

1983 Input-Output Table

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Every year since 1973, the Ministry of International Trade and Industry (MITI) has prepared and published an industrial input-output table. This table, called an "extended input-output table," is prepared at MITI's discretion, and is intended to provide the most up-to-date analysis possible of Japan's economic structure.

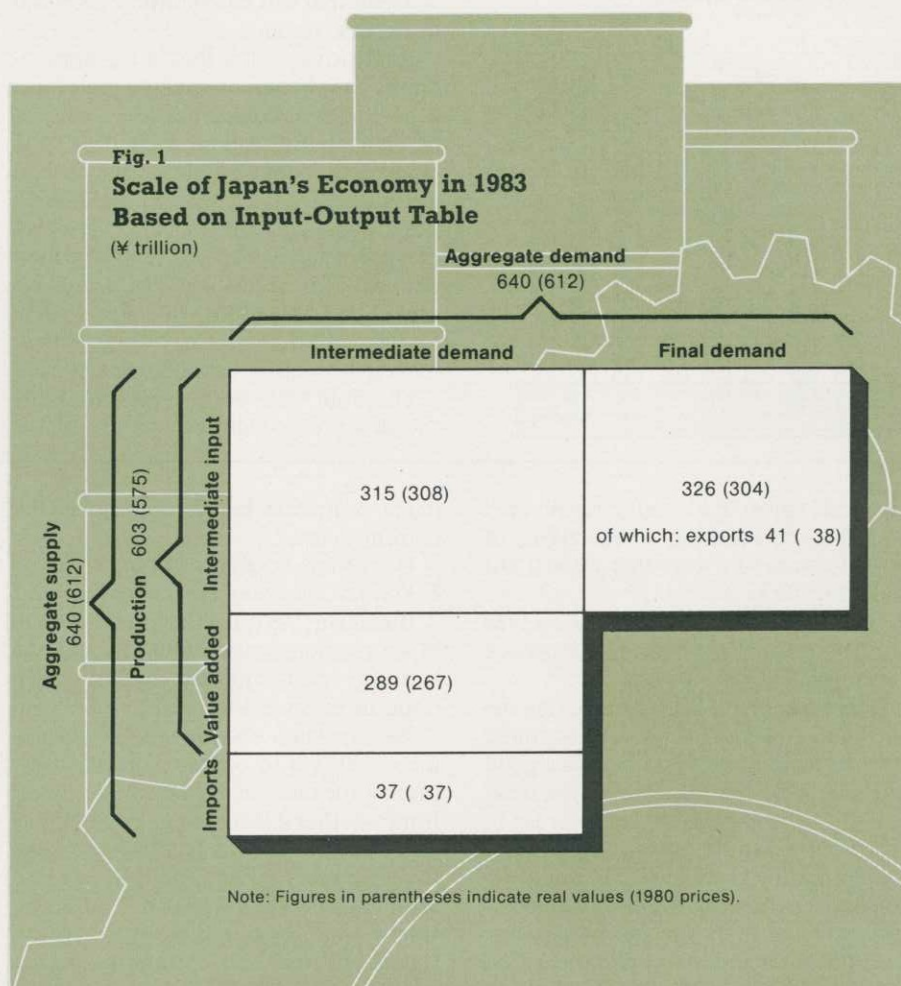
Meanwhile, a basic table is compiled once every five years in cooperation with other concerned ministries and agencies. This table then becomes the basis of subsequent extended tables. The extended tables for 1982 and thereafter are based on the 1980 basic table.

These tables are some of the most powerful tools available for describing shifts in the structure of the Japanese economy. What do these charts tell us about the state of the economy?

1983 economic structure

The year 1983 may be characterized as the first year in which the Japanese economy began expanding again following a prolonged adjustment period after the second oil crisis.

Total output based on the 1983 input-output table amounted to ¥603 trillion (about \$3 trillion), up 3.3% from the year before. The total value of raw materials, fuels, and other production factors used for that output (intermediate input) was ¥315 trillion, an increase of 2.6% over a year earlier. The gross value added by



productive activities reached ¥289 trillion, a gain of 4.0% over 1982.

The total value of final demand—the aggregate of consumption, investment (including changes in inventories) and exports—stood at ¥326 trillion, up 2.5%. The value of aggregate demand, including intermediate demand, increased by 2.6% over the year before to ¥640 trillion (\$3.2 trillion). Of this, ¥37 trillion worth of demand was met by imports, a decrease of 7.7%. The weight of imports in aggregate demand dropped 0.7 points from a year earlier to 5.7%.

Changes in industrial structure

(1) Shifting structure

In 1983 the weight of the materials and construction industries declined while that of the processing- and assembly-type industries and tertiary industries increased. Total output for 1983 was valued at ¥575 trillion (\$2.87 trillion) in real terms (1980 prices), up 3.5% over 1982.

On a sector-by-sector basis, the latest input-output table indicates the following changes in 1983. In mining and manufacturing industries, the output of processing- and assembly-type industries, notably the electric machinery industry, rose by 7.9%. As a result, the weight of processing and assembly industries in all industries expanded by 0.6 points. In contrast, the output of materials-type industries such as petroleum, coal, primary metals and chemicals registered a gain of only 1.0%, and their weight dropped by 0.4 points. Meanwhile, the output of tertiary industries such as commerce, banking, insurance, real estate and services rose by 5.0%, and their weight climbed by 0.5 points. Production in the construction industry dropped 2.2%, reducing its weight by 0.5 points.

Clearly, Japan's industrial structure changed rapidly from 1982 to 1983.

(2) Stagnant investment and expanded exports

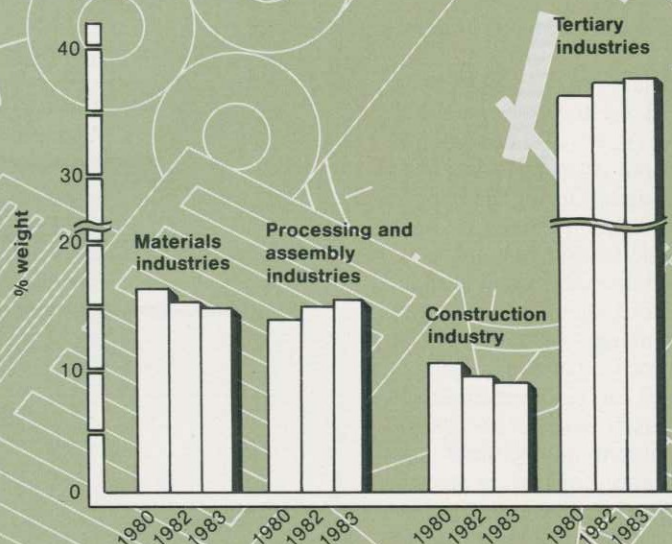
Final demand in 1983 totaled ¥304 trillion (\$1.5 trillion) in real terms (1980 prices), an increase of 2.4% over 1982.

Consumption increased by 3.3% over the year before to ¥189 trillion. Investment declined by 0.9% to ¥77 trillion, and exports expanded by 5.1% to ¥38 trillion. Thus, while investment stagnated, consumption and exports increased. This clearly shows that the economic expansion of 1983 was supported by growth in consumption and exports.

(3) Increase in value added

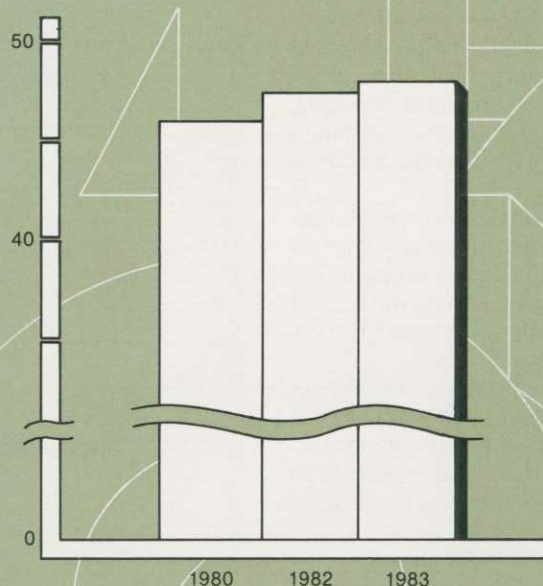
The proportion of gross value added to

Fig. 2
Changes in Industry-by-industry
Composition of Output



Notes: Materials industries are paper-pulp, ceramics and earth-stone products, chemicals, petroleum and coal products, and primary metals. Processing and assembly industries are general machinery, electric machinery, transport equipment and precision equipment.

Fig. 3 Changes in Value-added Ratio (%)



output (value-added ratio) increased by 0.4 points in 1983 to 47.9%. According to the 1982 input-output table published in February last year, the weight increased by 1.5 points between 1980 and 1982. In the three years from 1980 to 1983 it climbed by 1.9 points.

(4) Progress in conservation, electronics and services

Input coefficients for 1980-83 (the composite ratios for the raw materials, fuels and services needed for production) show how the input structure of Japanese industry has changed. During these three years, input of mineral products (mainly crude oil), petroleum and coal products, and primary metals continued to decline. On the other hand, the input of electric machinery, banking, insurance, real estate and services expanded steadily.

These changes can be observed on an industry-by-industry basis. In the case of transport equipment and general machinery, for instance, input from electric machinery and services increased as a result of higher efficiency and expanded use of electronics.

These changes in the intermediate input structure show that progress has been made since the second oil crisis in the conservation of energy and natural resources, in the use of electronics, and in the services industry.

Import induction structure

Final demand in the form of consumption, investment and exports directly induces imports of final demand goods. At the same time, such final demand induces imports of intermediate products, raw materials, and energy resources through the ripple mechanism of domestic production.

Which type of final demand ultimately induced how much imports? The so-called import inducing structure of the economy can be analyzed on the basis of the 1983 input-output table and its supporting import matrix tables.

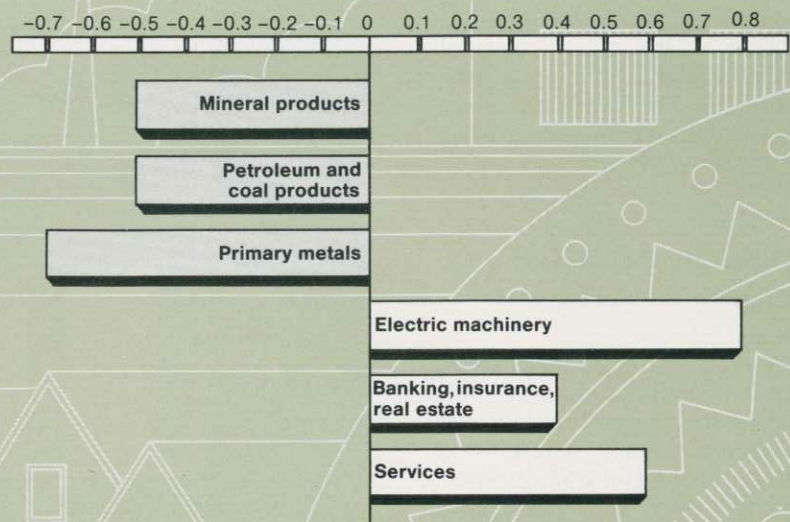
As such, it is predicated on the 1983 import structure (the import ratio of each commodity, the commodity composition of imported goods, and the regions from which goods are imported), the production structure and other factors.

(1) Consumption as major import-inducing demand

To what extent does final demand induce imports when it increases by ¥1 trillion? The analysis shows that consumption would induce ¥86.9 billion worth of imports, investment ¥96.8 bil-

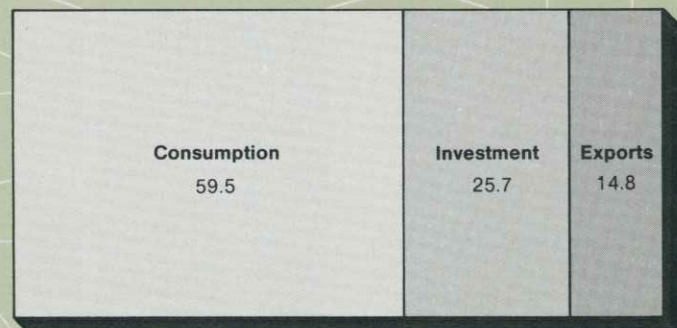
Fig. 4

Changes in Intermediate Input Coefficients in All Industries (change expressed by points)



Note: Changes are for the period 1980-83.

Fig. 5 Import Induction by Final Demand Items (% share)



lion worth and exports another ¥109.4 billion worth.

Clearly exports induce the most imports. Consumption accounts for 62.3% of final demand, and though its capacity to induce domestic production is relatively small, it is effective in inducing imports. Consumption therefore represents 59.5% of the total value of import induction.

(2) Increased investment and imports of manufactured goods

Expansion of investment has the effect of increasing imports of manufactured goods from industrially developed regions. Which items of final demand are most effective in inducing imports, and from which regions does the import induction come? In the case of consumption, the effect of import induction is greatest in the following order: (1) Asia, (2) the Middle and Near East, and (3) the United States. In the case of investment and exports, however, the order is (1) the Middle and Near East, (2) Asia, and (3) the United States.

Demand items also affect imports of manufactured industrial goods (manufactures imports) in different ways. In the case of consumption, imports from Asia are induced most readily, followed by those from the United States and Western Europe in that order. For investment and exports, the order is the United States, Western Europe and Asia.

In the case of investment-induced manufactures imports, the United States and Western Europe account for about 60%. Therefore it may be said on the basis of 1983 import structure that investment expansion is effective in expanding manufactures imports from these two regions.

(3) Manufactured imports from the United States and Europe

Imports of manufactured goods from the United States and Western Europe are closely related to domestic demand. Which items of final demand in Japan most effectively induce imports from which regions? Imports as a whole are induced by consumption, investment and exports in that order, irrespective of region.

On a commodity-by-commodity basis, manufactured imports from the United States and Western Europe as induced by domestic demand (consumption and investment) account for more than 56% and 77%, respectively, of total induced imports from these regions. Clearly manufactures imports from the United States and Western Europe have an especially strong relationship to domestic demand in Japan.

Fig. 6
Manufactured Imports Broken Down by Region and Final Demand Item (% share)

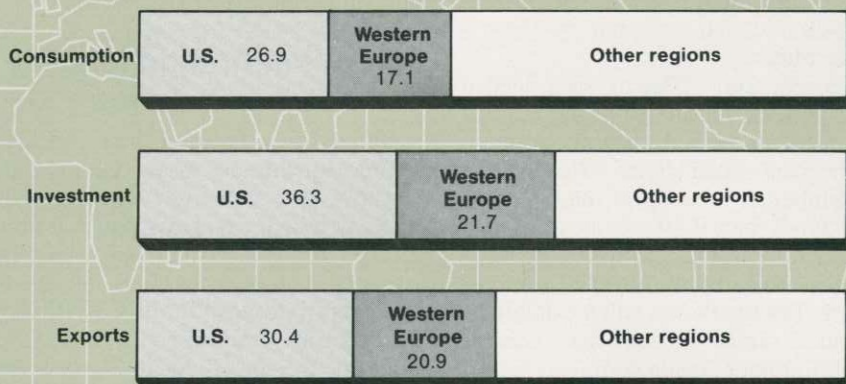


Fig. 7
The Ratio of Domestic-demand-induced Imports of Manufactures to the Total Induced Imports (%)

