0	14.5	14.3	17.7	12.3
ANIEs4	1970	1,129	326	355	445	3	1,845	697	4,566
Share	1987	46,881	13,609	14,545	8,025	10,702	60,798	24,189	158,927
Imp. Exp.	1970	7 25	6 7	7 8	14 10	0 0	8 40	1 15	2 100
Imp. Exp.	1987	21 29	24 9	14 9	26 5	33 7	20 38	4 15	9 100
	1987/1970	41.5	41.7	41.0	18.0	3,567.3	33.0	34.7	34.8
ASEAN4	1970	222	117	79	26	0	250	132	713
Share	1987	9,149	2,606	5,270	853	420	6,695	3,801	22,465
Imp. Exp.	1970	1 31	2 16	2 11	1 4	0 0	1 35	0 19	0 100
Imp. Exp.	1987	4 41	5 12	5 23	3 4	1 2	2 30	1 17	1 100
	1987/1970	41.2	22.3	66.7	32.8	420.0	26.8	28.8	31.5
China	1970	362	58	251	53		1	109	1,123
Share	1987	14,901	2,640	11,692	569		5,312	3,782	26,269
Imp. Exp.	1970	2 32	1 5	5 22	2 5		0 0	0 10	1 100
Imp. Exp.	1987	7 57	5 10	11 45	2 2		2 20	1 14	1 100
	1987/1970	41.2	45.5	46.6	10.7		5,312.0	34.7	23.4
U.S.A	1970	3,438	1,971	913	554	0		8,227	30,840
Share	1987	37,884	15,266	15,076	4,782	2,760		44,354	192,153
Imp. Exp.	1970	23 11	38 6	18 3	18 2	0 0		12 27	15 100
Imp. Exp.	1987	17 20	27 8	14 8	16 2	8 1		7 23	10 100
	1987/1970	11.0	7.0	16.5	8.6	2760.0		5.4	6.2
EC12	1970	3,506	1,228	1,009	840	429	8,271	47,134	93,910
Share	1987	40,251	13,190	15,634	5,477	5,950	72,633	438,644	780,572
Imp. Exp.	1970	23 4	24 1	20 1	27 1	22 0	34 9	70 50	45 100
Imp. Exp.	1987	18 5	23 2	15 2	18 1	18 1	24 9	71 56	42 100
	1987/1970	11.5	10.7	15.5	6.5	13.9	8.8	9.3	8.3
World	1970	15,216	5,152	5,032	3,120	1,912	24,463	67,705	208,801
Share	1987	224,519	56,235	104,958	30,679	32,647	302,863	614,963	1,839,306
Imp. Exp.	1970	100 7	100 2	100 2	100 1	100 1	100 12	100 32	100 100
Imp. Exp.	1987	100 12	100 3	100 6	100 2	100 2	100 16	100 33	100 100
	1987/1970	14.8	10.9	20.9	9.8	17.1	12.4	9.1	8.8

Source: The same as Table 1-1.

Notes: Manufactured goods: SITC 5-8.

- (c) intra-regional trade expanded at an unprecedented rate, particularly between ANIEs4 and ASEAN4, and between ANIEs4 and China;
- (d) Japan played the role of supplier of capital and intermediate goods for Asian countries, and the United States provided a huge market for their manufactured goods.

High-Tech Composition

One of the characteristics of East Asian trade was its high concentration of manufactured exports to total exports. The United Nations Economic Commission for Latin America and the Caribbean (ECLAC) [66] calculated for selected countries the composition of exports in three categories: primary products, semi-manufactured products, and manufactured products.⁵ According to this survey, the export share of industrial products (i.e., semi-manufactured products and manufactured products) for ANIEs4 (excluding Taiwan) exceeded 95 per cent in 1989 (see Table 1-3-1). Looking specifically at manufactured exports in 1989, the shares for Korea and Hong Kong were 91 and 94 per cent respectively, while for Singapore it was 68 per cent. The Korean case is dramatic, increasing from 16 per cent in 1962 to more than 90 per cent in 1989. As will be explained later, Korea and Taiwan switched their trade

TABLE 1-3-1
EXPORT COMPOSITION: ANIEs

(%)

		Primary Products (1)	Semi- manufac- tured Products (2)	Manufac- tured Products (3)	High- Tech Products in Total (4)	Industrial Products (2)+(3) (5)	Other Products 100 - (1) - (5) (6)	Total (7)
Hong Kong	1962	1.5	5.8	91.2	4.1	97.0	1.5	100.0
	1970	1.1	2.2	95.9	11.5	98.1	0.8	100.0
	1980	1.2	1.9	95.3	18.0	97.2	1.6	100.0
	1989	0.4	3.2	94.3	24.0	97.5	2.1	100.0
Korea	1962	71.9	11.5	16.4	2.1	27.9	0.2	100.0
	1970	20.1	15.5	64.0	6.7	79.5	0.4	100.0
	1980	6.0	10.4	83.3	13.2	93.7	0.3	100.0
	1989	3.3	5.8	90.6	24.4	96.4	0.3	100.0
Singapore	1962	43.4	28.8	24.3	2.7	53.1	3.5	100.0
	1970	33.6	37.7	25.4	5.6	63.1	3.3	100.0
	1980	12.4	39.9	40.2	19.2	80.1	7.5	100.0
	1989	5.1	25.6	67.8	40.2	93.4	1.5	100.0
Mean ^a	1962	38.9	15.4	44.0	3.0	59.3	1.7	100.0
	1970	18.3	18.5	61.8	7.9	80.2	1.5	100.0
	1980	6.5	17.4	72.9	16.8	90.3	3.1	100.0
	1989	2.9	11.5	84.2	29.5	95.8	1.3	100.0

Source: [66].

^a The simple average of the three countries.

TABLE 1-3-2
EXPORT COMPOSITION OF ASEAN4

(%)

		Primary Products (1)	Semi- manufac- tured Products (2)	Manufac- tured Products (3)	High- Tech Products in Total (4)	Industrial Products (2)+(3) (5)	Other Products 100 - (1) - (5) (6)	Total (7)
Indonesia	1962	70.5	29.1	0.3	0.1	29.4	0.1	100.0
	1970	86.9	11.6	0.9	0.3	12.5	0.6	100.0
	1980	86.4	11.7	1.8	0.5	13.5	0.1	100.0
	1989	52.0	29.8	18.2	0.8	48.0	0.0	100.0
Malaysia	1962	59.2	32.0	4.2	0.5	36.2	4.6	100.0
	1970	57.4	37.0	4.7	0.7	41.7	0.9	100.0
	1980	52.7	29.9	17.1	10.9	47.0	0.3	100.0
	1988	35.3	23.5	40.6	25.0	64.1	0.6	100.0
Philippines	1962	59.2	39.6	1.1	0.1	40.7	0.1	100.0
	1970	56.6	39.8	3.4	0.1	43.2	0.2	100.0
	1980	29.3	37.9	17.0	1.6	54.9	15.8	100.0
	1988	17.2	26.3	27.1	9.3	53.4	29.4	100.0
Thailand	1962	53.6	43.4	1.7	0.0	45.1	1.3	100.0
	1970	56.1	36.2	3.4	0.1	39.6	4.3	100.0
	1980	36.2	35.4	23.0	5.6	58.4	5.4	100.0
	1988	22.9	23.7	49.3	13.0	73.0	4.1	100.0
Mean ^a	1962	60.6	36.0	1.8	0.2	37.9	1.5	100.0
	1970	64.3	31.2	3.1	0.3	34.3	1.5	100.0
	1980	51.2	28.7	14.7	4.7	43.5	5.4	100.0
	1988 ^b	31.9	25.8	33.8	12.0	59.6	8.5	100.0

Source: The same as Table 1-3-1.

^a The simple average of the four countries.

^b Figures used for Indonesia from 1989.

policy from an inward-looking strategy to an outward-looking one during the 1960s. These policy shifts led to economic success, creating two of the fastest growing economies in the world. Even ASEAN4 had high ratios of manufactured exports: Thailand with 49 per cent, Malaysia with 41 per cent, the Philippines with 27 per cent, and Indonesia with 18 per cent (see Table 1-3-2).

An even more eye-catching phenomenon was the large high-tech composition of East Asian exports.⁶ Singaporean exports had the largest component of high-tech products, 40 per cent in 1989, while Korea and Hong Kong were around 24 per cent. More striking is the fact that Malaysia sold 25 per cent of its export as high-tech products, and Thailand 13 per cent. Even the Philippines reached around 9 per cent in this category. These countries have long been considered as primary-product exporting countries. However, these figures tell of a rapid and drastic transformation in their export structure. It also implies that the static notion of comparative advantage can be changed by well-guided trade and investment policies.

In the same ECLAC survey, the corresponding figures for Latin America are less

TABLE 1-3-3
EXPORT COMPOSITION: SELECTED LATIN AMERICAN COUNTRIES

(%)

		Primary Products	Semi- manufac- tured Products	Manufac- tured Products	High- Tech Products in Total	Industrial Products (2)+(3)	Other Products 100 - (1) - (5)	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
Argentina	1962	71.1	25.8	3.1	0.4	28.9	0.0	100.0
	1970	61.3	25.6	13.1	2.6	38.7	0.0	100.0
	1980	49.1	30.3	20.5	2.4	50.8	0.1	100.0
	1988	31.5	41.6	26.8	2.3	68.4	0.1	100.0
Brazil	1962	83.1	14.7	2.0	0.3	16.7	0.2	100.0
	1970	66.4	21.0	11.4	1.9	32.4	1.2	100.0
	1980	30.1	34.6	33.7	4.7	68.3	1.6	100.0
	1987	23.8	30.7	44.5	6.2	75.2	1.0	100.0
Chile	1962	26.0	72.2	1.5	0.1	73.7	0.3	100.0
	1970	13.2	84.5	2.2	0.1	86.7	0.1	100.0
	1980	20.1	74.0	5.3	0.3	79.3	0.6	100.0
	1988	27.9	62.1	9.3	0.2	71.4	0.7	100.0
Colombia	1962	93.0	3.9	2.4	0.2	6.3	0.7	100.0
	1970	85.2	7.7	6.6	0.6	14.3	0.5	100.0
	1980	70.2	11.3	16.1	1.1	27.4	2.4	100.0
	1989	64.5	11.5	21.6	0.8	33.1	2.4	100.0
Mexico	1962	60.2	27.2	12.3	2.7	39.5	0.3	100.0
	1970	44.2	28.4	27.0	7.4	55.4	0.4	100.0
	1980	80.9	9.7	9.3	1.4	19.0	0.1	100.0
	1989	44.8	14.7	40.0	7.6	54.7	0.5	100.0
Venezuela	1962	68.6	25.7	5.5	0.3	31.2	0.2	100.0
	1970	69.7	28.9	1.1	0.1	30.0	0.3	100.0
	1980	66.5	32.2	1.3	0.1	33.5	0.0	100.0
	1988	48.7	44.8	6.3	0.2	51.1	0.2	100.0
Mean ^a	1962	67.0	28.3	4.5	0.7	32.7	0.3	100.0
	1970	56.7	32.7	10.2	2.1	42.9	0.4	100.0
	1980	52.8	32.0	14.4	1.7	46.4	0.8	100.0
	1988 ^b	40.2	34.2	24.8	2.9	59.0	0.8	100.0

Source: The same as Table 1-3-1.

^a The simple average of the six countries.

^b Figures for Colombia and Mexico from 1989 and for Brazil from 1987.

impressive. The highest ratio of manufactured exports to total exports at the end of the 1980s, was recorded by Brazil with 45 per cent, followed by Mexico with 40 per cent, Argentina with 27 per cent, and Colombia with 22 per cent (see Table 1-3-3). Regarding high-tech products, the highest share was recorded by Mexico with 7.6 per cent—smaller than that of the Philippines. Brazil followed with 6.2 per cent.

To summarize, the countries of East Asia changed their trade structures from ones based on primary products to those based on manufactured products, with an emphasis on high-tech. The rapid expansion of exports coincided with policy shifts

toward export promotion which had been going on since the mid-1960s. External factors such as solid increases in world demand for manufacturing during the 1960s and 1970s also contributed to this expansion. There were notable increases in intra-regional trade which suggests a high level of interdependence and complement between East Asian industries. This was strengthened, particularly during the 1980s, through trade and investment liberalization. In addition, a vertical division of labor across borders or international division of labor was being formed in East Asian countries according to a new dynamic comparative advantage.⁷

2. Trade and Investment Policies

Sound macroeconomic management is the backbone of any economic policy. Without such management, a policy may not bring about the anticipated results. There is a long tradition of economic planning in East Asia. During the late 1940s after independence, economic planning methods were vehemently promoted in the region, partly because of the impetus given by the Colombo Plan⁸ in 1950, and partly because of the recommendation by the United Nations Economic Commission for Asia and the Far East (ECAFE, lately ESCAP), which was established in 1947. Since then economic planning—its supervision and performance evaluation—has been each government's primary concern, and this continues today (see Tables 1-4-1 and 1-4-2). Under various economic plans, several important policies were introduced in a coherent and complementary manner with national goals.

There is no doubt that a stable political condition—particularly a firm government or leader—was a prerequisite for development. A number of East Asian countries demonstrated this point with the longevity of their leaders. Lee Kuan Yew governed Singapore for about thirty years; Chiang Kai-shek led Taiwan from 1947 to 1975; Park Chung Hee headed Korea from 1961 to 1979; and Soeharto has led Indonesia since 1966. Despite the fact that these pseudo-authoritarian regimes have sometimes been criticized as “developmental dictatorships,” strong governments, whether military or civilian, have allowed for continuous economic policies that are integrated and consistent with long-run national goals.

Below, trade and investment policies will be examined, since export-led economic growth has dictated the patterns and pace of industrialization.

Trade Policies

Trade and exchange rate policies were two crucial vehicles which influenced industrialization. East Asia, as explained earlier, implemented import-substitution as well as export-promotion policies in various forms. The shift from an inward to an outward orientation at an early stage was the key to the region's development.

Import-substitution policies

At the initial stage, several newborn East Asian countries adopted import-substitution industrialization policies while exporting primary products. World War II devastated the industrial production capacity of advanced countries, while the importation

TABLE 1-4-1
DEVELOPMENT PLANS AND INDUSTRIAL INCENTIVE POLICIES: ANIES

Korea	
1950s	The Reconstruction Plan by R. Nathan Associates, 1959-60 Three-Year Economic Development Plan, 1959-61
1960s	<i>Park Chung-hee, 1961-79</i> First Five-Year Economic Development Plan, 1962-66 <Foreign Capital Inducement Act> (1966) <Small and Medium Industry Basic Act> (1966) Second Five-Year Economic Development Plan, 1967-71
1970s	<Law for Establishment of Free Trade Zones> (Masan) (1970) Third Five-Year Economic Development Plan, 1972-76 <Tax Reduction and Exemption Control Act> (1974) <Small and Medium Enterprise Systematization Act> (1975) Fourth Five-Year Economic Development Plan, 1977-81 <Small and Medium Industry Promotion Act> (1978) <i>Chun Doo-hwan, 1979-88</i>
1980s	Fifth Five-Year Economic Development Plan, 1982-86 <Five-Year Import Liberalization Plan> (1983) Revision of <Foreign Capital Inducement Act> (1983) <Industrial Development Act> (1986) Sixth Five-Year Economic and Social Development Plan, 1987-91 <i>Roh Tae-woo, 1988-93</i> <Technology Development Promotion Act> (1989)

Singapore	
1950s	<i>Lee Kuan Yew, 1959-90</i> <Pioneer Industries (Relief from Income Tax) Ordinance> (1959)
1960s	First Five-Year Plan, 1961-65 (First Housing Plan by Housing Development Board, 1960-65) Second Five-Year Plan, 1966-70 (Second Housing Plan, 1966-70) <Economic Expansion Incentives (Relief from Income Tax) Act> (1967)
1970s	(Third Housing Plan, 1971-75) <Economic Expansion Incentives (Relief from Income Tax) (Amendment) Act> (1975) (Measures to assist capital formation of small-scale industries) (1975) (Fourth Housing Plan, 1976-80) Economic Reconstruction Program (1979)
1980s	(Fifth Housing Plan, 1981-85) Research and Development Assistance Scheme (1981) Ten-Year Economic and Social Development Plan, 1981-90 (Local Industry Upgrading Program) Singapore Economy: New Direction, 1985-90 <i>Goh Chok Tong, 1990-</i>

Taiwan	
1940s	<i>Chiang Kai-shek, 1947-75</i>
1950s	First Four-Year Economic Construction Plan, 1953-56 <Statute for Investment by Foreign Nationals> (1954) Second Four-Year Economic Construction Plan, 1957-60
1960s	Third Four-Year Economic Construction Plan, 1961-64 <Statute for Encouragement of Investment> (1960) <Statute for Technical Cooperation> (1962)

TABLE 1-4-1 (Continued)

	<Statute for Establishment and Management of Export Processing Zones> (Kaohsiung) (1965)
	Fourth Four-Year Economic Construction Plan, 1965-68
	Fifth Four-Year Economic Construction Plan, 1969-72
1970s	Sixth Four-Year Economic Construction Plan, 1973-75
	Six-Year Economic Construction Plan, 1976-81
	Revision of <Statute for Encouragement of Investment> (1977)
	<i>Chiang Ching-kuo, 1978-88</i>
1980s	(Establishment of techno-industrial parks) (1980)
	<Decree for Guidance of Small and Medium-Scale Industries> (1982)
	Four-Year Economic Construction Plan, 1982-85
	(Instruction for center-satellite factory system) (1984)
	Ten-Year Science and Technology Development Plan, 1986-95
	Four-Year Economic Construction Plan, 1986-89
	<i>Lee Teng-hui, 1988-</i>
	Revision of <Statute for Investment by Foreign Nationals> (1988)

Source: Compiled by the author.

Note: Not all presidents / prime ministers are illustrated here.

TABLE 1-4-2

DEVELOPMENT PLANS AND INDUSTRIAL INCENTIVE POLICIES: ASEAN4

Indonesia	
1950s	Economic Urgency Plan (Sumitro Plan), 1951-52
	Five-Year Economic Development Plan, 1956-60
	<i>Soekarno, 1959-66</i>
1960s	Eight-Year Overall Development Plan, 1961-69
	<i>Soeharto, 1966-</i>
	<Foreign Capital Investment Law> (1967)
	<Domestic Capital Investment Law> (1968)
	First Five-Year Development Plan (REPELITA I), 1969-73
1970s	Revision of <Foreign Capital Investment Law> (1970)
	Second Five-Year Development Plan (REPELITA II), 1974-78
	Third Five-Year Development Plan (REPELITA III), 1979-83
1980s	Fourth Five-Year Development Plan (REPELITA IV), 1984-88
	(First financial liberalization, 1983)
	(Deregulation and trade liberalization since 1984)
	(Second financial liberalization, 1988)
	Fifth Five-Year Development Plan (REPELITA V), 1989-93
Malaysia	
1950s	Draft Development Plan, 1950-55
	<i>Abdul Rahman, 1955-70</i>
	First Malay Plan, 1956-60
	<Pioneer Industry Ordinance> (1958)
1960s	Second Malay Plan, 1961-65
	<Pioneer Industry Act> (1965)
	First Malaysia Plan, 1966-70
	<Investment Incentives Act> (1968)
1970s	<i>Razak, 1970-76</i>
	New Economic Policy (1971-90)

TABLE 1-4-2 (Continued)

	Second Malaysia Plan, 1971-75 <Free Trade Zones Act> (Nine zones in Penang, Selangor, and Malacca) (1971) <Industrial Coordination Act> (1975) <i>Hussein Onn, 1976-81</i>
1980s	Third Malaysia Plan, 1976-80 <i>Mahathir, 1981-</i> Fourth Malaysia Plan, 1981-85 (Privatization of state enterprises since 1983) Fifth Malaysia Plan, 1986-90 (Trade liberalization since 1986) <Promotion of Investment Act> (1986)
Philippines	
1940s	Government Program of Economic Rehabilitation and Development (Cuaderno), 1949-53
1950s	Agricultural and Industrial Development Program (Yulo), 1950-54 Five-Year Economic Development Program (Rodriguez), 1955-59 Five-Year Economic and Social Development Program, 1957-61
1960s	Three-Year Program for Economic and Social Development, 1972-62 <Basic Industries Act> (1961) Proposed Five-Year Integrated Program for Socio-Economic Development, 1963-67 <i>Marcos, 1966-86</i> <Investment Incentives Act> (1967)
1970s	First Four-Year Economic Program, 1967-70 <Export Incentives Act> (1970) (Export Processing Zones: Mariveles) (1970) Second Four-Year Economic Program, 1971-74 Third Four-Year Economic Program, 1972-75 Fourth Four-Year Economic Program, 1974-77 Five-Year Philippine Development Plan, 1978-82
1980s	(Trade liberalization since 1980) Five-Year Philippine Development Plan, 1983-87 Updated Philippine Development Plan, 1984-87 <i>Aquino, 1986-92</i> <Omnibus Investment Code> (1987) Medium Term Philippine Development Plan, 1987-92
Thailand	
1950s	<i>Sarit, 1957-63</i>
1960s	<Industrial Investment Promotion Act (BE2503)> (1960) First Six-Year Economic Development Plan, 1961-66 <Industrial Investment Act (BE2505)> (Import substitution) (1962) <i>Thanom, 1963-73</i> Second Economic and Social Development Plan, 1966-71
1970s	Third Economic and Social Development Plan, 1972-76 <Announcement of the Revolution Party No.227 (Promotion of Export)> (1972) <i>Kriangsak, 1977-80</i>
1980s	Fourth Economic and Social Development Plan, 1977-81 <i>Prem, 1980-88</i> (Trade liberalization since 1982) Fifth Economic and Social Development Plan, 1982-86 Sixth National Economic and Social Development Plan, 1987-91 <i>Chatichai, 1988-91</i>

Source: Compiled by the author.

Note: Not all presidents / prime ministers are illustrated here.

of industrial goods was severely limited due to a scarcity of foreign currency.

In the first phase of import substitution, consumer goods were produced, while the importation of similar goods was restricted by tariffs and other import controls. In the small-sized domestic market, production soon reached the saturation level. Moreover, goods were rarely exported because competitiveness was usually low, partly because of inferior quality, and partly because of an overvalued exchange rate. As substitution went on, the demand for capital and intermediate goods was soon constrained by a lack of foreign currency.

Facing a bottleneck in the first stage of import substitution, Korea and Taiwan started to promote the exportation of consumer goods and light-industry products, such as wigs, plywood, and toys. Then an external shock necessitated a change which in today's jargon has come to be called a "structural adjustment." Toward the end of the 1950s the United States began curtailing its aid. This meant that the two governments needed to find other sources of foreign exchange.⁹ Singapore faced a similar external shock with the United Kingdom's decision to withdraw its military forces from the area east of the Suez Canal in 1967. Singapore was pushed to strengthen its trade policy toward an outward-looking orientation to offset the damage produced by the withdrawal.¹⁰

Dual policies

At the same time, these countries initiated the next stage of import substitution in which intermediate goods and parts for capital goods were fabricated under special government protection programs. The governments established state factories for intermediate products such as steel and chemicals which in turn became supplies for production of final goods in such industries as shipbuilding and apparel. These final goods were later exported. Thus, export promotion was pursued in parallel with import substitution in sectors which had a complementary relationship with each other. This policy-mix strategy—a combination of sectors which are characterized by capital-intensive with strong forward-linkage (steel or chemical fibers) and those by labor-intensive with strong backward-linkage (shipbuilding or apparel)—is often cited as a "dual (or tandem) type" of development (see Imaoka et al. [25]).

On the other hand, ASEAN4 countries launched an export drive, dubbed "export substitution" by Myint [47], in which the processing of primary products was emphasized along with primary export diversification. Thailand applied this policy to silk and processed foods such as tapioca, maize, and chicken; Malaysia did the same for rubber, palm oil, and tin products; the Philippines did likewise with coconut oil and banana; and Indonesia also with timber products.

Export-promotion policies

Apart from institutional reforms and the strengthening of the export infrastructure, export promotion measures were broadly divided into three categories: fiscal incentives, credit incentives, and infrastructure investment which included the establishment of free trade zones. Fiscal incentives included income tax holidays, permission of special allowances, and accelerated depreciations. Duty-free importing or tariff

exemptions and other indirect-tax exemptions were sometimes allowed for the importation of intermediate and capital goods used by export industries. Tax rebates or duty drawbacks were also applied in several East Asian countries.

Financial incentives covered such things as the special allocation of funds for export investment and financing, financing at preferential rates, and export credit insurance. Financing at preferential rates (interest subsidies) for export industries—either investment assistance or pre- and post-shipment financing—was often used in East Asian countries. This was especially effective in Korea and Taiwan.

Free trade zones were created in which bonded warehouses and factories were allowed to import machinery, equipment, and manufacturing components. These imports were duty free when needed for processing and assembly operations, provided that all imported inputs were reshipped abroad. This invited foreign direct investment (FDI), and the success of the zones provided a springboard for further manufactured exports. Kaohsiung in Taiwan (designated in 1966) and Masan in Korea (1970) are well-known examples.

These and other Asian policy variants, however, took time to liberalize trade. The early policy shifts from import substitution to export promotion of light-industry goods during the 1960s were only a partial liberalization. This was followed by a period in which both import-substitution and export-promotion policies coexisted. In the second phase of import substitution during the 1970s, substitution of intermediate goods was promoted by large government investments, while export promotion of final consumer goods and/or capital goods was carried out by private entrepreneurs. The stage of accelerated liberalization came during the 1980s due to relative price changes in wages, interest rates, and exchange rates.

The second oil shock along with the sudden squeeze in financial credit due to the external debt crisis and domestic relative price changes brought about dramatic structural transformation in developing countries during the 1980s. Further trade liberalization measures were implemented on a large scale in East Asia. The Philippines and Thailand initiated trade reform, focusing on tariff reduction as well as on the removal of nontariff barriers. The Philippines began a five-year trade reform program in 1980 which was intended to reduce average nominal tariff rates, remove import restrictions, and introduce export incentives. Thailand launched trade reform in 1982 emphasizing tariff reductions. Indonesia followed in the mid-1980s liberalizing its trade through the reduction of anti-export biases.

Korea also accelerated trade reform from the end of the 1970s. It initiated a significant trade liberalization program between 1984 and 1988. Tariff rates were substantially reduced, and import restrictions, such as prior import-approval requirements, were notably reduced. For instance, the average nominal tariff decreased from 41 per cent at the end of the 1970s to 18 per cent in 1988. With trade liberalization policies and massive FDI in the region, East Asian trade expanded significantly.

Exchange rate policies

Another powerful instrument is exchange rate policies. International competitiveness depends on price and quality. If quality is similar, then price is a determinant

factor in competitiveness. In addition to domestic production cost, price is affected by exchange rates in international trade. Exports are adversely affected by an overvalued exchange rate. Import-substitution policies tend to produce an overvalued exchange rate because the import-substitution industries, by maintaining a strong local currency, can easily buy capital goods and raw materials from abroad for their production. The appropriateness of the exchange rate is usually measured by the real effective exchange rate (REER), which is a trade-weighted exchange rate adjusted for relative inflation. For example, if a country has a high domestic inflation rate relative to its major trading partners, adjustments are needed to depreciate its exchange rate to maintain competitiveness.

In the case of the Philippines (in the 1970s and 1980s) and Indonesia (in the 1960s and the 1970s), where domestic inflation was persistent, exchange adjustments sometimes lagged behind, resulting in an overvaluation (an appreciation in real terms). The oil crises of the early and late 1970s brought about an appreciation of currency in Indonesia and Malaysia, in what was called the “Dutch disease.” This hindered manufactured exports. Indonesia, in particular, had to devalue its currency twice in the 1980s (1983 and 1986) to correct distortions.

Korea was quick to adjust its exchange rate when it needed to do so. In 1964 a uniform exchange rate system was adopted, and the Korean won was devalued by nearly 100 per cent. Since then the exchange rate has been competitive. In Taiwan a unification and devaluation of its exchange rate was undertaken at the beginning of the 1960s. Thereafter up to the early 1980s, the Taiwan dollar was maintained at a fixed relatively undervalued level.

In sum, although the degree of currency distortion varied country to country, exchange rate management in East Asia was flexible and pragmatic, basically reflecting market forces, partly because of outward-oriented export-promotion policies, and partly because of a nonviolent inflation rate compared to that of Latin America.

Investment Policies

Industrial targeting

The policy stances on investment in East Asia were rather interventionistic. Investment was directed toward priority industries which the government wanted to foster. Many laws and regulations involving investment were introduced during the 1960s. The focus of investment incentives was to priority sectors that governments selected for development. Fiscal and financial incentives were then granted. It was widely believed in East Asia that the “latecomers” in development had to catch up with the industrialized countries by raising a small number of relevant “infant” industries, using a set of heavy incentives and quickly developing them within a limited time period and with scarce resources.

This was the case in Korea where priority sectors were set and fiscal as well as financial support was provided. During the 1960s and the 1970s, in addition to textiles, the following six industries received official enactments of promotion: (a) petrochemicals (the act was promulgated in 1966), (b) shipbuilding (1967), (c) machinery (1967), (d) electronics (1969), (e) iron and steel (1970), and (f) nonferrous metals

(1971). These sectors were selected because of the possibility of high foreign currency earnings, employment creation, and strong inter-industry links. In 1974 various incentives to promote key industries were incorporated into the Tax Reduction and Exemption Control Act, which provided three principal incentives for qualified projects: a tax holiday of five years; an investment tax credit of eight per cent for the purchase of machinery and equipment; and a 100 per cent special depreciation allowance.¹¹ Under these circumstances, priority industries were created mainly through private sector efforts.

Varying from Korea, the Taiwanese government encouraged investment for establishing basic heavy industries such as iron and steel, petrochemicals, and shipbuilding. Laws and regulations were enacted during the 1960s. These included a revision of the Statute for Investment by Foreign Nationals (1954), the Statute for Encouragement of Investment (1960), the Statute for Technical Cooperation (1962), and the Statute for the Establishment and Management of Export Processing Zones (1965).

Upper-stream industries, especially for intermediate goods, were primarily state enterprises, while mid- and down-stream industries were open for private enterprises. A large number of small-scale entrepreneurs actively invested in the latter industries. This was another difference from Korea where large private enterprises took part in or formed monopolies and oligopolies. Later, small-scale industries played a vital role in exporting their products, which turned out to be Taiwan's export engine. For example, small- and medium-scale enterprises produced about 70 per cent of the total manufactured exports in the mid-1980s. Although industrial policies in Taiwan were not as clear as those of Korea, the priority industries assigned to receive assistance included the Ten Major Development Projects of the 1970s, and leading strategic industries of the 1980s such as general machinery, electronics, transportation equipment, and information industries.

Foreign capital

East Asia has not had an allergy to foreign capital. The governments of the region attracted foreign capital investment with incentives to supplement the lack of domestic savings and technology. Korea's Foreign Capital Inducement Act of 1966, and Indonesia's Foreign Capital Investment Law of 1967 stand as examples. Taiwan is another country where foreign capital was given an equal status with domestic investment. These laws encouraged FDI in specific sectors. Some investment laws, of course, had restrictions such as reserving some activities only for national capital, or limiting foreign participation or the repatriation of profits. The assigned industries were sometimes selected to promote labor-intensive technology in order to utilize the comparative advantage of the region. FDI, in a sense, was guided toward export activities in the initial stage in order not to use up weak domestic capital. Export-processing zones were, at first, used as an "enclave" to produce standardized products for export. This permitted off-shore businesses to flourish and shielded domestic producers from competition.

Combined with a relatively favorable incentive system for foreign capital, investment flowed not only into export promotion industries, but also import-substitution

industries to meet domestic demand. Products in apparel, food processing, home appliances, plastics, and chemicals were examples. As income grew, the domestic market gradually expanded, and this attracted more foreign capital. Low wages as well as a diligent and dexterous labor force were other important factors inducing the inflow of foreign capital.

Capital liberalization

The two oil shocks, external debt crises (especially high interest rates), plus turbulent movements in primary products prices and domestic wage increases required East Asian countries to adjust their economies to new situations. As a result, stabilization policies enacted for the short run, and new structural adjustments for the medium and long run, forced these countries to remove man-made distortions in their economies.

Government intervention waned as trade and financial liberalization progressed during the 1980s. In Korea, for example, the revision of the Foreign Capital Inducement Act of 1983 established an automatic approval system, abolished restrictions on the repatriation of capital and the ratio of foreign ownership and switched to a negative list system.¹² Furthermore, the Industrial Development Act of 1986 replaced seven separate industry promotion laws, and minimized the role the government played in cases of "market failure" and in the protection of "declining industries" (backward protection). Taiwan also adopted a negative list system when, in 1988, it revised its foreign investment statute. Malaysia allowed the privatization of state enterprises in 1983.

To summarize, investment policies in East Asia were initially based on the promotion of priority industries. This sort of "industrial targeting" or "picking winners" was basically successful since these industries had some elements of market failure involving "externalities" and "economies of scale." Export industries in particular required economies of scale since markets were generally in advanced foreign countries.

The external shocks, coupled with domestic relative price changes during the 1980s, allowed East Asian countries to adopt market-oriented policies, and to move away from protectionist approaches which invited substantial new investment, both domestic and foreign. In the late-1980s, a particularly swift industrial transformation took place led by changes in relative prices such as wages, interest rates, energy prices, and exchange rates. Economic liberalization and a further reliance on the market mechanism in East Asian economies accelerated this industrial restructuring. Moreover, the globalization of multinational enterprises encouraged world-wide corporations to choose production and distribution sites depending on comparative advantages. The boundaries between countries gradually disappeared in an economic sense. Capital (and even people) crossed borders, forming tighter networks of economic activities in the region as a whole. Inter-process, intra-firm, inter-industry, and intra-industry transactions across borders have been increasing, and trans-border vertical and horizontal ties between firms and/or industries (i.e., the international division of labor) have been knitted.

3. Investment-cum-Export Development

There was a strong correlation between growth and investment. Sustained growth in East Asia, as demonstrated by ANIEs4, was backed by sustained investment. Moreover, the high growth rate of these countries illustrated increasing returns to scale in the long run in terms of capital and labor.¹³ The outward-oriented strategy required economies of scale and technology-intensive production methods to gain competitiveness. Exports called forth for investment, and this new investment created export gains which were, in turn, invested again to further exports. This virtuous circle between investment and exports raised income thereby furthering the growth of the region.

Virtuous Circle between Investment and Exports

High growth and high investment

The average annual growth rate of real GDP in ANIEs4 was 9.2 per cent during the 1970s, and 8.7 per cent during the 1980s, while the average annual growth rate in ASEAN4 was 7.9 per cent and 5.4 per cent respectively (see Table 1–5). This contrasts sharply with the Latin American performance: 5.9 per cent during the 1970s, and 0.9 per cent during the 1980s. Previously it was noted that high growth was associated with high investment. For the last twenty years ANIEs4 has maintained a significantly high investment coefficient (gross fixed capital formation as a share of GDP) of over 30 per cent (on average, 32 per cent in the 1970s and 30 per cent in the 1980s). ASEAN4 also maintained a ratio of around 25 per cent; in the 1980s this increased to 27 per cent. In Latin America, the ratio, which was kept at around 20 per cent in the 1960s and 1970s, dropped to around 17 per cent in the 1980s; the drop corresponded with a greatly weakened economy in the region. (See Figure 1–1.)

The high investment ratio of East Asia was a result of outward-oriented industrial strategies. Export industries were targeted as priority sectors and given fiscal and financial incentives. To gain competitiveness in international markets, production costs and quality were of primary concern. Costs could be reduced by seeking economies of scale, and quality increased by installing new machines and equipment. Therefore, new investment was crucial in the development of export earnings. Foreign capital was invited in, and it helped fill the domestic saving-investment gap, as well as the technology gap. New modern investment thus assisted in accruing income and growth.

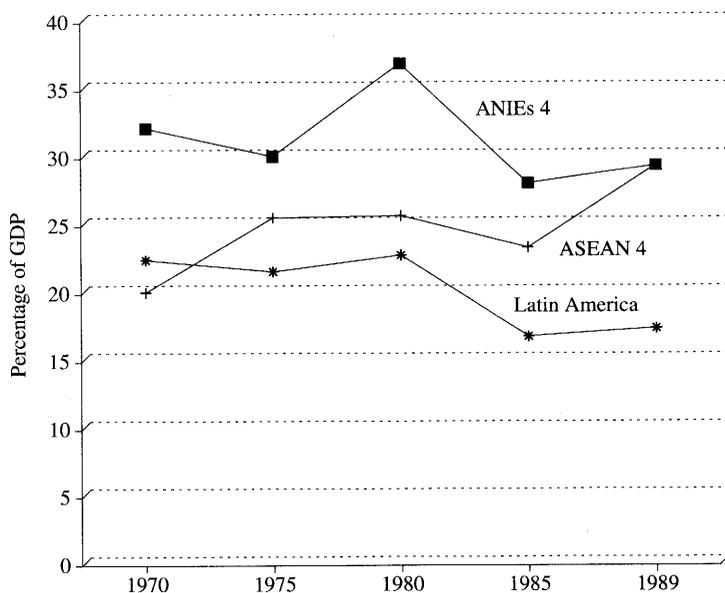
Apart from the extremely high export coefficients (exports of goods and services as a share of GDP) for Hong Kong and Singapore, those for Korea, Taiwan, and ASEAN4 were higher than those for Latin America (see Figure 1–2). It is interesting to note that in 1970, the Korea and Taiwan coefficients were quite similar to those for ASEAN4 (and even lower), while ASEAN4 nearly reached Korea's and Taiwan's level in 1989 after a long divergence. This leap was attributable to the high performances of Malaysia (73.8 per cent in 1989) and Thailand (36.5 per cent). Both coun-

TABLE 1-5
GROWTH RATE OF REAL GDP

	Average 1971-80	Average 1981-90	1985	1986	1987	1988	1989	1990
ANIEs4	9.2	8.7	4.5	11.3	12.3	9.6	6.2	6.6
Hong Kong	9.5	7.1	-0.1	11.9	13.9	7.9	2.3	2.3
Korea	8.7	9.9	6.9	12.4	12.0	11.5	6.1	8.7
Singapore	9.0	6.3	-1.6	1.8	9.4	11.1	9.2	8.3
Taiwan	9.7	8.5	4.9	11.6	12.3	7.3	7.6	5.1
ASEAN4	7.9	5.4	0.9	4.1	6.1	8.4	8.6	7.4
Indonesia	7.9	5.5	2.5	5.9	4.9	5.7	7.4	7.0
Malaysia	8.0	5.2	-1.0	1.2	5.2	8.9	8.8	9.4
Philippines	6.2	1.2	-4.3	1.4	4.7	6.3	5.6	2.5
Thailand	9.9	7.8	3.5	4.5	9.5	13.2	12.0	10.0
China	6.5	10.0	12.7	8.3	11.0	10.8	4.0	5.0
Latin America	5.9	0.9	3.4	3.3	2.5	0.1	0.5	-0.9

Sources: Asian Development Bank, *Asian Development Outlook 1991* (Manila: Asian Development Bank, 1991) and Inter-American Development Bank, *Economic and Social Progress in Latin America: 1991 Report* (Washington D.C.: Inter-American Development Bank, 1991).

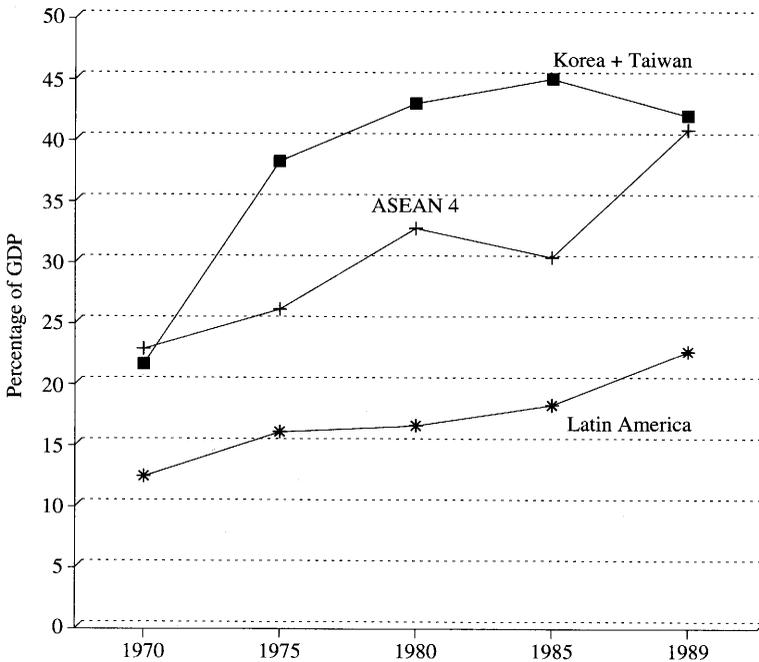
Fig. 1-1. Investment Coefficients



Sources: International Monetary Fund, *International Financial Statistics*, various issues; and Asian Development Bank, *Key Indicators of Developing Asian and Pacific Countries*, various issues, for Taiwan.

Note: Latin America: the simple average for Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela.

Fig. 1-2. Export Coefficients



Source: The same as Fig. 1-1.

tries had experienced a burst of FDI which resulted in an export boom in the mid-1980s.

As explained earlier, East Asian countries gave priority to manufactured exports because of their higher-added value. It is understandable that resource-poor countries such as ANIEs4 dedicated themselves to the processing trade by importing raw materials and exporting assembled goods. However, here again, it is worth mentioning that in 1988 Thailand and Malaysia posted high ratios of manufactured to total exports, 49 per cent and 41 per cent respectively. These countries were previously considered as primary product exporters. (See again Table 1-3-2.)

It is clear that export-oriented strategies encouraged investment, and that this investment contributed to the building up of export earnings which were, in turn, invested again to further exports. This virtuous circle between exports and investment was the basic formula for East Asian development. It worked quite well in the development of the resource-poor ANIEs4, and also in some ASEAN countries, particularly Malaysia and Thailand.

Competitiveness and Economies of Scale

Based on the outward-looking strategies of East Asian industrialization, the promotion of manufactured exports helped lead the rapid expansion of East Asian economies. The merit of this strategy can be summarized as follows:

(a) As demand comes from abroad, export industries enjoy economies of scale regardless of the size of their domestic markets. Parts producers and semi-assemblers, although small,¹⁴ exploit economies of scale if they are integrated with large final assemblers. The globalization of multinational companies accelerates this combination through FDI, which leads to increases in inter-process as well as intra-industry trade;

(b) By choosing an export sector that has a large backward-linkage effect, the sector can stimulate associated industries involved in raw materials, parts, and components (i.e., help enlarge upper-stream industries), leading to the formation of supply chains;

(c) As the export sectors face competition from abroad, incessant improvement in efficiency and technology is required, affecting prices, quality, delivery dates, and management. In other words, efficiency consciousness is inevitable, and technology-intensive processes are the key to winning in the trade game.

To obtain international competitiveness, cost reduction was crucial. Cost could be reduced by exploiting scale merits. During the 1970s, Korea emphasized the heavy and chemical industries, in which major private economic groups had invested heavily to exploit the economies of scale which were under the aegis of government-support programs. The Taiwan government invested enormously in the intermediate goods sector to supply inexpensive materials such as iron and steel, and basic chemical materials for down-stream export industries.

In the globalization of multinational enterprises—usually in search of low-cost labor, companies transferred part of the standardized production process to developing host countries. This introduced modern technology and management know-how into these developing countries. The multinationals integrated reimported parts and semi-finished products from developing host countries into final assembly plants at home to exploit the full economies of scale (i.e., inter-process trade or vertical integration across national boundaries). Moreover, as the industrial ability of developing host countries improved, a horizontal division of labor took place, producing differentiated products in both places. For example, small-size TVs and simpler types of air-conditioners were produced in developing host countries, while large-size TVs and sophisticated air-conditioners were produced in the home country. Both products were then traded for the other (i.e., intra-industry trade).

By combining low-cost and quality labor, ANIEs4 gradually participated in the international market with products such as toys, electric and electronic appliances, and transportation equipment (especially shipbuilding). In 1988, exports of electronic products surpassed those of textile products to become Korea's number one export item. ASEAN4 countries also changed their industrial structure to share in the international division of labor, especially after the external debt crisis of the 1980s. The industrial sectors of these countries integrated to form supply chains involved in multinational manufacturing activities which fully utilized economies of scale.

Technology as a Driving Force

Technologically speaking, ANIEs4 manufactured exports were tilted toward pro-

cessed and assembly products. This was a result of utilizing the unique comparative advantage of the region, i.e., high-quality, low-cost labor. Advanced technology was essential to gain competitiveness. To raise the quality of assembled products, ANIEs4 did not hesitate import from industrialized countries the machines and equipment as well as materials of primary importance that it needed. It also bought advanced technology from the beginning to help maintain the high quality of its finished products.

Korea, for example, imported 4,692 items of technology between 1962 and 1987; machinery technology accounted for the largest amount, 27.2 per cent, followed by chemical products, 23.3 per cent, then electric and electronics, 21.2 per cent. Japan was the largest supplier of technology to Korea with 2,506 items, followed by the United States with 1,161 items. For Taiwan, 3,222 items were imported between 1952 and 1989 with electric and electronics accounting for 27.5 per cent, followed by chemical products at 25.7 per cent. Japan again placed first in technology sales to Taiwan with 1,996 items; the United States followed with 729 items. (See Table 1-6.)

Technology policy

Along with the introduction of foreign technology, governments supported domestic research and development (R&D) programs using various measures—such as the

TABLE 1-6
IMPORTS OF TECHNOLOGY BY KOREA AND TAIWAN

	(No. of technologies)					
	European Countries	Japan	U.S.A.	Others	Total	%
Korea, 1962-87						
Food processing	16	82	56	15	169	3.6
Chemical products	186	567	266	75	1,094	23.3
Metal products	42	188	55	37	322	6.9
Machinery	172	783	226	96	1,277	27.2
Electric & electronics	48	548	335	63	994	21.2
Others	118	338	223	157	836	17.8
Total	582	2,506	1,161	443	4,692	100.0
(%)	12.4	53.4	24.7	9.4	100.0	
Taiwan, 1952-89						
Food processing	10	63	33	7	113	3.5
Chemical products	150	457	198	23	828	25.7
Metal products	43	275	47	5	370	11.5
Machinery	69	304	47	7	427	13.3
Electric & electronics	77	549	255	4	885	27.5
Others	61	348	149	41	599	18.6
Total	410	1,996	729	87	3,222	100.0
(%)	12.7	61.9	22.6	2.7	100.0	

Source: [35. pp. 22, 33].

setting of target ratios for nationally made machinery (or local content), financial incentives, and the construction of science and technology parks—that assisted developing countries in acquiring technology.

In Korea the basic program for the promotion of the machinery industry of 1977 clarified the local content target for major machines, as well as the export targets for the industry.¹⁵ In 1989 the technology development promotion act was enacted to put more emphasis on developing basic technology rather than assembly and process technology. In Taiwan a “Silicon Valley”-type science and technology park was established in 1980 at Hsinchu, a second-generation export-processing zone, and the Ten-Year Science and Technology Development Plan (1986–95) was launched in 1986 aimed at developing advanced technology and the study of preventive measures against environmental destruction. In Singapore grants and other financial support were given to R&D programs and other training activities through government-sponsored programs such as the Product Development Assistance Scheme (1978), the Research and Development Assistance Scheme (1981, Revised 1983), and the Skills Development Fund (1980). A science and technology park was also constructed in 1984 near the University of Singapore.

The private sector was also eager to catch up with new technology. As illustrated before, Korea and Taiwan intensively bought foreign technology. Sometimes high technology was copied using what is now called “reverse engineering.” R&D was emphasized, particularly after the oil crises, in the search for energy-efficient technology. Moreover, the modification of new technology to fit local conditions was promoted. These efforts were rewarded by remarkably rapid technological developments, several of which turned out to be widely successful. For instance, a numerically controlled lathe was produced in Taiwan in 1974, only seven years after its initial fabrication in Japan. In 1986 Korea’s semiconductor industry began mass producing 1-mega DRAMs. By 1990, only one year after Japan, it was producing 16-mega DRAMs. Even Malaysia at the beginning of the 1990s, once a major rubber and palm-oil exporter, became the second largest exporter of airconditioning units in the world, and one of the major exporters of VCRs.

As has been explained before, the large high-tech component in manufactured exports was the consequence of this catching-up effort on the part of East Asian countries, and technology was a driving force that kept East Asia’s manufacturing exports competitive.

4. Globalization and International Division of Labor

Changes in Relative Prices

Labor market changes

East Asia’s labor structure changed as incomes gradually increased and as technology advanced. A typical example was Japan during the 1980s where the demand and the supply of labor was not evenly matched. First, as the standard of living and the overall educational level rose, younger laborers were increasingly disenchanted with

mundane, hard work. Second, the work force was getting older. As a result, it was difficult to find a new generation of young, low-wage workers, and this brought about higher wages. Third, the introduction of knowledge- and capital-intensive technology such as robotics created high-value industries, which created more work in the high-tech and service sectors. In consequence, Japan slowly opened its doors to foreign labor. At the same time, the country began investing intensely in developing countries by transferring less-sophisticated, labor-intensive processes.

One of the important factors in the change in the structure of labor in developing countries lays in the relationship between agriculture and industry. As long as surplus labor existed in agriculture, the real industrial wages of unskilled labor remained static because of the inflow of labor from rural areas.

In Korea the inflow of rural labor stopped during the 1970s.¹⁶ At the same time, the long-run promotion of heavy and chemical industrialization brought about labor shortages, particularly in skilled manpower, and this produced pressure to increase wages and salaries. Up until the mid-1980s, the labor movement had been suppressed by pseudo-authoritarian regimes in exchange for rapid growth. In 1987 the Declaration of Democratization inspired a labor offensive which caused the collapse of Korea's economic comparative advantage and pushed Korean investment abroad.

Taiwan also experienced wage increases when labor movements became active after the lifting of martial law in 1986. Tight labor conditions were present in Singapore and Hong Kong, too. Labor cost increases provoked the relocation of manufacturing—particularly assembly processes—to neighboring countries; to Malaysia and Thailand from Singapore, and to the coastal region of mainland China from Hong Kong and Taiwan through Hong Kong.

Contrary to the higher wages of the mid-1980s, a unique coincidence of three "lows" prevailed in the region: relatively low interest rates, low crude-oil prices, and low exchange rates against the U.S. dollar. This situation, though it lasted for only a short period of time, boosted investment and trade, both domestically and internationally. Perhaps the most important change was the evolution of exchange rates which profoundly influenced the region's economy.

Exchange rate appreciation

The September 1985 G-5 meeting in New York permitted countries to adjust their currencies to a more realistic level. This caused a substantial depreciation of the U.S. dollar against the other major currencies. The yen, which had traded around 240–50 yen per dollar before the Plaza Accord, suddenly shot up and was trading at 217 yen to the dollar by the end of September. It continued to appreciate reaching the 130 yen range in 1988 (see Table 1–7). This brought about a second Japanese FDI boom (1986–89) because investment costs were nearly halved in terms of the dollar.¹⁷

The strong yen had other repercussions in ANIEs4 countries, especially in Korea and Taiwan. Their currencies did not adjust as quickly as the yen did against the U.S. dollar. The Korean won and the new Taiwanese dollar remained competitive in comparison with the yen until they were finally adjusted against the major currencies in succeeding years. This lag substantially contributed to increased exports to the

TABLE 1-7
EXCHANGE RATES (ANNUAL AVERAGE) AND REAL EFFECTIVE EXCHANGE RATES
(REER, 1985 = 100)

		(Per U.S. dollar)					
	Currency	1985	1986	1987	1988	1989	1990
ANIEs4							
Hong Kong	HK\$	7.79	7.80	7.80	7.81	7.80	7.80
	REER	100.0	93.6	92.1	87.1	91.5	104.8
Korea	Won	870.02	881.45	822.40	730.60	671.40	707.70
	REER	100.0	83.2	82.8	93.6	108.7	108.5
Singapore	S\$	2.20	2.18	2.11	2.01	1.95	1.78
	REER	100.0	87.9	82.9	81.2	94.1	99.1
Taiwan	NT\$	39.85	37.84	31.85	28.59	26.41	26.86
	REER	100.0	84.9	90.7	98.1	109.1	107.6
ASEAN4							
Indonesia	Rupiah	1,110.58	1,282.56	1,643.85	1,685.70	1,770.10	1,840.00
	REER	100.0	75.7	57.8	55.5	56.8	57.2
Malaysia	Ringgit	2.48	2.58	2.52	2.62	2.71	2.71
	REER	100.0	85.4	81.1	71.7	69.3	68.9
Philippines	Peso	18.61	20.39	20.57	21.10	21.74	24.30
	REER	100.0	81.5	76.6	74.5	77.1	76.9
Thailand	Baht	27.16	26.30	25.72	25.29	25.70	25.68
	REER	100.0	88.1	83.6	79.3	81.8	85.6
China	Yuan	2.94	3.45	3.72	3.72	3.77	4.72
	REER	100.0	74.1	69.5	79.9	89.9	70.3
Japan	Yen	238.54	168.52	144.64	128.15	137.96	144.79

Source: Asian Development Bank, *Asian Development Outlook 1991*.

United States from Korea and Taiwan by offsetting the Japanese loss in the U.S. market. The massive appreciation of Korean (in 1988 and 1989) and Taiwanese (in 1987 and 1988) currencies allowed the two countries to pour FDI into the United States and into ASEAN4 countries.

Another important factor of currency appreciation for ANIEs4 was its effect on investment costs, particularly wages in dollar terms. As noted earlier, real wages increased in ANIEs4 due to a tight labor market condition. The appreciation of their currencies meant that wages were higher in terms of the U.S. dollar. For example, the hourly manufacturing wage in Korea almost doubled from U.S.\$1.7 in 1987 to U.S.\$3.3 in 1989. This motivated industrial countries to shift their foreign investment away from ANIEs4 to ASEAN4 where wage and exchange rates remained benign, or even depreciated in the case of the Indonesian rupiah. New investment flows from ANIEs4 to ASEAN4 also began.

Therefore the international currency realignment greatly affected the flow of investment in East Asia, and this in turn fundamentally changed the trading structure within the region.

The Role of FDI and the Creation of Supply Chains

Changes in relative factor prices bring about significant changes in the flow of investment, generating new trade flows within the region. FDI initially creates a flow of capital goods from the investing to the host country. After operations start, parent companies then provide parts and components to affiliated companies to be assembled, or intermediate goods to be further processed. Affiliated companies, in turn, send semi-finished goods to be further assembled in a third country, or back to the home country for final assembly. Sometimes final products are exported back home or to a third country. This relocation of production across national boundaries through FDI—the spatial restructuring of production—creates a two-way or triangle trade flow among participating countries.

Another important aspect of FDI is the dynamic transfer of production processes. Production processes are moved to other countries that offer the best comparative advantage. For example, the production of labor-intensive goods—(or part of the production process)—has been gradually transferred to ANIEs4 from Japan, and from ANIEs4 to ASEAN4 and China. Further shifts of production to South Asia and Indochina in the near future are quite possible. This dynamic transfer generates a “multi-tiered,” interdependent structure in East Asia’s manufacturing industries. FDI data illustrate this movement quite vividly as follows.

Foreign direct investment in East Asia

Reflecting factor market conditions and the stronger yen, Japan’s FDI jumped to U.S.\$22.3 billion in 1986, up from U.S.\$12.2 billion the previous year. It expanded to a record peak of U.S.\$67.5 billion in 1989. Between 1985 and 1990, Japan’s FDI amounted to U.S.\$239 billion of which 46.2 per cent was invested in the United States, 21.0 per cent in Europe, 12.3 per cent in Asia, and 11.5 per cent in Latin America. FDI to the United States was motivated to avoid trade friction, and that to Europe to establish local status prior to the creation of the Single European Market (SEM) in 1992.

Regarding the FDI in ANIEs4, the increased investment in Hong Kong and Singapore had strategic importance in the development of procurement and supply centers, as regional headquarters due to geographical position—especially Hong Kong after its 1997 return to the mainland as a port of entry to China, and due to the well-established telecommunication and banking service infrastructure. On the other hand, FDI in Korea and Taiwan has slowed, and even declined in Korea after 1987. As far as ASEAN4 is concerned, Japan invested intensively in Thailand, the biggest among the four countries, between 1985 and 1990. Indonesia and then Malaysia followed. Cost factors, particularly labor, played a pivotal role in these investment decisions, as explained before. (See Table 1–8.)

Data from host countries (approval basis) show that ASEAN4 received an unprecedented amount of FDI in 1988—U.S.\$13 billion—three times that of the previous year, and it reached U.S.\$17 billion in 1989. This upsurge was principally due to

TABLE
JAPAN'S FOREIGN DIRECT

	1980	1985	1986	1987
World	4,693 (100.0)	12,217	22,320	33,364
Asia	1,186 (25.3)	1,435	2,327	4,868
ANIEs4	378 (8.1)	718	1,531	2,580
Hong Kong	156 (3.3)	131	502	1,072
Singapore	140 (3.0)	339	302	494
Korea	35 (0.7)	134	436	647
Taiwan	47 (1.0)	114	291	367
ASEAN4	786 (16.7)	596	553	1,030
Indonesia	529 (11.3)	408	250	545
Malaysia	146 (3.1)	79	158	163
Philippines	78 (1.7)	61	21	72
Thailand	33 (0.7)	48	124	250
Other Asia				
China	12 (0.3)	100	226	1,226
Latin America	588 (12.5)	2,616	4,737	4,816
Caymans	16 (0.3)	132	930	1,197
Brazil	170 (3.6)	314	270	229
Mexico	85 (1.8)	101	226	28
Panama	222 (4.7)	1,533	2,401	2,305
North America	1,596 (34.0)	5,495	10,441	15,357
Canada	112 (2.4)	100	276	653
U.S.A.	1,484 (31.6)	5,395	10,165	14,704
Europe	578 (12.3)	1,930	3,469	6,576
Africa	139 (3.0)	172	309	272
Middle East	158 (3.4)	45	44	62
Oceania	448 (9.5)	525	992	1,413

Source: Japan, Ministry of Finance, *Zaisei kin'yū tōkei geppō* [Monthly statistics on money and

Notes: Figures in parentheses are percentages in the total.

^a Up until March 31 for 1991.

increases from Japan and ANIEs4 caused by the appreciation of their currencies and other factor price transformations.

At the same time, economic-policy changes in host countries had a major impact. Coupled with trade liberalization, ANIEs4 and ASEAN4 adopted more liberal FDI policies in the 1980s. These policy shifts encouraged massive out- and in-flows of FDI. ASEAN4 received U.S.\$3.8 billion in 1988 from Japan, double the 1987 level. Strikingly, ANIEs4's FDI to ASEAN4—totaling U.S.\$4.1 billion, of which about half came from Taiwan—exceeded that of Japan's in 1988. Thailand and Indonesia absorbed around 40 per cent each, and Malaysia 15 per cent. In 1989 ASEAN4 received U.S.\$4.8 billion in FDI, of which 41 per cent came from Taiwan, 25 per cent from Hong Kong, 19 per cent from Singapore, and 15 per cent from Korea. Of the total, 42 per cent went to Thailand, 28 per cent to Malaysia, and 25 per cent to Indonesia. Thus it is clear that from 1988 on, ANIEs4 intensively and extensively in-

1-8

INVESTMENT BY COUNTRY

(U.S.\$ million)

1988	1989	1990	1985-90	1951-91 ^a
47,022	67,540	56,911 (100.0)	239,374 (100.0)	310,808 (100.0)
5,569	8,238	7,054 (12.4)	29,491 (12.3)	47,519 (15.3)
3,264	4,900	3,354 (5.9)	16,347 (6.8)	23,274 (7.5)
1,662	1,898	1,785 (3.1)	7,050 (2.9)	9,850 (3.2)
747	1,902	840 (1.5)	4,624 (1.9)	6,555 (2.1)
483	606	284 (0.5)	2,590 (1.1)	4,138 (1.3)
372	494	445 (0.8)	2,083 (0.9)	2,731 (0.9)
1,966	2,782	3,242 (5.7)	10,169 (4.2)	20,773 (6.7)
586	631	1,105 (1.9)	3,525 (1.5)	11,540 (3.7)
387	673	725 (1.3)	2,185 (0.9)	3,231 (1.0)
134	202	258 (0.5)	748 (0.3)	1,580 (0.5)
859	1,276	1,154 (2.0)	3,711 (1.6)	4,422 (1.4)
296	438	349 (0.6)	2,635 (1.1)	2,823 (0.9)
6,428	5,238	3,628 (6.4)	27,463 (11.5)	40,483 (13.0)
2,609	1,658	588 (1.0)	7,114 (3.0)	7,332 (2.4)
510	349	615 (1.1)	2,287 (1.0)	6,560 (2.1)
87	36	168 (0.3)	646 (0.3)	1,874 (0.6)
1,712	2,044	1,342 (2.4)	11,337 (4.7)	16,244 (5.2)
22,328	33,902	27,192 (47.8)	114,715 (47.9)	136,185 (43.8)
626	1,362	1,064 (1.9)	4,081 (1.7)	5,656 (1.8)
21,701	32,540	26,128 (45.9)	110,633 (46.2)	130,529 (42.0)
9,116	14,808	14,294 (25.1)	50,193 (21.0)	59,265 (19.1)
653	671	551 (1.0)	2,628 (1.1)	5,826 (1.9)
259	66	27 (0.0)	503 (0.2)	3,431 (1.1)
2,669	4,618	4,166 (7.3)	14,383 (6.0)	18,098 (5.8)

finance], various issues.

vested in every ASEAN country, except the Philippines. Taiwan's contribution attracts attention because it emerged as a supplier of capital due to its large trade surplus and its currency appreciation. (See Table 1-9).

Foreign Direct Investment to China also swelled, mainly because of Hong Kong's contribution. However, Hong Kong's FDI seems to include overseas Chinese capital that originated from Taiwan and Singapore. In addition, foreign companies located in Hong Kong that invested in China were counted as Hong Kong FDI.

Supply chains

The international division of labor in the region was augmented through FDI. Multinational companies sought global strategies to most economically combine design, procurement, production, sales, marketing, customer services, and R&D. For example, Japanese multinationals specialized at home in design, R&D, production of

TABLE 1-9
FOREIGN DIRECT INVESTMENT IN ASEAN4 AND CHINA

(U.S.\$ million)

To	From	Hong Kong	Korea	Singapore	Taiwan	ANIEs4 Subtotal	Japan	U.S.A.	World Total
Indonesia	1987	134.0	23.0	1.0	12.0	170.0	524.0	91.0	1,467.0
	(%)	9.1	1.6	0.1	0.8	11.6	35.7	6.2	100.0
	1988	258.0	206.0	250.0	912.0	1,626.0	255.0	671.0	4,409.0
	(%)	5.9	4.7	5.7	20.7	37.0	5.8	15.2	100.0
	1989	406.8	466.1	166.1	158.2	1,197.2	768.7	348.0	4,718.8
(%)	8.6	9.9	3.5	3.4	25.4	16.3	7.4	100.0	
Malaysia	1987	35.3	1.3	102.6	96.4	235.6	283.8	64.6	817.5
	(%)	4.3	0.2	12.5	11.8	28.8	34.7	7.9	100.0
	1988	113.9	16.0	160.2	316.8	606.9	428.4	204.4	1,862.5
	(%)	6.1	0.9	8.6	17.0	32.6	23.0	11.0	100.0
	1989	130.0	69.7	337.7	797.3	1,334.7	963.2	118.4	3,194.1
(%)	4.1	2.2	10.6	25.0	41.8	30.2	3.7	100.0	
Philippines	1987	27.7	0.0	0.5	9.0	37.2	28.7	36.0	166.6
	(%)	16.6	0.0	0.3	5.4	22.4	17.2	21.6	100.0
	1988	26.7	0.9	3.8	109.3	140.8	94.6	152.5	451.4
	(%)	5.9	0.2	0.8	24.2	31.2	21.0	33.8	100.0
	1989	90.2	4.6	23.0	135.7	253.5	157.8	111.3	804.2
(%)	11.2	0.6	2.9	16.9	31.5	19.6	13.8	100.0	
Thailand	1987	125.0	12.9	64.0	299.2	501.1	965.3	172.2	1,949.1
	(%)	6.4	0.7	3.3	15.4	25.7	49.5	8.8	100.0
	1988	451.3	109.0	273.7	849.9	1,684.0	3,045.0	673.2	6,249.1
	(%)	7.2	1.7	4.4	13.6	26.9	48.7	10.8	100.0
	1989	561.4	188.2	411.2	867.8	2,028.7	3,523.8	549.5	7,995.3
(%)	7.0	2.4	5.1	10.9	25.4	44.1	6.9	100.0	
ASEAN4 Subtotal	1987	322.0	37.3	168.0	416.7	944.0	1,801.8	363.8	4,400.2
	(%)	7.3	0.8	3.8	9.5	21.5	40.9	8.3	100.0
	1988	850.0	331.9	687.8	2,188.0	4,057.7	3,823.0	1,701.0	12,972.1
	(%)	6.6	2.6	5.3	16.9	31.3	29.5	13.1	100.0
	1989	1,188.4	728.6	938.0	1,959.0	4,814.0	5,413.5	1,127.2	16,712.3
(%)	7.1	4.4	5.6	11.7	28.8	32.4	6.7	100.0	
China	1987	1,809.1	-	21.6	-	1,830.7	266.6	271.3	2,646.6
	(%)	68.4	-	0.8	-	69.2	10.1	10.3	100.0
	1988	2,428.1	-	30.2	-	2,458.3	598.4	244.4	3,739.7
	(%)	64.9	-	0.8	-	65.7	16.0	6.5	100.0
	1989	2,341.8	-	86.5	-	2,428.3	407.7	288.2	3,773.5
(%)	62.1	-	2.3	-	64.4	10.8	7.6	100.0	

Source: Institute of Developing Economies, internal database.

Note: Approval basis of the host countries.

knowledge-intensive parts and components, and assembly of high-tech products. The relatively low-tech and labor-intensive production processes were moved to ASEAN4 which became depots for parts and semi-finished products and/or for manufacturers of standardized products.

ANIEs4 became producers of relatively high value-added products and served as distribution centers and/or regional headquarters, i.e., Singapore and Hong Kong. In the case of TV production, for instance, Japan dedicated itself to the development of high-definition TVs, while high-quality integrated circuits and semiconductors were sent to Singapore for distribution to ASEAN4 countries. ASEAN4 produced semi-finished components using imported parts, and low-density semiconductors which were shipped to Taiwan to be assembled in color TVs. From there the TVs were destined to the United States and other markets.¹⁸ In car manufacturing a Japanese car company facilitated a network to exchange parts and equipment complementarily between ASEAN countries. This included gasoline engines produced in Indonesia, diesel engines produced in Thailand, steering gears and electrical parts produced in Malaysia, and transmissions produced in the Philippines.

Therefore, intra-firm and intra-region transactions based on either vertical and horizontal integrations across borders prospered in the region year after year. Supply chains, or networks for the production of intermediate goods and semi-finished products, were gradually tied together through relative price changes, without intentionally forming an economic bloc or a free trade area.

NIEs as a "Double-Function Player"

As mentioned earlier, ANIEs4 played an important role as a receptor and transmitter of investment and technology in the region. ANIEs4 invited direct investment from forerunner countries to offset the domestic investment-savings gap, as well as to acquire technology-intensive production methods. For example, Korea accumulated U.S.\$7.5 billion in FDI from 1962 to June 1990, of which 49 per cent came from Japan, and 28 per cent from the United States. Taiwan received U.S.\$10.9 billion in FDI between 1952 and October 1990, of which Japan accounted for 32 per cent, and the United States 29 per cent.

After digesting the technology and management know-how, ANIEs4 invested in ASEAN4 countries, mainly in the low-cost labor sectors. In other words, ANIEs4 was "pulling in" technology-intensive, R&D-type industries from advanced countries while "pushing out" labor-intensive, relatively low value-added industries to ASEAN4. This role of ANIEs4 was sometimes called "double function," and ANIEs4 was sometimes referred to as a "double-function player." (See Aoki [4].)

Japan had also played this role, especially from the technological and managerial point of view. Japan imported new technology and transferred it to other Asian countries by way of investment, although the degree of the transfer of technology was often insufficient according to host countries (in this respect, see Yamashita [75]). One important factor to note is that Japan modified its imported technology slightly to suit local conditions, and then farmed it out to the ANIEs4 and ASEAN4 countries where little or no modification was necessary. Not only were in-house production

methods, including quality control measures, diffused to East Asian countries, but also institutional arrangements such as subcontracting as well.

Here again a dynamic nature of transformation is observed in the region. At first Japan played this double function role, and now ANIEs4 is following the same role as a receptor-transmitter player. Soon ASEAN4 will play the role in Indochina and China. Relative prices and exchange rates are the key in this dynamic chain reaction. In a sense, the industrial structure is transforming itself through market mechanisms, reflecting a changing comparative advantage, despite the fact that some distortions still remain. Industrial restructuring is, in fact, a phenomenon that affects both developed and developing countries. Industries move according to the degree of factor intensities: high-tech, knowledge-intensive, and high value-added sectors for advanced countries; less-sophisticated, labor-intensive, and lower value-added sectors for developing countries. It is important to note that this industrial transformation is not static but dynamic, that is, it changes among countries as the development stage of each country changes.

5. Industrial Organizational Aspects

Let us turn now to domestic supply chains. The international division of labor is a mere expression of an established domestic division of labor now spread across national boundaries. Domestically, inter-process, intra-firm linkages are formed as parts-and-component firms develop. Since parts and components are supplied for final assembly, their manufacturers are called “supporting industries.” At the initial stage of development, supporting industries are nonexistent, or immature if they do exist.

Multinational companies tend to manufacture parts and components within their own factories, or import needed parts from the parent company because reliable suppliers do not exist at the first stage investment in a developing country. This vertical integration is sometimes costly and inefficient because it requires extra investment. Generally speaking, however, when a production technique is standardized, part of the production process, particularly the labor-intensive part, can be separated from the parent company and moved to a low-cost labor stratum. Parts-and-component makers are sometimes born by way of this spin-off. Domestic parts-and-component entrepreneurs are gradually born as demand grows and specialization deepens. The wage difference and divisibility of production process work as a motive to outsource.

As domestic supporting industries grow, the organizational aspects turn out to be important issues in terms of competitiveness. How should efficient supply chains between assembly and parts-and-component firms be organized? What is the best combination between large and small enterprises? How should the relationship be maintained to assure a stable supply of parts and components? What is the subcontracting system and its associated group structure?

Patterns of Industrial Organization

The efficiency of a firm depends on its in-house production methods and its man-

agement. However, because firms purchase parts and components from outside sources, their supplier relationships need to be taken into account when considering efficiency. Usually price, quality, delivery reliability, and contract length are the four crucial factors in the assembler-supplier relationship. These are determined by a purchasing and contracting system that substantially affect industrial efficiency. There are five ways that final assemblers obtain parts and components: (a) produce them internally, (b) make affiliated companies to produce them, (c) purchase them from outside independent sources, (d) organize subcontractors who have special ties with assemblers, and (e) a mixture of the previous four.

A prototype of Japanese firms

A typical relationship between parts makers and assembly firms is seen in the Japanese subcontracting system. A Japanese assembly maker such as an automobile or an electronics firm has a hierarchical system of supply chains for parts and components. For example, the assembly of a car is first divided into major units that consist of separate parts and components.¹⁹ These separate parts and components are also composed of small individual parts and accessories. Usually the final assembly firm, or prime firm, organizes the first tier of subcontractors, including its affiliated companies which specialize to produce the principal units such as engine parts, transmissions, electrical parts, and bodies and chassis.

The first-tier makers—the assembler of the major units—then organize the second-tier parts and processing makers who in turn deal with the foundry, press, mold, cut and polish, and other metalwork, plastic and rubber processes, as well as painting activities. The small parts and materials for these processes are supplied by the third-tier parts and accessory makers. This supply chain sometimes reaches to a fourth or fifth tier. In the Japanese auto industry, each assembler has its own pyramid-type supporting group, called “*kyōryoku-kai*” (or associations).

The cooperative relationship between the assembler and the parts-and-component makers has two distinctive merits: to share information and to share profits within the group as a whole. As Womack, Jones, and Roos [72] put it, “This framework makes the two parties want to work together for mutual benefit, rather than look upon one another with mutual suspicion” [72, p. 148]. Williamson [71] also pointed out that “Those associations serve as important communication and planning links. The organized contact of the suppliers among each other as well as with the client company also assures that experience is quickly and accurately shared” [71, p. 122].²⁰

The interaction and accumulation of knowledge between the prime firm and the subcontracting firms are of vital importance in this system. It saves design time and improves production engineering because the participating workers together share new knowledge by way of the horizontal flow of information across firm boundaries. Usually supporting industries are not well developed in developing countries. Since they are mainly small-scale enterprises (SEs), the next question is how to promote these SEs.

Here again East Asian countries took an interventionist approach. They thought that fostering domestic parts-and-component industries was vital to industrialize be-

cause too much dependence on imports or reliance on supplies from multinational companies through a free market mechanism could hinder the establishment of its own industrial base. Thus the creation of supporting industries was an urgent goal. Therefore governments provided incentives to SEs.

Korea

As explained earlier, the Korean economy was initially pulled along by state enterprises and large, private Gulliver-type enterprises. The government, which realized the crucial role of parts-and-component industries, began to emphasize their promotion through the regulatory system.²¹ The first attempt was the Small and Medium Industry Basic Act of 1966, followed by the Small and Medium Enterprise Systematization Promotion Act of 1975, and the Small and Medium Industry Promotion Act of 1978. This promotion was further strengthened by additional regulations such as the Small and Medium Industry Products Procurement Act of 1981, and the Small and Medium Enterprise Start-Up Support Act of 1988. Financial support was also provided through the Industrial Bank of Korea (1961), the Citizen's National Bank (1963), the Korea Credit Guarantee Fund (1974), and the Small and Medium Industry Promotion Corporation (1984).

Organizational ties and networking between large and small firms were strengthened through the Small and Medium Enterprise Systematization Promotion Act. Under this law the government designated priority sectors that depend heavily on subcontracting to receive assistance. It also designated priority parts and components that were ordered by the prime firm—those items that prime assembly firms were prohibited from producing²²—to establish a division of labor and to promote the transfer of technology between the two groups. In 1985 the designated sectors totaled 40 sectors including autos, electronics, and footwear, and covered 1,256 designated products.

In addition to these policies, the private big companies organized Japanese-type associations between their subcontractors. Compared with Japan, the Korean multi-layered structure was not as complex, and was limited at most to the second-tier subcontractors. Moreover, the subcontractors were free to sell their products to other groups because the number of subcontractors was still limited due to the slow development of parts industries.

Taiwan

Taiwan is called a “kingdom of small- and medium-scale industries.” This is said because the Chinese are considered independent—people who wish to work for themselves and not for large enterprises. Family businesses flourish, and the government only intervenes with three supporting regulations—two basic and one specific.

The first basic regulation, the decree for guidance of small- and medium-scale industries, was promulgated in 1982 and the second, the decree for development of small- and medium-scale enterprises, was promulgated in 1991. The third and specific regulation, the instruction for the center-satellite factory system enacted in 1984,

established a bridge between small and large businesses—the Japanese-type subcontracting system.

According to this instruction, the center companies (i.e., prime companies) were required to place stable orders of parts and components to satellite companies (i.e., subcontractors), and were obliged to transfer new technology to them. On the other hand, the satellite companies were required to keep the center companies' production plans, designs, and technologies secret.²³ In this system, three types of ties were recommended: between the assembler and the parts-and-component makers; between the intermediate goods suppliers (mid-stream) and the final processing makers (down-stream); and between the trading companies (and/or plant exporters) and the OEM (original equipment manufacturers) companies (and/or export goods manufacturers). By 1987, forty center factories were registered in association with 791 satellite factories (see Taniura [62]). In 1990, the Center-Satellite Development Industrial Coordination Center (CSD) was established to strengthen the system.

Intra-firm and Inter-industry Linkages

A typical corporate culture is seen from this East Asian business practice. Such group-oriented ties of associations (*kyōryoku-kai*) and industrial groups (*keiretsu*) originated in Japan and diffused to neighboring countries. These systems have the following characteristics:

(a) The subcontracting system is the base for the outsourcing of the assembler-suppliers relationship. It is recognized that vertical integration within a firm is more costly than the subcontracting of parts-and-component production. Usually a group-oriented approach is adopted resulting in the formation of an association under one prime firm.

(b) In the pyramid-shaped hierarchical group of supply chains, information and profits as well as risk are shared among participants. The prime firm can reduce cost (such as “just-in-time” applications) while the subcontractors can obtain longstanding orders for their products. The collaboration on R&D and “design-in”²⁴ between the prime and supporting firms brings about the accumulation of knowledge in the group (externalities of information) which leads to efficient production engineering and saves time.

(c) Although entry into the group, especially from foreign capital, is difficult, competition is fierce between the different *keiretsu* groups. Thus international competitiveness is enhanced.

(d) *Keiretsu* is a broader concept than the association concept (vertical *keiretsu*). It is inter-industry relationships with horizontal ties of firms (horizontal *keiretsu*). Each industrial group has a set of key companies which cover banking, insurance, trading as well as manufacturing. Within the group a portion of each company's stock is held by each other. Because financial resources are rich within the group, member firms can enjoy cheap funds. Historically *keiretsu* is the reorganization of pre-war family-based holding companies in Japan.

(e) In Korea and Taiwan associations and industrial groups are formed through

government initiative. In spite of the Japanese influence, they have their own historical and social roots: a strong consanguineous relationship in Korea, and a strong guild—from the same province or *bang*—relationship in Taiwan. In sum, these close-knit ties express an oriental philosophy: coexistence and co-prosperity.

(f) When investing overseas, a “set” from the group is formed, and it goes as one, hand-in-hand, to the host country. Coupled with the host country’s parts suppliers, they organize the same type of multi-layered subcontracting system.²⁵ That is why intra-firm, inter-industry networks can be easily built across national boundaries.

The Role of Small-Scale Enterprises

The development of SEs has several merits: (a) the creation of employment; (b) the correction of income disparity, especially a leveling of the regional income gap; (c)

TABLE 1-10-1
MANUFACTURING INDUSTRY BY SIZE: ANIEs4

	Hong Kong	Korea	Singapore	Taiwan
Establishment (No.)				
Micro	—	—	—	—
Small	42,587 (92.0)	24,530 (59.0)	2,630 (72.7)	79,719 (87.1)
Medium	3,562 (.77)	15,960 (38.4)	483 (13.4)	10,799 (11.8)
Large	159 (0.3)	1,059 (2.6)	503 (13.9)	981 (1.1)
Total	46,309 (100.0)	41,549 (100.0)	3,616 (100.0)	91,499 (100.0)
Employment (Persons)				
Micro	—	—	—	—
Small	378,951 (40.5)	236,075 (10.1)	52,589 (19.4)	491,000 (22.3)
Medium	408,590 (43.6)	1,050,959 (44.9)	33,284 (12.3)	872,000 (39.7)
Large	149,069 (15.9)	1,056,559 (45.1)	185,233 (68.3)	834,000 (38.0)
Total	936,609 (100.0)	2,343,593 (100.0)	271,106 (100.0)	2,197,000 (100.0)
Value added (U.S.\$ million)				
Micro	—	—	—	—
Small	1,926 (31.7)	1,306 (4.3)	623 (13.4)	1,900 (13.1)
Medium	2,780 (45.8)	9,811 (32.1)	539 (11.6)	4,098 (28.2)
Large	1,362 (22.5)	19,472 (63.6)	3,486 (75.0)	8,548 (58.8)
Total	6,069 (100.0)	30,589 (100.0)	4,648 (100.0)	14,546 (100.0)
Classification (Persons)				
Micro	—	—	—	—
Small	1-49	5-19	10-49	1-29
Medium	50-499	20-299	50-99	30-299
Large	500 and over	300 and over	100 and over	300 and over
Data source				
	<i>Industrial Production Survey, 1983</i>	<i>Industrial Census, 1984</i>	<i>Industrial Census, 1983</i>	<i>Manufacturing Production Survey, 1981</i>

Notes: 1. The present classification does not necessarily correspond to each country’s definition of the size of enterprises.

2. The figures in parentheses are percentages of the total.

TABLE 1-10-2
MANUFACTURING INDUSTRY BY SIZE: ASEAN4, BRAZIL, AND MEXICO

	Indonesia ^a	Malaysia	Philippines	Thailand	Brazil	Mexico
Establishment (No.)						
Micro	1,417,803 (92.1)	4,680 (41.7)	-	26,019 (63.8)	163,395 (79.9)	115,282 (89.1)
Small	113,024 (7.4)	5,030 (44.8)	30,558 (96.3)	11,921 (29.2)	31,493 (15.4)	9,736 (7.5)
Medium	7,960 (0.5)	1,124 (10.0)	568 (1.8)	2,187 (5.4)	6,339 (3.1)	2,565 (2.0)
Large		390 (3.5)	588 (1.9)	653 (1.6)	3,272 (1.6)	1,818 (1.4)
Total	1,538,787 (100.0)	11,224 (100.0)	31,714 (100.0)	40,780 ^b (100.0)	204,499 (100.0)	129,401 (100.0)
Employment (Persons)						
Micro	2,794,833 (62.2)	11,700 (2.9)	-	164,847 (14.8)	889,000 (18.5)	397,196 (15.4)
Small	827,035 (18.4)	80,400 (19.9)	330,268 (40.2)	260,199 (23.4)	1,288,000 (26.8)	439,245 (17.0)
Medium	870,019 (19.4)	106,000 (26.2)	79,993 (9.7)	265,570 (23.8)	966,000 (20.1)	403,297 (15.7)
Large		206,700 (51.1)	411,905 (50.1)	421,885 (37.9)	1,663,000 (34.6)	1,337,037 (51.9)
Total	4,491,887 (100.0)	404,800 (100.0)	822,166 (100.0)	1,112,501 (100.0)	4,806,000 (100.0)	2,576,775 (100.0)
Value added (U.S.\$ million)						
Micro	468 (13.6)	13 (0.6)	-	n.a.	5,639 (7.6)	1,424 (5.8)
Small	301 (8.8)	307 (13.1)	589 (7.2)	n.a.	16,842 (22.7)	2,540 (10.3)
Medium	2,665 (77.6)	734 (31.4)	1,764 (21.6)	n.a.	16,545 (22.3)	3,322 (13.5)
Large		1,287 (55.0)	5,828 (71.2)	n.a.	35,168 (47.4)	17,374 (70.5)
Total	3,434 (100.0)	2,341 (100.0)	8,181 (100.0)	n.a.	74,195 (100.0)	24,660 (100.0)
Classification (Persons)						
Micro	1-4	1-4	1-4	1-9	1-19	1-20
Small	5-19	5-49	5-99	10-49	20-99	21-100
Medium	20-99	50-199	100-199	50-299	100-249	101-250
Large	100 and over	200 and over	200 and over	300 and over	250 and over	251 and over
Data source						
	<i>Industrial Statistics Survey, 1979</i>	<i>World Bank Estimate, 1978</i>	<i>Institute for Small-scale Ind. (U.P.) Estimate, 1982</i>	<i>Industry Bureau and Labor Bureau, 1984</i>	<i>Industrial Census, 1980</i>	<i>Industrial Census, 1985</i>

^a Excluding oil and gas related processing.

^b Excluding rice mills.

the dynamic aspects of technology, its diffusion and innovation; and (d) a flexible response to changing demand.

Employment

Although it is difficult to compare SEs in countries (their definition differs from country to country, and frequently data are not available for micro enterprises), the manufacturing employment in this sector cannot be ignored.

In Hong Kong SEs (less than 50 employees) accounted for 41 per cent of manufacturing employment, in the Philippines (less than 100) 40 per cent, in Thailand (less than 50) 38 per cent, and in Taiwan (less than 30) 22 per cent. Available data show that Brazilian SEs (less than 100) contributed 45 per cent of total manufacturing employment, and in Mexico (less than or equal to 100) it is 32 per cent. These figures show the high contribution of SEs to employment (see Tables 1-10-1 and 1-10-2).

Location

An interesting feature of SEs is their location. Cottage industries usually begin at locations where raw materials are rich, or where immigrants with special skills gather. The beginnings are accidental or historical, and clusters of many SEs can be found away from industrial centers or the capital city. The wide-spread nature of industrial location contributes to equalize regional income disparity.

Usually in Japan small- and medium-scale enterprises (SMEs) surround a large company, forming the subcontracting chain system as explained earlier. This locale is called *jōka-machi*, or castle town, where in feudal times a lord constructed a castle and people gathered around to serve the lord. Examples of modern *jōka-machi* are the area around the Toyota principal factory near Nagoya, that around Matsushita near Osaka, and the one around Mazda near Hiroshima. The recent birth of new high-tech clusters also is not necessarily connected to industrial centers. Industrial, science, and technology parks constructed and planned by Asian countries are always utilized as a measure to decentralize industry.

The important aspect of location is the cumulative process, meaning that the agglomeration and concentration of SMEs is necessary to work "Marshallian" externalities.²⁶ Small-scale enterprises can not exploit the scale merits by themselves but when they are integrated with large assemblers, the industry as a whole can enjoy increasing returns. In the establishment of supply chains, or domestic industrial networks, assemblers develop bonds with small-scale businesses, taking advantage of the low-cost availability of specialized inputs and services.

Technology spillovers

Since information has a public goods nature, everybody has use of the new knowledge after its birth, with or without paying. The accumulation of knowledge easily draws forth new inventions in highly concentrated and competitive surroundings. Small-scale entrepreneurs can join in this game without much capital because high-tech requires software-based, specialized knowledge, especially with the spread of powerful but small computers. Moreover, the trend shows that new developments in

production technology need further collaboration between large and small firms because as demand diversifies, more specialized knowledge is required. Silicon Valley is a famous example of the spillover effects of information.

In East Asia science and technology parks are promoted by government. The Hsinchu park in Taiwan and the park near the University of Singapore are examples. In this context, industrial clusters—or modern *jōka-machi*—are the cradle of new inventions and industrial engineering. One of the development successes of ANIEs4 lies in the emphasis on product quality and high technology content. High technology embodied in both human and physical capital is the key for increasing returns and thereby high growth. As explained before, small-scale firms can not generate economies of scale by themselves, but if combined, an industry or a group can create scale merits. A typical example is observed in the semiconductor industry where cost is reduced quite rapidly, along the “learning curve,” in a short period of time.

Changing demand

As income grows, demand diversifies. A big company, which has vertically integrated parts-and-component departments within its plant, is not able to respond rapidly to changing demand. The diversification of products sometimes generates duplication and inefficiency within the plant. If the assembly and supporting firms form a network like an association, they can respond quickly to changing demand through flexible production and through the supplier system. With the collaboration of supporting industries, assemblers can produce differentiated products or several varieties of products in the same production line. This not only shows the merits of SEs, but depicts as well how the subcontracting system as a whole works efficiently when faced with changes in demand. For example, Womack, Jones, and Roos [72] pointed out that “the new Toyota production system was especially well suited to capitalize upon the changing demands that consumers were placing on their cars and upon changing vehicle technology” [72, p. 64]. They called the Toyota system—which features an in-house production method such as quality control and just-in-time inventory control, and an organizational structure based on the subcontracting system—“lean production.”

6. Policy Implications

Impacts of Liberalization Policies

For the last fifty years the countries of East Asia have ridden a development path that emphasized exports. As long as markets lie overseas, free trade is the ultimate goal. In other words, the development trajectories of the region show that East Asian countries, especially ANIEs4, are in the process of opening up their economies step by step. The policy shift from import substitution to export promotion during the 1960s was seen as a partial step in liberalization because the correction of the anti-export bias was addressed for the first time during the period. East Asia’s economic structure gradually changed from agriculture to industry. When surplus labor from

rural areas was absorbed by the industrial sectors, real industrial wages started to increase. Intermediate-goods imports were gradually substituted by domestic production thanks to massive investment by governments to obtain scale-economies.

Coupled with external shocks such as the United Kingdom's withdrawal of its military forces from Singapore, the U.S. decision to cut aid to Korea and Taiwan, the Vietnam War, the oil crises, East Asia's manufactured exports spurted in the 1970s with help from timely government liberalization measures in trade and investment. Another important external factor to be taken into account was the buoyant world trade market during the 1960s and 1970s. East Asia's outward-looking policies were ideal for this period. Further liberalization took place due to changes in relative factor prices—particularly wages—caused by the tight domestic labor supply in ANIEs4, and the exchange rate adjustments of the mid-1980s. It is indisputable that free trade benefitted East Asia, and that the region became more interdependent through trade and investment.

It is worth mentioning that FDI played an important role in three ways. First, the divisibility of the production process—particularly with standardized products—made it possible to move part of the manufacturing process to other countries according to comparative advantage. The relocation of production through FDI triggered not only infrastructure investment by host countries such as in industrial parks, but it also provided the opportunity to start up and develop supporting industries. Second, the vertical integration of inter-process transactions across national boundaries created new trade flows within the region. Third, the horizontal integration of differentiated products deepened within the region and intra-regional trade accelerated.

The East Asian experience shows that comparative advantage is not a static notion but a dynamic one: the production process moves from Japan to ANIEs4, from ANIEs4 to ASEAN4, and from ASEAN4 to other Asian countries. This movement is knitting a web based on an international division of labor.²⁷

Three lessons can be drawn from East Asian development: (a) an outward orientation is needed, (b) the formation of supply chains is required, and (c) the role of government must be supportive.

Outward orientation

The policy shift from import substitution to a strategy of export promotion at the early stage of development brought about the gradual international insertion of the domestic economy with the global economy. Because demand lies overseas, price and quality are the two principal factors, and efficiency is the key to competitiveness. Protectionism, whether domestic or foreign, becomes an obstacle to trade. That is why economic liberalization and free trade were sought.

The World Bank [73] stated, "openness—the free flow of goods, capital, people, and knowledge—transmits technology and generates economic growth across nations" [73, p.88]. The absorption of technology is crucial for developing countries to catch up with the industrialized countries. In this respect East Asia's governments and companies did not hesitate to buy and import new technology from advanced

countries. Within a short period of time, they could digest and master the new technology and know-how, then apply it to mass-production methods. They were able to do this partly because of their sound educational base and partly because of the less-antagonistic attitude toward FDI in the region. Economic openness also stimulated new investment because new technology is usually embodied in new machines. On one hand the region invited FDI, and on the other it itself energetically invested domestically. This investment-cum-export development sparked the growth momentum.

In regard to capital and trade policies, the main point to illustrate is that liberalization was not all done at once. Rather, it was carefully implemented through government guidance to protect domestic infant industries and economic structure. The structural adjustments that took place as liberalization mainly followed market forces, i.e., the changes in relative prices sent signals to induce modification. After achieving the structural adjustments needed at a certain development stage, the next set of liberalization measures followed. Regarding the order or sequence of liberalization measures, East Asian countries in general took the following steps: first, came trade liberalization; second, flexible exchange rate policies; third, banking and financial opening up; and fourth, capital liberalization. In a sense East Asia needed thirty years to phase out its trade and investment distortions, although some still remain.²⁸

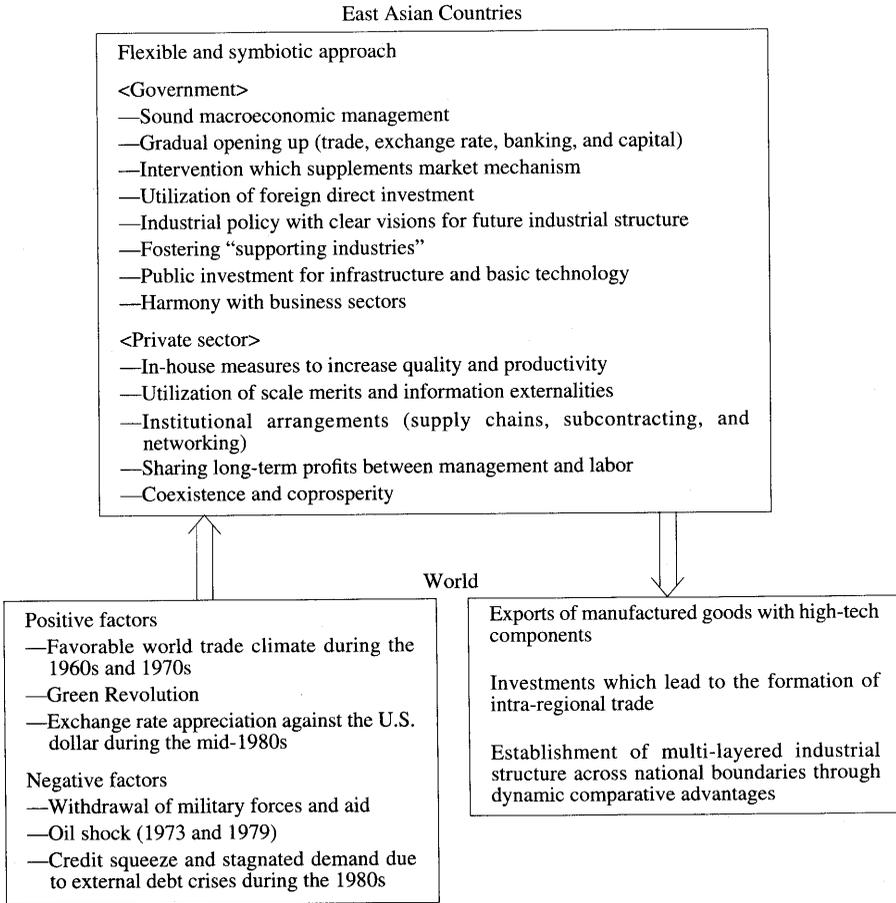
Supply chains

The development of small-scale supporting industries is fundamental not only to foster domestic industries, but also to form a supply chain with the larger companies. A good combination between the supporting and assembly firms can generate maximum production efficiency through economies of scale, as has been shown in the production of cars and electronic products. In spite of in-house production measures, close organizational ties—such as the networking of intra-firm, inter-firm, intra-industry, and inter-industry relationships—lead to time savings, and high quality low-cost products. Information exchanges and the continuous effort to improve are major factors here. This integrated production system, including supply chains, can be easily applied to any country thereby bringing about increased intra-regional trade.²⁹

The role of government

The governments of East Asia guided their economies. Latecomers, like ANIEs4 at the initial stage of their development, faced a scarcity of talented people, a lack of development funds, technology and information, as well as a lack of natural resources. Governments, which were the sole institutions equipped with the latest information, had to hoist the flag and lead the way so that economic agents did not lose their way. They developed long-term targets by using indicative economic plans and by selectively using industrial policy. Government intervention did not alter the market mechanism, but rather supplemented it. The private sectors were the principal

Fig. 1-3. Schematic View of East Asian Industrialization



agents in economic activity. Since ANIEs4 adopted outward-looking trade regimes, international conditions—particularly international prices—have guided its production and business practices.

The remarkable cooperation between the government and the private sector was seen clearly when a country was confronted with an external shock or crisis. The Vietnam War was considered to be a positive event for Korea, Singapore, the Philippines, and Thailand since it gave momentum to an export boom, just as the Korean War did for Japan. The recent currency appreciation against the U.S. dollar was an advantage to ANIEs4 and Japan in their FDI expansion.³⁰ Negative external shocks were also utilized by East Asian countries as an impetus to reform their economic structures. As explained earlier, Singapore adopted a more outward-looking strategy when the United Kingdom’s military forces withdrew. Taiwan and Korea had to rely more on domestic savings, and had to secure other sources of funds for development

after the U.S. decision to decrease its aid. The first and second oil crises prompted East Asian countries to develop and use energy-saving and oil-substituting technology. All these efforts, influenced by positive and negative external shocks, resulted in a more productive labor force and a higher product-quality consciousness than at any time in world trade. (See Figure 1–3.)

It is wise, however, to realize that governments also fail. Governments are not always rational decision-makers, and they are not always able to collect perfect information. For example, during the 1970s in Korea, too much emphasis was placed on heavy and chemical industries, and this produced failure. The same may be said of Japanese agriculture with its heavy protectionism. Moreover, the cost to protect declining industries is enormous.³¹ This implies that once a protection measure is implemented, it is difficult to retract. Therefore protection policies, if necessary, have to have a finite time limit.

Policy Directions

Market forces alone are not likely to lead to the social and economic gains which are anticipated. Liberalization must be accompanied by various adjustment measures to maximize its effect. From the analysis the following policy directions for developing countries can be drawn:

(a) Investment in the manufacturing sector is the key to economic growth. If the virtuous circle between investment and exports can be generated, following an outward-oriented line, the economy can ride on a sustained growth path.

(b) Technology plays an important role in the determination of product quality and cost in modern trade. Efforts, from both the government and private sector, to catch up in new technology are indispensable. Governments should emphasize basic research while the private sector should accumulate knowledge through R&D. In this context, FDI is one of the vital sources for promoting the transfer of technology. Appropriate surveillance on multinational enterprises will be necessary, but antagonism to foreign capital should be put aside.

(c) The creation of small-scale enterprises/supporting industries and their integration with large/medium-scale enterprises—i.e., the formation of industrial networks—is essential for efficient production. To do this, social consensus on cooperation and collaboration between different interest groups is required. In addition, in-house efforts need to be made to increase productivity and competitiveness at each shop level.

(d) Large government expenditures for inefficient state enterprises or for defense is no longer necessary, but some industrial guidance with a long-term philosophy is needed. For example, expenditures for education and training, basic R&D, facilities for technology extension and diffusion, and industrial infrastructure, as well as a human touch on environmental and social welfare aspects should be emphasized.

(e) Macroeconomic stability is imperative. It also offers a basis for sound progress in trade and investment. Here again suitable government decisions in macroeconomic policy are required. East Asian governments adopted neither new special policies nor complex policy-mix, but rather simple, outward-looking policies

in a steady and confident manner. Good governance and trustworthiness of the state are indispensable for development.

(f) The role of middle-income countries as double function players is worth mentioning. The middle-income countries function as both receptors and transmitters of investment and technology. It is estimated from the East Asian experience that wages in middle-income countries such as Brazil, Mexico, Colombia, and Chile will soon increase due to the gradual transformation of their industrial structure toward a higher value-added one. Mexico in the NAFTA system should be prepared to shift its investment into neighboring countries in the near future as cost structure dictates. It is crucial for a region as a whole to form a “multi-tiered” interdependent structure. An external as well as an internal chain structure will enhance intra-regional trade through a new dynamic comparative advantage.

Notes

- 1 ANIEs4 includes Hong Kong, Singapore, the Republic of Korea (Korea hereafter), and Taiwan.
- 2 ASEAN stands for the Association for South East Asian Nations; and includes six nations—Brunei, Indonesia, Malaysia, the Philippines, Singapore, and Thailand. ASEAN4 signifies Indonesia, Malaysia, the Philippines, and Thailand.
- 3 Recently Japan’s imports of manufactured products from the area has been increasing at an exceptional rate due to rapid developments in product-sharing systems which has accelerated trans-border inter-process and intra-industry transactions. Japan is generally thought as an export-specialized country, however, its export share of GDP was 11 per cent in 1990. The figure is considerably smaller than that of Germany (37 per cent) and the United Kingdom (24 per cent).
- 4 This contrasts with Latin American trade figures. According to ECLAC [65], Latin America’s export share decreased from 5.5 per cent in 1970 to 3.7 per cent in 1990, while its intra-regional trade share also declined from 0.7 per cent to 0.5 per cent during the same period.
- 5 Manufactured products were further divided into four subcategories: traditional industries, intermediate-inputs industries, new industries with low and medium technology, and new industries with high technology.
- 6 According to the ECLAC study [66], new industries which contain high technology included electric and electronic machinery, telecommunication machinery, office machinery, medical equipment, pharmaceutical and medicine products, aircraft, and scientific instruments.
- 7 Sectors which do not seem to have comparative advantage at present from any production-cost point of view, will have advantage in the future, particularly when these sectors have externalities and/or scale economies. For example, the auto industry in Japan at its initial stage of development during the 1950s was not considered to be competitive, however, during the 1980s it became one of the world’s strongest competitors. Demand-induced and/or policy-guided development can create a new competitive sector, that is, a new dynamic comparative advantage.

- 8 The birth of the People's Republic of China in 1949 changed the political map in Asia. To avoid communism's influence, a ministerial meeting of the Commonwealth Nations was held in 1950 to eradicate poverty in Asia, and the "Colombo Plan" (named after the capital of Sri Lanka) was launched. It recommended the preparation of a long-term development plan for economic development. Later, the membership of the plan's founding members was extended, and by 1957, Indonesia, the Philippines, Thailand, and Malaysia joined the organization.
- 9 During the period of 1951–61, Taiwan received U.S.\$1,155 million from the United States, while Korea obtained U.S.\$2,020 million between 1953 and 1961. The aid contributed greatly to the capital formation of the two countries.
- 10 At that time, the British military expenditure accounted for 18 per cent of Singapore's GDP, and it employed approximately 20 per cent of the total employed population.
- 11 The key industries included petrochemicals, shipbuilding, machinery, electronics, iron and steel, mining and metal refining, power generation, and chemical fertilizers. Regarding tax incentives, for example, Koo and Nam pointed out that "the effective marginal corporate tax rate from the mid-1970s to the early 1980s was estimated to be below 20 percent for the favored industries, while that for other industries reached nearly 50 percent" [38, p. 263].
- 12 Prior to this act, foreign majority capital was not permitted in a joint-venture firm except in the export-processing zones.
- 13 The recent theory of growth is based on constant and/or increasing returns to scale. One approach is called the "endogenous growth theory" represented by Romer [54]; the other approach, pioneered by Scott [56], abandons the neoclassical framework and offers instead a "new view" of economic growth. According to Riedel [53], both put investment at center stage in determining economic growth.
- 14 As Pratten wrote, "small scale is not a universal barrier to efficient operation" [52, p. 76].
- 15 For example, a 100 per cent local content target was set for machine tools by 1981, and atomic energy-generation facilities by 1991.
- 16 This is called the argument of the "turning point" in Lewis' sense [42]. Ohkawa and Kohama [51, p. 14] stated that an economy will increase the real wage level of unskilled labor when the "unlimited supplies" of unskilled labor are exhausted at a certain point—the turning point. Korea experienced this point around 1975 [7, p. 166] and Taiwan passed the point in 1966–68 [16, p. 46].
- 17 Japan experienced its first direct investment boom from 1969 to 1972, partly due to the yen appreciation caused by the collapse of the Bretton Woods system in 1971, and partly due to deregulation of FDI by the Japanese government.
- 18 Japan invested in TV factories in the United States after the Orderly Export Agreement (OEA) in 1978, in order that part of TV production reside in the United States.
- 19 Other examples of subcontracting industrial networking can be seen in such industries as apparel, precision instruments, machine tools, and even in the dealer-wholesaler distribution relationship.
- 20 For a more precise and accurate discussion, see Aoki [3].
- 21 Article 123, Clause 3 of Korea's constitution provides that the nation has a duty to protect and foster the business activities of small- and medium-scale enterprises.
- 22 For example, big electronic assemblers are prohibited from producing print circuit boards (PCBs).
- 23 This is different from the "dependency" theory. Instead, the regulation recommended forming interdependent relationships between the center and the satellite companies, par-

ticularly an association of factories between the prime and the subcontracting firms.

- 24 The prime firm will bring an idea for new model to the first-tier subcontractors, and together they will design the model so that the parts and components are simultaneously designed from the start. This implies that the prime and the first-tier companies work together as an integral part of the product-development team.
- 25 This point is emphasized by Castillo and Ramirez Acosta [15] in the case of East Asian export-processing zones.
- 26 Krugman [40] interpreted the Marshallian trinity as “labor market pooling, supply of intermediate goods, and knowledge spillovers” [40, p. 70].
- 27 This is often compared to the pattern of wild geese flying in formation with Japan as the leading bird (for example, Naya [49] and Tanaka [60]). The original argument came from Akamatsu [2], who said that the development of a modern industry in latecomer countries follows the pattern of flying geese; i.e., (1) the formation of a domestic market through imports; (2) import substitution in the industry; (3) exports of its product, (4) the decline of the industry and the reimportation of the industry’s product. This happens within a country mainly according to relative price changes and the technological absorption capacity of the country. It is, in a sense, similar to Vernon’s product cycle hypothesis. The present argument extends the notion to the transfer of an industry through FDI according to comparative advantage.
- 28 Hong Kong and Singapore have two of the most pro free-trade regimes in the world. The ASEAN4 countries reduced both tariff and nontariff barriers substantially during the 1980s. Korea and Taiwan also began to widen import access to their domestic markets. However, average rates of protection on industrial products remain high, especially on textiles, chemicals, and transport equipment. The average nominal tariff rate in Korea and Taiwan was lowered to around 13 per cent by the end of the 1980s.
- 29 A 1990 MIT study, which was cited again in Womack, Jones, and Roos [72], judged that the Ford automobile plant designed by Mazda in Hermosillo, Mexico, was the highest-quality auto assembly plant in the world. However, if there are conflicts between entrepreneurs and labor unions, between large and small companies, and between government and private sectors, it is not easy to form supply chains.
- 30 Agriculture is not examined in this study. However, the introduction of high-yielding varieties of rice opened the way for self-sufficiency in food production in several Asian countries where the “green revolution” greatly affected the balance between rural and urban development. A healthy agriculture could sustain the labor force in the rural areas and provide a sound market for domestic industrial products.
- 31 In Japan for example, subsidies still continue to flow into the coal, textile, and marine transportation industries, lasting forty years after their introduction.