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Chapter Author: Yung Chul Park, Won-Am Park

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3 Changing Japanese Trade Patterns and the East Asian NICs

Yung Chul Park and Won-Am Park

3.1 Introduction

The four East Asian NICs (EANICs)—Hong Kong, Singapore, South Korea, and Taiwan—have developed a triangular trade relationship with Japan and the United States. The EANICs depend on the U.S. market for their exports of manufactured products and rely heavily on Japan as a major supply source of capital goods, intermediate inputs, technology, and management know-how. As a group, the four economies have also accumulated a growing trade surplus from their trade with the United States while running a large and persistent deficit with Japan since around the early 1970s. The triangular pattern of trade is often identified as one of the structural rigidities interfering with the adjustment of the trade imbalance between the EANICs and the United States on the one hand and between the EANICs and Japan on the other.

Over the last decade, there have been a number of significant changes in the trade and industrial structure of the Pacific Asian economies. These changes have in turn created powerful economic forces that may lead to closer economic cooperation and integration centering on Japan.[1] From the perspective of this study, one of the most significant changes has been the increase in Japan's capacity to import manufactured products. Much of this increase could be attributed to the real appreciation of the yen, moderately expansionary monetary and fiscal policies since the Plaza Accord, and structural reforms in Japan that include (i) a major improvement in foreigners' access to

Yung Chul Park is a professor of economics at Korea University and Won-Am Park is a fellow at the Korea Development Institute.

1. Regional economic integration in this paper refers to a development in which countries within a particular region depend more on trade with one another than with the rest of the world. See Bradford and Branson (1987, p. 13).

the Japanese market, (ii) investment expansion in housing and social infrastructure, and (iii) restructuring of Japanese enterprise to promote both foreign direct investment and intra-industry division of labor with foreign firms. Due to these structural and policy reforms and the strong growth led by the expansion of internal demand, Japan's imports of manufactures grew more than 30 percent a year during the 1986–88 period. Among Japan's trade partners, the EANICs have been most successful in taking advantage of the growing Japanese market to expand their export market share of manufactured products from less than 14.2 percent in 1985 to almost 20 percent three years later.

The massive real appreciation of the yen combined with protectionist measures directed against Japanese exports has induced Japanese multinationals, as well as small and medium-sized firms in export-oriented industries, to move their production facilities and product development to other Asian countries. As a result, Japan's foreign direct investment (FDI) in the EANICs more than doubled over the five-year period from 1983 to 1988. Much of this investment has been allocated to manufacturing and, in particular, to the machinery sector. Through the expansion of FDI, subcontracting, and outsourcing, Japanese firms have been spearheading the multinationalization of manufacturing in Asia. In the process they are transferring Japanese technology and management know-how to other Asian producers.

The EANICs no longer specialize in exporting labor-intensive and unsophisticated manufactures. With the accumulation of skill and technology, they have moved into many manufacturing sectors requiring skill- and capital-intensive production processes and in so doing have come to compete with Japan in world markets for an increasing number of sophisticated industrial products. The accumulation of trade surpluses and trade conflicts with North America and Europe have also persuaded Taiwan and South Korea to liberalize their trade and financial sectors, redirect their investment resources away from the export-oriented to the home goods industries, and to promote direct investment in other countries of Pacific Asia.

There is widespread belief that the developments described above have contributed to an expansion of intraregional trade and foreign direct investment, which has further promoted growth, industrialization, and economic integration in the Pacific Asian region. Some authors have viewed these structural changes as signs of the establishment of a pattern of development based on product cycles in which Japan serves as the most advanced and innovative country with a large domestic market and the EANICs as the second-tier countries along a ladder of comparative advantage. The upshot of this argument is that the East Asian economies including Japan could rely less than before on the markets of North America and Europe for growth and development, as they are developing a large regional market through an economic integration propelled by market forces. The purpose of this paper is to examine the validity of this argument by analyzing the pattern of trade among the

United States, Japan, and the EANICs and Japan's FDI. Sections 3.2 and 3.3 are devoted to an analysis of changes in respective structures of trade of the United States, Japan, and the EANICs and the trade relations among them. This is followed by a discussion of Japan's FDI in Asia and the possibilities of regional integration through product-cycle development in sections 3.4 and 3.5. Concluding remarks are found in the final section.

3.2 Changes in Patterns of Trade among the EANICs, Japan, and the United States

3.2.1 Overview

In order to analyze changes in the patterns of trade of the United States, Japan, and the EANICs and their implications for future trade relations between the two sides of the Pacific, we have estimated trade flows among these economies since 1970 (table 3.1). We have also classified commodities belonging to SITC 5–8 into raw-material-, unskilled-labor-, human-capital-, and technology-intensive groups following the criteria used by Krause (1987) and the United Nations for Japan, the United States, and the EANICs for the 1975–87 period (tables 3.2–3.4).[2] An examination of changes in the commodity structure of trade will be combined with that of changes in the structure of intra-industry trade among the three partners in section 3.3 to see whether there is any visible trend of integration of the EANICs with Japan and other Asian countries both on the export and import side and also whether the observed changes could facilitate the adjustment of the trade imbalance between North America and East Asia.

According to table 3.1, the share of the United States in world total exports remained virtually unchanged at around 12 percent throughout the 1980s. There has also been no significant change in the commodity structure of U.S. exports, particularly since 1985. Reflecting the loss of export competitiveness—largely to East Asian producers—and the saving-investment imbalance, U.S. imports grew rapidly, from less than 13 percent of total world imports in 1980 to 18 percent in 1985, before dropping to about 16 percent in 1988. About half of the increase in U.S. imports during the 1985–88 period has come from Japan and the EANICs.

Japanese exports grew from 7 percent of total world exports in 1980 to about 10 percent in 1985 and have since remained at that percentage level; meanwhile, Japan's imports have recorded a small decline as a fraction of total world imports. Japan has maintained its competitiveness in the world markets for those manufactures intensive in capital and technology. In particular, it has

2. See the appendix for the commodity classification. Throughout the paper, the unskilled-labor- and human-capital-intensive categories will be referred to as "labor-intensive" and "capital-intensive" for brevity.

Table 3.1 **Triangular Trade Relationships among Japan, the United States, and EANICs**

	Export to:			
Import from:	Japan	United States	EANICs	World
Japan				
1970	. . .	6,015(31.1) (15.5)	2,641(13.7) (29.9)	19,318(6.8)[a]
1975	. . .	11,242(20.2) (12.1)	6,965(12.5) (26.1)	55,728(7.0)
1980	. . .	31,910(24.5) (13.4)	19,459(14.9) (22.3)	130,435(7.0)
1985	. . .	66,684(37.6) (20.4)	22,684(12.8) (23.5)	177,189(9.8)
1987	. . .	85,017(36.8) (21.1)	39,803(17.2) (27.1)	231,332(9.8)
1988	. . .	90,245(34.1) (20.6)	49,819(18.8) (25.7)	264,961(9.8)
United States				
1970	4,652(10.8) (29.9)	. . .	1,810(4.2) (20.5)	43,231(15.3)
1975	9,563(8.9) (19.0)	. . .	5,233(4.9) (19.6)	107,586(13.6)
1980	20,790(9.4) (16.8)	. . .	15,079(6.8) (17.3)	220,781(11.8)
1985	22,631(10.6) (19.8)	. . .	16,918(7.9) (17.5)	213,146(11.8)
1987	28,249(11.2) (21.1)	. . .	23,548(9.3) (16.1)	252,884(10.7)
1988	37,732(11.8) (22.6)	. . .	34,881(10.9) (18.0)	320,385(11.8)
EANICs				
1970	747(11.8) (4.8)	2,031(32.1) (5.2)	500(7.9) (5.7)	6,336(2.2)
1975	2,845(13.1) (5.7)	5,699(26.2) (5.1)	1,966(9.0) (7.4)	21,767(2.8)
1980	7,681(10.1) (6.2)	18,965(24.8) (8.0)	7,009(9.2) (8.0)	76,351(4.1)
1985	11,434(10.0) (10.0)	39,693(34.8) (12.2)	10,165(8.9) (10.5)	114,006(6.3)
1987	20,466(11.5) (15.3)	62,530(35.1) (15.5)	17,001(9.6) (11.6)	177,908(7.6)
1988	27,855(12.4) (16.7)	69,968(31.3) (16.0)	24,091(10.8) (12.4)	223,763(8.3)
World				
1970	15,543(5.5)[b]	38,811(13.7)	8,828(3.1)	282,638
1975	50,310(6.4)	92,925(11.7)	26,661(3.4)	791,391
1980	123,684(6.6)	237,680(12.7)	87,360(4.7)	1,874,800
1985	114,424(6.3)	326,248(18.0)	96,697(5.3)	1,811,500
1987	133,586(5.7)	403,587(17.1)	146,658(6.2)	2,353,300
1988	166,966(6.2)	437,438(16.2)	193,746(7.2)	2,707,500

Table 3.1 (continued)

Sources: IMF, *Direction of Trade Statistics Yearbook*, various issues; and Council for Economic Planning and Development, *Taiwan Statistical Data Book*, various issues.

Note: Amounts shown are in millions of U.S. dollars. In data columns with two sets of figures in parentheses, the first contains the percentage of total exports; the second contains the percentage of total imports.

[a]Percentage of world total exports.
[b]Percentage of world total imports.

Table 3.2 **U.S. Trade Share by Factor Intensity (%)[a]**

	1975		1980		1985		1987	
	Exports to	Imports from	Exports to	Imports from	Exports to	Imports from	Exports to	Imports from
I. Japan								
SITC 0–4	19.0[b]	.6[b]	18.4	.4	20.3	.8	22.8	.9
SITC 5–8	4.5	21.2	6.0	24.4	7.7	27.5	8.5	26.6
Raw material	11.9	7.0	13.0	5.8	14.3	6.7	16.0	4.6
Labor	4.9	10.5	4.7	7.8	6.9	7.2	8.9	5.9
Capital	2.0	29.5	2.9	37.5	3.5	37.6	4.9	36.0
Technology	5.2	18.1	6.6	21.0	8.8	28.5	9.3	30.1
SITC 9	1.3	6.2	1.6	5.4	2.4	8.9	2.2	7.9
Total	8.8	11.8	9.6	13.1	10.5	20.2	11.0	20.9
II. EANICs								
SITC 0–4	6.0	1.0	7.5	.6	10.2	1.5	12.4	1.7
SITC 5–8	4.2	9.4	6.4	13.5	7.2	15.5	8.5	18.2
Raw material	6.0	5.5	7.8	4.6	8.8	5.6	10.8	5.9
Labor	2.9	35.0	3.8	46.9	5.5	44.6	6.4	45.0
Capital	2.4	4.3	3.2	7.4	2.7	7.9	4.1	10.5
Technology	5.0	5.7	7.6	8.7	8.7	12.3	9.9	15.1
SITC 9	1.8	6.6	2.3	8.4	2.9	6.6	2.4	6.4
Total	4.7	5.7	6.6	7.5	7.8	11.7	8.8	14.5
III. World								
SITC 0–4	30.1	43.6	30.1	45.6	24.5	25.7	21.3	20.5
SITC 5–8	66.9	53.8	67.7	52.7	70.8	71.9	71.1	77.0
Raw material	2.5	5.1	3.5	5.5	2.0	4.4	2.1	4.4
Labor	3.9	8.0	4.7	7.9	3.7	12.2	4.0	14.0
Capital	18.5	24.6	15.2	22.3	15.8	30.7	15.6	31.1
Technology	42.0	16.1	44.3	17.0	49.3	24.6	49.4	27.5
SITC 9	3.0	2.6	2.2	1.7	4.7	2.4	7.7	2.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: OECD Trade Tape.

[a]Exports are valued in terms of free-on-board prices whereas imports are cost-insurance-freight prices.

[b]Country figures of each category of goods in I and II are the percentages of corresponding world totals in III.

Table 3.3 **Japanese Trade Share by Factor Intensity (%)[a]**

	1975		1980		1985		1987	
	Exports to	Imports from	Exports to	Imports from	Exports to	Imports from	Exports to	Imports from
I. United States								
SITC 0–4	11.5[b]	16.3[b]	9.4	12.9	16.9	13.1	15.3	16.7
SITC 5–8	20.2	34.9	24.9	34.4	38.0	37.5	37.1	28.4
Raw material	20.9	18.9	22.9	15.7	28.7	11.1	25.6	9.4
Labor	8.1	11.3	13.4	10.1	20.7	10.8	20.5	7.6
Capital	26.9	34.3	30.4	30.6	45.0	26.5	44.5	18.6
Technology	17.4	50.6	20.2	53.4	33.5	58.1	32.7	49.7
SITC 9	38.9	24.3	25.7	16.2	38.4	38.4	40.2	32.8
Total	20.2	20.1	24.4	17.5	37.6	20.3	36.8	21.7
II. EANICs								
SITC 0–4	25.2	2.8	26.2	2.9	28.8	4.7	38.9	7.7
SITC 5–8	12.0	12.3	14.4	13.8	12.4	14.7	16.7	19.8
Raw material	25.0	6.0	31.3	4.9	30.9	5.0	43.7	7.8
Labor	13.0	38.4	16.5	36.7	16.4	38.4	21.8	46.7
Capital	7.7	10.8	9.7	18.9	7.4	21.9	10.0	22.5
Technology	17.1	5.9	19.4	7.3	16.9	7.7	21.7	10.3
SITC 9	18.3	17.9	20.6	17.3	18.2	22.6	20.5	22.1
Total	12.5	4.8	14.8	5.3	12.8	7.7	17.2	12.8
III. World								
SITC 0–4	3.3	79.7	2.9	78.3	1.9	70.6	1.7	58.0
SITC 5–8	95.4	19.9	96.1	21.0	97.1	28.1	97.3	40.7
Raw material	2.5	4.2	2.5	4.4	1.7	4.7	1.4	6.7
Labor	18.8	3.5	10.4	3.9	8.8	5.0	6.5	8.6
Capital	46.0	2.7	50.1	2.8	48.2	3.8	44.1	7.5
Technology	28.1	9.5	33.1	9.9	38.4	14.6	45.3	17.9
SITC 9	1.3	.4	1.0	.6	1.0	1.4	1.0	1.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: OECD Trade Tape.

[a]Exports are valued in terms of free-on-board prices whereas imports are cost-insurance-freight prices.

[b]Country figures of each category of goods in I and II are the percentages of corresponding world totals in III.

become one of the largest exporters of technology-intensive products, which, as a proportion of Japanese total exports, rose from less than 30 percent in the middle of the 1970s to over 45 percent in 1987 at the expense of both labor- and capital-intensive products (see table 3.3). On the import side, due to the massive decline in imports of oil and related products, manufactured products as a percentage of total imports almost doubled to 40 percent between 1980 and 1987.

As a group, the EANICs more than doubled their share to 8.3 percent in the world export market over the nine-year period from 1980 to 1988. This rapid

Table 3.4 EANICs Trade Share by Factor Intensities (%)[a]

	1975		1980		1985		1987	
	Exports to	Imports from	Exports to	Imports from	Exports to	Imports from	Exports to	Imports from
I. United States								
SITC 0–4	19.6[b]	71.7[b]	11.6	61.6	20.0	53.0	16.1	49.9
SITC 5–8	45.0	23.6	47.5	25.0	63.9	24.1	55.8	20.2
Raw material	42.3	21.1	36.9	22.4	53.8	14.8	41.3	13.8
Labor	41.1	6.7	45.9	10.5	63.6	9.6	54.6	10.3
Capital	54.6	14.3	48.1	10.5	63.8	8.8	55.9	9.3
Technology	50.9	33.0	54.0	35.0	65.6	33.1	59.0	26.3
SITC 9	71.5	24.8	52.9	20.5	47.4	32.7	47.4	36.5
Total	41.3	31.9	42.9	31.2	59.3	29.4	52.5	24.9
II. Japan								
SITC 0–4	59.3	17.5	54.6	12.5	60.0	9.9	69.9	12.1
SITC 5–8	13.0	50.7	10.8	48.6	8.4	48.7	11.1	51.6
Raw material	22.6	45.6	17.7	38.7	18.2	38.3	28.9	35.9
Labor	11.7	75.2	9.9	60.9	8.0	58.0	12.0	53.3
Capital	8.9	61.2	8.6	63.5	7.8	63.9	10.0	60.0
Technology	18.8	39.8	14.8	40.5	8.6	42.7	9.1	49.7
SITC 9	17.5	58.6	23.4	52.2	33.2	36.4	29.5	37.6
Total	20.8	45.1	16.8	42.4	13.9	41.5	16.1	45.5
III. OECD								
SITC 0–4	16.6	17.3	13.1	17.2	9.9	17.9	8.0	14.9
SITC 5–8	81.6	81.2	85.4	81.6	88.4	80.5	90.7	83.7
Raw material	4.9	5.0	3.9	6.0	2.3	4.6	2.3	4.7
Labor	49.7	11.7	46.3	8.1	43.4	8.0	41.9	7.1
Capital	14.0	21.0	19.5	22.1	19.3	18.2	21.2	19.5
Technology	13.1	43.6	15.7	49.9	23.4	49.6	25.4	52.4
SITC 9	1.7	1.5	1.5	1.2	1.7	1.6	1.3	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: OECD Trade Tape.

[a]Exports are valued in terms of cost-insurance-freight prices whereas imports are free-on-board prices.

[b]Country figures of each category of goods in I and II are the percentages of corresponding world totals in III.

expansion was due in large part to a surge of their exports to the United States, which absorbed more than 35 percent of the EANICs' exports during the 1985–88 period. Unlike Japan, however, their imports have risen gradually to exceed the 7 percent level of total world imports in recent years. More than a quarter of their imports has come from Japan. Since the early 1980s, the EANICs have been steadily losing their export competitiveness of labor-intensive manufactures due to rising labor costs. This loss has been more than offset by a large gain in the exports of technology-intensive products, the share of which jumped from about 16 percent of total exports in 1980 to over

25 percent in 1987 (see table 3.4).[3] On the import side, the EANICs' commodity structure has been relatively stable with a small increase in imports of technology-intensive manufactures.

3.2.2 Bilateral Trade Relations

U.S.-Japan

In the 1970s and the early 1980s, capital-intensive manufactures such as household electrical machinery, road vehicles, and television sets dominated Japan's exports to the United States with a share of more than 60 percent. Reflecting the change in Japan's comparative advantage, these manufactures have been gradually replaced by more technology-intensive products. By 1987 the group of technology-intensive products soared to 40 percent of Japan's total exports to the United States from less than 28 percent in 1980, all at the expense of capital-intensive goods (see table 3.3). Although Japan has become relatively less competitive in exporting capital-intensive manufactures to the world market, it has remained a competitive supplier of these products to the United States. As a result of these developments, Japan's overall share in the U.S. export market climbed to 20 percent in 1987 from about 13 percent in 1980 (see table 3.2). More than 93 percent of these exports to the United States consisted of those capital- and technology-intensive products. The large increase in U.S. import demand for all groups of manufactures has been responsible for much of the increase in Japan's exports to the United States.

In sharp contrast to the dominance of capital- and technology-intensive products in Japan's exports, practically all of Japan's imports from the U.S. are primary products belonging to SITC 0–4 and technology-intensive manufactures and very little in between (table 3.3). During the 1985–87 period, these two categories of products added up to more than 85 percent of Japan's imports from the United States with an approximately equal share for each group. The United States has managed to increase its export market base in Japan in the 1980s by promoting mostly the exports of primary products. In fact, the United States has been losing some of its export market for manufactured products in Japan largely because of the relative decline in U.S. exports of technology-intensive products since 1985.

EANICs-U.S.

Table 3.2 shows that, as a group, the EANICs almost doubled their share in U.S. total imports (from 7.5 percent to 14.5 percent) between 1980 and 1987. Labor-intensive manufactures still dominate their exports to the United States,

3. There has been divergent development between Korea and Taiwan with regard to the product composition of exports. Korea has moved into exports of capital-intensive items mostly to the United States whereas Taiwan has been more successful in increasing its market share of technology-intensive products in the OECD region with the United States as the major customer.

but the overall gain has been brought about by their success in marketing capital- and technology-intensive products. In 1987, the United States purchased more than 15 percent of their imports of technology-intensive manufactures from the EANICs, as compared to 30 percent from Japan. Despite the loss of their export competitiveness in the labor-intensive products, the EANICs have managed to hold on to their share in this group since the mid-1980s. As in the case of Japan, the strong U.S. demand for manufactured imports has been responsible for this development.

On the import side, the commodity composition of EANICs' imports from the United States is quite similar to that of Japan (see table 3.4). In the 1980s, more than 85 percent of EANICs' total imports from the United States on average consisted of primary products and technology-intensive manufactures, the proportion of the former group being about 30 percent. From the point of view of U.S. exporters, however, it has not been easy to compete in the markets of the EANICs. In fact, the U.S. has lost its market share in primary products (from 61 percent to 50 percent) as well as in manufactures (from 25 to 20 percent) during the 1980–87 period (see table 3.4).

EANICs-Japan

In the 1980s, the EANICs outperformed all other competitors in the Japanese market, doubling their export market share from less than 6 percent to 13 percent (see table 3.3). The EANICs have done well in exporting all categories of manufactures, but the overall gain has been due especially to a large increase in their exports of labor-intensive products. In 1987, the EANICs supplied more than 46 percent of Japan's total imports belonging to this group of commodities (up from less than 37 percent in 1980), and 22 percent of Japan's capital-intensive imports. Japan now imports more capital-intensive manufactures from the EANICs than from the United States.

On the import side, the EANICs have relied on Japan as their main supplier of capital and intermediate goods. It can be calculated from table 3.4 that almost 80 percent of the EANICs' imports from Japan in the 1980s included capital- and technology-intensive manufactures. This dependence on Japan for capital and technology has increased in recent years. In 1987, the EANICs obtained from Japan almost 50 percent of their total imports of technology-intensive manufactures (up from about 41 percent in 1980) as compared to 26 percent from the United States. Although the EANICs rely less on Japan than before for their supply of capital-intensive manufactures, Japan still accounted for more than 60 percent of their total imports of capital-intensive items in 1987.[4]

While it should be admitted that the level of aggregation in classification of manufactured exports by factor intensity is likely too high for a precise struc-

4. The degree of dependence of Korea and Taiwan on Japan for the supplies of these products has been higher than that of Hong Kong and Singapore.

tural analysis, the preceding discussion nevertheless reveals that a number of significant changes have taken place in the 1980s.

One of the most significant developments has been the rapid growth of trade among the United States, Japan, and the EANICs, in particular the export growth of the EANICs to the United States and Japan. In order to explain this export growth, we have estimated a number of export equations for the EANICs (including only Korea and Taiwan), Japan, and the United States, where real income and current and lagged real exchange rates are included as independent variables. Our results, some of which are given in table 3.5, suggest that the export equations are highly unstable. For what it is worth, it appears that real exports of the EANICs both to Japan and the United States are mostly explained by changes in income and the real exchange rate. Our estimation also suggests that Japan's exports to the EANICs tend to be inelastic with respect to changes in the real exchange rate, whereas their exports to the United States are not. This is because the EANICs do not have any alternative sources other than Japan of imports of capital- and technology-intensive manufactures.

A second development has been the large loss of competitiveness of U.S. manufacturing. In their home markets, U.S. manufactures, in particular those of capital- and technology-intensive products, have seen a continuous erosion of their market shares by Japanese and EANIC exporters. In 1987, for instance, Japan and the EANICs accounted for 47 and 45 percent of the U.S. imports of capital- and technology-intensive products, respectively (see table 3.2). Similar figures for 1980 were 45 and 30 percent.

At the same time, U.S. manufactures have been losing out to other competitors in the export markets of Japan and EANICs. Although the U.S. remains the main exporter of technology-intensive manufactures, it has sustained considerable decline of its East Asian market share in this product category. This has been offset, however, by the expansion of primary exports to Japan, thereby keeping the overall export share of the United States relatively stable.

A third development has been the change in the product composition of the EANICs' exports from one dominated by labor-intensive manufactures to one which includes more capital- and technology-intensive products. The bulk of the EANICs' exports to the United States still consists of labor-intensive manufactures (see table 3.4), but, in line with the change in their export commodity composition, the EANICs have also developed into major suppliers of capital- and technology-intensive products to the United States. As a result, the EANICs' trade relationship with the United States involving manufactures has changed from a complementary to a competitive one in the 1980s.

A fourth trend has been the rapid expansion of trade between Japan and the EANICs. As shown in tables 3.1 and 3.3, the EANICs have succeeded in carving out a large slice of the export market in Japan. Unlike their expansion of exports to the United States, however, the EANICs have increased their Japanese market share by selling mostly labor-intensive manufactures. It ap-

Table 3.5 **Trilateral Trade Relationships**

	Real Exports[a] to the United States		Real Exports to Japan		Real Exports to the EANICs	
	Japan	EANICs	United States	EANICs	United States	Japan
Constant[b]	−25.41(−10.99)	−19.58(−3.13)	3.18 (1.71)	−23.38(−2.85)	9.58 (5.98)	5.29(18.19)
Y_u	3.62 (18.95)	2.71 (3.95)				
Y_j			.92(12.95)	2.71 (4.33)		
Y_n					.95(21.22)	1.12(15.59)
BRER	.56 (2.11)	.56 (1.54)	.35 (1.51)	.60 (1.16)	1.06 (3.44)	.03 (0.11)
BRER(−1)	.93 (3.45)	1.20 (3.56)	.51 (2.00)	1.34 (2.59)		−.61(−1.97)
R^2	.99	.99	.96	.98	.98	.98
D-W	2.22	2.35	1.70	1.33	1.30	2.00
ρ	.45	.88		.75		.41

Note: Log-linear equations are regressed by using the OLS method (if necessary, the Cochrane-Orcutt method is applied) over the period 1965–88. The numbers in the parentheses are *t*-statistics.

[a]Real exports are defined as nominal exports divided by exporting country's export unit price.

[b]The letters *u, j, n* represent the United States, Japan, and the EANICs (including only South Korea and Taiwan), respectively. Y = GNP in terms of domestic currency; BRER = bilateral real exchange rate (WPI of importing country × exchange rate of the exporting country's currency per importing country's currency/ export unit value in terms of exporting country's currency).

pears that, in the United States, the EANICs have been moving out of the export markets for labor-intensive goods whereas in Japan they have been moving into those markets.

According to our estimation results in table 3.5, much of the export expansion of the EANICs to Japan during the 1985–88 period has been supported by the real depreciation of the currencies of the EANICs vis-à-vis the yen. In view of the rising labor costs in the EANICs, however, it is difficult to expect that the EANICs could maintain the high rate of growth of exports to Japan for the last few years as they will face stiff competition from low-cost producers in ASEAN (the Association of Southeast Asian Nations) and China. This means that, unless the EANICs succeed in moving into the Japanese markets for capital- and technology-intensive manufactures on a large scale, their exports to Japan are likely to slow down to the pace of their competitors from Europe and North America as already happened in 1989 as their bilateral exchange rates with Japan stabilized.

The expansion of the EANICs' exports has been matched by an almost equal increase in their dependence on Japan for the imports of technology-intensive products. In 1987, for example, 50 percent of EANICs' imports of technology-intensive manufactures were shipped from Japan as compared to 40.5 percent in 1980. Their value was almost twice as large as that from the United States. This deepening dependence has contributed to an increase in complementarity in trade between the EANICs and Japan and, as a result, has not caused very much change in the triangular relationship linking them with the United States.

3.3 Developments in Intra-industry Trade among the United States, Japan, and the EANICs

This section discusses changes in the patterns of intraindustry trade between the EANICs and both Japan and the United States. For this purpose, we have estimated Grubel-Lloyd indices of intra-industry trade (IIT) in manufacturing classified by factor intensity in figures 3.1–3.6.[5]

Figure 3.1 shows a number of significant changes in Japan's intra-industry trade in manufactures with the rest of the world. The level of Japan's intra-industry trade in labor-intensive manufactures has always been high. The steep increase in the index since 1985 has been related to a large drop in Japan's surplus from and hence loss of competitiveness in this category of trade.

A second change is the expansion of Japan's intra-industry trade in capital-

5. The Grubel-Lloyd index of intraindustry trade is defined as

$$\mathrm{IIT}_i = \left[1 - \frac{|X_i - M_i|}{X_i + M_i} \right] \cdot 100\%,$$

where X_i and M_i are exports and imports of a product category i, respectively.

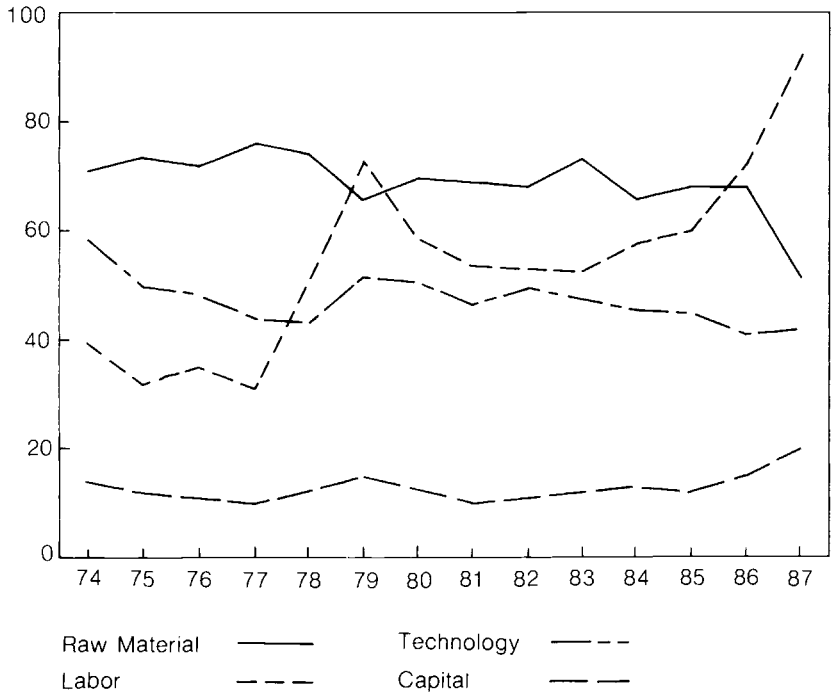

Fig. 3.1 Index of Intra-industry trade by factor intensity (Japanese trade with the world)
Source: OECD Trade Tape

intensive manufactures. Capital-intensive manufactures accounted for more than 45 percent of Japan's total exports and provided the largest source of its trade surpluses in the 1980s. As a result, Japan's intra-industry trade in this category of products had been the least active among the four categories. The rise in the index has largely been brought about by the increase in Japan's imports of these goods from the European Community (EC) and EANICs.

A third change is the large drop in the index for raw-material-intensive manufactures in 1987. It is too early to tell whether this decline indicates a new trend, however. Finally, the index for intraindustry trade in technology-intensive manufactures fell to 40 in 1987 from about 50 seven years earlier. Much of the decline reflects Japan's gain in export competitiveness and its growing surplus from trade in this group of products.

In general, indices for Japan for manufactures excluding labor-intensive products have been stable compared to those of the United States (see fig. 3.2). The high degree of aggregation in our study does not provide many clues as to the causes of the relative stability of Japan's intraindustry trade indices. However, this stability coupled with Japan's strong export performance seems

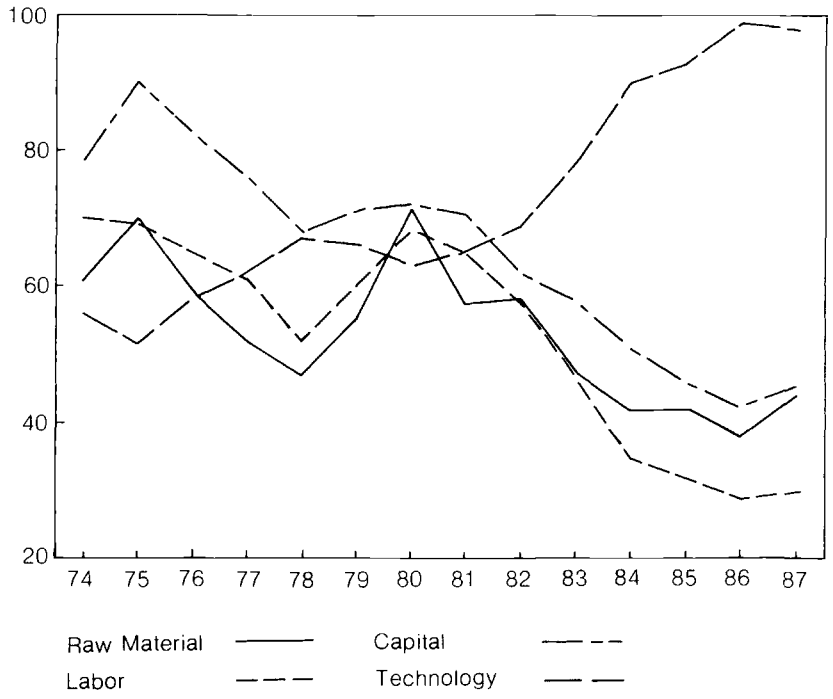

Fig. 3.2 Index of Intra-industry trade by factor intensity (U.S. trade with the world)
Source: OECD Trade Tape

to suggest that Japan's trade in manufactures with the rest of the world should perhaps be explained by comparative advantage and that Japan has been able to maintain its international competitiveness.

Figure 3.3 shows a large increase in intra-industry trade between Japan and the EANICs in the 1980s, much of which has been the result of rapid industrialization in and export growth sustained by the EANICs. As far as exports of manufactured goods are concerned, the level of intra-industry trade between the EANICs and Japan surpassed the level between Japan and the United States and is approaching that between Japan and the EC.

Within manufacturing (fig. 3.4), the index for labor-intensive products had remained well over 90 before dropping to 70 in 1987. This large drop was due to the increase in Japan's deficit in this class of trade, a development that could hardly have been unexpected. Since the surge of exports to Japan started around 1985, for products intensive in raw materials, the IIT index recorded the largest gain, from 50 in 1985 to almost 70 in 1987. This was followed by an equally impressive gain in capital-intensive products. In both cases, the

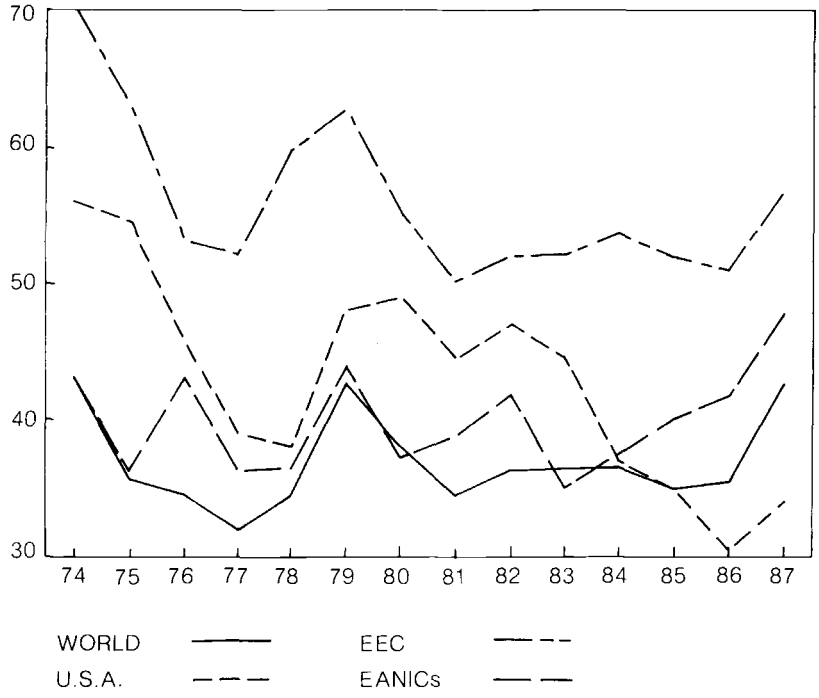

Fig. 3.3 Index of Intra-industry trade by region (Japanese manufacturing)
Source: OECD Trade Tape

expansion was led by the growth of the EANICs' exports to Japan. In contrast to these changes, the index for technology-intensive products has remained virtually unchanged at the low level of about 20 percent since 1975.

The changes in the IIT indices described above reveal a number of important developments in Japan's trade with both the EANICs and the rest of the world that confirm our analysis in section 3.2. The EANICs have successfully marketed their labor-intensive manufactures in Japan. Since 1986, Japan has been running a deficit with the EANICs in its trade in this product category. Since 1986, Japan has also come to depend on imports from the EANICs to satisfy the bulk of its domestic demand for labor-intensive manufactures. A second development is that the EANICs have been able to make inroads into the Japanese markets for those products intensive in both resources and capital. However, our observations are so limited that it is difficult to judge whether the intra-industry trade expansion in these categories between Japan and the EANICs has been a-once-and-for-all change or is the beginning of a new trend. A third development is that, as noted in the preceding section, the EANICs have become more dependent on Japan for the imports of

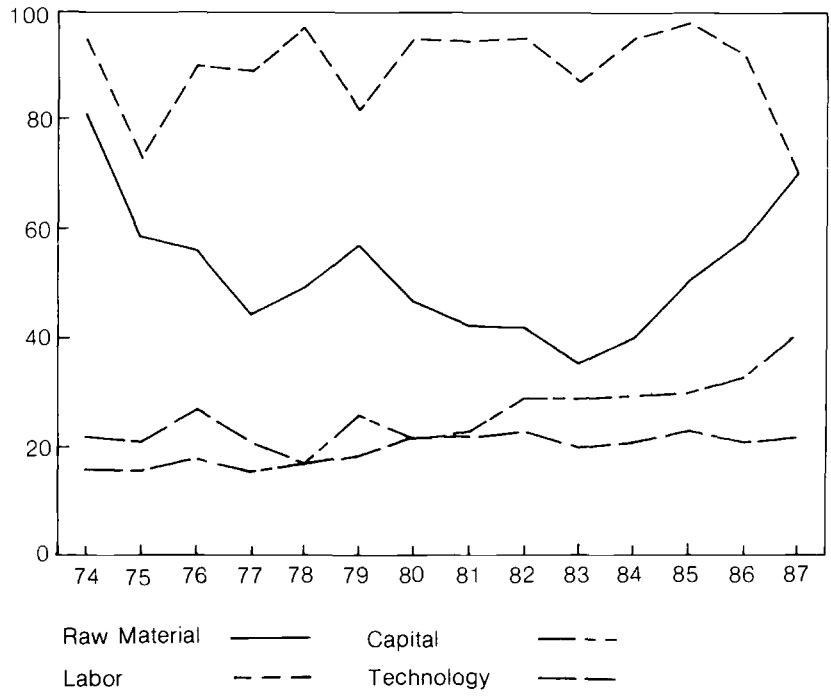

Fig. 3.4 Index of Intra-industry trade by factor intensity (Japanese trade with EANICs)
Source: OECD Trade Tape

technology-intensive items. This dependence explains why the EANICs have not had much success in reducing their deficits with Japan despite the rapid growth of their exports to Japan.

In contrast to the expansion of intra-industry trade in manufactures between the EANICs and Japan, similar trade between the EANICs and the United States, as measured by the IIT index, has declined markedly (see fig. 3.5). By 1987, the index fell below 40 from 75 in 1975. Much of the decrease can be traced to the EANICs' accumulation of large surpluses from their trade in manufactures intensive in labor and capital.[6]

Among manufactures, the index for labor-intensive items has been low throughout the period and has declined further in recent years (see fig. 3.6). However, the contraction of intra-industry trade in capital-intensive manufactures has been most dramatic. Between 1970 and 1987, the index for this group dropped from more than 70 to about 20. This was the result of the

6. The index for the United States with the rest of the world has also recorded a sharp decline in the 1980s.

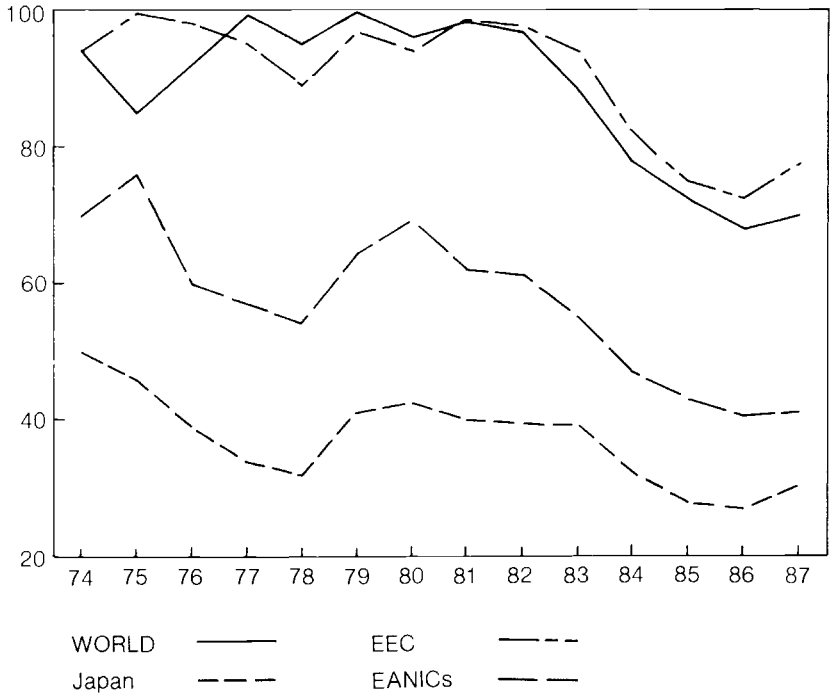

Fig. 3.5 Index of Intra-industry trade by region (U.S. manufacturing)
Source: OECD Trade Tape

EANICs' success in capturing a large share of the U.S. market for these products. Intra-industry trade in technology-intensive manufactures between the EANICs and the United States has been active, as the high level of the index indicates. Even in this category, however, the index has declined largely because of the growing trade surplus of the EANICs. Except for those manufactures intensive in raw materials, for which the IIT index has turned upward since 1985, it appears that the United States has been losing out to the EANICs in export competitiveness of all manufactures. As is the case with Japan, it is difficult to explain changes in the patterns of EANICs' trade with the United States in terms of those factors usually identified as determining intra-industry trade.

It is generally accepted that intra-industry trade tends to be prevalent between countries with similar factor endowments and skill levels and when scale economies and product differentiation are significant. That is, intra-industry trade will expand between economies at similar levels of economic development. Much of the trade among industrialized countries is characterized by the dominance of intra-industry trade, of which volume is largely influenced by factors on the demand side. In contrast, intra-industry trade

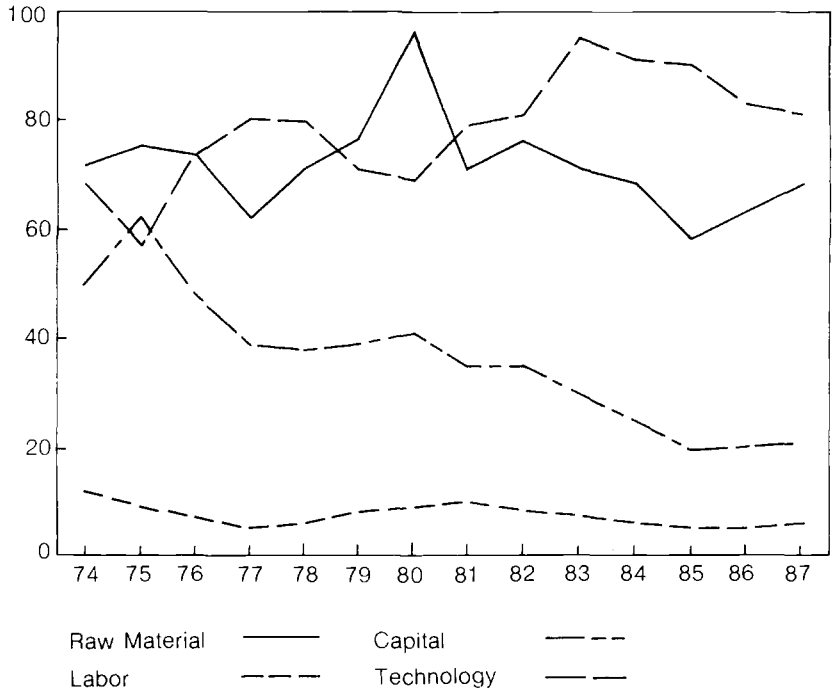

Fig. 3.6 Index of Intra-industry trade by factor intensity (U.S. trade with EANICs)
Source: OECD Trade Tape

between advanced and developing countries includes mostly exchanges of manufactured goods differentiated by different processing stages in the same industry. This type of trade is likely to be determined by comparative advantage based on differences in technology, endowments of research and development (R&D) stock and human capital; that is, factors on the supply side.[7]

The growth of intra-industry trade in capital-intensive manufactures between Japan and the EANICs has been led by two categories of products. The first is made up of products differentiated by quality and price; this is the case in the consumer electronics trade, where Japan exchanges more sophisticated and high-quality products for cheaper, lower-quality electronics from the EANICs. The other category consists of products at different production stages in the same industry. Because of the lack of data and difficulties in disaggregating further product categories, we have not been able to determine the relative importance of the two types, although for the last three years the share of the second group appears to have increased.

7. There is a definitional question of whether the trade of this type should be classified as intra- or interindustry.

In the 1970s it is likely that intra-industry trade in labor-intensive manufactures included a large number of products differentiated by quality and price. That is, Japan exported to the EANICs those labor-intensive items at the high-quality end of the product line while importing from these countries inexpensive, low-quality products to satisfy the diverse tastes of consumers. The EANICs and Japan may also have started exchanging those labor-intensive products with different attributes. In recent years, however, the EANICs' trade with Japan in labor-intensive items has come to consist of inter-industry exchanges and has become increasingly competitive, as suggested by the decline in the IIT index together with Japan's growing deficits. Despite the rapid growth of two-way trade in technology-intensive manufactures between the EANICs and Japan, the IIT index for this group remained virtually unchanged. This is because Japan has been able to maintain a large lead over the EANICs in developing new technologies and hence to increase its surplus from the trade in this category of products with the EANICs.

In summary, our estimates of IIT indices among Japan, the EANICs, and the United States suggest that the EANICs have overtaken and extended their competitive lead over the United States in manufactures trade. With respect to Japan, the EANICs are catching up in the development and export of new manufactures intensive in capital and technology, but they have a long way to go if they are to narrow the gap with Japan in technology, skill and production, and management know-how.

It may take many years for the United States to regain its competitiveness as an industrial power. Japan has maintained its superiority in developing new technology and has demonstrated its ability to adjust to changes in market conditions. The EANICs show no visible signs of slowing down in their race to catch up with Japan. Taken together, these developments suggest a future pattern of trade in which the triangular trade structure among the three partners will become more rigid than before.

3.4 Japan's FDI in Asia and EANICs

A number of recent studies by Japanese economists (Iwata 1989; Kawai 1989; and Urata 1989) suggest that Japan's FDI has served as an important channel for transferring Japan's technology to developing Asian economies and contributing to the expansion of intrafirm trade in Asia, thereby stimulating growth and industrialization throughout Asia. A careful examination of changes in the total amount and sectoral distribution of Japan's FDI and of the behavior of Japanese multinationals suggests that the effects of Japan's FDI on trade patterns between Japan and other Asian countries may have been exaggerated.

At the end of 1988, the cumulative total of Japan's FDI in Asia since 1951 amounted to $31,803 million (in U.S. dollars), which was equivalent to 17 percent of Japan's total FDI, down from the 27 percent three years earlier (see

Table 3.6 **Stock of Japanese Direct Investment Abroad (Year-end, in Millions of U.S. Dollars)**

Region/ Country	Year	Total	Manufacturing Total	Food	Textiles	Paper Pulp	Chemicals	Ferrous, Nonferrous Metals	Machinery[a]	Other Manufacturing
World	1978	26,809	9,174	430	1,457	647	2,074	1,548	2,375	644
		(100.0)	(100.0)							
	1983	53,131	16,952	806	1,759	899	3,176	3,608	5,409	1,258
		(100.0)	(100.0)							
	1988	186,356	49,843	1,965	2,669	2,099	6,540	7,671	21,868	7,031
		(100.0)	(100.0)							
Asia	1978	7,506	3,356	116	831	120	460	669	787	366
		(28.0)[b]	(36.6)[b]							
	1983	14,346	5,727	166	997	160	986	1,464	1,346	609
		(27.0)	(33.8)							
	1988	31,803	12,164	506	1,366	385	1,771	2,243	4,532	1,359
		(17.1)	(24.4)							
EANICs	1978	2,547	1,503	24	304	23	264	94	612	176
		(33.9)	(44.8)							
	1983	4,999	2,502	51	344	25	604	164	978	336
		(34.8)	(43.7)							
	1988	15,018	5,544	199	401	42	1,169	354	2,599	779
		(47.2)	(45.6)							
Other Asia	1978	4,959	1,853	92	527	97	196	575	175	190
		(66.1)	(55.2)							
	1983	9,347	3,225	115	653	135	382	1,300	368	273
		(65.2)	(56.3)							
	1988	16,785	6,620	307	965	343	602	1,889	1,933	580
		(52.8)	(54.4)							

Source: Ministry of Finance, Japan.

[a]Includes general, electrical, and transport machinery.

[b]As percentage of total.

table 3.6). Similar figures for North America and South America at the end of 1988 were 40.2 and 17.0 percent (see table 3.7). The EANICs attracted a total of $15,018 million or 47.2 percent of FDI to Asia since 1951. In 1988 alone, however, the EANICs ran a deficit of $24,810 million in their merchandise trade with Japan. That is, the cumulative total of Japan's FDI in the EANICs between 1951 and 1988 was no more than 60 percent of the EANICs' trade deficit with Japan in a single year.

It is true that Japan's FDI in the EANICs recorded a sixfold increase between 1978 and 1988 and has more than doubled over the past five-year period, but North America and Europe have received a relatively greater share (see table 3.7). Compared to other regions, Asia has been an attractive place for investment in manufacturing (see table 3.8), but less than 40 percent of Japan's FDI in the EANICs was allocated to manufacturing in 1988 as compared to 50 percent in 1985 and 60 percent in 1987. This means that much of Japan's FDI in the EANICs has recently been channeled into nonmanufacturing industries. Within manufacturing, machinery industries have been the most attractive sectors to Japanese investors, followed by chemical industries. At the end of 1988, general electrical machinery and transport equipment made up almost 48 percent of Japan's total FDI in manufacturing. This was followed by 21 percent in chemicals (see table 3.6).

Beginning around 1985, an increasing number of Japanese firms, mostly multinationals but also small and medium-sized firms in export-oriented industries, started to move production and product development offshore on a large scale to remain cost competitive in world markets. The high yen and expectations of its further appreciation together with growing protectionist

Table 3.7 **Japanese Foreign Direct Investment by Destination (in Millions of U.S. Dollars)**

Year	North America	Western Europe	Asia	South America	Oceania	Others	Total
1975	905	333	1,100	372	182	388	3,280
	(27.6)	(10.2)	(33.5)	(11.3)	(5.6)	(11.8)	(100.0)
1980	1,596	578	1,186	588	448	297	4,693
	(34.0)	(12.3)	(25.3)	(12.5)	(9.5)	(6.3)	(100.0)
1985	5,495	1,930	1,435	2,616	525	217	12,218
	(45.0)	(15.8)	(11.7)	(21.4)	(4.3)	(1.8)	(100.0)
1988	22,828	9,116	5,569	6,428	2,669	912	47,022
	(47.5)	(19.4)	(11.8)	(13.7)	(5.7)	(2.0)	(100.0)
Cumulative total (1951–88)	75,091	30,164	32,227	31,617	9,315	7,942	186,356
	(40.3)	(16.2)	(17.3)	(17.0)	(5.0)	(4.3)	(100.0)

Source: Economic Survey of Japan, 1987–88, Economic Planning Agency, Japanese Government, pp. 470–71.

Note: Numbers in parentheses are percentages.

Table 3.8 **Japanese Foreign Direct Investment by Industry (in Millions of U.S. Dollars)**

Year	Agriculture, Forestry and Fisheries	Mining	Construction	Manufacturing	Commerce	Finance and Insurance	Service	Transportation Service	Real Estate Brokerage	Others	Total
1975	64	707	32	924	668	310	113			462	3,280
	(2.0)	(21.6)	(1.0)	(28.0)	(20.4)	(9.5)	(3.4)			(14.1)	(100.0)
1980	73	565	37	1,706	797	380	251			884	4,690
	(1.6)	(12.0)	(1.0)	(36.3)	(17.0)	(8.0)	(5.3)			(18.8)	(100.0)
1985	54	598	94	2,352	1,550	3,805	665	1,240	1,207	652	12,217
	(.4)	(5.0)	(.8)	(19.3)	(13.0)	(31.0)	(5.4)	(10.0)	(9.8)	(5.3)	(100.0)
1988	206	1,013	309	13,805	3,204	13,104	3,732	2,372	8,641	587	47,022
	(.5)	(2.2)	(.7)	(29.4)	(6.8)	(27.9)	(7.9)	(5.0)	(18.4)	(1.2)	(100.0)
Cumulative total	1,686	13,949	1,443	49,843	20,011	41,878	12,759	12,342	20,599	11,848	186,356
(1951–88)	(.9)	(7.5)	(.8)	(26.7)	(10.7)	(22.5)	(6.8)	(6.6)	(11.1)	(6.3)	(100.0)

Source: Economic Survey of Japan, 1987–88, Economic Planning Agency, Japanese Government, pp. 470–71.

[a]As percentage of total.

measures directed against Japanese exports provided strong incentives for Japanese multinationals to globalize their operations. The globalization strategy has also been facilitated by advances in communications and transportation technology and liberal policies for FDI in many host countries, both in Asia and elsewhere.

There is little reliable information that can shed light on the behavior of Japanese multinationals, although it is widely believed that they are contributing to the changes in trade patterns and spearheading regionalization in Asia. This section heavily relies on the statistical surveys of Japanese overseas investment published in 1980, 1983, and 1986 by Japan's MITI.[8] According to these surveys, imports by Japanese foreign subsidiaries more than tripled, from less than $30 billion in 1980 to $90 billion in 1986, which was equivalent to 43 percent of Japan's total exports. Meanwhile, their exports to Japan—mostly to their parent companies—declined in absolute value from $36.3 billion in 1980 to $27 billion in 1986, which amounted to 21.4 percent of Japan's total imports in the same year and resulted in an intrafirm trade surplus of $63 billion for Japan.

These surveys show that Japanese multinationals have been major players, accounting for much of the increase in intrafirm trade in Asia that is, in turn, related to the buildup of their network of overseas affiliates and to the expansion of intra-industry trade between Japan and the rest of the world. In so doing, they have assumed a greater role in Japan's external trade in recent years. There is also evidence that a large portion of the exports by Japanese multinational parents have been replaced by the output produced by their overseas affiliates and subsidiaries (Urata 1989).

What are the factors responsible for the rapid growth of intrafirm trade in Japanese multinational firms and the large surplus from such trade? One factor is the large concentration of Japan's FDI in machinery industries (the share was 44 percent in 1988). Unlike other manufacturing sectors, production of general, electrical, and precision machinery requires assembling of a large number of parts and components. This means that the production of machinery can be divided into a number of processes, each of which could in turn be located in different countries through FDI. Then the volume of trade between Japanese multinational parents and their affiliates in products that belong to the same production line but at different processing stages will increase, and much more so than in the case of multinationals producing nonmachinery products. Furthermore, many of Japanese multinationals' overseas subsidiaries were established in recent years, as the data show. During the early stages of operation, these subsidiaries relied heavily on their parent companies for the supplies of parts, components, and other intermediate products. This largely explains Japan's surplus in intrafirm trade.

In Asia, Japan's FDI since the mid-1970s has been mostly allocated to

8. The data used in this paper are obtained from Iwata (1989).

export-oriented industries. In fact, Japanese subsidiaries have been established mainly as production and export bases, aiming at expanding sales in third-country markets (Iwata 1989). That is, the relatively low cost of labor, together with a high level of technology and production know-how in many Asian countries (in particular the EANICs), have attracted Japanese firms to expand and disperse various aspects of their operations—production, R&D, and sales—throughout Asia by means of FDI. Japanese multinationals have also made intrafirm agreements and strategic alliances with their counterparts in other Asian countries as part of their globalization and regionalization strategy.

These developments point to the important role Japanese multinationals could play in expanding intra-industry trade and generating market forces for regional integration in Asia. However, at this stage, the volume of intra-industry trade created by Japan's FDI in Asia, though growing rapidly, has been too small to be of any significance in assessing whether Japan's FDI has contributed in creating or diverting trade in Asia. We have suggested that Japanese overseas affiliates in Asia are concentrated in export-oriented industries and are more likely to ship their products to third countries than to Japan. The MITI surveys seem to bear this out, as in 1986 when Japanese subsidiaries in Asia exported $8.8 billion, or 20 percent of their total output, to Japan and 35 percent to third countries. If this trend continues, it is possible that Japan's FDI may indeed exacerbate trade imbalances between the United States and Asia. One reason for this is that Japanese multinationals and firms in export-oriented industries have expertise and experience in exporting to the United States and Europe. They are therefore likely to move their production bases to other Asian countries without changing the destination of their exports.

Another reason that Japanese FDI may worsen U.S.-Asian trade imbalances is that Japan's FDI and the increase of interfirm agreements and strategic alliances between firms in Japan and other Asian countries will facilitate transfer of Japanese technology and management know-how throughout Asia. This process will help EANICs and ASEAN countries to produce and export more human-capital- and technology-intensive products. Unless Japan is able and prepared to absorb more of these manufactured exports from other Asian countries, there is a danger that the EANICs and other Asian economies will sell the products they learn to produce from Japan to the North American and European markets.

3.5 Product-Cycle Development in Asia?[9]

In recent years, a number of Japanese economists have claimed that changing patterns of trade and the associated industrialization in Asia could be explained by a variation of the product cycle theory applied in an international context (Okita 1986; Yamazawa 1988). It has indeed become fashionable to

9. This section draws on Park (1989).

describe the pattern of industrialization taking place in Pacific Asia in terms of the product cycle and to compare it to a flock of flying geese. In this metaphor, Japan is the leading goose, or the leading innovative country, that creates a new product and then begins to export it when its supply exceeds domestic demand. After a time lag, the follower countries, having imported the product, learn to produce it for their domestic markets; that is, they engage in import substitution of the product. In the Asian context, the EANICs are the followers flying right behind Japan. When the EANICs saturate their domestic markets for the product, they also begin to export it to countries that are following them—the ASEAN countries, for example, which formerly imported the product from Japan. As the EANICs become more competitive, they first make inroads into Japan's (the innovator's) export markets—ASEAN, for example—and then eventually penetrate the Japanese market itself. In the end, the innovator country becomes a net importer of the product it first invented.

While the second-tier countries—the EANICs—are catching up with Japan, they are also pursued by third-tier countries on the ladder of comparative advantage. The export markets, and eventually the home markets, of the second-tier countries for a particular product will also be penetrated by the pursuers. By this time, however, the second-tier countries—the EANICs—have probably become innovators themselves or begun to produce a new product invented by the leading innovator country. Thus, a development cycle for second-tier countries moves from rising imports to rising exports and then to a new product (see Rapp 1975). As Rapp points out, the flying geese pattern of development focuses on the interaction between countries engaged in trade expected from product cycle development (Vernon 1966) when all industries are taken into consideration. Competition in the flying geese pattern of development is based on changes in comparative advantage.

As discussed in sections 3.2 and 3.3, the EANICs have been able to produce and export more skill- and technology-intensive products to Japan than before. Between the ASEAN and Japan, trade relations have been more complementary or interdependent in that the former exports raw material to and imports manufactures from the latter. As the EANICs have reached a more advanced stage of development with the accumulation of skill and sophisticated technology, exports from the EANICs have displaced those from Japan in the U.S. market, while Japan has moved on to a higher level of technology and sophistication. At the same time, rising labor costs plus a sharp appreciation of their currencies have forced the EANICs out of U.S. markets for unsophisticated labor-intensive products such as textiles. As a result, the ASEAN countries have moved into the markets vacated by the EANICs. While trade patterns, in particular on the import side, among the Pacific countries remain unchanged, Japan has moved on to exporting high-technology products. Meanwhile, the EANICs have increased their exports of consumer electronics, and the ASEAN have become the major suppliers of textiles to the U.S. market (Bradford and Branson 1987, p. 13).

It is often claimed that this pattern of export side integration, centering on

the U.S. market, has been slowing down somewhat because of a new trend of Asian-based regional integration with the increased capacity of Japan to absorb more manufactured imports from other Pacific Asian countries. At the same time, the EANICs have begun to play the role of middle-level economies in the trade linkage among the Pacific Asian countries, opening their markets for imports and expanding their direct investment and technology transfer throughout Southeast Asia and China.

Has this regional economic integration taken hold? If it has, how visible is it and could it be sustained in Asia? Beginning in 1986, Japan's trade with the EANICs in labor-intensive manufactures has turned into a deficit. The EANICs have at least established a foothold in the Japanese markets for those manufactures requiring large amounts of raw materials and human capital, while cutting down their deficits with Japan relative to their total trade. At the same time, their imports of manufactured goods from the ASEAN have been growing. These developments are encouraging, for Pacific Asian economies may be able to develop a regional market large enough to absorb the bulk of Asian exports, thereby compensating for the expected shrinking of the U.S. market. In this process, Japan will undoubtedly be playing a leading role.

While some of the market forces leading to regional economic integration are clearly visible, other factors and structural characteristics stand in the way of regional growth and industrialization through the product cycle development. We have examined changes in Japan's balances of trade in several products where the product cycle is most likely to be influential, such as in textile yarn and fabrics, general industrial machinery, electrical machinery, household electrical machinery, and transport machinery.[10] In all five categories, Japan has been running trade surpluses with both the EANICs and the rest of the world. Except for textile yarn and fabrics and household electrical machinery, Japan's trade surpluses in absolute terms have been rising. Another interesting observation is that, in all categories, with the possible exception of household electrical machinery, Japan's surpluses with the EANICs have been increasing. In contrast, however, the U.S. balances of trade in these products with the EANICs and the rest of the world turned into deficits in the early 1980s and have deteriorated sharply since then. We are not able to make any judgment as to whether these phenomena have been the result of Japan's overall accumulation of trade surpluses and the U.S. trade deficits, or whether they have been due to Japan's ability to maintain a large lead in technology development. Regardless, in view of Japan's ability to make structural adjustments, Japan is not likely to lose its export competitiveness in these product categories.

Whether the product cycle development can be sustained will, in the end, depend on the role Japan plays as the leading economy in Asia. If Japan is able to absorb enough imports from the EANICs and ASEAN, so that these

10. Data available on request.

developing economies could supplant the Japanese market in exporting to the United States, while continuously passing on new products and new production processes through foreign direct investment and other channels, then such a pattern of development could speed up the Pacific Asian–based economic integration.

Although Japan is the second largest economy in the world, it is highly doubtful whether it could become a major absorber of other Pacific Asian economies.[11] Only three years after Japan undertook market-opening measures, it is claimed that the EANICs have already saturated Japan's market for labor-intensive manufactures including electronics and machinery (Daiwa Securities Research Institute 1989). One magazine article (*Far Eastern Economic Review* [FEER], 8 June 1989) claims that even Taiwan and South Korea have failed to penetrate Japan's market for consumer goods despite their competitive edge. Apparently, the marked increase in their exports to Japan petered out early in 1989, because the yen depreciated vis-à-vis the U.S. dollar and "Japanese companies were quick to come up with simple, one function products that mimicked the best offering from Taiwan and South Korea" (ibid.). Japanese manufacturers may have weathered the difficult period of adaptation to the high yen and may have regained fully their foreign competitiveness.

There are other factors that also cast serious doubts for the future of regional integration in Pacific Asia. Japan could remain cost competitive in many skill- and technology-intensive products for which Japan is a dominant supplier to world markets. They can produce parts and components and their inputs in foreign countries—mostly in Asia—for factories in Japan through foreign subsidiary and joint venture arrangements. If indeed foreign sourcing produces benefits by saving costs and increasing access to markets without leading to losses in domestic employment, Japan could maintain its competitiveness in skill- and technology-intensive industries for a long time to come since the ratio of domestically sold overseas production to total domestic manufacturing output is only 3.2 percent in Japan, whereas it is 20 percent in the United States (Balassa and Noland 1988, p. 15).

In high-technology industries, Japan is likely to retain informal trade barriers through the use of procurement regulations, administrative guidance, and research and development schemes (Balassa and Noland 1988, p. 183). As they are the sectors that will keep Japanese manufacturing strong and competitive in the coming decades, Japan promotes high-technology industries related to information and communication technology, biotechnology, and material and space science. In all likelihood, Japan will resist trade liberalization in these and protect them as infant industries.

With the rapid increase in per capita income, Japanese consumers' tastes

11. In 1987, the value of manufactured imports per capita for Japan was $540 whereas it was $1,333 for the United States.

are changing to prefer more sophisticated, individualized, and high-quality products. For many products like clothing, consumer electronics, furniture, and automobiles, Japanese consumers are demanding more than ever those products specialized, custom made, and differentiated by their "Japanese attributes" than those standardized and mass produced. Furthermore, if the loss of scale economies from producing small quantities of these differentiated products could be overcome by adopting new production technologies, relatively low labor costs would not be as important an advantage as it was in the past. The EANICs exporters will therefore find it increasingly difficult to compete in the Japanese market.

Despite these difficulties, the EANICs will be able to expand the range of manufactured products in which they will be competitive with Japan in supplying both Asian and third markets. An important question is whether Japan will be able to adjust to this crowding-up problem. Trade relations between the ASEAN and the EANICs will also create a similar tension as the ASEAN moves rapidly up the ladder of industrial and technological development. As a result, the EANICs will find themselves squeezed by Japan at one end and by the ASEAN at the other. Efforts to overtake the countries in the upper tiers will generate strong competitive pressures among the Pacific Asian economies. These pressures will, in turn, induce the EANICs, ASEAN, and China to penetrate the markets of North America and Europe while keeping their markets closed to one another. This pattern of development would then enlarge the trade imbalance and worsen trade conflicts between Pacific Asia and the rest of the world, particularly North America.

One structural characteristic Japan and the EANICs share is poor resource endowment. This requires them to rely almost entirely on imported oil and other raw materials. In order to pay for these imports of primary commodities while keeping their overall trade in balance, they must obtain a surplus in their trade in manufactures with other countries. The ASEAN countries with a rich resource base have traditionally maintained a deficit on their manufactures trade with Japan and the EANICs. Through the promotion of labor-intensive products, however, the ASEAN and China are trying to balance their manufactures trade. This means that, as a whole, the Pacific Asian region will obtain a surplus from outside of the region, if the EANICs and ASEAN continue with their development strategies.

Furthermore, the EANICs, as a group, are likely to run a deficit in their trade with Japan as long as Japan maintains the lead in developing new technology and new products. Despite their market penetration, the EANICs' deficit with Japan was close to 80 percent of their total exports to Japan in 1988. During the process of catching up, which may continue into the next century, the balance of trade between the two parties will remain in Japan's favor. The EANICs' poor resource endowments together with its dependence on Japan mean that, as a group, they will have to run surpluses in their trade with the

rest of the world to balance their overall trade accounts. This situation will improve only if Japan opens its market to the EANICs.

3.6 Concluding Remarks

It is undeniable that Japan has been changing in its role as a trade partner of the EANICs since the mid-1980s. Japan has shown its willingness to increase its imports of manufactured products not only from the EANICs but also from other countries. Japan has been active in recycling its trade surpluses in the form of FDI to Asia. These changes have raised expectations for creating a potentially large regional market in Asia, large enough to supplant in part the U.S. market.

As a group, the EANICs have cut down Japan's lead in manufacturing and exporting capital- and technology-intensive products. Equally successful has been their promotion of exports of all categories of manufactures to the U.S. Even a casual observation of raw data shows that the rise of the EANICs to the ranks of semi-industrialized countries has been made possible in part by the huge and growing capacity of the United States to absorb imports from Asia. Without such a market, especially with the relatively closed Japanese market, the EANICs would not have strong incentives for catching up with Japan.

Trade flows in recent years also indicate that the EANICs exporters have made inroads into the Japanese markets even in capital- and technology-intensive products. Does this mean that they would rely less on the U.S. market than before, thereby loosening up the triangular relation involving Japan and the United States? In this regard, our study is not optimistic. If the United States continues to accumulate trade deficits and its market remains open, then there is the danger that the EANICs, ASEAN, and China will all choose the easier path to industrialization and growth. They will continue to depend on U.S. demand for their exports rather than the difficult and uncertain alternative of cultivating the Japanese market.

Appendix

In the text, SITC 5–8 are classified into four groups according to their factor intensities on the basis of Krause (1987). His classification was based in turn on a UN classification scheme using the SITC rev. 1 definition. We have adjusted his classification to be consistent with the SITC rev. 2 definition.

Table 3A.1 Commodity Group by Factor Intensities

SITC Rev. 1	Commodity	SITC Rev. 2	Commodity
	Natural resource intensive:		
61	Leather	61	Leather
63	Wood	63	Wood
661–3	Mineral manufactures	661–3	Mineral manufactures
667	Precious stones	667	Precious stones
671	Pig iron	671	Pig iron
68	Nonferrous metals	68	Nonferrous metals
	Unskilled labor intensive:		
65	Textiles	65	Textiles
664–6	Glass and pottery	664–6	Glass and pottery
735	Ships	793	Ships
81	Sanitary, plumbing, heating and lighting fixtures	81	Sanitary, plumbing, heating and lighting fixtures
82	Furniture	82	Furniture
83	Travel goods	83	Travel goods
84	Apparel	84	Apparel
85	Footwear	85	Footwear
893	Plastic articles	893	Plastic articles
894	Toys	894	Toys
895	Office supplies	895	Office supplies
899	Manufactured articles, n.e.c.	899	Manufactured articles, n.e.c.
	Human capital intensive:		
53	Paints	53	Paints
55	Perfume	55	Perfume
62	Rubber	62	Rubber
64	Paper	64	Paper
672–9	Steel	672–9	Steel
69	Metal manufactures	69	Metal manufactures
7241	Televisions	761	Television receivers
7242	Radios	762	Radios
725	Domestic electrical apparatus	763	Phonographs, recorders
731–3	Railway and road vehicles	775	Household-type electrical machinery
864	Watches	78	Road vehicles
891	Musical instruments, phonograph, recorders	791	Railway vehicles
		885	Watches
		892	Printed matter
892	Printed matter	896–7	Antiques and jewelry
896–7	Antiques and jewelry	898	Musical instruments

Table 3A.1 (continued)

SITC Rev. 1	Commodity	SITC Rev. 2	Commodity
	Technology intensive:		
51	Chemical elements	51	Chemical element
52,57,59	Other chemicals	52,57,59	Other chemicals
54	Medicine	54	Medicine
56	Fertilizer	56	Fertilizer
58	Plastics	58	Plastics
71	Nonelectrical machinery	71–5	Nonelectrical machinery
72	Electrical machinery (other than 7241–2, 725)	764	Telecommunication equipment
		77	Electrical machinery (other than 775)
734	Aircraft	792	Aircraft
861–3	Scientific instruments, photographic goods	87	Scientific instruments
		881–4	Photographic goods

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Comment

Alice H. Amsden

The exports of Korea, Taiwan, Hong Kong, and Singapore grew dramatically in the 1970s and 1980s to the point where they caused the United States ulcers. The United States has run a large trade deficit with the East Asian NICs (and Japan) while Japan has run a large trade surplus with the East Asian NICs (and the United States). The question Yung Chul Park and Won-Am Park propose to address in their paper is well chosen. It is whether Japan is likely to absorb more exports from the East Asian NICs (East Asia for short), thereby promoting Pacific trade by relieving pressure on the U.S. trade deficit.

The optimistic presumption has become that Japan's share of East Asian exports will increase as Japanese direct foreign investment and outsourcing in East Asia rise. Japan's direct foreign investment in East Asia more than doubled in the five-year period from 1983–88, leading to expectations that Japan will use East Asia as a base to manufacture and reexport to Japan.

The first part of the paper, which examines changes in trade patterns, is a nightmare for any reader with even a moderately impatient disposition. The "wrong" prices, or prices that deviated from free market equilibria, may have been necessary to stimulate East Asian exports, but what appear to be the authors' wrong or highly confusing data used to describe them do not make understanding trade any easier.

Part of the authors' problem is that table 3.1, which purports to show the grand triangular trade relationships among Japan, the United States, and the East Asian NICs, is difficult to fathom and does not necessarily correspond to tables 3.2, 3.3, and 3.4, which present the same information as table 3.1 but in a simpler form and from the viewpoint of individual traders (Japan, the United States, and all the NICs combined). For example, according to table 3.1, in 1987 the United States exported $28.3 billion worth of goods and services to Japan. This accounted for 11.2% of total U.S. exports and 21.1% of total Japanese imports. These numbers do square with those in tables 3.2 and 3.3, so there is no doubt that the same set of numbers were used in different tables. According to table 3.2, exports from the United States to Japan in 1987 accounted for 11% of U.S. exports while, according to table 3.3, the U.S. accounted for 21.7% of Japan's imports. However, the trade matrix between the East Asian NICs and Japan in table 3.1 does not correspond to entries in tables 3.3 and 3.4. According to table 3.1, in 1987 the value of East Asian exports was $20.5 billion, 11.5% of which went to Japan, accounting for 15.3% of Japan's total imports. According to table 3.3, however, East Asian imports in 1987 accounted for only 12.8% of Japan's total imports, not 15.3%. Moreover, according to table 3.4, East Asian exports in 1987 to Japan

Alice H. Amsden is a professor of economics at the New School for Social Research and a research associate of the Massachusetts Institute of Technology.

accounted for 16.1% of East Asian total exports, not 11.5%. This last discrepancy, although not the previous one, becomes comprehensible from a footnote. The footnote to table 3.4 indicates, in impossibly oblique language, that East Asia's exports to the United States and Japan are not reported as shares of East Asia's total exports, as one would expect from table 3.1, but, inexplicably, as shares of East Asia's exports to the United States, Japan, and the OECD only.

All this is very confusing, *a fortiori* when what is written in the text does not always correspond to what is reported in the tables! In the introductory paragraph on U.S.-Japan bilateral trade, for example, the authors state that "Japan's overall share in U.S. exports climbed to 20% in 1987 from about 13% in 1980 (see table 3.2)." Looking at table 3.2, one observes that, in fact, Japan's overall share in U.S. exports *fell* (rather than climbed) to 11% (not 20%). This discrepancy arises because what the authors were really referring to in the text was not Japan's overall share in U.S. *exports* but its overall share in U.S. *imports*, and so on, and so on.

After snafus like these, understanding Pacific trade patterns seems less important than finding two aspirins, wherever produced or by whom. The authors provide no model to explain trade patterns (probably because none is useful) so their analysis is data driven. In the end we do not know the precise extent to which Japan and East Asia have become better trading partners, which is the major issue in the paper. The bottom line, however, seems to be that Japan's share of the East Asian NICs' exports has remained more or less constant between 1970 and 1988, at around 12%, whereas East Asia has become a more important source of Japan's imports, accounting for about 5% in the 1970s but maybe 12% or 15% (???) by 1987 and possibly 17% by 1988.

Mercifully, the paper gets better and better. The section on intra-industry trade is especially illuminating. The authors estimate Grubel-Lloyd indices of intra-industry trade in manufacturing classified by factor intensity: natural resource, unskilled labor, human capital, and technology. What the authors discover from these estimates is that East Asian–Japanese intra-industry trade has been booming in all categories except technology-intensive products. Overall, such trade surpassed the level between Japan and the United States. By contrast, intra-industry trade registered sharp declines between the East Asian NICs and the United States. The contraction was greatest in capital-intensive manufactures (which were also the mainstay of Japan's intra-industry trade with the rest of the world).

We begin to understand better the source of trade frictions between the United States, Japan, and the East Asian NICs. The trouble is of two types. The first problem is Japan's sluggish import growth. As indicated in table 3.1, Japan's share of world imports remained almost constant between 1970 and 1988 (at about 6%). Therefore, while the East Asian NICs accounted for a larger share of Japan's imports, this translated into Japan's taking a constant

rather than rising share of East Asia's rapidly growing exports. The second problem is sluggish U.S. export growth. U.S. exports declined as a share of total world exports from 15% to 12% between 1970 and 1988.

Ignoring the first problem for the moment, declining U.S. competitiveness with the rest of the world (including Asia) appears in all intra-industry trade categories except technology (fig. 3.2). The fact that over the 1980s, one trade category (technology) between the United States and the rest of the world rose while all the others declined, presumably suggests the possibility that there is more to poor American trade performance than merely the macroeconomics of savings and the exchange rate. The authors sound an ominous note for American competitiveness even with respect to the East Asian NICs: "The East Asian NICs have overtaken and extended their competitive lead over the U.S. in manufactures trade" (although not, of course, high tech). Given that "it may take many years for the U.S. to regain its competitiveness as an industrial power," the trade imbalances that bedevil Pacific trade are not likely to vanish soon.

Unlike Japan's share of world imports, which has remained constant, and unlike the United States' share of world exports, which has declined, table 3.1 indicates that East Asia's share of *both* world exports *and* world imports has increased. As shares of world totals between 1970 and 1988, East Asia's exports rose from 2% to 8% while its imports rose from 3% to 7%. Since 1988, the overall trade of the East Asian NICs has probably become even more balanced, if the trade balance of the largest country, South Korea, is any guide. Therefore, a philosophical question arises: Should the United States continue to pressure the East Asian NICs to balance their trade *with the United States*, or is it sufficient for them to qualify as good global citizens if they balance their *overall* trade?

If Park and Park's intra-industry trade estimates are any guide, American trade policy toward East Asia seems to be premised, erroneously, on the idea that if South Korea and Taiwan are persuaded to lower their (considerable) trade barriers, their trade surplus with the United States will fall. The authors' findings and other studies lead one to think that pressures to liberalize merely induce East Asia to import more from Japan, not to increase imports from the United States. This, in fact, is what happened between 1985 and 1987, even though the dollar was depreciating vis-à-vis the yen by over 60%. Therefore, instead of pressuring South Korea and Taiwan to liberalize, a better Pacific trade policy for the United States might be to join forces with both countries to penetrate the Japanese market.

If anybody can penetrate the Japanese market, it is the East Asian NICs. Good luck to them. As Park and Park quite correctly point out, the optimistic view expressed by some Japanese economists, that Japanese direct foreign investment in East Asia will increase Japanese–East Asian trade sufficiently to reduce East Asia's dependence on the American market, is probably exag-

gerated. The authors note that Japan–East Asian intra-industry trade has been dominated by Japanese multinationals. Such trade has almost certainly tended to be Ricardian in character—engaging countries at different, rather than the same, levels of economic development. Although the NICs have managed to export more skill- and technology-intensive products to Japan, these products are defined to include labor-intensive assembly of nonelectronic and electrical machinery, which are not really at the world technological frontier. Therefore, it is quite possible that the Japanese multinationals will use the NICs as export platforms to enter third markets, including the United States, thereby perpetuating the lopsidedness of Pacific trade.

It should be added that the idea is also exaggerated that Japan's direct foreign investment (DFI) to East Asia diffuses technology and thereby the wherewithal to compete against Japan. The "commanding heights" in East Asia have not been dominated by foreign firms; they are controlled by domestic enterprises, public or private, which have acquired their technology through channels other than DFI. This DFI has largely occurred in export-intensive industries, as just suggested. The technological overspill from export-intensive investments tends not to involve the transfer of leading-edge *product* technology (and the process designs that go with them), which is what the East Asian NICs currently need.

The final part of the paper deals with the product cycle as applied to the division of labor within Asia. As Japan climbs up the ladder of comparative advantage, so the argument runs, it relinquishes more labor-intensive (and then less skill- and technology-intensive) production to countries behind it in industrialization. The authors are appropriately skeptical about whether the law of comparative advantage is well behaved, given that East Asia's deficit with Japan was close to 80% of its total exports to Japan in 1988, despite its penetration of the Japanese market.

The problem seems to be Japan's tenacious competitiveness in mid-tech industries. Japan is not readily relinquishing these to the East Asian NICs, which, in turn, appear unwilling to accede significant market share in many labor-intensive industries to the ASEAN countries—Malaysia, Indonesia, and Thailand. As the authors point out, capital-intensive manufactures accounted for more than 45% of Japan's total exports and provided the largest source of its trade surpluses in the 1980s. Japan has been running trade surpluses with the East Asian NICs and the rest of the world in industrial machinery, electrical machinery, household electrical machinery, transport machinery, and even textile yarns and fabrics.

Part of Japan's trade surplus in mid-tech undoubtedly reflects trade barriers. But another part probably reflects higher productivity than Japan's lower-wage competitors, as well as pockets of low wages within Japan's segmented labor markets, that help Japan retain competitiveness in some labor-intensive goods. Comparative advantage is apparently misbehaving in the Pacific. Key

assumptions are being violated: that labor markets are homogeneous and that production functions are identical across countries such that the same product is produced everywhere at the same level of productivity.

To penetrate Japan's mid-tech markets will take a lot of effort by the East Asian NICs. Narrowing the already narrow gap with Japan requires painstaking incremental improvements in productivity and quality. Businesses in Taiwan are showing a lack of enthusiasm for such work by investing overseas. In South Korea, the accumulation of wealth by the big business groups is souring labor relations and eroding the dedication of workers and managers necessary for the task.

General Douglas MacArthur did Japanese productivity and labor relations a big favor when he decapitated the big *zaibatsu* groups after the war. Despite MacArthur's promise of "I shall return," the chances that he will return and cut off the heads of the *chaebol* are about as great as the chances of cutting off the heads of the *chaebol* without him, or of Japan's voluntarily opening its mid-tech markets to East Asia. Therefore, the conclusions of Park and Park, that trade between the East Asian NICs and Japan has come a long way but has too long a way to go to relieve pressure on the American market, rings true.

The wild card is services. The authors say nothing about services although these are the hope of the U.S. balance of payments. It is too soon to say how services will influence Pacific trade, but it is clear that Japan is already emerging as a stiff competitor, especially in financial services.