A Study of the Changes in the Structure of Manufacturing Industry and in the Trade Pattern of Manufactured Products in the East Asian Developing Countries

— With Major Concentration on Korea, Taiwan and Japan —

(Part II)

*by Won-Tack Hong**

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* The author is assistant professor of economics, University of Wisconsin. Because of its length, this article is being published in two parts. Part I was appeared in the June, 1966 issue.

CHAPTER V

EXPORT OF MANUFACTURED PRODUCTS FROM DEVELOPING COUNTRIES

All countries in East Asia may be regarded as developing countries; Japan may be considered a matured developing country, while others may be regarded as developing countries at the transitional stage or at the early phase of industrialization. Exports from these countries are, or were, mainly composed of two or three principal primary products. Even Japan exported mainly foodstuffs and raw silk until 1900. But Japan has successfully escaped from this primary export structure. Recently, countries such as Korea, Taiwan, India and Hong Kong seem to have been going through something like a take-off stage in the export of manufactured products. In order to identify some general characteristics of the expansion process of manufactured exports from a developing country, the relationship between industrialization and the export of manufactures, or more specifically, the relationship between changes in the structure of manufacturing industry and changes in the composition of manufactured exports, will be studied in this chapter.

1. Escape from the Primary Export Structure

Before World War II, Korean exports were mainly composed of rice and other primary products, such as mineral ores. As we can see in Table 16, a significant amount of manufactured products was also exported, amounting to about 25 per cent of total export during the 1930's; these exports were mainly raw silk, cotton textiles, processed minerals and foodstuffs. Even after the Second World War, there were no significant structural changes in exports until 1962. The share of manufactured exports fluctuated around 17—27 per cent

Table 16: Composition of exports: Korea (1911—35), Taiwan (1896—1938) & Japan (1868—1939)

million yen, percentage

	Total Export	Primary Products	Raw Silk (Sugar for Taiwan)	Tea	Other Manufactures
Korea					
1911	18.9 (100)	18.5 (98)	— (0)		0.4 (2)
1915	50.2 (100)	48.4 (97)	0.1 (0)		1.7 (3)
1920	197.0 (100)	175.9 (90)	2.5 (1)		18.6 (9)
1925	341.6 (100)	283.9 (84)	27.1 (8)		26.0 (8)
1930	266.5 (100)	199.8 (77)	23.9 (9)		38.1 (14)
1935	550.8 (100)	413.1 (76)	19.9 (4)		114.7 (20)
1937	869.6 (100)	( )	22.5 (3)		( )
Taiwan					
1896	11.3 (100)	3.9 (35)	1.5 (13)	5.9 (52)	0.0 (0)
1900	14.6 (100)	5.9 (41)	2.2 (15)	5.3 (36)	1.2 (8)
1905	24.0 (100)	10.3 (42)	5.9 (25)	6.4 (27)	1.4 (6)
1910	59.8 (100)	13.9 (26)	35.3 (59)	6.4 (11)	4.2 (4)
1915	75.0 (100)	19.0 (26)	36.3 (48)	8.2 (11)	11.5 (15)
1920	214.2 (100)	46.6 (22)	141.2 (66)	6.6 (3)	19.8 (9)
1925	261.4 (100)	116.7 (34)	111.6 (43)	11.7 (5)	21.4 (8)
1930	239.6 (100)	69.2 (29)	141.9 (59)	9.8 (4)	18.7 (8)
1935	350.7 (100)	162.2 (46)	151.5 (43)	9.1 (3)	27.9 (8)
1937	440.2 (100)	( )	193.1 (44)	12.9 (3)	( )
Japan					
1868	15.5 (100)	4.9 (31)	6.3 (41)	3.6 (23)	0.7 (5)
1870	14.5 (100)	4.5 (31)	4.3 (30)	4.5 (31)	1.2 (8)
1875	18.6 (100)	5.0 (27)	5.4 (29)	6.9 (37)	1.3 (7)
1880	28.4 (100)	7.6 (27)	8.6 (30)	7.5 (26)	4.7 (17)
1885	27.1 (100)	9.8 (26)	13.0 (35)	6.9 (19)	7.4 (20)
1890	56.6 (100)	14.8 (26)	13.9 (25)	6.3 (11)	21.6 (38)
1895	136.1 (100)	31.0 (22)	47.9 (35)	8.9 (7)	48.3 (36)
1900	204.4 (100)	52.6 (26)	44.7 (22)	9.0 (4)	98.1 (48)
1905	321.5 (100)	58.0 (19)	71.8 (22)	10.6 (3)	181.1 (56)
1910	458.4 (100)	83.1 (19)	130.2 (28)	14.5 (3)	230.6 (50)
1915	708.3 (100)	132.7 (19)	151.8 (21)	15.4 (2)	408.4 (58)
1920	1,948.4 (100)	234.1 (11)	382.2 (20)	17.1 (1)	1,315.0 (68)
1925	2,305.6 (100)	253.3 (11)	877.7 (38)	14.8 (1)	1,159.8 (50)
1930	1,469.9 (100)	183.7 (12)	416.6 (28)	8.4 (1)	861.2 (59)
1935	2,460.3 (100)	154.8 (5)	387.0 (16)	11.4 (1)	1,907.1 (78)
1939	3,564.3 (100)	300.7 (8)	506.8 (14)	23.5 (1)	2,733.3 (77)

Source: Table A19, A21 and A23 in Appendix.

Table 17: Composition of exports: Korea (1952—65), Taiwan (1952—64), India (1899, 1913, 1929 & 1953—63) and Hong Kong (1953—1964)

million dollars & percentage[1]

Korea	Total Export	Primary Product	Raw Silk	Other Manufacture
1952	27.7	97%	2%	1%
1953	39.6	93%	5%	2%
1954	24.2	89%	8%	3%
1955	18.0	83%	8%	9%
1956	24.6	86%	6%	8%
1957	22.2	82%	4%	14%
1958	16.5	84%	2%	14%
1959	19.2	84%	4%	12%
1960	32.8	82%	3%	15%
1961	40.9	77%	7%	16%
1962	54.8	73%	7%	20%
1963	86.8	50%	5%	45%
1964	119.1	44%	5%	51%
1965	172.3	36%	4%	60%

Taiwan	Total Export	Primary Product	Sugar	Other Manufacture
1952	119.5	28%	58%	14%
1953	129.8	19%	70%	11%
1954	97.8	19%	60%	21%
1955	133.4	32%	51%	17%
1956	130.1	32%	57%	11%
1957	168.5	19%	66%	15%
1958	164.4	27%	52%	21%
1959	160.5	28%	41%	31%
1960	169.9	16%	44%	40%
1961	214.0	20%	29%	51%
1962	238.6	20%	21%	59%
1963	357.5	24%	30%	46%
1964	433.8	27%	30%	43%
1965				

India	Total Export	Primary Product	Tea	Other Manufactures
1899[(a)]	913.0	—	—	8%
1913[(a)]	1,184.0	—	—	13%
1929[(a)]	1,474.0	—	—	19%
1953	1,116.0	38%	20%	42%
1954	1,182.4	37%	25%	38%
1955	1,276.4	45%	19%	36%
1956	1,251.2	38%	25%	37%
1957	1,350.0	61%	19%	40%
1958	1,216.0	36%	24%	40%
1959	1,308.0	37%	20%	43%
1960	1,332.4	36%	19%	45%
1961	1,411.2	34%	19%	47%
1962	1,392.4	35%	19%	46%
1963	1,609.6			

Hong Kong	Total Export	Domestic Origin
1953	483.2	23%
1954	423.6	28%
1955	444.4	29%
1956	563.2	24%
1957	599.2	22%
1958	564.4	39%
1959	629.2	63%
1960	744.4	68%
1961	726.4	71%
1962	811.2	72%
1963	918.8	73%
1964	1,012.8	77%
1965		

Source: The Bank of Korea, *Economic Statistics Yearbook*, and *Foreign Exchange Statistics*; The Statistical Department of Inspectorate-General of Customs at Taipei, *The Trade of China*; Council for U.S. Aid, Executive Yuan, *Taiwan Statistical Data Book*; Department of Commerce and Industry, Hong Kong, *Trade Statistics*; United Nations, *Commodity Trade Statistics*, *Yearbook of International Trade*, and *Economic Survey of Asia and the Far East*; and A. Maizels, *op. cit.*, pp. 64 and 486.

[(a)] At 1955 dollar prices. Due to the difference in classification, the share of manufactured products in India's total exports in 1899, 1913 and 1929 seems to be underestimated compared to the later years.

during 1955—62, and the manufactured exports continued to consist mainly of raw silk, cotton textiles, slightly processed minerals, and foodstuffs.

Considering that Korea's total annual exports amounted to more than $ 300 million during the 1930's, even after taking into account the division of the country, the total annual export during 1952—60 was exceedingly low, averaging about $ 25 million a year[1]. Only since 1961 has the amount of total exports as well as the share of manufactures in export rapidly expanded. By 1963, as shown in Table 17, the share of manufactured products became about half of total exports, $ 86 million; in 1964, 56 per cent of a total of $ 119 million; and in 1965, this share was about 64 per cent of total exports of $ 172 million.

In this sense, Korea seems to have escaped from its primary export structure after 1963, although its manufactured exports per capita are still very small (the least compared with Taiwan and Hong Kong).

The exports of Taiwan were mainly composed of sugar and rice during the sixty year period 1896—1956. The share of manufactures (excluding sugar) fluctuated within 10—20 per cent of total export, and the manufactured goods involved were mainly food products such as tea and canned pineapple or alcohol (a by-product of sugar refining). Since 1957, the share of manufactures (excluding sugar) has expanded rapidly, from 15 per cent in 1958 to 40 per cent in 1960. Thus, Taiwan seems to have escaped from its primary export structure after 1960, in the sense that nearly half of its total exports are manufactured products (excluding sugar).

India exported relatively large quantities of textiles before World War II, but it seems that India escaped from its primary export structure after the war, when the share of manufactured products (excluding tea) constituted more than

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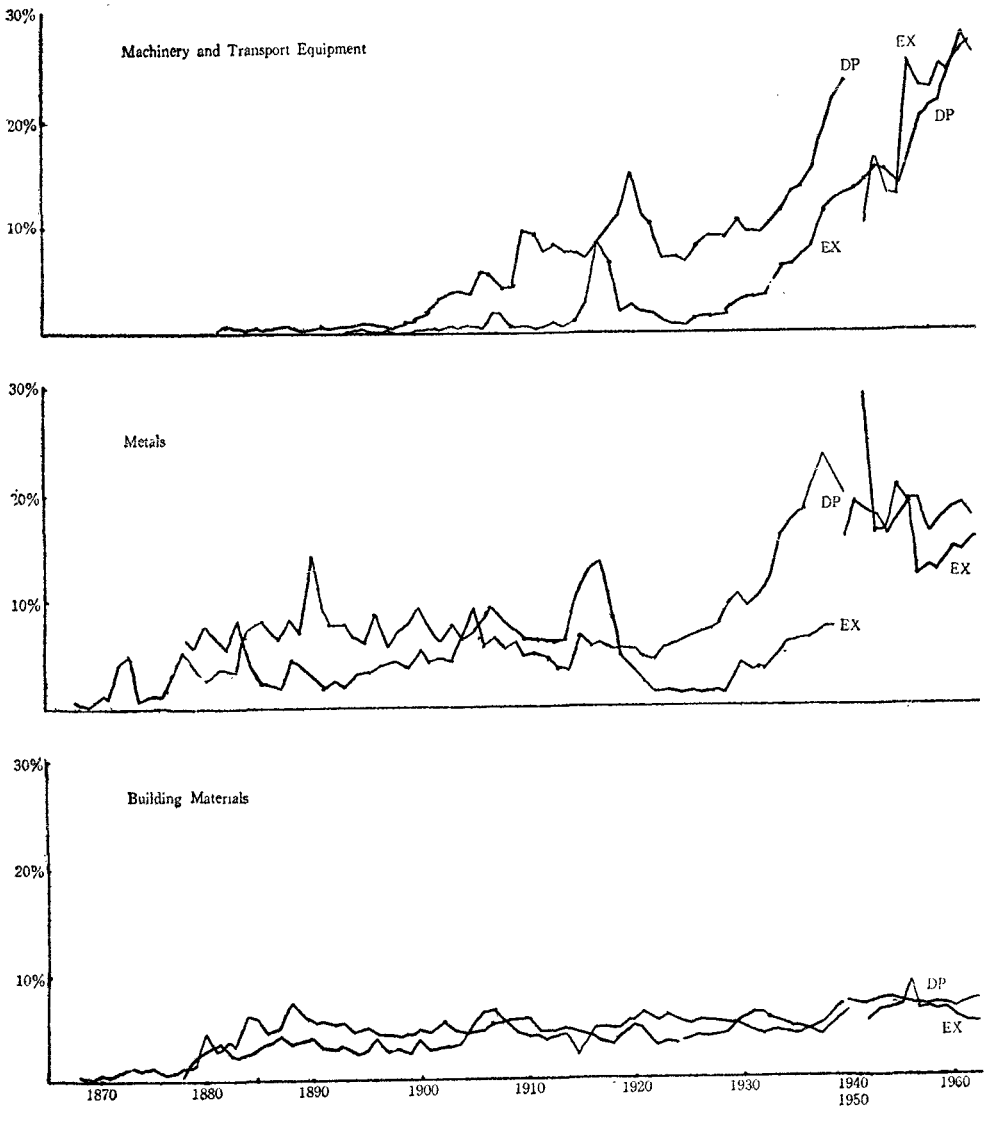
(1) Total Exports of Korea and Taiwan: In Millions of 1951 Dollars

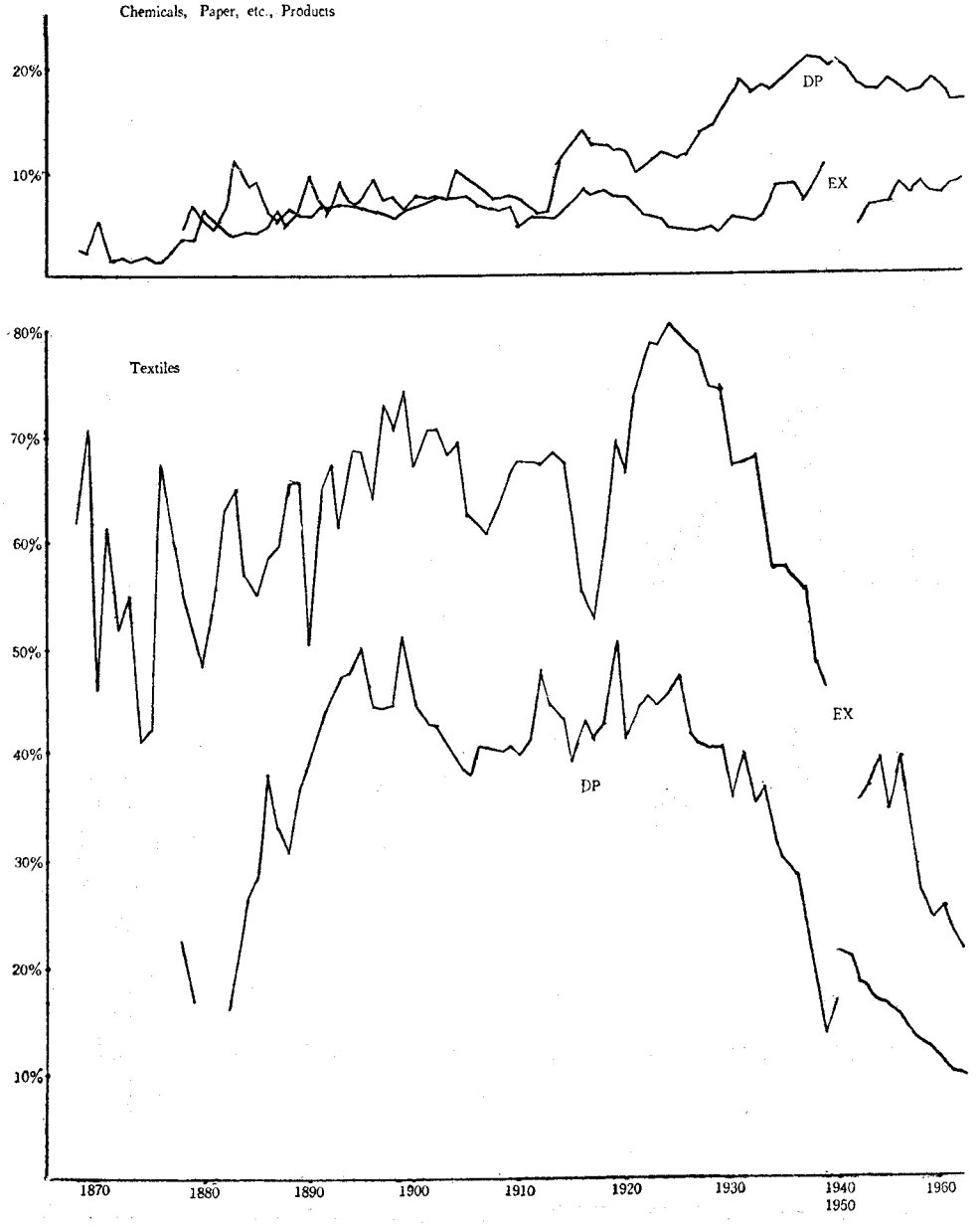
	1896	1900	1905	1910	1915	1920	1925	1930	1935	1964
Korea				29	76	111	248	313	575	119
Taiwan	27	28	40	96	114	121	190	281	366	434

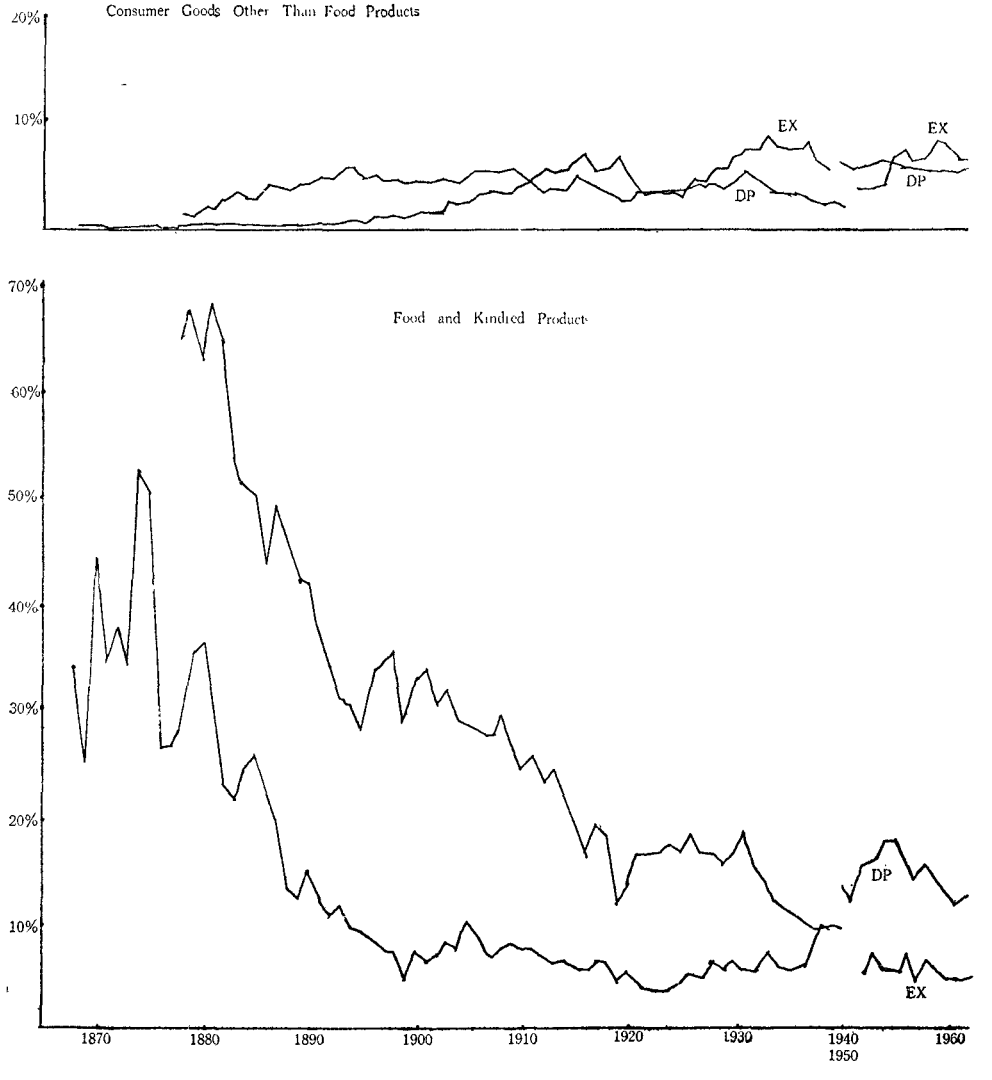
Source: Table A21—24 in Appendix. (Refer to Table 3 for the method used to convert "yen" to "dollars.")

Figure 1

Changes in the Structure of Manufacturing Industry and in the Export Pattern of Manufactured Product Japan (1868—1940 and 1950—62)




Chemicals, Paper, etc., Products
20%
10%
DP
EX
80%
Textiles
70%
60%
50%
40%
30%
20%
10%
EX
DP
1870
1880
1890
1900
1910
1920
1930
1940
1950
1960



Source: Table A 7, A 8, A 19 and A 20 in Appendix and H. Ouchi, ed., *Japan Economic Statistics for Meiji, Taisho, and Showa Eras* (Tokyo: Nihon Tokei Kenkyujo, 1958).

$$DP = \frac{\text{E.g., Products of Chemical Industry}}{\text{Total Products of Manufac. Industry}} \qquad EX = \frac{\text{E.g., Exports of Chemicals}}{\text{Total Exports of Manufac.}}$$

40 per cent of total export.[2] Hong Kong escaped from its status as a transit port and became a major exporter of manufactures only after 1959 when 63 the share of domestic-origin exports, mainly manufactured products, constituted 63 per cent of total exports which were $ 630 million.

In Japan, until after 1900, exports were mainly primary products, raw silk and tea. Only after 1900 did the share of manufactured products (excluding raw silk and tea) constitute more than half of total export. In this sense, Japan escaped from its primary export structure after 1900.

2. The Impact of Changes in the Industrial Structure on the Pattern of Manufactured Exports

Korea, Taiwan, India and Hong Kong started only recently to export significant amounts of manufactured product, and thus, it is impossible to study the relationship between the changes in the structure of manufacturing industry and the changes in the composition of manufactured exports of these conutries on a long-run, time series basis. The investigation of this long-run relationship is confined to Japan.

The negligible proportion of machinery output in total Japanese manufacturing output from 1868 to 1899 was reflected in the negligible share of machinery in total export of manufactured products. During 1900—20, the share of machinery output expanded significantly, but there was no matching expansion in the exports of machinery and transport equipment. During 1920—40, there was another round of expansion in the share of machinery output, and the share of machinery in total manufactured exports also expanded rapidly. After World War II, the expansion in the respective shares of machinery output in total Japanese manufactured output and exports have been almost identical. The share of machinery and transport equipment in total Japanese manufactured output reached nearly 30 per cent by 1962; and their share in total manufac-

(2) Percentage Share of Each Manufactured Product in Total Manufactured Exports of India

Year	Machinery	Metals	Chemicals	Textiles
1899	0	0	15.1	68.5
1913	0	1.3	1.3	87.7
1929	0	7.9	1.4	79.6
1937	0	6.1	1.5	76.5

Source: A. Maizels, *op. cit.*, p. 486.

tured exports was also close to 30 per cent that year.

There was no apparent downward or upward change in the share of metal output during 1868—1920; nor was there any such movement in metals' share of total manufactured exports. During 1920—40, the share of metal output had a definite tendency to expand, and the share of metals in exports expanded nearly at the same rate, but the magnitude of its share in exports was even less than that of 1868—1920. After World War II, the share of metals in total manufactured output or total manufactured exports remained fairly constant. However, during this period, metals' share in exports (e.g., 16 per cent in 1962) was very close to its share in total manufactured output(17 per cent in 1962).

There was a rapid expansion in the share of textile output during 1878—1899, and, although the rate of expansion in textiles' share in total manufactured exports was minimal, the absolute magnitude of textiles' share in exports was about 60 per cent. In 1899, about three-quarters of total manufactured exports were textiles. During 1900—25 the share of textile output fluctuated within 40—50 per cent; and its share in exports around 65 per cent. After 1925, until the 1960's, textiles' share in either total manufactured output or manufactured exports declined rapidly and continuously. By 1962, the share of textiles output was about 10 per cent; and their share in exports about 20 per cent.

The share of chemicals, paper, etc., products in total Japanese manufactured output fluctuated around 5—10 per cent during 1880—1920 and their share in exports also fluctuated around 5—10 per cent. But during 1920—40, there was a definite expansion in the share of chemical output, and there was also a sign of expansion in that share of total manufactured export, though a slight one. Since World War II, the share of chemical output has fluctuated within 15—20 per cent, and the share in exports within 5—10 per cent.

The share of food and kindred products in total manufactured output declined rapidly during 1878—1920, from about 65 per cent to about 15 per cent. Since 1920, its share has fluctuated around 15 per cent, with somewhat declining trends. Its share in exports declined continuously until 1900, and then remained stable at about 5 per cent.

Only after 1925 did Japan's industrial structure begin to make big changes toward the pattern of the presently developed countries. The share of the machinery industry in total manufactured output expanded sharply from less

than one tenth in 1925 to a quarter in 1940; metals from about one twentieth to about a quarter; and chemicals from one tenth in 1925 to one seventh in 1930 and to one fifth of total manufactured output by 1940. There was a sharp reduction in the share of textiles from nearly a half in 1925 to a sixth in 1940, and food products from a sixth to a tenth by 1940. These changes in the industrial structure were reflected in the export pattern:[3] a sharp increase in the share of machinery in total manufactured exports from 1 per cent in 1925 to 12 per cent in 1939; also a sharp increase in the share of metals from 2 to 12 per cent, chemicals from 5 to 10 per cent; a sharp fall in the share of textiles from 75 per cent in 1925 to 45 per cent in 1939; and a slight increase in the share of food products in total manufactured exports.

Japan's movement towards the increased export of machinery and metals began its evolution in 1925, following further increased outputs of the machinery and metals industries. This movement has intensified since World War, II and more especially since 1955, when machinery and metals already represented nearly one-third of total exports of manufactured products.

Other East Asian Countries

The export patterns of Korea, Taiwan, India and Hong Kong in the 1960's are not very different from those of Japan during 1900—29. As we can see

(3) Proportion of Exports Out of Total Domestic Production: Japan in 1936 and 1962

	Machinery	Metals	Build. Mat.	Chemicals	Textiles	Consumer	Food
1936	11%	7%	19%	9%	44%	4%	12%
1962	8%	7%	6%	4%	17%	9%	3%

Source: Table A 7, A 8, A 19, and A 20 in Appendix.

It is not actually clear which reflects which, but since, except for textiles, the proportion exported out of the total domestic production is usually less than or about 10 per cent, it seems relevant to say that export pattern "reflects" the industrial structure. This viewpoint seems to be supported by the following statement by Lockwood. "The idea that the drive for foreign markets was the major force of Japanese industrialization is nothing but a literary invention. It has little relationship to the facts. . . . The home demand for Japanese manufactures . . . . absorbed continuously most of the output of industry . . ." W.W. Lockwood, *The Economic Development of Japan* (Princeton University Press, 1954), pp. 309 and 369, quoted by R. Nurkse, *Equilibrium and Growth in the World Economy* (Cambridge: Harvard University Press, 1961), p. 321, and also by S.B. Linder, *An Essay on Trade and Transformation*, (Stockholm: Almqvist & Wiksells, 1961), p.91.

Table 18 : Composition of manufactured output and export: Korea, Taiwan, India and Hong Kong

percent[a]

	Korea		Taiwan		India		H.K.
	Output	Export	Output	Export	Output	Export	Export
	1964	1964	1963	1963	1962	1962	1964
A. Machinery and Transport Equipment							
1. Machinery	1.2	0.3	1.9	0.9	2.5	0.3	0.6
2. Electrical	2.8	2.5	2.6	1.3	3.9	—	4.4
3. Transport	3.4	0.3	1.1	0.3	3.3	0.2	0.4
Sub-Total	7.4	3.1	5.6	2.5	9.6	0.5	5.4
B. Metals							
4. Basic Metal	4.7	9.5	3.8	5.0	16.2	0.5	1.0
5. Metal Product	1.9	1.6	2.3	1.2	1.4	0.6	3.4
Sub-Total	6.6	11.1	6.1	6.2	17.6	1.1	4.4
C. Building Materials							
6. Non-Metallic	4.9	2.5	6.5	5.6	4.2	0.4	0.3
7. Wood Product	2.2	19.2	5.1	7.4	0.3	—	0.3
Sub-Total	7.1	21.7	11.6	13.0	4.5	0.4	0.6
D. Chemicals, Paper, etc., Products							
8. Paper Product	2.8	0.1	3.8	1.5	2.0	0.2	0.3
9. Petroleum	4.2	0.1	5.2	0.8	4.9	0.9	0.0
10. Rubber	4.7	1.3	1.3	0.3	3.9	0.2	0.0
11. Chemicals	8.1	1.0	10.8	6.6	5.2	1.8	1.2
Sub-Total	19.8	2.5	21.1	9.2	16.1	3.1	1.5
E. Textiles	23.0	39.0	17.4	15.4	37.7	54.0	16.6
F. Consumer Goods Other Than Food							
13. Furniture	0.4	0.0	—	0.0	—	0.1	0.9
14. Printing	3.0	0.1	1.9	0.0	—	0.2	0.9
15. Leather	1.0	0.1	0.2	0.1	0.2	5.3	0.0
16. Wearing Apparel	3.8	11.0	2.8	4.3	0.4	0.8	42.2
Sub-Total	8.2	11.2	4.8	4.4	0.6	6.4	44.0
G. Food & Kindred	26.2	2.7	33.0	47.4	17.0	33.0	4.2
Manuf/Total Ex.		55.7		75.8		65.2	95.9
Manuf. Ind/GNP	14.3		21.8		15.0		

Source: Table A 2, A 5, A 11, A 22, A 24, A 25 in Appendix and United Nations, *Yearbook of International Trade.*

[a]Percentage share of each manufactured product in total manufactured output(or export).

Table 19 : Composition of manufactured output and export: the Philippines, Pakistan, Burma and Thailand

percent[a]

	Philippines		Pakistan		Burma		Thailand	
	Output	Export	Output	Export	Output	Export	Output	Export
	1963	1963	1958	1962	1961	1962	1956	1962
Machinery	9.0	0.1	4.5	3.3	0.8	—	4.3	0.4
Metals	7.4	0.2	5.9	0.3	3.6	68.2	0.3	1.3
Building Material	5.8	12.0	3.3	0.5	8.6	5.8	7.6	11.0
Chemicals	21.5	1.4	16.3	2.7	23.3	26.0	9.7	1.4
Textiles	9.4	1.7	34.3	77.8	13.3	—	1.1	4.0
Consumer	2.0	0.3	4.2	4.7	5.0	—	10.6	2.9
Food & Kindred	32.1	84.1	20.0	5.9	44.3	—	63.8	77.8

Source: Central Bank of the Philippines, Annual Report: 1964, Department of Commerce and Industry, Republic of the Philippines, *Foreign Trade Statistics of the Philippines: 1963*; The Revolutionary Government of the Union of Burma, *Annual Survey of Manufactures: 1960—61*; Government of Pakistan, Central Statistical Office, Ministry of Economic Affairs, *Pakistan Statistical Yearbook*, & *Census of Manufacturing Industries: 1958*; Thailand, Office of the National Economic Development Board, Bundhit Kantabutra, *The Economy and National Income of Thailand;* and United Nations, *Yearbook of International Trade Statistics, and The Growth of World Industry: 1938—61.*

(a)Percentage share of each manufactured product in total manufactured output(or export.)

Table 20. Percentage share of manufactured and primary product in total export: other East Asian countries in 1962

million dollars & percent

Country	Total Exports	Primary Products	Manufactured Products	
Laos	0.8	—	—	
Burma	257.6	97%	3%	
Cambodia	54.4	95%	5%	
Thailand	454.4	92%	8%	
Indonesia	681.8	76%	24%	(Excluding petroleum: 4%)
Pakistan	397.3	74%	26%	
Malaya	857.7	69%	31%	(Excluding tin: 7%)[a]
Philippines	553.2	66%	34%	(Excluding sugar: 10%)
Ceylon	371.0	34%	66%	(Excluding tea: 1%)

Source: United Nations, *Commodity Trade Statistics*, and *Yearbook of International Trade Statistics.*

[a]Includes re-exports.

in Table 18, in each country, textiles and consumer goods constitute the dominant share of total manufactured export: 54 per cent in Korea, 67 per cent in Taiwan, 63 per cent in Hong Kong, 93 per cent in India, and about 80 per

cent in Japan during 1900—29. (4)

One notable difference is that in Korea, Taiwan and Hong Kong, the share of products other than textiles and consumer goods is about 33—46 per cent, and these countries are exporting significant amounts of electrical machinery and metal products. Korea and Taiwan are also exporting very large amounts of wood products, mainly plywood. The manufactured exports of India (in 1962) and Japan (during 1900—29) were almost exclusively textiles and food products.

In the Philippines, about 86 per cent of total manufactured export in 1963 are food products (mainly sugar), but they also export large amounts of wood products (plywood). Almost all of Pakistan's manufactured exports are textiles and consumer goods, the share of textiles being about 80 per cent of total manufactured export in 1962.

In summary, it seems that the export patterns of India, Pakistan and the Philippines are more similar to the pattern of Japan during 1900—29 than the export patterns of Korea, Taiwan and Hong Kong, in the sense that the exports of the former group are almost exclusively textiles and food products. However, in each country, the share of textiles and consumer goods in total manufactured output is about 50—60 per cent, and more than half of total manufactured exports are also textiles and consumer goods. In this sense, the difference among them is more a matter of degree than of character.

Other East Asian countries such as Burma and Thailand do not export many manufactured products, and, although Indonesia, Malaya, or Ceylon are exporting significant amounts of manufactured products, their exports are concentrated in a single item, such as petroleum product, tin or tea.

CHAPTER VI

FACTORS MAKING THE EXPORT PATTERN REFLECT INDUSTRIAL STRUCTURE: PRESSURES

1. Pressure

Many of the differences in the share of manufactured products in a country's total export can be explained by the difference in each country's level of indus-

(4) For the figures of Japan's export during 1900—39, see Table A 19 in Appendix.

trialization (measured by the percentage share of manufactured output in GNP). A Kendall's rank correlation test, using the sample of 11 countries in Table 21, gives a coefficient of 0.55 which is significant at the 0.01 level. However, considering that in 1962 the level of industrialization in Korea, Pakistan, India, Burma and Thailand was very similar, but that the importance of manufactured output in each country's export was very different, we have to explore other causes influencing a country's manufactured exports.

Some empirical studies suggest that natural resource endowments have an important effect on the pattern of production and foreign trade.(1) For instance, a country with poor natural resources, and thus at a comparative disadvantage in primary production, is likely to be induced to develop industries more intensively than others with rich natural resource endowments. A country which cannot develop exportable primary products in any large amount is also more likely to be induced to develop manufactured exports to overcome the balance of payment difficulties than the other which can earn a large amount of foreign exchange through primary exports. The underlying force which leads an economy to make up for deficiencies may be called "pressure," in the sense that the more poorly an economy is endowed with natural resources, the greater the pressure might be to overcome this handicap through the development of industries, even using imported raw materials.(2)

However, it seems difficult to generalize the process of pressure translated into the expansion of manufactured exports. In Korea and Taiwan, the government controls the entire foreign exchange transactions, and since foreign

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(1) H.B. Chenery, "The Effects of Resources on Economic Growth," in Kenneth Berrill(ed.), *Economic Development with Special Reference to East Asia* (London: Macmillan, 1965), pp. 19—52.

(2) This kind of "pressure-inducement mechanism" has been elaborated by Hirschman. For instance, when he argues a hypothesis that population pressure may stimulate development, he says: "Among the inducement mechanism we have studied, . . . population pressure must rank as the least attractive one. In the first place, it works through an initial decline in per capita income . . . Secondly, it is less reliable than the other mechanism we have considered. In our previous, vaguely similar mechanism, i.e., losses in foreign exchange income leading to industrialization, we could point to several solid links in the reaction chain: specific, now unsatisfied, needs; 'forced savings' of a kind; the interest of the heretofore importers or foreign suppliers, etc. In case of population pressures, on the other hand, we are provided only with an aspiration to return to the status quo ante, but generally not with specific means or intermediate reaction links for doing so. Nevertheless, in some of the following situations, the passage from aspiration to reality becomes plausible or is more readily visualized than in others." A.O. Hirschman, *The Strategy of Economic Development* (New Haven: Yale University Press, 1958), pp.176—177.

exchange supply poses a limit to its long-term planning, the government is very sensitive to the above mentioned pressures and takes the vigorous initiative to expand exports. In Hong Kong, the pressure seems to be felt by the whole population and translated into export expansion wholly through the initiative of industrious individual entrepreneurs. For Japan, it is hard to determine the extent to which the export expansion was initiated by private entrepreneurs or by the government. Some peculiarities in this process in the individual cases of Korea, Taiwan and Hong Kong are examined at the end of this section.

More than half of the total exports of Japan in 1900 were manufactured products, and the share of manufactured outputs in its GNP was only about 8 per cent. Since the share of manufacturing industry in all other East Asian countries, except Ceylon, Cambodia, Laos and Vietnam, was greater than 8 per cent by 1962, the absence of large amounts of manufactured exports in many other East Asian countries cannot be attributed solely to a poor industrial base. Thus, when the question arises as to why countries like Korea, Taiwan and Hong Kong are exporting more manufactured products than others, the reasonable answer seems to be that these particular countries were subjected to more pressure to export manufactured products.

In reality, however, it is difficult to measure the exact magnitude of pressure to which a country is subjected. Nor do we have any satisfactory measure of natural resource endowments. One of the usual approaches is to classify countries as over-populated or under-populated under some crude assumption that an over-populated country might be poorly endowed with natural resources such as arable land. To some extent, it is a reasonable assumption to measure the rough resource potential of a country. But since it is very hard to assume any close correlation between population density and other natural resource endowments, such as minerals, another method often used is to measure the amount of per capita primary exports of a country (not the percentage share of primary exports in total exports) under the assumption that this may reflcet the exportable natural resource endowments of the economy.

Perhaps this kind of reasoning is unrefined and generalization of it is a fragile matter, but this argument suggests that such things as population density, per capita primary exports, or balance of payment difficulties can be used as indexes of pressure (however crude) and these indexes can be easily quantified.

Table 21: Relationship between the pressure and the proportion of manufactured product in total export

Country	Share of Manufactured Products in Total Export (1962)	Average Annual Rate of Increase in Exports (1954—1963)	Population Density Per Sq. Km (1962)	Per Capita *Primary Ex.* Per Capita Income (1962)[a]	*Export−Import* Export+Import Balace of Payment Difficulty (1954—63)[a]
Hong Kong	93.8%	21.7%	3,304	0.080	−0.201[c]
Taiwan	80.1%	14.6%	315	0.035	−0.219
Korea	49.7%	19.1%	265	0.014	−0.829
Japan[b]	90.0%	7.4%	170	0.009	−0.096
India	65.2%	3.2%	148	0.015	−0.176
Pakistan	25.9%	0.7%	102	0.042	−0.136
Philippines	34.3%	6.6%	98	0.099	−0.061
Indonesia	24.0%	1.8%	66	0.073	0.143
Malaya	31.0%	6.2%	56	0.388	0.107
Thailand	7.5%	5.7%	54	0.141	−0.058
Burma	2.5%	1.3%	34	0.189	0.028
Kendall's Rank Correlation Coefficients					
Share of Manufactures in Total Export		.60**	.78**	.49**	.49**

Source: United Nations, *Statistical Yearbook:* 1963, *Bulletin for Asia and the Far East, Yearbook of International Trade Statistics, & Yearbook of National Accounts Statistics.*

(a) Smallest figure was given the highest rank.

(b) Average annual rate of growth in exports is for the period of 1920∼29. The value of exports and imports during this period was converted into 1913 prices to eliminate the effects of changes in price. (Oriental Economist, Inc., *Foreign Trade of Japan: A Statistical Survey*, Tokyo, 1935)

(c) Since part of Hong Kong's import is re-exported, the ratio of export minus import to explort plus import is less meaningful in this case.

** Statistically significant at 0.05 level.

With all the East Asian countries in which the share of manufactured output in GNP was more than 8 per cent in 1962, a series of rank correlation tests were made. The results are significant correlations between population density, per capita primary exports, and balance of payment difficulties, on the one hand, and the proportion of manufactured products, on the other.[3]

Despite the crudeness of those indexes, these results suggest that there is a significant correlation between the pressure to which a country is subjected and the country's performance in export of manufactured products.

(3) As shown in Table 21, balance of payment difficulties are measured by dividing the difference

Another interesting fact is that among the eleven East Asian countries shown in Table 21, the highest average rate of growth in exports during the 10 year period (1920-29 for Japan) has been achieved by Hong Kong, Korea, Taiwan and Japan, and that it does not seem accidental that these four countries are exporting a very large amount of manufactured products (in terms of percentage share in total exports). The increased export of manufactures played a major role in their over-all export expansion. A Kendall's rank correlation test (between the average annual rate of growth in total exports during 1954-63 and the percentage share of manufactured products in total exports of each country in 1962, using the sample of eleven East Asian countries in Table 21) gives a correlation coefficient of 0.60 which is significant at the 0.01 level. This result suggests that a rapid expansion in exports can only be achieved by, or generally accompanied by, a large expansion of manufactured exports.[4]

Although import pattern rarely seems to fail to reflect the changing industrial structure of an economy, in the case of exports—at least in the developing countries—it is considered rather an exception for the export pattern to reflect the changing industrial structure. However, whether industrialization will also be accompanied by an expansion in the export of manufactured products, and whether the changing industrial structure will be reflected in the export pattern of manufactures seem to depend on the degree of "pressure" to which a developing country is subjected. Generally, the stage of exporting a large amount of manufactured products is by no means always reached. Import substi tution occurs more frequently than export creation. And also the developing countries tend to pursue intensive import-substitution policies rather than intensiveexport-promotion polcies. This point will be discussed briefly in the next section.

Some Peculiarities in the Cases of Korea, Taiwan and Hong Kong

Apart from their high population density, the pressure to which Korea and

between total export and import by the sum of total export and import.

(4) This result is in line with the following arguments: i.e., even if a developing country still enjoys a high "established" comparative advantage in primary exports, because of sluggish expansion of external demand for primary products, the country's "incremental" comparative advantage in primary exports may be low; and "the 'incremental' comparative advantage of over-populated countries poorly endowed with natural resources lies in increased exports of the simpler kinds of manufacured goods such as textiles." See R. Nurkse, *Equilibrium and Growth in the World Economy* (Cambridge: Harvard University Press, 1961). pp. 308-309

Taiwan have been subjected bears some peculiarities. In both Korea and Taiwan, a large proportion of imports has been financed by U.S. aid. In Taiwan, the increase of import outstripped the increases of export until 1961, and the gaps generally 40-50 per cent of total import) were filled by U.S. aid. For several years, warnings have been repeatedly addressed to Taiwan that U.S. aid would cease in the near future. The Chinese government, though not solely because of this warning, has vigorously promoted export expansion to achieve a better balance of trade in the absence of aid.(5) The unfavorable trade trend took a turn for the better in 1962 when the increase of exports surpassed that of imports. In 1963 exports increased by 50 per cent from 1962, while imports went up by 3 per cent. In 1963, for the first time since 1949, Taiwan's trade balance registered an export surplus (about $ 20 million). Soon thereafter it was announced that United States aid would be terminated by 1965.

In Korea, the proportion of imports financed by U.S. aid has been even larger than in Taiwan. Until 1961, more than 70 per cent of total imports were financed by U.S. aid. Warnings that U.S. aid might cease within a few years have also been addressed, though not openly, to the Korean government since the beginning of the 1960's. To make matters worse for itself, the Korean government initiated an ambitious Five-Year Plan in 1962 which required a large amount of foreign exchange. When the Five-Year Plan ran into a deadlock because of a shortage of foreign exchange, the government quickly acknowledged the necessity of a drastic expansion in exports and initiated a vigorous export promotion policy.(6) From an average of about $ 25 million during the 1950-60

(5) The warnings seem to have been addressed to the government also from domestic economists. In 1959, an econometric analysis of Taiwan's development problems concluded that, assuming the current economic struture of Taiwan and the need to expand output at 6.3 per cent a year, the annual rate of growth of export should be as high as 15 per cent. S.C. Hsieh and T.H. Lee, *A Planning Model for Taiwan's Economy* (Taipei, 1959) quoted by H. Kitamura in "Forign Trade Problems in Planned Economic Development," K. Berrill(ed.), *op. cit.*, p. 198. The actual growth rate of Taiwan's exports since 1960 has been much higher than 15 per cent per annum.

(6) The principal method employed was a subsidy system. An export subsidy system was instituted during the latter half of 1961. The government allocated nearly 0.45 billion won (about $ 3 million) as an export subsidy fund for 1961. Tax incentives and low interest rate bank loans have also been provided and, in an attempt to encourage exports and restrict imports, the government established an export "link" policy, which has turned out to be really efficient. Under this "link" policy, only those who exported more than a certain amount during a given period of time were authorized to import commodities classified as permission-required items.

period, exports increased to $ 41 million in 1961, $ 87 million in 1963, $ 119 million in 1964 and to $ 172 million in 1965. The target for 1966 is $ 250 million, and the target for 1971, the final year of the Second Five-Year Plan (1967—1971), is $ 700 million.[7] The government vows that, within ten years from 1966, Korea will be exporting more than $ 1 billion worth of commodities, mainly manufactured products. It is not certain whether the government's somewhat ambitious goal will be realized, but one thing at least is certain: the government is expending great effort on the expansion of exports.

Hong Kong is even more peculiar in the sense that its population (nearly 3.5 million in 1965) is crowded into a very small area, about a thousand square kilometers of mainly rocky and mountainous land. Its population was about one half million until the end of the Second World War, but the population doubled in 1946. The net immigration during the 1947—1956 period was about 0.75 million, and with the natural increase of a half million the population was about 2.5 million by 1956. (This constitutes an increase of five times that of 1945.[8]

Whatever the individual peculiarities of Korea, Taiwan and Hong Kong, one common factor is that they were subjected to heavy pressure to expand exports and they reacted favorably.

2. A Further Conceptual Exploration

Any country which simply adjusts its development pace to the export earnings of its traditional primary products may fail to achieve even rapid import substitution, let alone export of manufactured products. It seems to be only when the economy, unsatisfied with its traditional export earnings, seeks every possible mean to expand export earnings that the export of manufactured products from a developing country becomes possible.

Chenery says "that the main cause of the rise of industry has been Japan's need to overcome her limited endowment of natural resources. For this reason

(7) The share of manufactured product in total export of 1971 is tentatively estimated to be 72 per cent by the Korean government. See *The Seoul Kyungje* (Seoul Economic Newspaper), November 26, 1965, p. 1.

(8) Data from E. Szczepanik, *The Economic Growth of Hong Kong* (Oxford University Press, 1958), p. 154.

she has had to develop the trade pattern of an advanced country exporting manufactured goods and importing raw materials."[9] This conclusion also applies to such countries as Korea, Taiwan and Hong Kong, which are subjected to the pressures of population and limited resources. Although there are significant differences between the patterns of the latter countries and the early Japanese pattern, due to changes in the exogeneous factors such as technology and opportunity, there was little difference in the pattern of reaction when these countries tried to overcome their limited natural resource endowment.

Other East Asian countries are still exporting mainly staple products or other raw materials. In those countries which are exporting staple products such as rice, population growth may cut off export. Other countries, whose exports are not subject to domestic consumption, have their own problems: first, whether they can increase the production of their primary exportables significantly and continuously to enable them to rely upon those exportables for a rapid rise in the living standards of their ever-increasing population; second, even if they can solve the supply problem, the issue remains whether the world will take much more of their products[10].

The export sector of an economy whose exports depend upon one or two

(9) H.B. Chenery, S. Shishido and T.Watanabe, "The Patterns of Japanese Growth, 1914—1954." *Econometrica*, XXX, 1 (January 1962), p. 129.

(10) "In its economic survey for 1959, the ECAFE estimated that most countries of this area may be expected to increase their export earnings over the next twenty years by about one half, or a compound rate of 2.05 per cent a year. This may well be less than the increase in population of the area." Quote from C.P. Kindleberger, *International Trade and the National Economy*(New Haven: Yale University Press, 1962), pp. 107 and 108. This estimate was apparently made on the strict assumption that these countries would not change their present pattern of export.

Occupational Structure of Immigrants: Hong Kong Working-Age Population Only (Percentage of Total)

Occupation	According to Occupation in China	According to Occupation in Hong Kong
Farmers, fishermen, servants	10.6%	12.8%
Army, police, professionals, intellectuals	26.4%	3.7%
Business men, clerks & shop assistants	17.6%	14.3%
Industrial laborers & craftsmen	6.0%	24.8%
Others, including unemployed & housewives	39.4%	44.4%

Source: Ibid., p. 155.

As the statistics on occupational structure of immigrants (for the pre-1956 period) indicate, many former soldiers, policemen, professionals and intellectuals became industrial laborers.

primary products for at least half of their export earnings is alleged to be incapable of imparting momentum to the rest of the economy. Thus, it is said, such an economy fails to reduce the degree of dependence on one or two main export products, even in the long run.[11] Of course, the poor linkage effects of primary production (including sugar and raw silk) would give very little, if any, momentum to rapid innovation in the rest of the economy. However, the outcome depends largely upon how a country utilizes its export earnings.[12] No country can be said to be doomed to failure in its development of industry if it tries vigorously by importing machinery and technology. It seems to be the lack of pressure, and not of inherent incapability, that resulted in the absence of vigorous effort for intensive import substitution, or positively, export promotion of manufactured products in many of the East Asian countries.

Although favorable reaction generally follows the pressure, the reaction may take a somewhat different form from promotion of manufactured exports. For instance, in India, the share of manufactured exports in total export was more than 60 per cent even early in the 1950's; but there was not much further expansion in the share of manufactured exports during 1950-64, nor was there any big increase in the total annual amount of exports, while the annual value of world exports has almost doubled during that period. More than 90 per cent of India's manufactured exports has been textiles (mainly jute products and cotton textiles), leather and food products (mainly tea). Considering the rapid growth in other industries (other than the textiles and consumer goods industries) in India during the period, the sluggish expansion in exports of other manufactured products seems to be due to the lack of an intensive export promotion policy and the peculiar sort of positive reaction of the Indian government, i.e., self-

(11) Cf. A.K. Cairncross's presentation of a well-known reason why international trade is not a popular engine of growth in "International Trade and Economic Development," *Economica*, Vol. XXVIII, No. III (August, 1961), pp. 235-251.

(12) "Most of the countries that we now think of as advanced have been at one time or another dependent on just as narrow a range of exports. Japan in the early stages of industrialization was heavily dependent on exports of silk, the United States and Canada on exports of grain, Britain on exports of wool or, at a later stage, on textile manufactures which once supplied over 70 per cent of her export earnings. If you want to make a start you must use what you have." *Ibid.*, p. 240.

sufficiency in capital goods.[13]

With a pessimistic view on the demand elasticities, which yield a limited scope for export expansion of primary and traditional manufactured products, and discouraged by the small amount of present export of non-traditional manufactured products, Indian planners seem to have given up the idea of solving the foreign exchange problem through drastic export expansion.[14] It seems they firmly believe the only solution for a large country like India is self-sufficiency in capital goods.[15]

Perhaps this kind of policy is right for a country as large as India. However,

(13) Cohen rejects the argument that the major reason for the stagnation of Indian exports is the limited world demand. The world demand for such products as tea, jute, groundnut oil, cotton cloth, manganese ore, which are the major items of India's traditional exports, has increased, but India's share of world exports has declined. Cohen says that the major reason for the stagnation of India's export (or manufactured exports) is the lack of a vigorous effort to promote exports by the Indian government. He says, "During the First and Second Five-Year Plans export promotion did not have priority over other goals such as increasing tax receipts, stabilizing domestic prices, maintaining labor employment, and establishing a socialistic pattern of society." He gives several examples, such as: (1) "The heavy direct taxes levied on exported tea by the Central and State Governments over 10 per cent of the f.o.b. value are an important cause for India's declining share of world tea markets." (2) "In order to maintain the level of employment in the handloom sector, the Indian government has restricted the mills' output of cotton cloth. As the mills cannot retrench any workers and cannot increase their output, they cannot install many automatic looms. So Indian labor costs are higher than those of her major competitors, who use mainly automatic looms." B. Cohen, "A Comment of S.J. Patel's Analysis of Indian Exports," *Indian Economic Journal*, Vol. XI, No. 1(July-September, 1963).

(14) Cf. "The prospects of growth in the other items (products of the new industries, such as chemicals, drugs, and medicines, and cutlery, hardware, vehicles, electrical goods and appliances and machinery) may be considered bright in that they form the core of the dynamic or the most expanding items in the world trade... However, in order to obtain an increment of half in total export proceeds, it will be necessary to expand the exports of dynamic commodities, now accounting for 5 per cent of total, by more than ten times." S.J. Patel, "Export Prospects and Economic Growth: India," *Economic Journal*, Vol. LXIX (September, 1959), pp. 490-506.

(15) Cf. "In India, for example, Mahalanobis' 'plan-frame' for the second five-year plan draws heavily on Soviet methodology. He starts from the assumption that the rate of investment is determined by the level of domestic production of capital goods: 'As the capacity to manufacture both heavy and light machinery and other capital goods increases, the capacity to invest would also increase steadily, and India would become more and more independent of the import of foreign machinery and capital goods'. His analysis implies that export possibilities are so limited that they can be ignored, so that the composition of demand is limited by the composition of domestic output. In order to raise the level of investment, Mahalanobis concludes that investment in industries producing capital goods should be increased from less than 10 per cent to 30—35 per cent of total investment in the second five year plan." H.B. Chenery, "Comparative Advantage and Development Policy", *American Economic Review*, Papers and Proceedings (March, 1961), pp. 18—51.

the experiences of Korea, Taiwan and Hong Kong have shown that a big change, both in the direction and in the commodity structure of exports towards non-traditional manufactured products, is not entirely impossible if a country tries vigorously. In 1954, the total export of manufactured products from Korea, Taiwan and Hong Kong amounted to about $ 100 million (excluding sugar exports from Taiwan), in 1960 they amounted to about $ 500 million, and in 1964 they reached more than a billion dollars.

Of course this rate of expansion may not continue in the future, but there is no a priori reason why it cannot. According to estimates derived from a time series regression of the gross domestic product of the developed countries on imports of each commodity group from developing countries, the income elasticities of foodstuffs (SITC groups 0 and 1) and agricultural raw materials and ores (SITC groups 2 and 4) were 0.76 and 0.60 respectively, while that of manufactured goods (SITC groups 5 to 8) was 1.24.[16] If this high income elasticity for manufactured products from developing countries continues to prevail in developed countries, not only the small countries such as Korea, Taiwan and Hong Kong, but also the large ones such as India might be able to rely on the export of manufactured products as a major source to meet the expanding demand for foreign exchange.

For a developing country, there are difficulties in a large scale penetration into the international market for manufactured products, especially in the beginning. For instance, the protective commercial policy of developed countries with respect to manufactured products from developing countries is certainly one of the prime reasons why "pressure" is so important in export performance of a developing country. The relaxation of protective policy of developed countries may reduce much of the importance of the "pressure" element in determining the export performance of developing countries. Nevertheless, the difficulties do not seem as insurmountable as some people (especially those who believe that the Japanese style of development cannot be reproduced) often think.[17]

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(16) The sample covers the period of 1953—60. United Nations, *World Economic Survey*, 1962, "The Developing Countries in World Trade," p. 6.

(17) For instance, many people in developed countries habitually treat underdeveloped countries as primary producing countries, which will remain so forever. As a result, they often think that if the developed countries can maintain high rates of growth and smooth out the fluctuations in their demand for primary products, most of the troubles of underdeveloped countries would

Linder seems to emphasize the existence of mass domestic demand for a product to be a potential export. However, with respect to manufactured products in developing countries, the existence of mass domestic demand may not be a necessary condition. The manufactured products which are demanded more and more as develoment proceeds are mainly those products which are already used in developed as well as other developing countries. They are usually imported at first in developing countries and then produced domestically with the import of technology and equipment necessary to produce them. If a country can imitate a product successfully, the product can become exportable immediately.[18] A critical factor which makes a country unable to export a product seems to be a lack of pressure to achieve the high quality and low

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be solved. Some people also suggest that the underdeveloped countries develop primary products, at least temporarily, in order to earn foreign exchange. Others argue that the development of primary products would aid industrialization in the underdeveloped countries. Nurkse said that, since the world demand for a wide range of primary products is relatively slow in expanding, "any exclusive emphasis on the traditional pattern of growth through trade would be out of place, and could be interpreted as a hangover from bygone days. We should try to understand the need for other patterns of development." Underdeveloped countries' development through the export of simpler kinds of manufactured goods can "displace high-cost suppliers in the older industrial countries, who would shift to more productive and more rewarding lines of activity such as skilled services, engineering and chemistry." However, since he thought their growth through exports of manufactured goods could hardly be described as a major factor at present, he looked for a second best solution, and arrived at the conclusion that the only way left for underdeveloped countries to industrialize is through balanced expansion of output for home markets. R. Nurkse, *op. cit.*, p. 324.

(18) As an example, in Korea until recently, the domestic demand for the safety razor has been met by imports. A razor company appeared in 1957. The plant was equipped with $ 15 thousand worth of semi-automatic machinery and it engaged in processing (mainly final touching) imported semi-finished products. In 1958, the company purchased $ 50 thousand worth of modern machinery from W. Germany, and added $ 25 thousand more capital for expansion in facilities. However, due to the extremely delicate techniques required in its production process, the quality of the product was very poor. But, in 1963, the company finally succeeded in producing good safety razors (comparable to the quality of razors made in developed countries). Since, not only has the company come to satisfy most of the domestic demand, but it has started to export. A sample export was tried in 1964, and during January and July, 1965, $ 50 thousand worth of razors was exported to Thailand, and the company made a contract with some importers of the Ryukyu Islands to supply a million pieces of razor a month from August 1965. They expect the total amount of razor exports in 1965 to be more than $ 100 thousand. The plant is working on a three-shift basis now. (*Business-monthly*, Business Co., Seoul, September, 1965, p. 133.) This is a very humble story of a small plant. It may not give any glorified image to outsiders, but innumerable cases of this kind of process make the backbone of the successful emergence of a developing country as a manufactures exporter.

cost comparable to the original product made by foreigners.[19] The lack of effort for successful imitation seems generally to be due to the lack of pressure to export and face the challenge in the international market. If imitation at the starting point is haphazard, it may become harder for a developing country to export the product later. If the horizon of markets is extended to foreign countries at the beginning of the imitation, the drive for perfect imitation, with quality and efficiency comparable to the original producers, will be enhanced. It is a difficult start, but if most manufactured products have this kind of start, virtually any product produced in a country becomes an exportable.[20]

Passive measures of import restriction are not enough to penetrate the markets of developed as well as underdeveloped countries. Thus, it is not a matter of curiosity, as Cairncross thinks, that Latin American countries meet nearly all their textile requirements but have a negligible share in any foreign markets.[21]

The export of manufactured products seems to require (and result in) a drive towards lower cost and higher quality of domestic products to survive the challenge of international competition. The alleged incapability of underdeveloped

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(19) Arthur Lewis seems to have a similar idea. He says, "As industry grows rapidly, so does domestic income and so, therefore, does the demand for food and raw materials. In short-of-land countries.....this forces a rapid increase in import of food and raw materials.....manufacturers can keep going on by expanding their exports of manufactures.....Manufacturers will only behave in this way, however, if they have an irresistible urge to invest, coupled with the will and the technique for selling exports of manufactures.....This seems to have been the basic difference between Germany and Japan, on the one hand, and Britain, on the other. The Germans had the irresistible urge to invest in steel, machinery, chemicals, and such in the last decades of the nineteenth century, and broke into export markets, using whatever techniques were necessary.....Our explanation of export drives has left us with the not very attractive concept of 'momentum' and 'an irresistible urge to invest.'" W. A. Lewis, "International Competition in Manufactures," *American Economic Review*, Vol. XLVII, No. 2, Papers and Proceedings (May, 1957), pp. 578—87.

(20) This may be the point implied by Hirschman when he says that "Competing in export markets is one of the most powerful spurs to efficiency and it is quite possible that industries which are not exposed to this spur at a rather early stage in their growth will never achieve the point at which they can hope to compete successfully in world markets. For a variety of other reasons.....an early effort at securing export markets, if necessary with the help of subsidies, may therefore be indicated." A. O. Hirschman, "Comparative Cost and Economic Development-Discussion," *American Economic Review*, Vol. LIV, No. 3, Papers and Proceedings (May, 1964), pp. 426—36.

(21) A.K. Cairncross, *loc. cit.*

countries to succeed in this drive and the restrictive commercial policies of the developed countries with respect to consumer goods are often taken as sufficient reasons for the avoidance of a line of strategy such as development through the export of manufactured products.[22]

There was the case of Japan, but strangely, as W. Stolper says,[23] Japan's very success seems often quite irrationally considered as a proof that other countries cannot do the same. This may be due to ignorance of other similar cases, such as Korea, Taiwan and Hong Kong.

CHAPTER VII

CHANGES IN THE COMPETITIVE POSITION Of DEVELOPING COUNTRIES

1. Comparative Advantage and Export Pattern

As industrialization proceeds,the industrial structure of a country changes, which implies change in potential production capacity and thus in potential exportable production. Then, according to the condition of demand for the products in which the developing country has actual or potential production capacity, as well as comparative advantage due to a difference in factor endowments, the real export pattern will be decided. If all developing countries faced the same external demand conditions, then the countries with similar natural resource endowments would probably show very similar changing export patterns as their industrialization proceeded. However, the factor endowment of the rest of the world, and the external demand conditions might be different

(22) Many planners in developing countries seem to believe that exports are determined largely by external factors beyond a nation's control and that the main question is what to do with the import structure. Maybe this pessimistic belief is one reason why they often do not try even simple changes in exchange rates for the sake of export promotion. Cf. ".....the almost universal predilection for over-valued currencies in today's underdeveloped countries is holding back some export flows which might prosper, not as a result of 'fundamental structural change' but merely upon an adjustment in the exchange rate. Mr. Malenbaum intimates several times that export pessimism, presumably caused by poor export performance has in turn made that performance even worse than it needed have been.....Brazil.....the persistent lag of the exchange rate behind the domestic inflation certainly resulted in chronic overvaluation for the Cruzeiro." A.O. Hirschman, *loc. cit.*, p. 427.

(23) W.F. Stolper, *loc. cit.*, p. 430.

for each developing country, according to the time period in which the industrialization process takes place. Thus, although the export patterns of Korea, Taiwan, and Japan show similarities on the whole, there are dissimilarities in the detailed structure between Korea and Taiwan, on the one hand, and Japan on the other. Perhaps this can be attributed to the changed external demand conditions.

The export pattern reflects the changing production capacity of a developing country, but since the export pattern is dictated by external demand conditions, even if the export pattern reflects the domestic production pattern, both patterns would be usually very different. In Table 22, it is attempted to show the difference in importance of each manufactured product in domestic

Table 22: Ratio of each manufactured output's share in total manufactured export to its share in total manufactured output

	Korea 1964	Taiwan 1963	Pakistan[a] 1958	India 1962	Phili. 1963	Japan 1919	Japan 1929	Japan 1962
A. Machinery and Transport Equipment								
1. Machinery	0.23	0.47	1.92	0.12	0.07	0.19	0.16	0.84
2. Electrical	0.92	0.43	0.25	—	—	0.42	0.25	1.00
3. Transport	0.07	0.24	0.61	0.06	—	0.07	0.23	1.14
B. Metals								
4. Basic Metal	2.01	1.31	—	0.03	0.01[b]	0.89[b]	0.10	0.94
5. Metal Prod.	0.83	0.53	2.59	0.43	—	—	0.53	0.85
C. Building Material								
6. Non-Metallic	0.51	0.86	—	0.10	—	0.94	1.00	0.90
7. Wood Product	8.61	1.45	—	—	7.19	0.61	0.52	0.54
D. Chemicals, Paper, etc., Products								
8. Paper Product	0.02	0.39	0.66	0.10	—	0.99	0.49	0.31
9. Petroleum	0.03	0.15	—	0.18	—	—	—	0.17
10. Rubber	0.27	0.25	0.60	0.05	—	—	0.39	0.83
11. Chemicals	0.12	0.61	0.11	0.35	0.06	0.53	0.19	0.70
E. Textiles	1.69	0.89	2.31	1.43	0.18	1.36	1.83	2.15
F. Consumer Goods Other Than Food								
13. Furniture	0.02	—	—	—	0.35	0.50	—	0.14
14. Printing	0.02	0.02	0.10	—	0.10	0.14	0.06	0.10
15. Leather	0.07	0.26	2.81	26.50	—	0.40	0.19	0.13
16. Wearing Apparel	2.93	1.58	1.27	2.00	0.14	4.14	6.85	4.70
G. Food & Kindred	0.10	1.44	0.09	1.94	2.62	0.36	0.36	0.39

Source: Table 18, 19, And Table A 7, A 8, A 19 and A 20 in Appendix.

(a) Figures for 1963 exports were used to compute the ratio.

(b) Includes metal products.

production and export, respectively. In the countries shown in Table 22, the percentage share of textiles, wearing apparel and wood products in exports is usually greater than their share in total domestic manufactured output. In other words, the importance of textiles, wearing apparel and wood products in the total manufactured exports usually exceeds their importance in domestic production.

The importance of electrical machinery, metal products, and non-metallic mineral products in exports is usually less than their importance in domestic production. However, although their share is much smaller than textiles and wearing apparel, their share in exports is still relatively significant compared with other items.

The share of leather and food products in exports seems to be largely determined by the supply condition of raw materials for those products in a country, as suggested by such cases as tea from India, sugar from Taiwan and the Philippines, and leather from India and Pakistan.

One notable phenomenon is the relatively large amount of export of machinery and transport equipment from Pakistan, and basic metals from Korea and Taiwan. The relatively large export of basic metals from Korea and Taiwan is due to their export of large quantities of rion and steel plates, sheets, barbed wire, etc., to Vietnam.

Another notable phenomenon is that the importance of machinery, transport equipment, basic metals, rubber products, and chemicals in Japanese manufactures exports in 1962 is nearly matching the importance of each of these products in domestic manufacturing outputs. These products have a much less significant share in manufactures exports of other developing countries, and of Japan before 1930.

Since most of its manufactures produced are exported, Hong Kong is unique. The domestic production pattern reflects the external demand pattern much more in Hong Kong than in other countries. As we can see in Table 18, the two major export items in Hong Kong in 1964 were wearing apparel(44 per cent of total manufactured exports) and textiles(17 per cent). A significant amount of electrical machinery, metal products, and food products was also exported(4.4 per cent, 3.4 per cent and 4.2 per cent of total manufactured exports, respectively).

The export pattern of these countries show that they have strong comparative advantage as well as favorable external demand conditions for the export of textiles, wearing apparel and wood products, and that they can also export a significant amount of electrical machinery, non-metallic mineral products, and metal products. The export pattern of Japan after World War II also suggests that, as industrialization proceeds in such countries as Korea and Taiwan, the share of machinery, transport equipment, basic metals and chemicals in total manufactured exports might also increase significantly.

2. Changes in the Competitive Position of the Developing Countries: The U.S. Import Market As a Sample

The amount of U.S. importation of manufactured products nearly doubled during 1951-64, from 11 billion to about 19 billion dollars. During this period, not only has there been significant change in the import pattern of the U.S. but there has also been a notable change in the origin of imported products.

The share of machinery and transport equipment in total U.S. imports has greatly increased, from about 6 per cent in 1951 to about 20 per cent in 1964. The share of metals,chemicals, textiles and food has decreased somewhat, while there was a slight expansion in the share of building materials and wearing apparel.[1]

Table 23 shows the change in the origin of imported products, i.e., changes in the share of developed countries, Japan, other East Asian countries, and other developing countries.[2] If we examine these tables, the 17 groups of industrial products can be regrouped into 5 categories, according to their similarity in the changing patterns of the share of each exporter during the 1951-57 and 1958-64 period.

The first group comprises textiles, wearing apparel and wood products. In 1964, more than 23 per cent of these imports were from East Asian developing countries other than Japan (EAUC), and more than 25 per cent were from Japan; that is, about half of the U.S. total imports of these products

(1) Refer to Table A 27 in Appendix.

(2) The changes in the share of "other East Asian countries except Korea, Taiwan, Hong Kong, India, Pakistan and the Philippines," and "other developing countries" are not shown in Table 23, but they are shown in Table A 26 in Appendix. (Developed countries are the U.S., Canada, European countries, Australia, New Zealand, and South Africa.)

were from East Asian countries. EAUC groups usually enlarged their shares during the whole 1951—64 period, while developed countries have been losing ground. (Among the EAUCs, Hong Kong, Taiwan and Korea made more impressive gains than others). There was an increase in the share of Japan during the first half of 1951-64 period, but Japan was losing ground during the latter half of

Table 23-1: Changes in the share of the U.S. import market for manufactured products: 1951-1964

	Changes in the Share of Imports From Developed Countries				Japan				
	1951	1957	ds[a]	1958	1964	ds[a]	1951	1957	ds	1958	1964	ds[a]
A. Machinery and Transport Equipment												
1. Machinery	95.9	91.9	−4.0	91.7	91.4	−0.3	0.3	7.8	+7.4	8.0	8.2	+0.2
2. Electrical	95.2	86.9	−8.3	81.6	47.8	−33.8	4.0	11.7	+7.7	17.0	48.2	+31.2
3. Transport Eq.	99.6	99.5	−0.1	99.3	91.4	−7.9	0.2	0.4	+0.2	0.5	8.0	+7.5
Sub-Total	96.7	94.9	−1.8	92.3	82.8	−9.5	3.0	4.8	+1.8	4.8	16.1	+11.3
B. Metals												
4. Basic Metal	68.6	66.3	−2.3	71.4	60.5	−10.9	3.2	3.0	−0.2	4.8	16.5	+11.7
5. Metal Product	84.8	78.0	−6.8	73.2	61.3	−11.9	13.2	19.3	+6.1	24.3	34.5	+10.2
Sub-Total	69.6	67.6	−2.0	71.7	60.6	−11.1	3.8	4.8	+1.0	8.0	19.1	+11.1
C. Building Materials												
6. Non-Metallic	80.1	71.4	−8.7	68.8	61.6	−7.2	17.1	24.8	+7.7	26.9	32.2	+5.3
7. Wood Product	90.0	48.1	−41.9	45.3	42.2	−3.1	6.4	45.2	+38.8	44.1	25.4	−18.7
Sub-Total	84.3	60.1	−24.2	57.2	51.5	−5.7	12.6	34.6	+22.0	35.4	28.6	−6.8
D. Chemicals, Paper, etc., Products												
8. Paper Product	99.6	99.2	−0.4	99.2	99.3	+0.1	0.1	0.8	+0.6	0.8	0.6	−0.2
9. Petroleum	0.8	3.4	+2.6	3.2	13.2	+10.0	..	..		..	..	
10. Rubber	86.6	90.1	+3.5	80.8	89.5	+8.7	11.2	9.4	−1.8	18.1	10.3	−7.8
11. Chemicals	79.3	76.4	−2.9	77.5	82.0	+4.5	0.6	1.3	+0.7	2.1	5.7	+3.6
Sub-Total	80.1	66.8	−13.3	63.9	69.2	+5.3	0.3	0.7	+0.4	1.2	1.9	+0.7
E. Textiles	50.6	47.1	−3.5	43.6	35.6	−8.0	11.9	26.3	+14.4	29.7	26.9	−2.8
F. Consumer Goods Other Than Food												
13. Furniture	66.8	73.0	+6.7	72.9	78.1	+5.2	2.6	4.8	+2.2	8.3	10.4	+2.1
14. Printing	81.3	89.3	+8.0	86.6	90.0	+3.4	1.1	2.1	+1.0	2.6	5.0	+2.4
15. Leather	64.6	84.1	+19.5	85.3	76.8	−8.5	0.0	0.4	+0.4	0.6	3.5	+2.9
16. Wearing App.	61.4	42.1	−19.3	39.7	47.1	+7.4	19.3	40.9	+21.6	41.7	27.6	−14.1
Sub-Total	65.4	55.3	−10.1	52.4	55.4	+3.0	11.4	28.7	+17.3	30.4	22.4	−8.0
G. Food & Kindred	29.1	39.0	+9.9	37.7	50.5	+12.8	1.3	3.9	+2.6	3.2	4.0	+0.8
H. Miscellaneous	86.0	74.7	−11.3	73.5	58.0	−15.5	10.1	21.8	+11.7	22.4	30.0	+7.6

Source: United Nations, *Commodity Trade Statistics.*

(a) "ds" denotes the difference between the figure for 1951 and 1957, and the difference between the figure for 1958 and 1964.

Table 23-2: Changes in the share of the U.S. import market for manufactured products: 1951-1964

	Changes in the Share of Imports from Korea, Taiwan & Hong Kong						Changes in the Share of Imports from India, Pakistan & Philippines					
	1951	1957	ds 1951—1957	1958	1964	ds 1958—1964	1951	1957	ds 1951—1957	1958	1964	ds 1958—1964
A. Machinery and Transport Equipment												
1. Machinery	..	..		..	0.1	+0.1	..	0.1	+0.1	..	0.1	+0.1
2. Electrical	0.6	1.4	+0.8	1.3	3.3	+2.0	..	..		..	..	
3. Transport Eq.	..	0.1	+0.1	0.1	0.2	+0.1	..	..		..	..	
Sub-Total	0.1	0.3	+0.2	0.2	0.8	+0.6	..	..		..	..	
B. Metals												
4. Basic Metal	0.1	0.0	−0.1	0.0	0.0	0.0	0.1	0.0	−0.1	0.0	0.8	+0.8
5. Metal Product	0.2	1.1	+0.9	1.0	1.5	+0.5	0.8	0.7	−0.1	0.7	0.5	−0.2
Sub-Total	0.1	0.1	0.0	0.2	0.2	0.0	0.2	0.1	−0.1	0.2	0.8	+0.6
C. Building Materials												
6. Non-Metallic	0.1	0.2	+0.1	0.3	0.8	+0.5	0.1	0.2	+0.1	0.0	0.2	+0.2
7. Wood Product	0.3	0.5	+0.2	1.3	11.6	+10.3	0.1	3.0	+2.9	5.8	12.7	+6.9
Sub-Total	0.2	0.3	+0.1	0.8	6.4	+5.6	0.1	1.5	+1.4	2.9	6.7	+3.8
D. Chemicals, Paper, etc., Products												
8. Paper Product	..	..		..	..		..	..		..	..	
9. Petroleum	..	..		..	..		..	..		..	..	
10. Rubber	..	..		0.6	1.9[a]	+1.3	..	..			..	..
11. Chemicals	0.6	0.7	+0.1	0.6	0.4	−0.2	1.0	0.9	−0.1	0.5	0.3	−0.2
Sub-Total	0.2	0.2	0.0	0.1	0.1	0.0	0.3	0.2	−0.1	0.1	0.1	0.0
E. Textiles	0.4	0.6	+0.2	0.8	5.2	+4.4	29.4	20.7	−8.7	19.6	25.4	+5.8
F. Consumer Goods Other Than Food												
13. Furniture	19.8	17.3	−2.5	15.3	6.9	−8.4	8.0	3.6	−4.4	2.4	1.1	−1.3
14. Printing	0.1	0.1	0.0	0.0	0.3	+0.3	0.2[b]	0.2	0.0	0.2	0.2	0.0
15. Leather	..	0.0	+0.1	0.2	0.3	+0.1	9.3	2.2	−7.1	1.9	6.7	+4.8
16. Wearing App.	0.4	5.9	+5.5	12.5	16.8	+4.3	16.5	8.8	−7.7	8.3	5.7	−2.6
Sub-Total	1.4	5.0	+3.6	9.7	13.3	+3.6	13.9	6.6	−7.3	6.3	5.0	−1.3
G. Food & Kindred	0.4	0.4	0.0	0.4	2.0	+1.6	11.9	11.6	−0.3	10.8	15.0	+4.2
H. Miscellaneous	0.4	1.3	+0.9	1.9	9.9	+8.0	0.5	0.5	0.0	0.4	0.3	−0.1

Source: United Nations, *Commodity Trade Statistics*

the period. It seems that Japan has been pushed out steadily by EAUCs from the U.S. import market of this first group of products during the later half of the period.[3]

(3) To some extent the declining share of Japan during this period may be attributed to export restrictions imposed on Japan by the U.S. Because of the extremely complicated U.S. tariff and quota system, it is not so clear to what extent the decline in the share of Japan and increase in the share of the EAUC was due to U.S. protective policy and to what extent to

The second group is electrical machinery, metal products, non-metallic mineral products and leather products. The U.S. imports of this second group from EAUC are less significant in amount than those of the first group. However, the U.S. imports of this group from Japan are significant; i.e., more than 30 per cent of total imports of each product except leather products. The changing pattern of this group is that developed countries have been losing their shares during the whole period of 1951-64, and both EAUCs and Japan have been increasing their shares steadily.

The third group is non-electrical machiney, transport equipment and basic metals. The U.S. imports of this group from EUACs are almost negligible, and imports from Japan is also small—less than 10 per cent in machinery and transport equipment; more than 90 per cent is from developed countries. Japan has been increasing its share steadily during the whole period of 1951-64; but most of the U.S. imports of this group are still from developed countries. Developed countries still maintain comparative advantage, but the competitive power of Japan for this group has improved steadily.

The fourth group is chemicals, furniture and printing. U.S. imports from EAUC are negligible, and its imports from Japan are not large either. In this case, both Japan and developed countries have increased their share.

The fifth group is paper, rubber, food and petroleum products. The changing pattern of this group is a little hard to classify in the above fashion. About 99 per cent of import of paper products is from developed countries, mainly from Canada, throughout the period of 1951-64. The share of EAUC in the U.S. rubber imports is negligible. Although Japan's share is significant, its

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changes in competitive position between Japen and EAUC. However, the argument that the change in the share of Japan and EAUCs in this group, especially in textiles, is mainly the result of unfavorable U.S. quota policy specifically aimed against Japanese products does not seem to be convincing. Neither does the Japanese government itself seem to agree with this kind of agrument. "The tendency that the share of Japanese goods leveled off or decreased while that of less developed countries recorded a large increase was especially notable for plywood manufactures, textiles, clothing and sundry goods..... this tendency was not limited to the U.S. market..... but was also seen in the West European market. The above can be partly attributed to the especially severe import restrictions imposed by the U.S. and West European countries against Japanese commodities, but it would be more reasonable to consider that the basic reason is that Japan's superiority was reduced regarding simple labor-intensive commodities with the development of the Japanese economy..... and the progress in the industrialization of less developed nation." Economic Planning Agency, Japanese Government, *Economic Survey of Japan: 1962—63*, p. 195.

changing pattern is less definite; Japan's share increased from 11 per cent in 1951 to 14 per cent in 1954 but decreased to 9 per cent in 1957 and then increaed again to 30 per cent in 1961 and decreased to 10 per cent in 1964. In the case of food products, all of the EAUC, Japan and developed countries have increased their shares, and the U.S. imports of petroleum products from EAUC, Japan or developed countries are negligible.

These changing patterns show that, as industrialization proceeds, developing countries can move into the market of a developed country, even in such items as electrical machinery, metal products, and non-metallic mineral products (second group). In the cases of textiles, wearing apparel and wood products (first group), even Japan has been pushed out steadily by those other developing countries and has had to make room for them. However, Japan has gained significant competitive power in such items as machinery, transport equipment, basic metals(third group) and chemicals. This phenomenon suggests that, after a certain point of industrialization, changes in factor supply in a developing country can improve its competitive power significantly even in such products as machinery, transport equipment, basic metals and chemicals. However, by this time, the country starts to lose competitive power in such products as textiles, wearing apparel and wood products to the other still latercomers. These hypotheses are advanced on the basis of the analysis of the import market of only one developed country; and other trade relationships, such as trade among developing countries, are ignored. But this analysis seems to give some idea of how the comparative advantage of a developing country changes with industrialization.

Systematic changes in the export patterm of a developing country as industrializtion proceeds are also suggested by the following regression analysis. I have chosen as the index of industrialization the percentage share of manufactured output in GNP, as in other cases. I also have chosen the following periods for this regression: four ten year spans of 1900—09, 1910—19, 1920—29, 1930—39, and one 11 year period of 1952—62 of Japan and one 12 year span of 1953—64 of Taiwan. A regression analysis was conducted, using the percentage share of manufactured products in GNP as the independent variable and the share of each manufactured product in total manufactured exports as the dependent variable in order to see whether any systematic changes

Table 24—1: Regression of the percentage share of each manufactured product in total manufactured exports on the percentage share of manufactured output in GNP: Japan

(1910—19, and 1930—39, and 1952—62)

	Japan (1910—1919)			Japan (1930—1939)			Japan (1952—1962)		
	b	S_b	$\bar{R}^2$	b	S_b	$\bar{R}^2$	b	S_b	$\bar{R}^2$
A. Machinery and Transport Equipment									
1. Machinery	1.32	0.42	0.52	3.65	0.50	0.85	0.90	0.45	0.23
2. Electrical	3.66	0.54	0.83	2.36	0.30	0.87	6.56	0.58	0.93
3. Transport	5.43	1.52	0.57	3.17	0.49	0.82*	2.79	1.32	0.26
Sub-Total	4.20	0.86	0.72	3.09	0.36	0.89	2.81	0.56	0.71
B. Metals									
4. Basic Metals	0.56	0.75	0.05*	1.46	0.34	0.66	−1.92	0.74	0.36
5. Metal Product	3.12	0.25	0.94	1.37	0.43	0.50	1.15	0.31	0.55
Sub-Total	1.09	0.52	0.27*	1.40	0.32	0.67	−1.31	0.64	0.24
C. Building Materials									
6. Non-Metallic	0.51	0.11	0.68	−0.52	0.07	0.87	−1.22	0.40	0.45
7. Wood Product	−1.15	0.18	0.82	2.03	0.43	0.70	1.60	1.34	0.04*
Sub-Total	−0.19	0.13	0.12	0.54	0.20	0.41	−0.48	0.44	0.02
D. Chemicals, Paper, etc., Product									
8. Paper Product	1.44	0.32	0.68	0.97	0.62	0.14*	1.97	0.97	0.24
9. Petroleum	6.84	1.05	0.82	4.03	0.58	0.84	6.19	1.22	0.71
10. Rubber	8.35	1.87	0.68	2.66	0.30	0.29	2.75	0.76	0.55
11. Chemicals	0.33	0.14	0.34	1.38	0.57	0.35	0.47	0.41	0.03
Sub-Total	0.78	0.08	0.91	1.25	0.30	0.64	1.10	0.44	0.34
E. Textiles	−0.41	0.12	0.54	−0.77	0.08	0.90	−1.73	0.36	0.69
F. Consumer Goods Other Than Food									
13. Furniture	−2.53	0.59	0.66	..	..	..	3.36	0.66	0.71
14. Printing	−0.92	0.32	0.45*	1.09	0.43	0.38	−0.03	0.55	0.11
15. Leather	1.64	0.55	0.47	2.35	0.84	0.43	2.82	0.78	0.55
16. Wearing App.	0.45	0.30	0.12	−0.58	0.24	0.35	1.87	0.68	0.40
Sub-Total	0.53	0.28	0.22	−0.48	0.23	0.28	1.81	0.61	0.44
G. Food & Kindred	−0.42	0.27	0.13	0.79	0.29	0.42	−0.91	0.43	0.25

Source: Table A 19 and A 20 in Appendix

Note: b is the regression coefficient, and S_b is its standard error. $\bar{R}^2$ is the coefficient of determination (corrected for degrees of freedom).

* Significantly autocorrelated at 0.01 level.

in the export pattern can be identified with changes in the percentage share of manufactured products in GNP. The results are summarized in Table 24.

A surprising result was the good fits for the period of 1910—19, 1930—39, 1952—62 for Japan and 1953—64 for Taiwan, on the one hand, and the

Table 24-2: Regression of the percentage share of each manufactured product in total manufactured exports on the percentage share of manufactured output in GNP: Taiwan (1953~64)

	Taiwan (1953—1964)		
	b	S_b	$\bar{R}^2$
A. Machinery and Transport Equipment			
1. Machinery	8.18	1.79	0.65
2. Electrical	10.80	3.23	0.48*
3. Transport	7.51	2.10	0.52
Sub-Total	10.31	2.47	0.60*
B. Metals			
4. Basic Metals	2.85	0.95	0.43
5. Metal Product	5.82	2.35	0.32
Sub-Total	3.10	1.00	0.44
C. Building Materials			
6. Non-Metallic	5.73	3.50	0.13
7. Wood Product	9.04	2.90	0.62*
Sub-Total	6.45	2.31	0.38
D. Chemicals, Paper, ect., Products			
8. Paper Product	5.16	2.34	0.26
9. Petroleum	2.62	2.15	0.04
10. Rubber	7.96	2.82	0.39
11. Chemicals	1.47	0.68	0.25
Sub-Total	1.92	0.74	0.34
E. Textiles	8.66	2.60	0.48*
F. Consumer Goods Other Then Food			
13. Furniture	0.89	1.40	1.92
14. Printing	1.92	1.23	0.12
15. Leather	4.39	1.47	0.42*
16. Wearing App.	1.42	1.30	0.02
Sub-Total	1.48	1.25	0.04
G. Food & Kindred	−1.39	0.47	0.41*

Source: Table A 19, A 20 and A 24 in Appendix.
*Significantly autocorrelated at 0.01 level.

extremely poor fits for the period of 1900—09, and 1920—29 for Japan, on the other. The median $\bar{R}^2$ for 1910—19, and 1930—39, and 1952—62 for Japan, and 1953—64 for Taiwan are 0.54, 0.64, 0.36 and 0.41 respectively, while those for the period of 1900—09 and 1920—29 are less than 0.10. I looked for a possible explanation for such a difference in fits. In Japan, the share of manufactured products in GNP increased from 8.1 to 9.1 per cent during 1900—09; from 15.6 to 18.1 per cent during 1920—29, while the share

Table 24-3: Regression of the percentage share of each manufactured product in total manufactured exports on the percentage share of manufactured output in GNP: Japan (1900~09 & 1920~29)

	Japan (1900—1909)			Japan (1920—1929)		
	b	S_b	$\bar{R}^2$	b	S_b	$\bar{R}^2$
A. Machinery and Transport Equipment						
1. Machinery	0.80	2.50	0.01*	—0.68	1.32	0.03*
2. Electrical	—	—	—	1.06	1.81	0.04*
3. Transport	1.95	3.02	0.05	5.13	2.47	0.27*
Sub-Total	1.64	2.32	0.06	1.28	1.58	0.08*
B. Metals						
4. Basic Metals	0.25	0.56	0.02	0.51	2.37	0.01*
5. Metal Product	0.75	0.68	0.02	0.34	0.87	0.02
Sub-Total	0.29	0.51	0.04	0.30	1.37	0.01*
C. Building Materials						
6. Non-Metallic	1.27	0.65	0.23	0.62	0.60	0.01
7. Wood Product	2.67	1.45	0.21	0.02	0.85	0.00*
Sub-Total	1.84	0.88	0.27	0.44	0.66	0.05
D. Chemicals, Paper,etc., Products						
8. Paper product	0.85	0.49	0.18	0.30	0.90	0.01
9. Petroleum	—3.24	2.17	0.12	—2.26	1.99	0.03*
10. Rubber	—	—	—	—0.22	1.08	0.01
11. Chemicals	—0.32	0.37	0.08	—2.27	0.91	0.40
Sub-Total	—0.13	0.27	0.03	—1.27	0.82	0.13*
E. Textiles	—0.40	0.16	0.37	—0.23	0.25	0.10*
13. Furniture	—0.91	1.40	0.50			
14. Printing	3.12	2.32	0.08*	1.45	1.14	0.06
15. Leather	—0.04	1.23	0.00	—0.75	0.72	0.01
16. Wearing App.	2.05	1.11	0.21*	2.26	0.55	0.64
Sub-Total	1.12	1.18	0.10	2.31	0.48	0.71
G. Food & Kindred	0.50	0.41	0.05	2.16	0.51	0.66

Source: Table A 19, A 20 and A 24 in Appendix.
* Significantly autocorrelared at level.

increased from 10.9 to 15.0 per cent during 1910—19, from 18.1 to 31.6 per cent during 1930—39, and from 23.6 to 30.7 per cent during 1952—62. In Taiwan the share of manufactured products in GNP increased from 14.3 to 25.0 per cent during 1953—64. Thus there were relatively small changes in the share of manufactured produdts in GNP during 1900—09 and 1920—29 in Japan; i.e., progress in industrialization in Japan during this period was too small to produce any definite change in the export pattern.

However, the over-all results of the regression analysis enable us to say that the export pattern of manufactured products tends to change systematically with changes in the percentage share of manufactured products in GNP which was used as an index of industrialization (implying changes in factor suppy).[4]

The main point of emphasis in this chapter is that comparative advantage in exports changes systematically and in a more or less definite pattern as industrialization proceeds. Another implication of the analysis is that we should be more accurate in making any statement about the comparative advantage of a developing country. For instance, when we say something like "desirability of specialization" to a developing country, we should attach the time element explicitly. If not, any trade theory based on comparative advantage is likely to be misinterpreted and supposed to support continued specialization in primary products or consumer goods, such as textiles and wearing apparel.

CHAPTER VIII

SUMMARY AND CONCLUSION

1. This study on some of the East Asian developing countries supports the hypothesis that the sturcture of manufacturing industry and the trade patterns of manufactured products of a country tend to change systematically as the economic development of the country progresses. The study also supports the hypothesis that there exist uniform patterns of change in industrial structure and trade patterns of manufactured products in all countries. But the latter hypothesis must be modified if a country is deprived of sovereignty or lacks much pressure to industrialize.

2. Comparing Korea, Taiwan and Japan on the basis of per capita income and the percentage share of manufactured output in GNP, it seems reasonable to draw a parallel and assome that these countries were at the same stage of economic development during respective time periods: that is, Korea during 1911—40, Taiwan during 1902—40, and Japan during 1881—1910, were at their early phase of industrialization; and that Korea and Taiwan during the post World War II period and Japan during 1900—40 were at their transitional

(4) The regression analysis covering the whole 1900—39 period of Japan (or 1900—19 and 1920—39 period) gives also relatively high $\bar{R}^2$ and low standard errors, but because of high autocorrelations, nothing can be said about the significance of the relationships.

stage of economic development.

3. During the early phase of industrialization in Japan, industrialization was mainly due to rapid import substitution of textiles as well as to textile export in large amounts. In Korea and Taiwan, the textile industry was partly or completely deprived of its role as a leading industry. But even without the leadership of the textile industry, these two countries managed to achieve a rapid rise in manufacturing production. In Korea, the chemical industry played a significant role at the end of the period, and in Taiwan, sugar refining was dominant throughout its early phase of industrialization. In other East Asian countries, it seems that only in India, and not in Burma, Thailand, Ceylon, Malaya or Indonesia, were textiles a leading industry in their early phase of industrialization process.

4. The industrialization process of Korea, Taiwan and Japan during the transitional stage is characterized by a continuous adjustment of industrial structure to changing demand patterns. Import substitution of manufactured products such as non-metallic mineral products, petroleum and coal products, rubber products, textiles and consumer goods was very rapid in all these countries. There has also been significant import substitution in electrical machinery, transport equipment, paper products, and a significant reduction in import content of these products. Despite significant import substitution in metals and chemicals, the expansion in demand for these products usually outweighs import substitution, and their share in total manufactured import is often increasing in these countries. Usually the rapid increase in demand for and slow import substitution of machinery makes machinery imports ever-increasing. With systematic changes in the level of import substitution as well as systematic changes in demand, the import pattern has changed systematically.

Some other East Asian countries such as India, Pakistan and the Philippines have also shown similar patterns of change in the structure of manufacturing industry and in the import pattern.

5. Only Japan, and to some extent India, exported relatively large amounts of manufactured products, mainly textiles, during their early phase of industrialization; exports from other East Asian countries seem to have been concentrated on primary products.

During the transitional stage, the manufactured exports from Korea, Taiwan,

and Japan were mainly composed of textiles and wearing apparel and/or food products, as well as a significant amount of electrical machinery, building materials, and metal products. Similar export patterns were also identified in Hong Kong, India, Pakistan and to some extent in the Philippines. However, in the other East Asian countries, exports of manufactures are either negligible or concentrated on a single item such as tin or petroleum product.

As industrialization proceeds, the potential productive capacity, and thus potential exportable products, of a country changes systematically. Then, according to the conditions of external demand for the products for which a developing country has actual or potential production capacity and the price differences caused by differences in relative factor supplies, the actual export pattern will be decided.

6. The analysis of the U.S. import market shows that, as industrialization proceeds, developing countries such as Korea, Taiwan and Hong Kong can move into the market of a developed country, even in such items as electrical machinery, metal products, and non-metallic mineral products. In the cases of textiles, wearing apparel and wood products, even Japan has been pushed out steadily by those other developing countries and has had to make room for them. However, Japan has gained significant competitive power in such items as machinery, transport equipment, basic metals and chemicals. This phenomenon suggests that, after a certain point of industrialization, changes in factor supply in a developing country can significantly improve its competitive power even with such products as machinery, transport equipment, basic metals and chemicals. However, by this time, the country starts to lose competitive power to the other still later-comers in such products as textiles, wearing apparel and wood products. This implies that the comparative advantage of a developing country in manufactures exports changes systematically and in a more or less definite pattern as industrialization proceeds.

7. Import pattern rarely seems to fail to reflect the changing industrial structure of an economy. However, whether industrialization will also be accompanied by an expansion in the export of manufactured products, and whether the changing industrial structure will be reflected in the export pattern of manufactures both seem to depend on the degree of "pressure" to increase manufactured exports to which a developing country is subjected. For instance, the significant

correlations found in East Asian countries between population density, per capita primary exports, and balance of payment difficulties, on the one hand, and the proportion of manufactured products in total exports on the other, suggest that there is a significant correlation between pressure to which a country is subjected and the country's performance in export of manufactured products.

8. Admitting that the pattern of Japanese development differs from the earlier European patterns in its rate of growth, it is very hard to find any evidence that her achievement in industrialization (such as rapid development of manufacturing industry or exports of large amounts of manufactured products at low income level) cannot be surpassed by other present developing countries. There are differences in the starting points of rapid industrialization, but they can be attributed to historical accident.

9. The advantage of the "industrialization-for-export" pattern of development is already well known(1). However, the pessimism about the possibility of such a pattern has frustrated many economists and planners—such as Nurkse and Indian planners—and has led them to look for the second best solution. Even Prebisch seems still preoccupied with prinary exports of developing countries.(2) Apparently, the case of Japan does not seem to have been of much help for such a pessimism.

I hope, the addition of the cases of Korea, Taiwan and Hong Kong, which have demonstrated the ability of successful performance in export of manufactures, would help lessen the pessimism about the possibility of manufactures exports from developing countries. This may help economists

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(1) The term "industrializatign-for-export" was used by Nurkse. See R. Nurkse, *Equilibrium and Growth in the World Economy*, edited by G. Harberler (Cambridge: Harvard University Press, 1961). pp. 308—314. See also A.O. Hirschman, *The Strategy of Economic Development* (New Haven: Yale University Press, 1958), Chapter 6 and pp. 171—172.

(2) Prebisch emphasizes the "need" for manufactures exports from developing countries, but still does not seem so optimistic about its "possibility." "... there seems to be general agreement on the fact that (primary) commodity problems are of fundamental importance..... The second point refers to manufactures: there is a definite likelihood of reaching general agreement concerning the inescapable need for actively promoting export of manufactures from the developing countries to the developed countries. There are still differences as to the way in which it should be done, but the idea of a preferential policy has gained much ground ..." From "statement by Mr. Raul Prebisch, Secretary-General of The Conference" (at the twenty-fifth plenary meeting, held on 6 May 1964), United Nations, *Trade and Development: Policy Statements*, Vol. II (New York, 1964), p. 464.

to approach the trade and development problem of developing countries with new insights and hope.

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Editor's note:

Because of its length Appendix, which is available from the author, is omitted here.