

Japanese Trade After the Oil Crisis

— A Structural Approach —

By Yoko Sazanami

"Openness" of Japan's Market for Manufactured Goods

In the past decade, the Japanese economy has stood up quite well to the challenge of adjusting itself to high oil prices. Indicators of Japanese economic performance, such as the growth rate, inflation and unemployment, reveal a relatively healthy situation compared with other industrial countries. On the other hand, there is growing resentment on the part of its trading partners that Japan may have sustained her growth rate and employment level at the expense of other countries by accumulating a surplus in the trade sector and by keeping out manufactured imports.

The assessment of "openness" of Japan's market for manufactured goods is an extremely complex question. As is pointed out in the Report of the Japan-U.S. Economic Relations Group (January 1981), Japan's market is no more closed than that of the United States in terms of tariffs and quotas on manufactured goods. However, non-tariff barriers such as administrative procedures, regulatory requirements and business practices are very difficult to precisely evaluate. As a result of these ambiguities concerning factors limiting the penetration of Japan's market, some have tried to relate the extremely small proportion of manufactured goods to total imports to the existence of trade barriers in Japan. Since production of manufactured goods induces more employment than production of raw materials, Japan's resource-oriented import structure is blamed for depriving its trading partners of employment opportunities. A typical view on this matter was expressed in the U.S. Subcommittee Report on the Trade Mission to the Far East (December 1981) as follows: "In addition to outright restraints on a number of raw agricultural products, Japan has an array of trade policies designed to encourage the importation of semi-processed products rather than finished products, thus providing Japanese



Prof. Yoko Sazanami of Keio University

workers with additional employment opportunities and denying foreigners those processing jobs and the additional income from performing higher value added tasks." Such criticism is based on the notion that the Japanese trade structure, which consists predominantly of a large amount of manufactured goods exported and a small amount imported, reflects unfair treatment of foreign goods in the domestic market.

Although the Japanese trade structure may reflect policy measures taken in the past, it is also related to present factors, such as production efficiency of industries and the location of Japan. Even after Japan found it unnecessary to continue such policy measures that distort the trade structure, there may be some time lag between the alteration in policy stance and its effect on trade flows. Also, changes in domestic as well as foreign demand and technological factors that influence trade flows may offset or even nullify the effect of changes in policy. Therefore, the question of the "openness" of Japan's market must be given a more detailed evaluation than merely looking at the proportion of manufactured goods to total imports.

Japanese Trade In the Late 1960s

Tariff escalation imposing higher tariff rates on finished products than on intermediate and raw materials is a common policy measure that promotes domestic production of manufactured goods. Historically, the introduction of the principle of tariff escalation in Japan dates back to the beginning of the present century. In the postwar period, the revision of the tariff system in 1961, based on recommendations by the Tariff Commission, tried to encourage domestic production through tariff escalation. The policy objectives of tariff escalation were to assure a domestic market for the newly emerging industries, to promote import substitution, to build up foreign exchange reserves and to provide employment opportunities for domestic workers. The importance of the tariff escalation policy faded in the late 1960s as emerging industries such as automobiles, iron and steel and basic chemicals gained competitive strength and as the balance of payments situation eased as a constraint on economic growth. Also, the urgency to curb manufactured imports so as to provide more employment opportunities for workers disappeared as the proportion of labor in the primary industry, which accounted for 26.9% of total labor force in 1960, was reduced to 19.8% in 1968. There were even some people in business circles who warned of a shortage of industrial labor in the near future. As policy measures to protect the domestic market for manufactured goods lost ground, the government took strong steps to liberalize trade in 1971 to 1972, reducing tariffs to levels quite comparable to other industrial countries. Also, under the floating exchange rate system introduced in 1973, the importance of tariffs for protecting the domestic market lessened. These changes in Japanese trade policy were quite effective in changing the trade structure. The ratio of manufactured goods to total imports rose from 22.5% in 1965 to 28.9% in 1972 and to 30% in 1973. Such proportions were still low

compared to those in other industrial countries, but these increases show that Japanese trade was responsive to policy alteration until the outbreak of the oil crisis.

Changes in the Commodity Composition of Imports

The sharp rise in the price of crude oil in 1973 again depressed the ratio of manufactured goods to total imports to 20% or so in the following years. The increase in oil payments affected the import structure of other countries as well, but not nearly as much as in the case of Japan, where the proportion of crude oil to total imports amounted to 16% in 1972, more than twice the ratio of 7.4%, which was the average for OECD countries.

Soaring Japanese oil payments after 1973 reflected almost entirely the effects of price rises, as the volume of crude oil imports decreased in 1974, 1975, 1978 and 1980 from the levels of the preceding years. The leveling off in the volume of crude oil imports after 1973 reflected the introduction of energy saving measures, changes in the industrial structure, and the shift from oil to other energy resources. Rises in output per unit of energy

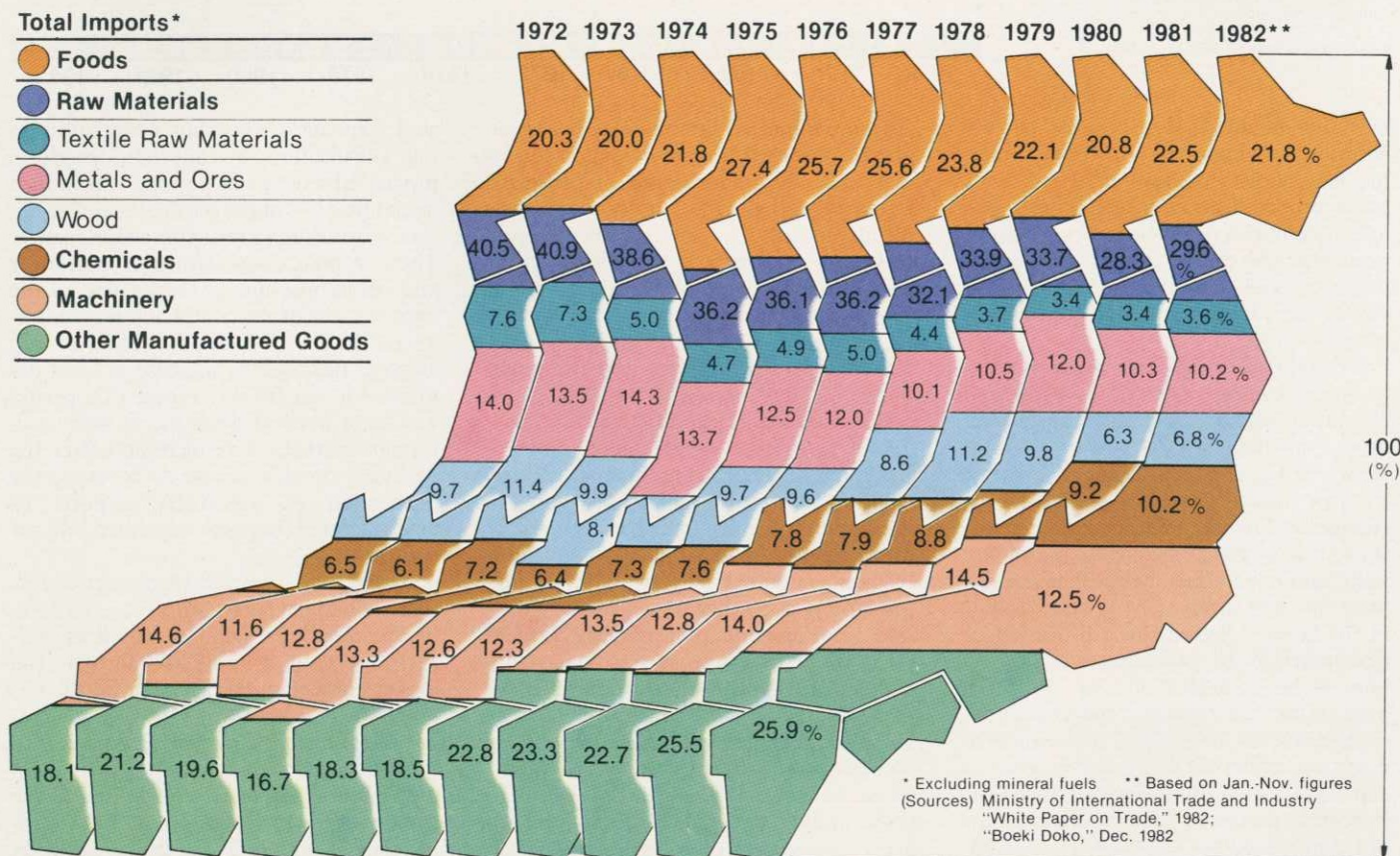
in iron and steel, aluminum, and cement, which started in the late 1960s, accelerated in the 1970s. Since output per unit of energy is much larger in the machinery industry than in the iron and steel or basic chemical industries, changes in the industrial structure during the 1970s, which raised the share of the machinery industry in total production, enabled Japan to produce more with less energy at an aggregate level. For example, crude oil imports directly and indirectly required to produce a unit of output—defined in million yen in 1970 constant prices—was reduced from ¥11,900 in 1973 to ¥10,300 in 1977. However, such crude oil savings introduced in the Japanese economy after the oil crisis could not make up for the steep rise in prices, and the proportion of the oil bill in total imports more than doubled from 15.7% in 1973 to 35.1% in 1977 and to 37.2% in 1981.

Since the great increase in the oil bill overshadows all the changes that took place in other commodities, it may be more helpful if we exclude oil from total imports when we examine changes in the commodity composition of Japanese trade after the oil crisis, particularly when we focus on imports of manufactured goods. Fig. 1 shows the commodity composition of Japanese imports when mineral fuels are excluded from the total. It is

quite clear that there was a decline in the proportion of raw material imports and a substantial increase in imports of manufactured goods. The increase in imports of manufactured goods occurred in chemicals and miscellaneous manufactures, particularly in textiles and nonferrous metals, while the increase in imports of machinery was almost proportional to the increase in total imports.

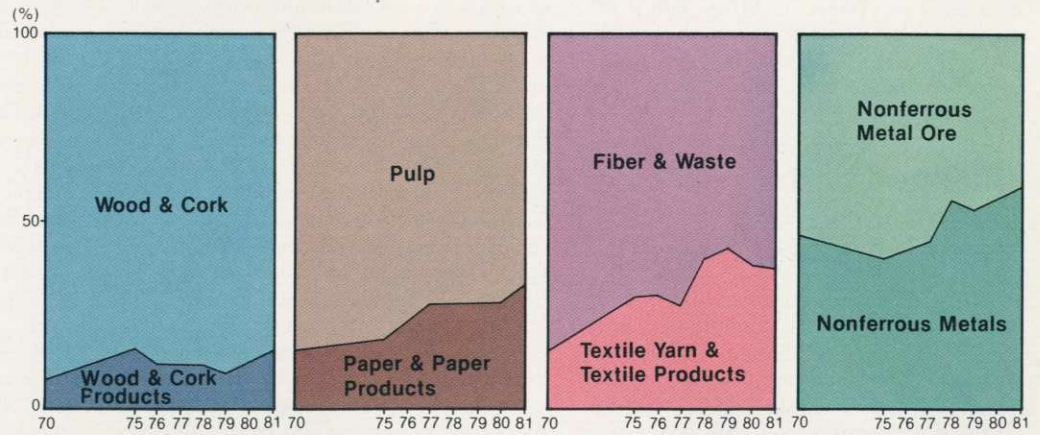
Changes in the commodity composition of Japanese imports after the oil crisis were caused by: 1) changes in the import ratio reflecting the rapid liberalization of trade and changes in the competitive position of domestic and foreign producers; 2) substitution of raw materials for intermediate processed goods as rises in energy prices eliminated the price edge of domestic processing of imported raw materials; 3) increase in output per unit of imported inputs; and 4) growth of final demand for respective commodities. The remarkable rise in the proportion of imports in apparent consumption* took place in finished products such as apparel. The rise in proportion of imports of finished products such as apparel occurred together with a shift towards more use of imported fibers and away from raw cotton. Similar shifts toward imported metals and alloys away from ores, and toward imported paper and paper products away from pulps oc-

Fig. 1 Changes in the Commodity Composition of Japanese Imports when Mineral Fuels are Excluded from the Total (%)



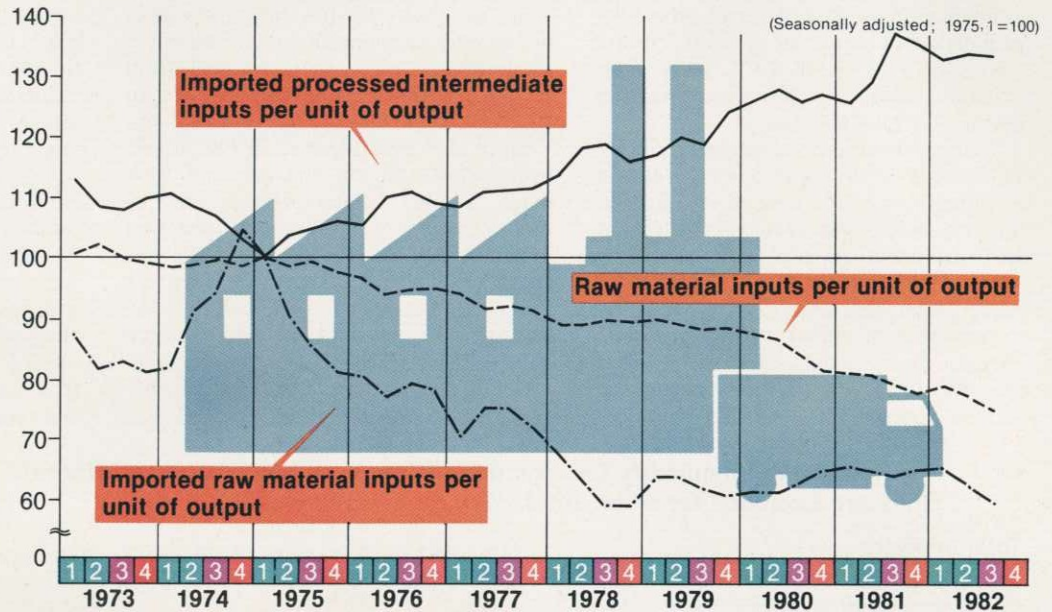
100 (%)

Fig. 2
Changes in Import Shares of Raw Materials and Processed Intermediate Goods



(Source) Ministry of International Trade and Industry "White Paper on Trade," 1982, p. 260

Fig. 3
Changes in Raw Material Inputs Per Unit of Output, Imported Raw Material Inputs Per Unit of Output and Imported Processed Intermediate Inputs Per Unit of Output in Manufacturing Industry*



* Index of raw material consumption of respective inputs divided by index of industrial production.

(Seasonally adjusted; 1975, 1 = 100)

currred as is indicated in Fig. 2. The substitution of imported processed intermediate goods for raw materials took place as liberalization proceeded in Japan and as countries producing primary goods promoted the export of processed intermediate goods. Also, appreciation of the yen in the 1970s contributed to this substitution process.

After the oil crisis, there was a continuous decline in raw material input per unit of output, and an even larger fall in imported raw materials per unit of output is shown in Fig. 3. The former was caused by raw material saving, technological changes and by stagnant demand in industries such as basic chemicals, paper and pulp, and nonferrous metals that use raw materials intensively. The greater decline in the latter reflected the substitution of raw materials by processed intermediate imports as indicated in Fig. 2. Since most of the raw material imports are non-competitive imports whose domestic production is either nil or negligibly small in Japan, this situation in fact increased the imported processed intermediate inputs per unit of output as shown in Fig. 3.

As more imported intermediate processed goods were used instead of imported raw materials, the import ratio of processed intermediate goods such as nonferrous metals and alloys, woolen yarn and silk reeling rose sharply in the 1970s. However, the final demand of industries that experienced these increases in import ratios tended to be rather stagnant after the oil crisis and this reduced the possibility of a large increase in imports of processed intermediate goods.

The experience of machinery imports was quite different from those in textiles, wood or nonferrous metals. As shown in Fig. 1, the proportion of machinery in total imports remained almost unchanged through the late 1970s. In 1975, we find the import ratio (here defined as imports as a percentage of total industry demand rather than total imports) of major machinery items like electronic computers to be 17.45%, office machinery to be 10.46%, and precision machinery to be 16.32%, all exceeding 10%. However, when we compare these import ratios to those in 1965 or 1970, we find that they are substantially lower except for preci-

sion machinery. This shows that substantial substitution by domestic products proceeded during this period. This in turn meant that less imports of parts and accessories were required for maintenance. Thus, in the case of industrial machinery and office machinery, the decline in the import ratio of parts and accessories followed the fall in the import ratio of machinery. Because the increase in final demand for machinery during this period was large both in domestic as well as in foreign markets, this increase offset the decline in import ratios. As a result, the proportion of machinery imports to manufactured imports remained almost constant.

Indeed, the Japanese machinery industry strengthened its competitive edge in many product lines and increased its market share both at home and abroad. The impact of such a development on the import structure was two-fold. As machinery is less resource intensive compared to iron and steel or chemicals, the increase in their production share contributed to the decline of imported raw material inputs per unit of output. Also, the substitution

process that replaced imports with domestic goods, reduced the import ratio and the possibilities of import expansion when final demand grew.

"Revealed" Comparative Advantage Decline Prompts Increased Imports

Changes in the commodity composition of Japanese imports after the oil crisis were the outcome of various forces at work during the period. There was an increase in proportion of manufactured goods when mineral fuels are excluded from total imports. Contrary to what can be expected from a "closed" Japanese market for manufactured goods, changes in the commodity composition of imports after the oil crisis followed the changes in Balassa-type "revealed" comparative advantages** in various industries. Balassa suggested that "revealed" comparative advantage can be indicated by the trade performance of individual countries in regard to manufactured products. He calculated the relative export share of country *i*'s exports of commodity *j* in the years 1953-55 and 1960-62 to see the relative advantage that each country possessed in various commodities. Similarly, the relative share of Japan was calculated in 1970, 1973, 1976 and 1980 for commodities listed in Fig. 4. It was found that the industries which lost their shares in export markets generally experienced a market penetration of imports. In other words, in industries such as wood and cork, paper, and textiles, where imports of intermediate and finished products replaced domestic products and imported raw materials, there was a decline in "revealed" comparative advantage in the 1970s. On the other hand, the machinery industry expanded its market share in both domestic and foreign markets. From the experiences of various industries after the oil crisis, one may conclude that Japan's market for manufactured goods does respond to changes in comparative advantage, though the difference in growth of final demand and the sharp rise in oil prices tended to conceal the changes that were taking place.

Future Prospects

Although it is still true that Japanese imports consist predominantly* of raw materials and mineral fuels, occupying 64.6% of total imports in 1981, changes in the commodity composition of imports are gradually taking place. Despite the general claim made by its trading partners that Japan's market is not "open," after

Fig. 4 Changes in "Revealed" Comparative Advantage in Japan¹ 1970-1980

Industries	1970	1973	1976	1980
	492	62	71	53
Leather				
Rubber	141	112	130	154
Wood & Cork	129	58	35	19
Paper and Paper Board	39	35	31	33
Textiles	204	155	141	125
Iron and Steel	230	240	265	233
Nonferrous Metals	39	32	46	48
Metals	140	134	112	114
Machinery (other than electric)	67	82	77	103
Electric Machinery	171	180	181	246
Transport Equipment	131	175	183	202

1. "Revealed" comparative advantage is defined as: $S_{ij} = \frac{E_{ij}/\sum E_{ij}}{\sum_j E_{ij}/\sum_j \sum_i E_{ij}} \times 100$ when $\sum_j E_{ij}$ equals OECD total and E_{ij} stands for country *j*'s exports of *i* commodity.

2. 1971
(Source) OECD Trade Statistics — various issues

the oil crisis the imports of manufactured goods have been increasing in areas where Japanese comparative advantages have been eroded. In particular, more imports of manufactured goods are coming from neighboring Newly Industrializing Countries, reflecting the gain in their competitive strength during this period. Also, closer economic ties with Japan through direct investment may have enabled these countries to export more through intra-firm operations. Presently, intra-firm activity in the manufacturing industry yields large net exports from Japan. But even in industries such as machinery where the proportion of imports in total procurement by head offices is still very small—less than 5%—purchases from their foreign affiliates account for 38% of imports in general machinery, 47% in precision machinery and 61% in electrical machinery. Therefore, if foreign affiliates raise their production efficiency level and can increase such supply, it may lead to an increase in imports of manufactured goods to Japan in the future.

Large oil payments overshadowed the increase in imports of manufactured goods to Japan in the 1970s. But changes are taking place to expand imports of manufactured goods, although the process may not be as rapid as Japan's trading partners might wish. One possible way to hasten this process would be to further

promote liberalization policies on the part of Japan, not only in respect to trade but also in other fields such as capital, finance and services. Construction of closer economic ties are necessary to promote imports of manufactured goods to any country. Thus, some patience may be needed on the part of Japan's trading partners since sales of manufactured goods to foreign markets, especially to Japan, who has had a long tradition of domestically manufacturing products to satisfy consumer demand, is a painstaking process even when there is no unfairness involved in treating imported goods.

* apparent consumption
= production - exports + imports

** Balassa, B. "Trade Liberalization and 'Revealed' Comparative Advantage," Manchester School, May 1965

Yoko Sazanami has been a professor of international economics at Keio University since 1972. Sazanami, 51, graduated from Keio University in 1955 and joined the university's faculty of economics in 1963 after studying at Harvard University. She has authored various books and articles, including "International Trade & the Japanese Economy" (1980, Tokyo).