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International Specialization of Food Industry in East Asia

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This article analyses the international specialization of food industry among East Asian countries by using international input-output table and the linkages with foreign direct investment in the region. The following conclusions are drawn. First, international specialization of food industry among East Asian countries has changed since the 1980s due to the increase in foreign direct investment in these countries by the Japanese food processing industry. Secondly, not only the food processing industry but also the distribution industry has joined in scramble for foreign direct investment, causing competition between the two industries. Thirdly, the increase in the import of processed food has damaged the small-scale, domestic food manufacturing firms in Japan. Finally, along with the rise in the standard of living in East Asia, stiff competition among multinational corporations has arisen.

Key words: food industry, international specialization, intraindustry trade, foreign direct investment, international input output table, east asia.

1. Introduction

Several important trends in international trade relations have emerged in the postwar period: increased trade in value-added products; the rise in the share of total world trade by developing countries; and changes in the patterns of trade. These patterns are thought to have shifted from vertical to horizontal, and from inter-country to intra-industry, intra-firm (Economic Planning Agency [3]).

These trends in the instance of processed food trade exhibited the following important phenomena. First, processed food trade has attained a strategic position in the total world food system. The world trade in processed food has increased rapidly over the last two decades. By 1990 the value of the processed food trade reached $205 billion, about three times of that of agricultural products (Shimowatari [8]). Secondly, during this same time period the ratio of processed food exports from East Asia[1] to total world processed food exports has also grew quickly. Thirdly, the share of intra-Asia trade in the total world processed food trade also increased during this period.

These significant changes in processed food trade can be interpreted in part as the influence of the rapid development of the food processing industry in developing countries, especially those of East Asia (see Table 1). Furthermore, some economists suggest that several factors have contributed to the rapid development of the food processing industry in that region, including the growth of GNP per capita, consumption and availability of foods, marketing channels for farm products,

Table 1. Production index of food manufacturing in selected countries

(1980=100)

	1985	1990	1993
Japan	101	108	108
Indonesia	116	204	221
Malaysia	123	175	190
Philippines	272	411	521
Singapore	90	132	154
Korea	150	232	261
USA	111	125	124

Source: *Statistical Yearbook*, various issues, United Nations.

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technological innovations, investments by the private sector, and government initiatives (Asian Productivity Organization [1]).

Although we agree that changes in processed food trade are closely related to the development of food processing industry, and that the development of food processing industry was caused mainly by the above-mentioned factors, nevertheless questions persist. What are the connections between processed food trade and regional competition[2] in East Asia? And what are the roles of other industries that participate in processed food trade, such as the distribution industry (wholesalers and retailers)?

Accordingly, in this paper we will address these questions as follows. First, in order to clarify the relationship between processed food trade and regional competition, the patterns of international specialization of processed food trade in East Asia will be analyzed using international input-output tables. Secondly, the characteristics of the main promoters of international specialization of processed food trade in this region will be clarified. And finally, the important functions of the food distribution industry in the regional competition for processed food trade will be discussed.

For the purpose of this paper, "food industry" is defined as a general term applicable to all the industries involved in processing, storing, and selling food. Accordingly hereafter, "food industry" includes industries such as food processing, distribution and food service.

1) "East Asia" includes NIEs, ASEAN, China and Japan.

2) As for the term "regional competition," two types will be discussed. One is the competition among nations considered to have horizontal and vertical competitive relations in the food industries of East Asia, and the other is the competition among firms. Here, the discussion will include not only the competition among the firms within the food processing industry but will extend to the food industry as a whole. In addition, the competitive relations among multinational firms will be considered.

2. Types of International Trade

Some economists consider that international trade is distinguished by four types: intra-industry, intrafirm trade; intraindustry, arm's-length trade; interindustry, intrafirm trade; interindustry, arm's-length trade. Among such economists, Bonturi and Fukasaku [2] claim that the trading firms of Japan and other countries in East Asia are heavily involved in intrafirm trade of an interindustry character.

Intraindustry trade is defined as the two-way trade in similar products. That is to say, import and export occur simultaneously in the same industry. Although there have been numerous analyses of intraindustry trade (*e.g.*, Grubel and Lloyd [4]; Tharakan and Kol [9]), we still consider that it very useful, when the issue of international specialization is involved, to subdivide intraindustry trade into more refined types. Intraindustry trade can be desegregated into the following subtypes: intermediate product trade; and differentiation of final products. Furthermore, intermediate product trade can be further subdivided into two more types, differentiation of intermediate products and interprocessed specialization (Kiminami and Kiminami [5]).

An intermediate product may be defined as a product that is the output of one production process and the input to another. In other words, it is a product that flows within rather than across the boundaries of the production sector of the economy. For purposes of this paper, the discussion is confined to intermediate products that flow between processes within the same industry.

Product differentiation, however can be distinguished between horizontal and vertical product differentiation. If goods can be ranked in terms of some quality index, then these goods can be said to be vertically differentiated. On the other hand, if goods can not be ranked in terms of some quality index, then it seems natural to describe them as horizontally differentiated. Usually, the gains in trade of horizontally differentiated products are caused by economies of scale in production and an increase in the number of product varieties. Such trade is becoming a common phenomenon in developed countries. In contrast to horizontal product differentiation, the gains in trade of vertically differentiated products may be due to international differences in technology and factor endowments. Trade involving vertical product differentiation is often undertaken between developed and developing countries.

In order to count the proportion of intra-

industry trade to the total amount of trade, Grubel-Lloyd index (G-L index: IIT) is widely used (Grubel and Lloyd [4]):

$$IIT_i = [1-|X_i-M_i|/(X_i+M_i)] \times 100$$

where X_i is export of industry i, M_i is import of industry i, $|X_i-M_i|$ is net trade, X_i-M_i is total trade, $i=1,2...n$, and $0 \leqq IIT_i \leqq 100$. An index value of zero would indicate complete interindustry trade. Either the value of exports or imports would be zero. Higher index values are associated with greater intraindustry trade as a proportion of total trade, with an index value of 100 indicating equality between exports and imports. But, it is impossible to analyze the interdependence of industries among countries by using G-L index. That is to say, G-L index can not present the difference among various types of intraindustry trade mentioned above.

In order to explore the types of international trade, we devised two new indexes: the IM (the rate of intermediate inputs) and the IIM (the index of intraindustry trade of intermediate products) to combine with IIT (the index of intraindustry trade) (Kiminami and Kiminami [6]). If some industries have high IIT, IM and IIM, they are industries characterized by the differentiation of intermediate product of intraindustry trade (Type a). That is, intra-industry trade in these industries between two countries is primarily dependent on the differentiation of intermediate product. By contrast,

Table 2. Types of international trade

		IIT	IM	IIM
Intra-industry trade				
Intermediate product trade				
Differentiation of intermediate products	:a	High	High	High
Interprocessed specialization	:b	High	High	Low
Differentiation of final products	:c	High	Low	—
Inter-industry trade				
One-way intermediate products trade	:d	Low	High	—
One-way final products trade	:e	Low	Low	—

Source: Kiminami and Kiminami [6, p. 233].

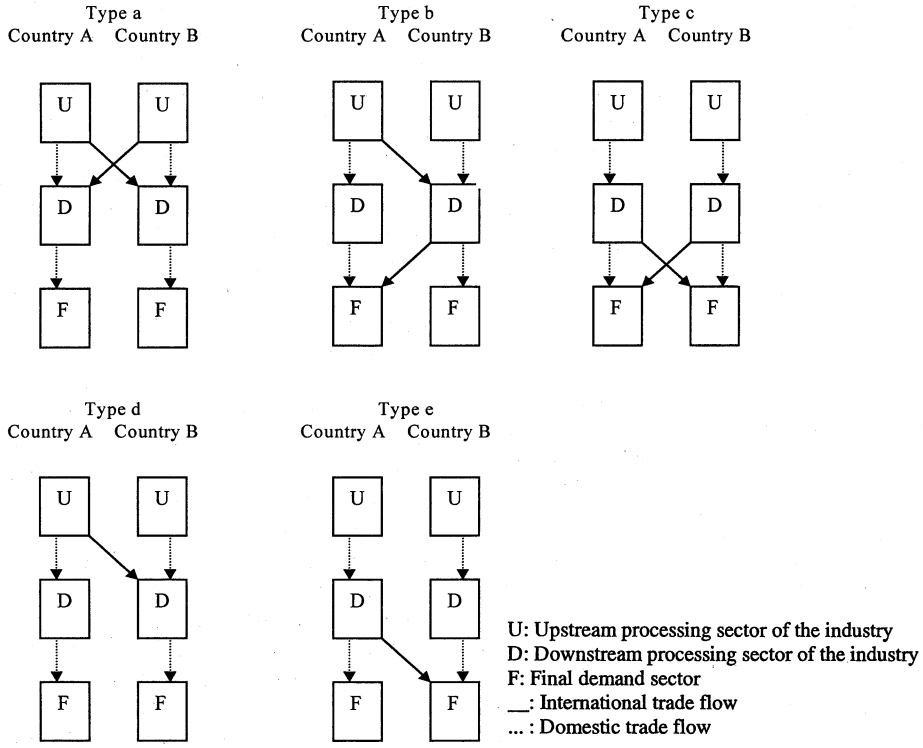

Figure 1. Types of international trade and flow of products
Source: Kiminami and Kiminami [6, p. 234].

industries that have a high IIT and a high IM but a low IIM are industries with the characterized by an interprocessed specialization of intraindustry trade (Type b). Finally, industries that have a high IIT but a low IM rate are industries with the characteristic of a differentiation of final products of intraindustry trade (Type c). For the rest, if some industries have a low IIT but either a high or a low IM, they might be considered to be industries with the characteristic of one-way intermediate products of interindustry trade (Type d), or the industries with the characteristic of one-way final products of interindustry trade (Type e). In order to explain in detail the types of international trade, Table 2 shows how to distinguish the types of international trade and Fig. 1 demonstrates how products flow between two countries. These terms are defined as follows,

$$IIT_{ABk} = (X_{ABk}+X_{BAk}-|X_{ABk}-X_{BAk}|)/(X_{ABk}+X_{BAk})\times 100 \quad (1)$$

$$IM_{ABk} = (XI_{ABk}+XI_{BAk})/(X_{ABk}+X_{BAk})\times 100 \quad (2)$$

$$IIM_{ABk} = (XI_{ABk}+XI_{BAk}-|XI_{ABk}-XI_{BAk}|)/(XI_{ABk}+XI_{BAk})\times 100 \quad (3)$$

X_{ABk}:
imports of A country from B country's k industry

X_{BAk}:
imports of B country from A country's k industry

XI_{ABk}:
imports of A country's k industry from B country's k industry

XI_{BAk}:
imports of B country's k industry from A country's k industry

$X_{ABk}+X_{BAk}$:
total trade of k industry's products

$|X_{ABk}-X_{BAk}|$:
interindustry trade of k industry's products

$X_{ABk}+X_{BAk}-|X_{ABk}-X_{BAk}|$:
intraindustry trade of k industry's products

$XI_{ABk}+XI_{BAk}$:
total trade of k industry's intermediate products

$|XI_{ABk}-XI_{BAk}|$:
interindustry trade of k industry's intermediate products

$XI_{ABk}+XI_{BAk}-|XI_{ABk}-XI_{BAk}|$:
intraindustry trade of k industry's intermediate products

3. International Trade of Processed Food in East Asia

1) Intraregional trade and interregional trade

Table 3 describes the patterns of international trade of processed food between the selected regions in 1980 and 1991. The table shows that the share of intra-regional trade among East Asia in the total world trade increased rapidly during this period. The average share of intraregional trade among these East Asian countries, as a proportion of their total respective trade, was 30.5% in 1980 and 33.1% in 1991. NIEs was the most dependent on intraregional trade, where the share of intraregional trade in its total amount of trade reached 38.9% in 1980, but it was slightly declining. In contrast, Japan was least dependent on intra-regional trade, with its share of East Asian trade as a proportion of its total trade being 23.1% but it increased to 31.0% in1991.

2) Pattern of the processed food trade in East Asia

We estimated the indexes of IIT, IM and IIM of food processing industry in East Asia in 1985 and 1990, based on international input-output tables[1] (see Table 4). In 1985, the extent of IIT in the food industry was comparatively high among these economies. Within ASEAN, the trade of this industry could be better characterized as being of an inter-industry nature. Among ASEAN countries, a reason may be the high demand by consumers for food items. On the other hand, IIT among the NIEs had the characteristic of differentiation of final products. We also note an inter-processed specialization of trade between Japan and the ASEAN countries.

However, these kinds of patterns of international specialization among the economies in this industry have changed since 1990s. We will elaborate on this in next section by means of a case study of the Japanese food industry.

3) Pattern of the processed food trade between Japan and other East Asian countries

In 1985, the processed food trade (PFT) between the Philippines and Japan exhibited type (a); that between Indonesia and Japan, and Malaysia and Japan took the form of type (b); that between Singapore and Japan was

Table 3. International trade of processed food between selected regions

($ million, %)

	World[a]	ASEAN[b]	NIEs[c]	Japan	East Asia[d]	USA
1980						
World	120,757	8,305	6,477	6,817	21,599	25,484
	100.0	*6.9*	*5.4*	*5.6*	*17.9*	*21.1*
ASEAN	8,305	465	1,347	677	2,489	1,299
	100.0	*5.6*	*16.2*	*8.2*	*30.0*	*15.6*
NIEs	6,477	1,347	273	901	2,521	1,348
	100.0	*20.8*	*4.2*	*13.9*	*38.9*	*20.8*
Japan	6,817	677	901		1,578	1,598
	100.0	*9.9*	*13.2*		*23.1*	*23.4*
East Asia	21,799	2,515	2,541	1,600	6,657	4,281
	100.0	*11.5*	*11.7*	*7.3*	*30.5*	*19.6*
USA	25,484	1,299	1,348	4,245	6,892	
	100.0	*5.1*	*5.3*	*16.7*	*27.0*	
1991						
World	199,499	13,898	19,842	17,632	51,372	38,541
	100.0	*7.0*	*9.9*	*8.8*	*25.8*	*19.3*
ASEAN	13,898	438	2,347	1,404	4,189	2,079
	100.0	*3.2*	*16.9*	*10.1*	*30.1*	*15.0*
NIEs	19,842	2,347	935	4,067	7,349	3,219
	100.0	*11.8*	*4.7*	*20.5*	*37.0*	*16.2*
Japan	17,632	1,404	4,067		5,471	5,249
	100.0	*8.0*	*23.1*		*31.0*	*29.8*
East Asia	51,572	4,204	7,371	5,502	17,076	10,578
	100.0	*8.2*	*14.3*	*10.7*	*33.1*	*20.5*
USA	38,541	2,079	3,219	5,249	10,547	
	100.0	*5.4*	*8.4*	*13.6*	*27.4*	

Source: *International Trade Matrix for Asia-Pacific Region by Industrial Group, 1975-1992,* Institute of Developing Economies, 1995.

[a] Encompasses 142 reported countries. [b] Including Indonesia, Malaysia, Philippines and Thailand. [c] Including Taiwan, Korea Rep., Singapore and Hong Kong. [d] Sum of "ASEAN," "NIEs" and Japan.

type (c); that between Thailand and Japan was of type (d); and the PFT between China and Japan, between Taiwan and Japan, and between Korea and Japan took the form of type (e). Therefore, it is quite clear that the PFT between Japan and other East Asian countries in 1985 consisted of two kinds: intraindustry trade and interindustry trade. Intraindustry trade between Japan and Singapore took form of the differentiation of final products. However, the intraindustry trade between Japan on the one hand and Indonesia, Malaysia, or the Philippines was strongly tilted towards intermediate product trade rather than differentiation of final products. Furthermore, intermediate product trade between Indonesia and Japan, and between Malaysia and Japan took the form of interprocessed specialization, where as the flow between the Philippines and Japan was characterized by the differentiation of intermediate products. Interindustry trade between Japan on the one hand and Thailand, China, Taiwan or Korea also consisted of two different sorts: one-way intermediate products trade (Thailand-Japan), and one-way final products trade (China-Japan, Taiwan-Japan, Korea-Japan).

Thus, it can be inferred that in 1985 the international trade between the Japanese food processing industry and other East Asian countries was realized through a pattern of vertical specialization. That is to say, the international trading relations between Japanese food processing industries and those of other East Asian countries were complementary to each other rather than competitive.

Since then, however, the situation has changed dramatically. First, type (c) replaced

Table 4. Types of international trade of processed food in East Asia

	1985				1990			
	IIT	IM	IIM	Types of trade[b]	IIT	IM	IIM	Types of trade
ASEAN-ASEAN[a]								
I M	19.13	53.25	7.79	d	77.54	12.41	30.93	c
I P	5.61	28.68	5.24	e	11.74	3.55	14.65	e
I T	64.34	10.66	24.67	c	41.73	20.67	30.57	c
M P	12.70	36.24	23.59	e	82.65	44.60	71.55	c
M T	15.50	19.08	18.07	e	10.85	25.19	19.63	e
P T	87.45	14.59	9.51	c	13.57	5.94	42.04	e
NIEs-NIEs								
S N	65.63	15.11	59.79	c	85.63	23.37	19.07	c
S K	45.00	57.44	16.78	b	94.75	30.18	36.33	c
N K	55.69	41.65	28.82	c	87.91	14.29	95.21	c
ASEAN-NIEs								
I S	73.19	41.58	28.62	c	97.66	8.33	95.50	c
I N	42.64	52.15	2.77	b	91.18	24.50	5.75	c
I K	1.04	79.21	0.31	d	67.93	30.67	16.68	c
M S	23.19	74.89	16.38	d	16.17	46.19	13.44	e
M N	43.87	20.07	49.75	c	63.68	41.77	56.56	c
M K	18.55	69.34	7.04	d	16.08	58.82	3.69	d
P S	69.01	46.03	80.86	c	33.11	36.62	23.50	c
P N	94.50	50.21	73.54	a	46.79	54.03	43.32	a
P K	76.80	67.58	45.28	a	8.16	55.74	0.29	d
T S	72.46	20.47	22.64	c	67.35	21.59	48.02	c
T N	11.76	19.20	0.53	e	62.52	78.76	36.09	a
T K	10.84	93.19	2.07	d	61.97	94.78	60.57	a
ASEAN-China								
I C	80.08	1.34	10.76	c	47.74	25.75	24.30	c
M C	49.56	61.91	28.18	b	57.09	38.06	48.33	c
P C	75.94	42.48	58.26	c	55.68	8.35	23.65	c
T C	30.92	64.40	8.31	b	69.33	58.19	98.85	a
NIEs-China								
S C	44.98	23.73	63.43	c	96.07	18.45	28.75	c
ASEAN-Japan								
I J	42.87	53.48	11.48	b	5.99	18.03	7.29	e
M J	45.68	76.67	10.46	b	24.70	39.18	14.79	e
P J	68.34	66.85	35.49	a	32.12	49.03	4.82	c
T J	22.13	47.89	3.28	e	14.92	31.72	29.32	e
NIEs-Japan								
S J	96.83	49.86	54.97	c	52.00	42.54	30.05	c
N J	27.76	42.88	33.32	e	26.82	28.87	33.05	e
K J	16.74	45.65	9.26	e	10.55	37.72	7.50	e
China-Japan								
C J	19.33	36.49	8.06	e	9.12	28.62	18.96	e
Average	45.00	44.83	25.27		48.27	34.01	33.33	

Source: Estmates based on *Asian International Input-Output Table 1985,* Institute of Developing Economies, 1992 and *Asian International Input-Output Table 1990,* Institute of Developing Economies, 1998.

a) I: Indonesia, M: Malaysia, P: Philippines, S: Singapore, T: Thailand, C: China, N: Taiwan, K: Korea, J: Japan. b) The judgement regarding a high or low level of IIT and IIM is made by comparison with the index of intraindustry trade between Japan and the USA in 1985, which was 29.91%. A high or low IM index is above or below 50% respectively. The frequencies with respect to types of trade (see Table 2) is as follows: in 1985: a: 3, b: 6, c: 12, d: 5, e: 8; in 1990: a: 4, b: 0, c: 18, d: 2, e: 10.

type (a), and secondly type (e) became the dominant pattern of PFT between Japan and other East Asian countries. These changes indicate that since 1990 both horizontal and vertical specialization have been established. Such a shift implies that competition became stronger not only between Japanese food processing industries and those of other East Asian countries, but also among the food industry firms inside Japan and in the other East Asian countries.

The cause of this changed situation is the increase in imports of processed food from East Asia to Japan, especially of final products. Table 5 indicates that, for Japan the share of processed food that was imported stood at 4.8% in 1985, but rose to 6.8% in 1990, and further increased to 7.1% by 1992.

Table 5. Share of processed food imports in Japan[a)]

(%)

	1985	1990	1992
Meat products	1.7	3.6	5.0
Dairy products	4.3	5.4	6.5
Salted, dried and smoked food	6.6	8.7	9.8
Canned fish	4.5	7.0	6.2
Other fish products	7.0	10.5	11.9
Noodle	1.0	1.0	1.3
Bread and confectionery	1.1	2.0	2.0
Canned agricultural products	19.9	27.0	32.4
Preservable food	16.2	28.8	34.6
Total	4.8	6.8	7.1

Source: *Input-Output Table,* various issues, Ministry of International Trade and Industry, Japan.

a) Share=import/domestic demand.

1) All transactions in the international input-output table are valued at current prices and measured in the U.S. dollar.

4. Foreign Direct Investment of Japanese Food Industries

1) Foreign direct investment in East Asia

Here we focus on the correlation between "re-imports" and foreign direct investment (FDI) in food processing industry by the Japanese company. It is often argued that re-imports are the result of FDI. FDI by the Japanese company has increased sharply since 1985, partly as a result of the high value of the Japanese yen.

FDI in food processing industry by the Japanese company has changed rather markedly during the last decade. First, the share of East Asia in the total amount of FDI by the Japanese company increased from 19.0% in the period of 1981-1985 to 30.4% in the period of 1986-1990. At the same time, the share of FDI directed to Europe decreased. Secondly, Thailand was the biggest recipient among East Asian countries by 1991, but has been replaced in this respect by China since 1992 (see Fig. 2). Thirdly, the value of FDI per case of reported investment has increased dramatically since 1994. It should be noted in this context that, since 1994, FDI has been mainly undertaken by large-scale firms rather than by small ones (see Table 6).

These trends can be partly explained by the difference in financial performance between Japanese domestic corporations and their overseas subsidiaries in 1995. These phenom-

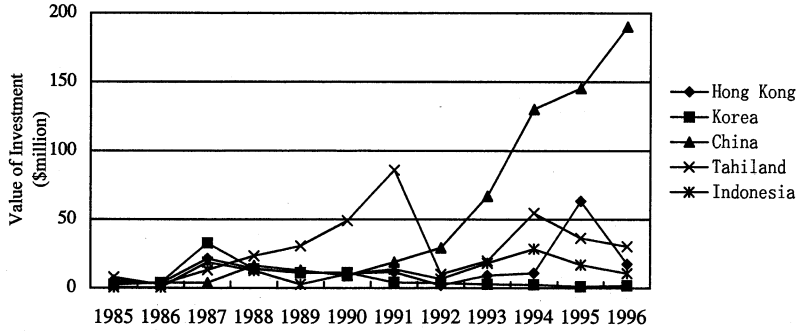

Figure 2. Foreign direct investment by Japanese company in food processing industry of selected East Asian region

Source: *Financial Statistics Monthly,* various issues, Ministry of Finance, Japan.

Table 6. Foreign direct investment for food processing industry from Japan

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Instances										
for World	135	169	143	139	113	99	106	76	82	62
for Asia	63	78	50	63	51	55	72	53	52	37
Value per instance ($1,000)										
for World	2,426	2,478	9,093	5,903	5,592	5,221	8,380	16,580	10,511	12,180
for Asia	2,258	1,149	10,674	1,868	3,101	1,283	1,933	4,589	5,520	7,798

Source: *Financial Statistics Monthly,* various issues, Ministry of Finance, Japan.

Table 7. Economic performance of Japanese food manufacturing, 1995

	Domestic corporations	Overseas subsidiaries				
		World	Asia	China	ASEAN	NIEs
Ratio of recurring profit to sales (%)	2.4	3.4	4.9	3.1	3.5	6.3
Value added ratio (%)	16.9	13.6	12.6	4.4	7.6	25.9
Value added per employee (JPY 10,000)	455	211	113	6	48	515

Source: *26th Basic Survey of Overseas Business Activities,* Ministry of International Trade and Industry, Japan, 1997.

Table 8. Costs to sales ratio of Japanese food manufacturing, 1995

(%)

	Domestic corporations: ①	Overseas subsidiaries					①−②
		World	Asia: ②	China	ASEAN	NIEs	
Regional factor: ③	22.52	17.26	13.48	11.92	12.53	16.24	9.04
Wage	12.84	6.15	4.11	2.33	3.65	5.29	8.73
Interest expenses	0.81	2.60	2.66	5.11	3.87	1.56	−1.85
Packing charge and cartage	4.55	3.07	2.26	2.63	2.26	2.22	2.29
Advertising	1.56	2.19	1.65	1.04	1.27	2.44	−0.09
Rental fee	1.03	0.48	0.54	0.60	0.33	1.01	0.49
Information processing and communication	0.38	0.45	0.36	0.08	0.12	1.01	0.02
Corporation tax and inhabitant tax	1.35[a)]	2.32	1.90	0.13	1.03	2.71	−0.55
Functional factor: ④	3.21	2.82	3.26	3.68	3.67	2.31	−0.05
Depreciation	2.35	2.62	3.06	3.68	3.47	2.11	−0.71
Research and development	0.86	0.20	0.20	0.00	0.20	0.20	0.66
③+④	25.73	20.08	16.74	15.60	16.20	18.55	8.99

Source: *26th Basic Survey of Overseas Business Activities,* Ministry of International Trade and Industry, Japan, 1997.

a) *Financial Statements Statistics of Corporations by Industry,* Ministry of Finance, Japan, 1996.

ena can be explained by considering the different roles in 1995 of domestic corporations and overseas subsidiaries. Table 7 indicates that the ratio of recurring profit to sales of domestic corporations was lower than of overseas subsidiaries. Both the value added ratio and value added per employee of domestic corporations, however, were higher than those of overseas subsidiaries, except for those in NIEs.

The higher ratio of recurring profit to sales of overseas subsidiaries might be due in part to their lower ratio of costs to sales, in which the lower cost of wages was the most important factor (see Table 8). On the other hand, the lower value added ratio and lower value added per employee of overseas subsidiaries indicates that low value added and labor intensive products were produced abroad. These facts imply that a vertical specialization in processed food exists between domestic corporations and their overseas subsidiaries. More over, such a specialization is generally

Table 9. Ratio of overseas production of Japanese manufacturing industry[a)]

(%)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Manufacturing	3.0	3.2	4.0	4.9	5.7	6.4	6.0	6.2	7.4	8.6	9.1
Food processing	0.9	0.4	0.8	1.2	1.3	1.2	1.2	1.3	2.4	3.2	2.6

Source: *26th Basic Survey of Overseas Business Activities,* Ministry of International Trade and Industry, Japan, 1997.

a) Ratio of overseas production=sales of overseas subsidiaries/sales of domestic corporations.

Table 10. Motivation for overseas production of Japanese food industry, 1995

(%)

	Total	China	Thailand	USA
Establishment of market bases	26.0	23.2	11.1	35.0
Re-import	45.2	48.2	44.4	30.0
Establishment of market bases and re-import	28.8	28.6	44.4	35.0

Source: *Survey of Overseas Business Activity of Food Industry,* Japan Association of Food Industry Center, 1996.

Table 11. Product distribution of overseas subsidiaries of Japanese food manufacturing firms, 1995

(%)

	Total	USA	Asia	China	ASEAN	NIEs
To local market	60.07	68.87	71.01	57.41	39.13	85.46
To Japan	27.53	30.41	15.20	39.63	25.66	8.92
To third countries	12.40	0.72	13.79	2.96	35.21	5.62

Source: *26th Basic Survey of Overseas Business Activities,* Ministry of International Trade and Industry, Japan, 1997.

considered to have damaged the small-scale domestic firms in the Japanese food processing industry. Nevertheless, we infer from Table 9 that, the percentage of overseas production by the Japanese food processing industry is still very low (2.6% in 1995).

Furthermore, along with the rise in the standard of living in East Asia, the main motivation for overseas production by the Japanese food industry has changed from re-import to the establishment of market bases (see Tables 10 and 11). This change may be due to the stiff competition among the multinational firms in local markets.

2) Foreign direct investment and imports of processed food

Generally, the imports of processed food consists of three components: re-import, "development and import," and indirect import, of which re-import is usually thought to be accomplished through foreign direct investment (FDI) by the food processing industries, where as indirect import, and "development and import" are thought to be done by the distribution industries, such as wholesalers and retailers. Food wholesalers are becoming important promoters of FDI (see Table 12).

In this section we first describe the mechanisms of re-import based on foreign direct investment and "development and import," then we compare the two schemes.

We mentioned that the Japanese distribution industry has now become one of the major promoters of FDI in food manufacturing. Attention has focussed however, not only on the role of the distribution industry in re-import through FDI, but also on its role in the "development and import." Table 13 indicates that out of the total import of processed foods the share of "development and import" products fostered by department stores and supermarkets.

As we stated earlier, the import of processed food includes three components: re-import, "development and import" and indirect import. Each scheme can be accomplished by internal transactions, contracts, and spot transactions according to the judgements of the distribution industry concerning the respective transaction costs. Table 14 lists several situations

Table 12. Overseas subsidiaries and affiliates of Japanese food manufacturing[a)]

Classification of Japanese corporation	Classification of overseas subsidiaries and affiliates	Number of Japanese corporation	Number of overseas subsidiaries and affiliates		
			Subsidiaries[b)]	Affiliates[c)]	Total
1992					
Food manufacturing	Livestock products manufacturing	12	19(4)	12(7)	31(11)
	Fish products manufacturing	9	8(2)	5(5)	13(7)
	Other food manufacturing	42	50(23)	34(17)	84(40)
Wholesaler	Livestock products manufacturing	9	7(1)	3(1)	10(2)
	Fish products manufacturing	17	5(1)	23(20)	28(21)
	Other food manufacturing	20	19(7)	52(40)	71(47)
1995					
Food manufacturing	Lvestock products manufacturing	12	35(9)	5(2)	40(11)
	Fish products manufacturing	14	17(7)	11(9)	28(16)
	Other food manufacturing	51	54(26)	50(42)	104(68)
Wholesaler	Livestock products manufacturing	8	10(2)	9(4)	19(6)
	Fish products manufacturing	20	14(5)	32(21)	46(26)
	Other food manufacturing	23	29(13)	42(36)	71(49)

Source: *Basic Survey of Business Structure and Activity,* various issues, Ministry of International Trade and Industry, Japan.

a) The number of the companies in Asia are in parenthesis. b) Companies for which the equity share of more than 50% of issued shares or capital has been provided by the company surveyed. c) Companies for which the equity share of more than 20% and less than 50% of issued shares or capital has been provided by the company surveyed.

Table 13. Shares of imports in processed food sales, 1993

(%)

	Total	Department store	Large scale supermarket	Supermarket
Imports	5.5	3.9	6.9	5.1
"Development and import"	0.5	0.3	0.7	0.5

Source: *Survey of Development and Import of Food,* Ministry of Agriculture, Forestry and Fishery, Japan, 1996.

Table 14. Choice of transaction mode

Situations faced by the distribution industry	Choice of transaction mode	Types of import
Risk in default of contract	Internal transaction	Re-import
Uncertainty with quality of products	Internal transaction	Re-import
Importance of information collection	Internal transaction	Re-import
Need for stable supply of products	Internal transaction	Re-import
Sunk cost	Contract transaction	Development and import
Uncertainty with the sales of final products	Contract transaction	Development and import
Merit of having alternative channels of products	Contract transaction	Development and import

which may affect the choice of mode for a transaction. Although much research on transaction cost economics[1] has already been done, case studies on the distribution industries in the Japanese food industry are still needed.

1) Williamson [10] is the pioneering research in transaction cost economics. Sheldon, Abott eds. [7] is also the study of the food industries within the framework of transaction cost economics.

5. Concluding Remarks

Based the above analysis, we reach the following conclusions. First, international specialization of the food industry among East Asian countries has changed since the 1980s due to the increase in foreign direct investment in these countries by the Japanese food processing industry. Secondly, not only the food processing industry but also the distribution industry has joined in scramble for FDI, causing competition between the two industries. Thirdly, the increase in the import of processed food has damaged the small-scale, domestic food manufacturing firms in Japan. Finally, along with the rise in the standard of living in East Asia, especially in China, stiff competition among multinational corporations has arisen.

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