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# PHILIPPINE EXPORT TRADE WITH JAPAN AND THE UNITED STATES: RESPONSIVENESS TO EXCHANGE RATE CHANGES

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## 1. Introduction

The greater flexibility in exchange rates among developed countries that was initiated in the early part of this decade appears likely to continue with perhaps increasing frequency of actual devaluations of deficit countries and revaluations of surplus countries. The repercussions of such currency realignments actually extend beyond the domain of the developed economies on to the less developed world since presentday LDCs are engaged in trade with the developed countries in varying extent. Thus exchange rate changes in the latter could have significant economic effects on an LDC through the induced changes in relative export and import prices in terms of the LDC currency.

In this paper we are interested in evaluating the extent to which Philippine exports respond to differing changes in the exchange rates in the currencies of the country's two principal trade partners, namely, Japan and the United States. These two countries have figured prominently in the recent realignment of major currencies, giving rise to speculative discussions locally on the appropriate course of policy actions to

minimize any adverse effects on the country's trade balance of this new form of external disturbance. The motivation for the present study is the need to determine the implications of a currency realignment for the commodity export sector among other major elements of the balance of payments. Our focus of interest is in the possible redirection of Philippine export flows to Japan and the United States as a result of the altered sets of relative export prices induced by currency realignments involving these two countries. It will be assumed throughout that the response of export supply to exchange rate changes is fully equivalent to that due to changes in export prices expressed in foreign currency.[1]

Export supply equations are estimated for the country's principal export commodities and the non-principal exports that provide scope for substitution between export markets. To explore the time-dimension of the impact of changes in relative prices on export trade flows, lagged responses are also examined. In view of the discrepancies in bilateral trade recordings observed previously,[2] substitution possibilities are examined using two sets of data, one consisting of Philippine recorded export data and the other based on corresponding partner country recorded import data.

## 2. Pattern of Philippine Export Flows

### 2.1 Sources and Nature of Data

Dollar values from 1962 to 1969, the observation period chosen for the statistical estimation of substitution parameters, and corresponding quantity data of Philippine exports at the 4-digit SITC level are available in the annual issues of the Foreign Trade Statistics of the Philippines published by the Bureau of the Census and Statistics (BCS). Corresponding import figures of the Philippines' two major trade partners are obtained from various issues of the Commodity Trade Statistics (United Nations) and Foreign Trade Statistics of Asia and the Far East (ECAFE), as compiled and adjusted for temporal consistency of commodity classification by the Statistics Division of the Institute of Developing Economies in Tokyo.

Philippine export and U.S. import data are available in f.o.b. values while Japanese import recordings are on c.i.f. basis only. The data sets not immediately comparable, our first task is to convert Japanese c.i.f. imports into f.o.b. values. The standard procedure would be to use a 10 per cent margin to allow for insurance and transport costs,[3/] assuming away existing variations across goods in the ratio of transport cost to total cost and possible differences in handling charges (Moneta, 1959). Fortunately, in the present case, we can do better since Philippine export data as recorded by the BCS are expressed in both f.o.b.

and c.i.f. values from 1967 onwards. Thus, assuming that the recorded insurance and freight cost figures for exports to Japan are identical with those for corresponding Japanese imports and barring serious inaccuracies in their recording, the ratios of Philippine-recorded f.o.b. to c.i.f. export values can be used directly on Japanese c.i.f. import data to obtain the Japanese f.o.b. import values for 1967 to 1969 by commodity item.

For years prior to 1967 the average ratios for 1967-1969 at the 3-digit level are applied to corresponding Japanese c.i.f. import data for conversion to f.o.b. values. This is deemed preferable to extrapolating backward the annual values of the f.o.b.-c.i.f. ratios on the following grounds: (1) with data for only three years, observed trends can hardly be meaningful; (2) for a large number of commodity items the apparent trends are erratic, indicating opposite annual movements in the f.o.b.-c.i.f. ratio in 1967-68 and 1968-1969; and (3) for those commodities with a discernible trend (either rising or falling) the observed variations are actually minimal. Appendix Table 1 gives the ratios used for 3-digit SITC groups from 1967 to 1969 together with their averages for the period.

As might be expected, these ratios generally lie in the vicinity of 0.9. A significance test to determine if the deviation of observed

ratios from 0.9 can be explained by normal statistical errors shows that the t-value is low enough to meet the 1 per cent level of significance. It is thus clear that on the whole the actual margin for freight and insurance in Philippine exports to Japan is approximated closely by the 10 per cent difference frequently assumed between f.o.b. and c.i.f. trade values. What such a procedure does not bring out is the existence of some markedly significant departures from the 0.9 value.

Moneta (1959) has pointed out that the ratio of transport cost to total cost is "an inverse function of the value per ton of the commodity, so that for higher-valued items it may approach zero and for low-valued items it may approach one" (p. 41). This is given some empirical support by the unweighted averages of the f.o.b.-c.i.f. ratios of 3-digit SITC exports shown for the 1-digit level of aggregation in Table 1. Philippine export commodities which have undergone a greater degree of processing (SITC 4-8) appear to show lower transport cost-total cost ratios compared with raw material and semi-processed exports (SITC 0-3). This is also evident from Appendix Table 1, where the f.o.b.-c.i.f. ratios at the 3-digit SITC level are seen to be lowest for semi-processed goods such as iron concentrates and iron and steel scraps, the proportion of transport cost to total cost ranging from 20-60 per cent, while corresponding ratios for machinery are only about 5 per cent. The veneer and

**Table 1: Average F.O.B.-C.I.F. Ratios of Major Commodity Groups in Philippine Export Trade with Japan, 1967-1969**

| SITC No. | No. of 3-digit export items | F.O.B.-C.I.F. Ratio | Rank |
|---|---|---|---|
| 0 | 24 | 0.8951 | 6 |
| 1 | 4 | 0.8842 | 7 |
| 2 | 20 | 0.7855 | 9 |
| 3 | 2 | 0.4518 | 10 |
| 4 | 3 | 0.9175 | 5 |
| 5 | 11 | 0.9399 | 2 |
| 6 | 29 | 0.9311 | 4 |
| 7 | 10 | 0.9467 | 1 |
| 8 | 12 | 0.9389 | 3 |
| 9 | 2 | 0.7975 | 8 |

plywood ratio of transport to total c.i.f. value runs to around 15 per cent which is only one-half that of unprocessed logs (30 per cent). The lowest f.o.b.-c.i.f. ratio is registered by SITC 3 comprised of only two 3-digit groups namely, petroleum products (313) and gas, natural and manufactured (314) which have unusually low ratios of 0.3983 and 0.5054, respectively. On the other hand the average f.o.b.-c.i.f. ratio is highest for SITC 7 which is made up of high-valued machinery and transport equipment.

The adjusted Japanese data on major imports in f.o.b. values at the 4-digit level are shown in Appendix Table 2. These figures would presumably be closer to the actual f.o.b. values than if the constant 10 per cent margin were used.

Another major data difficulty encountered in studies such as the present one is the unavailability of information on actual export prices by country of destination. While there are well-known theoretical objections to the use of unit values of imports and exports,[4/] most of these stem from the heterogeneity of aggregated commodity groups. Our preliminary data examination suggested that unit values would be preferable to partner country wholesale price indices in providing a measure of the relative pricing of Philippine export commodities (which

are relatively homogenous) between Japanese and U.S. markets.

Unit values can be derived from published value and quantity data, although the latter are not always readily available especially for non-principal exports and for partner-country import data. Apropos this problem, derivation of the price measure had to be undertaken at the 4-digit SITC level because of the difficulty of aggregating quantity data where some of them are missing at a more disaggregative level or where units of measurement used are not directly comparable. 5/

The use of two sets of data based on Philippine and partner country trade recordings presents still another source of difficulty in that for certain years quantity data are available only in one of the two sets, mostly in the Philippine data set. For this reason the unit export values derived from Philippine data are used also with corresponding partner country import values in the regressions when necessary. Generally data limitations in Philippine recordings are more severe among minor exports in that quantity figures do not appear consistently throughout the period under consideration.

## 2.2 Export Structure and Performance, 1962-1969

Philippine export trade, like that of most LDCs, is characterized by a high degree of commodity and geographic concentration. About

four-fifths of the Philippines' foreign exchange earnings from merchandise trade for the period have been contributed by fourteen principal exports as shown in Tables 2a and 2b.[6/] Of the fourteen, three can easily account for fifty per cent of total export value for any given year: sugar, copra, and logs from 1962 to 1968 and sugar, logs, and copper concentrates in 1969.

On the average the fourteen principal commodities have grown at an unimpressive annual rate of 4.1 per cent. The most sluggish growth is shown by the country's traditional export earners, namely, sugar and copra. Thus they have been outstripped in relative importance by the fast growers in the group, logs and copper concentrates, which find their way mostly to the Japanese market.

These principal exports which explained around 90 per cent of total exports of the country in 1962 underwent a steady downtrend over the period so that by 1969 their relative contribution was only 68 per cent. This suggests a significant increase in the relative shares of non-principal export commodities and points to a possible movement towards commodity diversification in Philippine export trade. Only a few of the principal export commodities have improved their relative positions, most notable of which is copper concentrates contributing

Data (in per cent)

| SITC No. | Commodity Description | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 |
|---|---|---|---|---|---|---|---|---|---|
| 0517 | Desiccated Coconut | 2.97 | 2.70 | 2.86 | 2.91 | 2.29 | 2.33 | 3.31 | 2.51 |
| 2539 | Canned Pineapple | 2.27 | 1.08 | 1.46 | 1.42 | 1.17 | 1.49 | 1.35 | 1.80 |
| 061 | Sugar | 25.05 | 22.48 | 23.30 | 19.45 | 15.25 | 19.72 | 15.63 | 18.03 |
| 0615 | Molasses | 0.99 | 1.25 | 1.83 | 1.42 | 0.75 | 0.79 | 0.92 | 1.09 |
| 0813 | Copra meal/cake | 1.80 | 1.71 | 1.48 | 1.68 | 2.23 | 2.36 | 1.48 | 1.50 |
| 2212 | Copra | 22.24 | 24.98 | 22.90 | 24.17 | 21.98 | 23.22 | 16.56 | 13.57 |
| 242 | Logs | 21.21 | 21.75 | 19.80 | 21.98 | 26.02 | 27.49 | 28.00 | 33.68 |
| 243 | Lumber | 1.06 | 0.92 | 1.19 | 1.02 | 0.98 | 1.03 | 1.18 | 1.81 |
| 2655 | Abaca | 4.86 | 4.64 | 4.46 | 3.45 | 2.42 | 2.55 | 1.51 | 2.22 |
| 2813 | Iron Ore | 2.01 | 1.87 | 1.84 | 1.63 | 1.66 | 1.75 | 1.85 | 1.62 |
| 2831 | Copper Concentrates | 5.80 | 6.18 | 5.23 | 6.97 | 11.16 | 11.79 | 12.36 | 22.18 |
| 4223 | Coconut Oil | 6.22 | 6.62 | 8.79 | 9.71 | 9.77 | 8.10 | 10.45 | 7.93 |
| 6911 | Veneer | 1.18 | 1.36 | 1.69 | 1.63 | 1.33 | 1.18 | 1.59 | 1.70 |
| 6312 | Plywood | 2.41 | 2.47 | 3.35 | 2.66 | 2.99 | 3.38 | 3.81 | 3.63 |
| Share in Total Philippine Exports | | 90.36 | 93.03 | 88.46 | 88.54 | 89.81 | 83.62 | 78.54 | 66.74 |

Source: Bureau of the Census and Statistics, Foreign Trade Statistics of the Philippines, (various issues).

Table 2b: Percentage Distribution of Principal Exports Based on Partner Country Data (in per cent)

| SITC No. | Commodity Description | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 |
|---|---|---|---|---|---|---|---|---|---|
| 0517 | Desiccated Coconut | 2.45 | 3.05 | 2.95 | 3.08 | 2.78 | 2.40 | 3.90 | 2.28 |
| 0539 | Canned Pineapple | 1.27 | 1.31 | 1.27 | 1.51 | 0.18 | 0.25 | 0.36 | 0.30 |
| 061 | Sugar | 25.86 | 27.14 | 24.98 | 19.78 | 19.54 | 21.75 | 18.16 | 19.12 |
| 9615 | Molasses | 1.05 | 1.29 | 2.16 | 1.63 | 1.07 | 1.57 | 1.58 | 1.65 |
| 0813 | Copra meal/cake | 0.89 | 0.71 | 1.12 | 1.07 | 1.06 | 0.79 | 0.37 | 0.61 |
| 2212 | Copra | 22.48 | 23.91 | 22.78 | 26.32 | 20.39 | 18.98 | 16.32 | 11.30 |
| 242 | Logs | 25.49 | 20.66 | 17.82 | 19.63 | 23.19 | 27.16 | 26.81 | 28.73 |
| 243 | Lumber | 0.90 | 0.96 | 0.83 | 0.84 | 0.91 | 0.81 | 0.89 | 1.21 |
| 2655 | Abaca | 4.63 | 4.68 | 4.41 | 3.95 | 2.83 | 2.36 | 1.65 | 1.74 |
| 2813 | Iron Ore | 3.31 | 1.24 | 1.13 | 1.15 | 1.15 | 1.09 | 1.16 | 1.18 |
| 2831 | Copper Concentrates | 3.69 | 3.54 | 6.43 | 6.85 | 10.04 | 10.20 | 12.65 | 17.87 |
| 4223 | Coconut Oil | 4.49 | 7.55 | 9.08 | 9.80 | 12.13 | 7.90 | 10.54 | 7.99 |
| 6311 | Veneer | 0.98 | 1.41 | 1.63 | 1.58 | 1.55 | 1.26 | 1.61 | 1.96 |
| 6312 | Plywood | 2.50 | 2.57 | 3.41 | 2.81 | 3.18 | 3.46 | 3.99 | 4.05 |
| Share in Total Philippine Exports | | 90.36 | 93.03 | 88.46 | 91.47 | 93.30 | 89.05 | 86.62 | 75.37 |

Source: Statistics Division, Institute of Developing Economies, Tokyo.

roughly a fifth of total export earnings in 1969 compared to a share of less than 6 per cent at the beginning of the period. To a lesser extent logs, coconut oil, and plywood also increased their shares, while sugar and copra suffered a severe decline in relative importance.

Table 3 shows the distribution of principal exports by country of destination. Countries other than the two dominant trading partners, United States and Japan, are lumped under the title "Rest of the World" (ROW). The figures give an indication of the geographic concentration of the country's principal exports, geographic concentration being measured here simply in terms of shares of country-destination relative to total export value of a given commodity. The dominance of the United States' market is clear in most commodity exports. Japan has been a dominant importer of molasses, logs, iron concentrates, and copper concentrates. Finally, the "Rest of the World", in these cases mostly Western European countries, has relatively large shares in Philippine exports of copra, copra meal/cake and abaca.

Shifts in the relative importance of market, i.e. changes in the pattern of geographic flows, are not uniform among the principal export commodities. While there has been a complete U.S. monopsony of Philippine sugar exports, some diversification of markets in varying

| SITC No. | Commodity Description | Country | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | Average 1962-69 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 243 | Lumber | U.S. | 77.57 | 69.58 | 66.20 | 65.00 | 62.67 | 51.44 | 54.27 | 49.29 | 62.00 |
| | | Japan | 2.00 | 2.46 | 8.39 | 1.29 | 4.45 | 13.91 | 13.01 | 13.59 | 7.26 |
| | | ROW | 20.43 | 27.96 | 25.33 | 33.71 | 32.88 | 34.66 | 33.73 | 37.12 | 30.73 |
| 2655 | Abaca | U.S. | 33.47 | 28.52 | 28.14 | 40.09 | 39.88 | 36.56 | 34.64 | 39.62 | 35.12 |
| | | Japan | 23.90 | 27.84 | 25.85 | 22.49 | 21.43 | 22.50 | 23.60 | 22.64 | 23.78 |
| | | ROW | 42.63 | 43.63 | 46.00 | 37.42 | 38.68 | 40.94 | 41.76 | 37.74 | 41.10 |
| 2813 | Iron Ore | U.S. | 0.22 | - | - | - | - | - | - | - | 0.02 |
| | | Japan | 95.29 | 99.73 | 99.98 | 99.97 | 99.85 | 99.41 | 99.40 | 99.66 | 99.16 |
| | | ROW | 4.49 | 0.27 | 0.02 | 0.03 | 0.15 | 0.59 | 0.60 | 0.34 | 0.81 |
| 2831 | Copper Concentrates | U.S. | 35.66 | 24.13 | 14.95 | 10.35 | 20.24 | 32.02 | 12.10 | 14.64 | 20.51 |
| | | Japan | 64.21 | 75.87 | 85.04 | 89.65 | 79.76 | 69.81 | 78.48 | 80.04 | 77.86 |
| | | ROW | 0.13 | - | 0.01 | - | - | 0.17 | 9.42 | 5.32 | 3.01 |
| 4223 | Coconut Oil | U.S. | 96.93 | 85.68 | 80.52 | 79.50 | 77.88 | 87.64 | 88.37 | 90.03 | 85.82 |
| | | Japan | - | - | - | - | - | 0.19 | - | 0.79 | 0.13 |
| | | ROW | 3.07 | 14.32 | 19.48 | 20.40 | 22.12 | 12.17 | 11.63 | 9.18 | 14.05 |
| 6311 | Veneer | U.S. | 99.03 | 98.58 | 95.05 | 96.94 | 92.62 | 92.45 | 91.17 | 91.89 | 93.45 |
| | | Japan | 0.03 | 0.03 | 0.06 | 0.68 | 3.28 | 9.80 | 4.40 | 2.54 | 2.60 |
| | | ROW | 0.94 | 1.39 | 4.89 | 2.48 | 4.10 | 7.74 | 4.43 | 5.57 | 3.93 |
| 6312 | Plywood | U.S. | 99.84 | 99.51 | 96.82 | 98.18 | 97.25 | 97.29 | 98.49 | 97.69 | 98.13 |
| | | Japan | 0.05 | 0.37 | 0.35 | 0.24 | - | 0.60 | 0.11 | 0.44 | 0.31 |
| | | ROW | 0.11 | 0.11 | 2.73 | 1.58 | 2.75 | 2.10 | 1.40 | 1.87 | 1.58 |

Basic Data: Foreign Trade Statistics of the Philippines
Bureau of the Census and Statistics, Various issues: 1962-1969

Table 3: Geographic Distribution of Principal Exports 1962-1969
(in per cent)

| SITC No. | Commodity Description | Country | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | Average 1962-69 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0517 | Desiccated Coconut | U.S. | 87.27 | 84.67 | 85.54 | 77.22 | 71.92 | 74.05 | 86.68 | 74.20 | 80.19 |
| | | Japan | 0.05 | 0.15 | 0.14 | 0.24 | 1.19 | 5.07 | 2.98 | 3.60 | 1.68 |
| | | ROW | 12.67 | 15.49 | 14.60 | 22.54 | 26.89 | 20.87 | 10.24 | 22.20 | 18.19 |
| 0539 | Canned Pineapple | U.S. | 43.47 | 41.28 | 53.23 | 57.77 | 34.55 | 43.95 | 38.26 | 55.96 | 46.06 |
| | | Japan | 2.76 | 4.58 | 5.27 | 3.59 | 4.83 | 5.43 | 5.52 | 7.32 | 4.91 |
| | | ROW | 53.78 | 54.14 | 41.51 | 38.64 | 60.56 | 50.61 | 56.21 | 36.72 | 49.02 |
| 0611-0612 | Sugar | U.S. | 99.95 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 99.99 |
| | | Japan | - | - | - | - | - | - | - | - | - |
| | | ROW | 0.05 | - | - | - | - | - | - | - | - |
| 0615 | Molasses | U.S. | 34.21 | 30.11 | 14.43 | 9.03 | 8.16 | 1.72 | 3.76 | 17.00 | 14.80 |
| | | Japan | 65.79 | 68.18 | 84.22 | 90.55 | 90.57 | 97.24 | 96.24 | 81.71 | 84.31 |
| | | ROW | - | 1.71 | 1.35 | 0.42 | 1.27 | 1.04 | - | 1.29 | 1.18 |
| 0813 | Copra Meal or Cake | U.S. | 13.02 | 12.18 | 14.09 | 13.70 | 8.62 | 8.13 | 8.52 | 3.79 | 10.26 |
| | | Japan | 0.44 | - | - | 0.01 | - | - | - | 0.06 | 0.17 |
| | | ROW | 86.55 | 87.82 | 85.91 | 86.29 | 91.38 | 91.87 | 91.48 | 96.15 | 89.68 |
| 2212 | Copra | U.S. | 34.73 | 26.85 | 28.35 | 30.47 | 27.55 | 34.65 | 50.01 | 53.79 | 35.80 |
| | | Japan | 1.94 | 3.78 | 3.70 | 5.53 | 5.68 | 8.74 | 7.71 | 6.73 | 5.48 |
| | | ROW | 63.34 | 69.37 | 67.96 | 64.00 | 66.77 | 56.62 | 42.27 | 39.49 | 58.73 |
| 242 | Logs | U.S. | 0.81 | 0.61 | 0.58 | 1.03 | 0.54 | 0.64 | 0.52 | 0.56 | 0.66 |
| | | Japan | 81.22 | 84.35 | 81.18 | 81.66 | 81.72 | 82.41 | 78.19 | 80.84 | 81.45 |
| | | ROW | 17.97 | 15.04 | 18.24 | 17.31 | 17.74 | 16.95 | 21.28 | 18.60 | 17.89 |

extent has apparently occurred for desiccated coconut, lumber , coconut oil, plywood, and veneer in favor of Japan and ROW. Japan's proximity to the Philippines gives her a natural advantage over the United States and Western Europe for certain commodities for which locational factors are important, as in logs trade. In iron ores and copper concentrates Japanese dominance is asserted over time at the expense of the United States and ROW.

Non-principal exports have grown relatively faster than the principal exports during the period 1962-1969 (34.5 per cent vs. 4.1 per cent average annual rate). Sharewise the United States has started out as the most important buyer of the country's non-principal exports in 1962 but displaced later on by ROW (cf. Table 4). Japan's share has conspicuously lagged behind throughout the period. Manufactured minor exports expanded most rapidly in our trade with Japan followed by raw materials and semi-processed exports. By contrast raw material exports to the US have grown faster than manufactured and semi-processed exports.

Some findings of a Constant-Market-Share analysis of Philippine export performance [7] may be mentioned here. Growth of total exports to the United States has been shown to be more sluggish

Table 4: "Non-Principal" Exports of the Philippines, 1962-1969
(f.o.b. values in thousand U.S. dollars)

| Country of Destination | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 |
|---|---|---|---|---|---|---|---|---|
| Japan | 8,645 | 7,684 | 9,867 | 11,277 | 12,770 | 15,982 | 13,661 | 18,958 |
| United States | 24,718 | 23,175 | 28,954 | 36,423 | 31,644 | 31,970 | 27,610 | 31,683 |
| Rest of the World | 20,787 | 19,740 | 50,144 | 43,266 | 43,181 | 95,290 | 161,710 | 270,059 |
| TOTAL | 54,150 | 50,499 | 88,965 | 90,966 | 87,595 | 143,242 | 202,981 | 320,800 |

Source: Bureau of the Census and Statistics, Foreign Trade Statistics of the Philippines (various issues).

than that of Japan (2.3 as against 14.9 per cent using Philippine data; 4.3 against 14.7 per cent using partner country trade recording). Among nine principal exports to Japan, only two (iron ores and abaca) have had average annual growth rates below 10 per cent. The rest -- logs, copper concentrates, copra, molasses, lumber, canned pineapples and desiccated coconut -- have benefited immensely from very large expansion effects of the Japanese market and, except for logs, market share effects as well. The extremely high rates of increase in both market shares and overall growth exhibited by desiccated coconut and lumber are notable.

Among the principal export commodities to the United States, relatively high overall growth rates are seen for coconut oil, plywood, copper concentrates and veneer. The first two account for slightly over 20 per cent of Philippine export earnings from the United States. However sugar, which contributes roughly 40 per cent of total, has virtually stagnated. Other important products showing declining market shares are plywood and desiccated coconut. Veneer, copra meal or cake and logs have increased substantially their shares of total U.S. imports of these products, but their contribution to total exports to the United States are too small to affect substantially the overall growth performance.

Non-principal exports, like the principal exports, have suffered setbacks in market shares in the United States, although in Japan the

rather sluggish growth in demand for these imports has been compensated for by a gain in relative shares.

## 3. Substitution Possibilities

The United States and Japan being alternative markets to Philippine exports, changes in relative prices attendant to a change in the exchange rate of the peso vis-a-vis the dollar and the yen can be expected to induce a redirection of export flows to the market whose export price in peso terms has moved more favorably. Thus a dollar devaluation and a yen revaluation (as in the Smithsonian agreement of 1971) would lead to a qualitative shift in export market share toward the United States if the peso exchange rate to the dollar were retained.

To investigate quantitatively the extent of market substitution in Philippine export trade, relative shares of the United States and Japan are hypothesized to depend on relative export prices in peso terms. The following regression equation is employed: 8/

$$\log(S_{ji}/S_{si}) = a + b \log P_{ji}/P_{si} + ct$$

where

$S_{ji}$ = share of Japanese imports of commodity i to total value of Philippine exports of i

$S_{si}$ = share of U.S. imports of commodity i to total value of Philippine exports of i

$P_{ji}$ = unit value of commodity i exports to Japan

$P_{si}$ = unit value of commodity i exports to the United States

t = 0 for 1962, 1 for 1963, . . . , 7 for 1969

The coefficient b can be interpreted as a price elasticity of market shares, a concept similar to that used by Junz and Rhomberg (1973) to represent export competitiveness among developed countries. The inclusion of a trend variable in the regression equation allows for the possibility of shifts in the relative market share during the observation period 1962-1969 for reasons not related to changes in relative export prices between the two principal export markets. This might be due to the rise in share of other countries which has a displacing effect on either the U.S. or Japanese share resulting from the increasing penetration of relatively newer markets. A positive (negative) value of the trend coefficient c would then indicate a relatively more serious effect on the U.S. (Japanese) export share.

It is recognized that the price response of relative export shares may not be completed in one year; hence lagged relationships

are also tested, i.e., regressing relative shares on lagged (up to two years) and unlagged relative prices separately as well as jointly. This is done using Philippine export data and corresponding partner country import data for selected principal export commodities and for non-principal exports classified by degree of processing, viz., raw materia semi-processed and manufactured goods.

The geographic distribution of Philippine exports as discussed earlier suggests that market substitution possibilities between the Unite States and Japan might be quite limited for certain principal commodities imported to only a negligible extent by either country due to institutiona locational and/or other factors. Among the fourteen principal exports accounting for about 80 per cent of total export receipts in the entire period, six commodities have been so identified and excluded from the quantitative estimation of substitution parameters. These are sugar, copra meal/cake, coconut oil and plywood which go mostly to the Unite States, and logs and iron ore which find their way almost exclusively to Japan. Unless the magnitude of exchange rate changes of the Japanese yen and the U.S. dollar are extremely large in comparison with past changes in relative export prices (in peso terms), currency realignment involving these two countries is not expected to result in any appreciabl redirection of Philippine export trade in these commodities. Reasons

for the extreme market concentration of these six export products are provided in Appendix A.

Selected regression results for the remaining eight principal export commodities, except veneer for which no significant estimates of the price elasticity of market shares were obtained, are shown in Table 4 with the following notations:

$X = \log (S_j/S_s)$, based on Philippine export data

$P_k = \log (P_j/P_s)$ lagged k years (k = 0,1,2);

based on Philippine unit value data

$X^1$ and $P_k^1$ have the same meaning as above but based on corresponding partner country data. The estimated equations presented are those that contain estimates of the coefficient for $P_k$ significantly greater than zero at the 5 per cent level.[9/] If the introduction of the trend variable is found to reduce the significance of the $P_k$ coefficient estimate, only the estimated equation without the t-term is selected.

Use of Philippine data in the regressions is seen to yield a significant correlation between relative export shares and prices in the U.S. and Japanese markets for each of the seven principal commodities. By contrast, only for desiccated coconut, canned pineapple and copra is the relationship significant based on partner country data. Increasing relative share of Japan vis-a-vis the United States independently

**Table 4: Selected Estimated Equations for Principal Exports**

**Desiccated coconut** (0517)

$$X = -4.81 + \underset{(2.18)}{2.80}\ P_0 \qquad \bar{R}^2 = .336$$

$$X = -4.93 + \underset{(2.03)}{2.53}\ P_1 \qquad \bar{R}^2 = .298$$

$$X = -4.23 + \underset{(2.31)}{3.59}\ P_0^1 \qquad \bar{R}^2 = .382$$

$$X^1 = -2.44 + \underset{(5.50)}{4.53}\ P_0^1 + \underset{(6.76)}{4.28}\ P_1^1 + \underset{(3.40)}{1.97}\ P_2^1 \qquad \bar{R}^2 = .960$$

**Canned Pineapple** (0539)

$$X = -2.33 + \underset{(1.96)}{2.56}\ P_0 + \underset{(2.70)}{0.10}\ t \qquad \bar{R}^2 = .579$$

$$X^1 = -3.13 + \underset{(2.88)}{3.38}\ P_0^1 + \underset{(4.47)}{1.12}\ t \qquad \bar{R}^2 = .725$$

**Molasses** (0615)

$$X = 0.31 + \underset{(2.07)}{3.05}\ P_0 + \underset{(3.24)}{.44}\ t \qquad \bar{R}^2 = .557$$

$$X = 0.37 + \underset{(4.82)}{5.75}\ P_1 + \underset{(3.33)}{.28}\ t \qquad \bar{R}^2 = .834$$

**Copra** (2212)

$$X = 2.08 + \underset{(1.98)}{3.03}\ P_1 + \underset{(2.13)}{.09}\ t \qquad \bar{R}^2 = .454$$

$$X^1 = -2.52 + \underset{(2.64)}{3.39}\ P_0^1 + \underset{(2.29)}{.18}\ t \qquad \bar{R}^2 = .612$$

$$X^1 = -2.11 + \underset{(2.19)}{2.62}\ P_1^1 + \underset{(1.95)}{.10}\ t \qquad \bar{R}^2 = .502$$

**Lumber** (243)

$$X = 0.25 + \underset{(2.03)}{1.68}\, P_1 + \underset{(3.51)}{.24}\, t \qquad \bar{R}^2 = .675$$

**Abaca** (2655)

$$X = 0.56 + \underset{(2.51)}{3.72}\, P_0 \qquad \bar{R}^2 = .353$$

$$X = 0.49 + \underset{(2.43)}{3.55}\, P_1 \qquad \bar{R}^2 = .319$$

**Copper concentrates** (2831)

$$X = 2.03 + \underset{(1.97)}{1.38}\, P_0 \qquad \bar{R}^2 = .294$$

of price movements is observed for canned pineapple, copra, molasses and lumber, the positive trends for the first two commodities being indicated from either of the two data sets. Only in the regression for desiccated coconut based on partner country data is the simultaneous influences of both current and lagged price variables found significant, which leads us to the inference that most of the substitution effects on Philippine commodity exports of exchange rate changes in the U.S. and Japanese currencies would be felt within two years.

Overall, a high degree of export market substitution is suggested by the regression results. Except for lumber and copper concentrates, the estimated elasticities (represented by the coefficient of $P_k$) are substantially greater than 2.[10/] Three alternative values of the weighted average price elasticity for this group of principal exports might be considered: 2.17, 2.60 and 3.33 - - corresponding to the minimum, average and maximum values, respectively, of the elasticity estimates for each of the seven export commodities represented in Table 4. The impact of export price changes on the relative shares of Japanese and U.S. markets for these export commodities as a group could then be explored quantitatively using such a range of elasticity values.

For the non-principal exports, data limitations suggested excluding the regression specification with the price variable lagged two years to avoid a drastic reduction in the number of observations.[11] The results presented in Table 5 are based on Philippine data only, the estimated equations from partner country data generally having insignificant and/or negative relative price coefficients.[12] With the exception of one regression result for the manufactured export category,[13] none of the estimated equations with the lagged price variable (appearing either separately or jointly with the concurrent relative export price variable) were statistically acceptable. The significantly positive coefficient of the trend variable in the equations reported for each of the three categories and for "all" non-principal exports would seem to reflect the increasing share noted above of partner countries other than the United States and Japan at the relative expense of the U.S. share.

Some interesting observations on the estimated values of the share coefficient can be made. One is that the estimates do not differ very much from each other, at least in comparison with that obtained for the principal export commodities. Furthermore, the share elasticities are generally lower than those given earlier for the principal exports. For instance, the estimate for non-principal exports as a whole (2.18) is only slightly higher than the weighted average price

**Table 5: Selected Estimated Equations for Non-Principal Exports**

**Raw materials**

$$X = -3.04 + 1.87\ P_0 + 0.24\ t \qquad R^2 = .568$$
$$(2.15) \qquad (2.41)$$

**Semi-processed**

$$X = -3.18 + 2.32\ P_0 + 0.18\ t \qquad R^2 = .573$$
$$(2.49) \qquad (2.29)$$

**Manufactured**

$$X = -1.91 + 2.22\ P_0 + 0.35\ t \qquad R^2 = .641$$
$$(2.98) \qquad (3.01)$$

**Non-principal exports**

$$X = -2.54 + 2.18\ P_0 + 0.26\ t \qquad R^2 = .601$$
$$(2.41) \qquad (2.71)$$

elasticity for principal exports based on the minimum values of the elasticity estimates for each of the seven export commodities given above.[14] Such weaker response of the non-principal exports to changes in relative export prices in the United States and Japan might be explained by the fact that they consist mostly of non-traditional export commodities still in the process of developing markets abroad and hence are incapable of adapting as quickly as the principal exports to the observed shifts in relative profitability between the Japanese and U.S. markets.

Given the above estimates of the price elasticity of relative market shares (in value terms) in Philippine export trade with Japan and the United States, what can one say of the overall scope for substitution between these two principal markets for Philippine exports? It needs to be recalled that seven commodities in the principal exports category have been indicated earlier to be inflexible in respect of destination markets. The substitution elasticity in value terms for this group of commodities is therefore unity. Their joint contribution to the total value of Philippine exports happens to be quite large. Based on Philippine data recordings, these commodities accounted for 62.8 per cent of total receipts in export trade with Japan and the United States during the observation period 1962-1969. The other seven principal

exports, for which a range of estimated substitution elasticity values is provided above, contributed 29.4 per cent, while the non-principal exports were responsible for the remaining 7.8 per cent of total export revenue during the period.

This leads us to the following calculation of the weighted average substitution elasticity in value terms of total Philippine export flows during 1962-1969 to the Japanese and U.S. markets: .628 (1) + .294 (2.17, 2.60, 3.33) + .078 (2.18) = (1.44, 1.56, 1.68), corresponding to the three elasticity estimates derived earlier for the seven principal commodities as a group. One may then infer that volumewise Philippine exports to Japan and the United States in the aggregate have responded rather inelastically to changes in relative prices in the two markets, the elasticity values in physical terms being observed to range from .44 to .68.

Throughout the observation period 1962-1969, the exchange rate between the currencies of the two countries remained constant. Thus changes over time in relative export prices in peso terms in the two markets could be equated to the price changes in terms of either foreign currency. Our interest now is in evaluating the extent to which Philippine export flows to Japan and the United States might be influenced

by a major currency realignment involving these two countries, e.g., as a result of the Smithsonian agreement of 1971. To do so, it will be necessary to specify the policy response concerning the peso exchange rates with the U.S. dollar and the Japanese yen. As illustration, let us say that the authorities decide to hold fixed the peso-dollar exchange rate. Thus a dollar depreciation with respect to the yen would mean an appreciation of the yen relative to peso which, in view of the increased export prices in Japan in peso terms, could be expected ceteris paribus to induce a shift of Philippine exports toward the Japanese market. The accompanying reduction in U.S. shares in the various export commodities may then be determined by the substitution elasticities as estimated above, assuming that exchange rate changes have an identical effect on relative market shares as export price changes (in foreign currency).[15/]

The IMF-sponsored agreement of December 1971 appreciated the Japanese yen by 17 per cent relative to the U.S. dollar. Ignoring the effects of accompanying changes in the exchange rates of other countries which are also destination markets of Philippine exports (to be sure, much less important), how much increase in the ratio of Japanese to U.S. shares of Philippine exports can be attributed to the 17 per cent depreciation of the dollar relative to the yen on the basis

of the above estimates of substitution elasticities?

The distribution of the total value of Philippine exports to Japan and the United States during 1972-1973 suggests the following weighted average elasticity values corresponding to the set of estimates previously presented for 1962-1969: 1.64, 1.77 and 2.00. They indicate a more significant response of total exports than has been observed in the earlier period, which is attributable to the increased shares of non-principal exports and the seven principal export commodities with greater than unitary elasticities. 16/ Going by the above range of estimates, we would attribute to the major currency realignment of 1971 a shift in Philippine exports from the United States to Japan anywhere from 28 per cent to 34 per cent in terms of relative value shares of these two dominant export markets; volumewise, the induced redirection of exports is estimated to be from about 11 to 17 per cent.

In the light of the foregoing, it is perhaps not a coincidence that in 1973 Japan became the country's leading export market for the first time, replacing the United States which historically has accounted for the largest share of annual export earnings of the Philippines. From 1972 to 1973 alone, the Japanese share of the value of total

Philippine exports increased by 33.4 per cent relative to the U.S. share. The above results would seem to suggest that changes in relative exchange rates rather than in export prices (expressed in foreign currency) have been responsible for much of the recent shifts in Philippine export trade with Japan and the United States.

## 4. Concluding Remarks

The present study has investigated the substitution effect of changes in the relative exchange rates of the currencies in the Philippines' principal export markets, demonstrating the likelihood of an appreciable influence of this new form of international economic disturbance on the geographical distribution of exports in a small LDC. A related consideration for exchange rate policy is that, apart from such redirection of LDC export flows, major currency realignments would also influence the level of exports if the "effective" exchange rate [17] of the LDC currency vis-á-vis the currencies in the destination markets on the average were altered. Furthermore, the repercussions on the magnitude and direction of import flows in the focus country needs to be taken into account in the estimation of its trade balance impact.

Another useful area of inquiry concerning this type of economic disturbance is its implication on domestic prices, in recognition of the

potential role of major currency realignments as an international transmission mechanism for the spread of inflation and alteration in the structure of prices in small, open economies. The induced changes in the prices of exported and imported goods (in terms of the domestic currency) will affect directly and indirectly the domestic prices of both tradable and non-tradable goods in varying magnitude and direction.

Finally, it might also be fruitful to examine the changes in the pattern of income flows in the sectors affected by the currency realignment in terms of the gains and losses of the importing and exporting industries as a result of the altered sets of prices and trade flow magnitudes. The identification and assessment of the primary and secondary income effects might be undertaken with a view to discerning the net effect on national output, employment and growth (through the differential effect on sectoral savings) of the price-induced adjustments in resource allocation.

# FOOTNOTES

*The authors are Associate Professor and Assistant Professor, respectively, at the University of the Philippines School of Economics. This paper is part of a larger study on Philippine trade with the United States and Japan being conducted by the authors with financial support from a Rockefeller Foundation research grant to the School of Economics faculty. Lucille Mamon, Elizabeth King and Carson Ho provided data-gathering, computational and programming assistance. The regressions were done at the U.P. Computer Center.

[1]The empirical findings of Junz and Rhomberg (1973) on price competitiveness in export trade among industrial countries are consistent with this assumption.

[2]See Bautista and Tecson (1974).

[3]See, for example, Naya and Morgan (1969); for a recent discussion of the reasonableness of such a margin in judging the accuracy of Southeast Asia trade data, see Luey (1970) and Morgan, Naya and Colosi (1970).

[4]See, for example, Kravis and Lipsey (1971), they recommend that between unit values and wholesale prices the latter should be preferred. On the other hand Junz and Rhomberg (1973), in their study of export competitiveness among developed countries, find that export-weighted unit values yield more satisfactory empirical results than wholesale prices.

[5]Examples of variations in units of measurement used are kilos, dozens, pieces, etc.

[6]These are the export commodities which have appeared in the ten principal exports lists of the Central Bank of the Philippines in any year from 1962 to 1969.

[7]Cf. Bautista and Tecson (1974; pp. 60-80).

[8]Preliminary regressions using the linear rather than the double-log specification yielded statistically inferior results.

[9]I.e., the t-ratio has to be at least 1.94, representing the critical value at a 5 per cent level of significance using the one-tailed test.

[10]This implies that the substitution elasticity in quantity terms is much larger than unity.

[11]Twenty 4-digit commodity items comprise the non-principal export group for which the relevant data were found adequate for regressions with a one-year lag for the price variable.

[12]This is probably due in part to the use of unit export values from Philippine data to proxy for the corresponding partner country data for export items lacking quantity figures in the latter data set.

[13]This is as follows:

$$X_i = -3.22 + \underset{(2.24)}{1.96}\, P_1 + \underset{(3.96)}{.42}\, t \qquad \bar{R}^2 = .638$$

[14]Even so, greater than unitary elasticity in quantity terms is implied by the estimates for the non-principal exports.

[15]The publicity that goes with major currency realignments may lead to a more significant response than that to price changes in general.

[16]Their joint contribution increased from 37.2 to 54.8 per cent.

[17]As argued by Sheahan and Clark (1967), the exchange rate has to be deflated by a measure of domestic cost in the evaluation of its influence on the level of a country's exports.

**APPENDIX TABLE 1:** Ratio of F.O.B. to C.I.F. Values of Philippine Exports to Japan, 1967-1969

| SITC NO. | Commodity Description | 1967 | 1968 | 1969 | Average (1967-1969) |
|---|---|---|---|---|---|
| 001 | Live animals | - | .9334 | - | .9334 |
| 012 | Meat, dried, salted | .9631 | .9426 | .9614 | .9557 |
| 013 | Meat preparations | .9770 | .9496 | .8760 | .9342 |
| 022 | Milk and cream | - | .9843 | .9252 | .9548 |
| 024 | Cheese and curd | .9868 | - | - | .9868 |
| 025 | Eggs | - | - | .9690 | .9690 |
| 029 | Dairy product | .9979 | .9719 | .9748 | .9815 |
| 031 | Fish fresh | .7956 | .7834 | .7135 | .7642 |
| 032 | Fish preparations | .9030 | .8922 | .8919 | .9001 |
| 042 | Rice | .9675 | .8977 | .9051 | .9234 |
| 048 | Cereal preparations | .9180 | .9247 | .9051 | .9159 |
| 051 | Fresh fruits & nuts | .8026 | .7967 | .7012 | .7668 |
| 052 | Dried fruits | .8517 | .8760 | .8405 | .8561 |
| 053 | Fruits preserved & fruit preparations | .8067 | .8590 | .8772 | .8476 |
| 054 | Veg. fresh & dry | .7488 | .7795 | .7652 | .7645 |
| 055 | Veg. preserved and preparations | .8404 | .8793 | .8710 | .8636 |
| 061 | Sugar | .8837 | .8803 | .8709 | .8783 |
| 062 | Sugar confec. | .9544 | .9389 | .9482 | .9472 |
| 071 | Coffee | .9833 | .9696 | - | .9765 |
| 072 | Cocoa | .9700 | .9694 | .9771 | .9722 |
| 073 | Chocolate preparations | .8302 | .9788 | .9630 | .9706 |
| 081 | Feeding stuff for animals | .7666 | .6903 | .6576 | .7048 |
| 091 | Marg. & shortening | .9208 | .9496 | .9372 | .9359 |
| 099 | Food preparations | .7244 | .7835 | .8305 | .7795 |
| 111 | Non-alcoholic beverages | .7905 | - | .8270 | .8088 |
| 112 | Alcoholic beverages | .8391 | .8548 | .8579 | .8506 |
| 121 | Tobacco unmanufactured | .8919 | .8994 | .9309 | .9074 |
| 122 | Tobacco manufactured | .9701 | .9694 | .9715 | .9703 |
| 211 | Hides and skins | .9201 | .9019 | .9057 | .9092 |
| 221 | Oil seeds, oil nuts, oil kernels | .8743 | .8355 | .8008 | .8369 |
| 231 | Crude rubber | - | .8760 | .9836 | .9298 |
| 241 | Fuelwood & charcoal | .4863 | .4971 | .4871 | .4902 |
| 242 | Wood in the round or square | .7360 | .6667 | .6518 | .6848 |

| SITC | Commodity Description | 1967 | 1968 | 1969 | Average (1967-1969 |
|---|---|---|---|---|---|
| 243 | Wood, shaped | .7256 | .7073 | 7226 | .7185 |
| 251 | Pulp & waste paper | - | .8866 | .8887 | .8877 |
| 263 | Cotton | .8063 | .7337 | - | .7700 |
| 264 | Jute | .7927 | - | - | .7927 |
| 265 | Vegetable fibers | .7539 | .7432 | .7661 | .7544 |
| 266 | Synthetic & artificial fibers | .8838 | .7039 | .7336 | .7738 |
| 271 | Fertilizers crude | - | .7453 | - | .7453 |
| 272 | Crude minerals | .9131 | .6228 | .7692 | .7684 |
| 281 | Iron ore & concen. | .5212 | .4288 | .3363 | .4288 |
| 282 | Iron & steel scrap | .8897 | .7645 | .7143 | .7895 |
| 283 | Ores of non-ferrous metals | .8697 | .8139 | .8322 | .8386 |
| 284 | Non-ferrous Metal scrap | .9754 | .8553 | .8079 | .8795 |
| 285 | Silver & platinum ores | .8388 | .9347 | .9541 | .9092 |
| 291 | Crude animal materials | .9421 | .9289 | .9408 | .9373 |
| 292 | Inedible crude vegetable materials | .8525 | .8644 | .8798 | .8656 |
| 313 | Petroleum products | .3708 | .3865 | .4377 | .3983 |
| 314 | Gas, natural and manufactured | .4133 | .5580 | .5449 | .5054 |
| 411 | Animal oils & fats | - | - | .9764 | .9764 |
| 412 | Vegetable oils | .9432 | .9201 | .9275 | .9308 |
| 413 | Oils & fats processed | .7932 | .8643 | .8800 | .8458 |
| 511 | Inorganic chemicals | .9588 | .9798 | .9814 | .9733 |
| 512 | Organic chemicals | .9323 | .9330 | .9134 | .9262 |
| 513 | Inorganic chem., elements, oxides | .9842 | .9977 | - | .9910 |
| 531 | Coaltar dye indigo | .9931 | - | - | .9931 |
| 533 | Pigments, paints | .9514 | .8883 | .9502 | .9300 |
| 541 | Medicinal and pharmaceutical | .9779 | .9817 | .9747 | .9781 |
| 551 | Essential oils, perfumes | .9928 | .9824 | .9615 | .9788 |
| 552 | Perfumery, cosmetics, soap | .8807 | .9501 | .8044 | .8784 |
| 561 | Fertilizers, manufactured | .9680 | .8048 | .7101 | .8276 |
| 591 | Explosives | .9778 | .9118 | - | .9448 |
| 599 | Misc. chem. materials | .9474 | .9166 | .8906 | .9182 |
| 612 | Leather and manfts. | - | - | .9913 | .9913 |

| SITC | Commodity Description | 1967 | 1968 | 1969 | Average (1967-1969) |
|---|---|---|---|---|---|
| 621 | Rubber fabric materials | .9647 | .9267 | .9528 | .9481 |
| 629 | Rubber manfts. n.e.s. | .9828 | .9739 | .9427 | .9665 |
| 631 | Veneer, plywood | .9964 | .7946 | .7825 | .8578 |
| 632 | Wood manfts. n.e.s. | .9567 | .9682 | .9574 | .9608 |
| 641 | Paper & paper board | .9196 | .9431 | .9776 | .9468 |
| 642 | Articles of pulp paper | .9816 | .9799 | .9742 | .9786 |
| 651 | Textile yarn & thread | .9928 | .9253 | .9839 | .9673 |
| 652 | Cotton fabric | .9009 | .9399 | - | .9204 |
| 653 | Textile fabrics other than cotton | .9819 | .9866 | .9841 | .9849 |
| 654 | Tulle, lace, embroidery | .9827 | .8982 | .9842 | .9550 |
| 655 | Special textile fabric | .8988 | .9012 | .8783 | .8928 |
| 656 | Made-up articles of textile materials | .9659 | .9649 | .9802 | .9703 |
| 657 | Floor coverings | .9009 | .9273 | .9357 | .9213 |
| 661 | Lime, cement | .6445 | .8065 | .5748 | .6753 |
| 662 | Clay construction materials | .7938 | .8232 | .8507 | .8226 |
| 663 | Mineral manufactures | - | .9928 | - | .9928 |
| 664 | Glass | .8978 | .8178 | - | .8578 |
| 665 | Glass vase | .8578 | .8718 | .8972 | .8756 |
| 666 | Pottery | - | .9545 | - | .9545 |
| 671 | Silver, gold, platinum, metals | .9783 | .9775 | .9758 | .9772 |
| 672 | Precious & semi-precious stones | .9709 | .9994 | .9993 | .9899 |
| 673 | Jewelry & goldsmith | .9799 | .9698 | .9916 | .9804 |
| 681 | Iron & steel | .8945 | .9416 | .8630 | .8997 |
| 682 | Copper | .9863 | .8810 | .9486 | .9386 |
| 684 | Aluminum | .9730 | .9704 | .9794 | .9743 |
| 686 | Zinc | - | - | .9624 | .9624 |
| 691 | Ordnance | .7383 | .9542 | .9844 | .8923 |
| 699 | Metal manfts. | .9403 | .9479 | .9587 | .9490 |
| 711 | Power generating machinery exc. electronic | .9128 | .9979 | - | .9554 |
| 712 | Agric. machinery and implements | .9158 | - | .9728 | .9443 |
| 713 | Tractors | .9782 | .9589 | - | .9686 |
| 714 | Office machines | .9375 | - | .9813 | .9594 |
| 715 | Metalworking machinery | .9822 | .8696 | - | .9259 |

| SITC | Commodity Description | 1967 | 1968 | 1969 | Average (1967-1969) |
|---|---|---|---|---|---|
| 716 | Mining construction machinery | .9511 | .9586 | .9590 | .9562 |
| 721 | Electric machinery | .8357 | .9680 | .7779 | .8605 |
| 732 | Road motor vehicles | .8999 | .9748 | .9578 | .9442 |
| 733 | Road vehicles other than motor | .9818 | .9709 | - | .9764 |
| 735 | Ships and boats | .9902 | .9619 | - | .9761 |
| 811 | Prefab. bldgs. & panels | .9112 | .9687 | .9537 | .9445 |
| 812 | Sanitary, plumbing, heat | .9699 | .9789 | .9447 | .9645 |
| 821 | Furniture & fixtures | .9225 | .9627 | .9686 | .9513 |
| 831 | Travel goods and handbags | .9674 | .9756 | .9856 | .9762 |
| 841 | Clothing except fur clothing | .9308 | .9625 | .9782 | .9572 |
| 851 | Footwear | .9515 | .9632 | .9005 | .9384 |
| 861 | Scientific, medical, optical instruments | - | .9901 | - | .9901 |
| 862 | Photographic and cinema supply | .9371 | - | .9961 | .9666 |
| 863 | Exposed cinema films | .9306 | .9858 | .9473 | .9546 |
| 891 | Musical instruments | .9610 | .9892 | .9919 | .9807 |
| 892 | Printed matter | .7129 | .7549 | .6479 | .7052 |
| 899 | Manufactured articles | .9376 | .9410 | .9372 | .9386 |
| 921 | Live animals not for food | .5676 | .5941 | .7444 | .6354 |
| 931 | Returned goods and special transactions | .9620 | .9518 | .9649 | .9596 |

Source of basic data: Foreign Trade Statistics of the Philippines, Bureau of the Census and Statistics, Manila.

**APPENDIX TABLE 2: Major Imports of Japan from the Philippines Based on Japanese Data (f.o.b. values in thousand U.S. dollars)**

| ITC CODE | Commodity Description | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1962-69 |
|---|---|---|---|---|---|---|---|---|---|---|
| 311 | Fish, fresh, chilled or frozen | - | 1 | 31 | 30 | 72 | 277 | 72 | 357 | 840 |
| 313 | Crustacea, etc. | - | 43 | 30 | 21 | 99 | 219 | 266 | 678 | |
| 517 | Desiccated coconut | 5 | 25 | 8 | 38 | 128 | 700 | 785 | 395 | 2084 |
| 539 | Canned pineapple | 224 | 355 | 477 | 426 | 473 | 866 | 1177 | 1344 | 5342 |
| 615 | Molasses | 4108 | 6219 | 11529 | 9911 | 7330 | 10792 | 12041 | 11508 | 73438 |
| 119 | Hides & skins, n.e.s. | 5 | 34 | 27 | 25 | 19 | 12 | 17 | 57 | 196 |
| 212 | Copra | 1602 | 5980 | 4334 | 7030 | 7384 | 11790 | 9308 | 6059 | 53487 |
| 412 | Wood charcoal | 139 | 89 | 49 | 54 | 147 | 28 | 214 | 147 | 867 |
| 420 | Wood in the rough | 82768 | 105132 | 94199 | 105626 | 137559 | 157737 | 160268 | 178831 | 1022120 |
| 430 | Wood, shaped, or simply worked | 14 | 279 | 57 | 34 | 249 | 813 | 925 | 945 | 3316 |
| 655 | Abaca, unmanufactured | 5438 | 7759 | 7235 | 5702 | 4220 | 3472 | 2846 | 3135 | 39807 |
| 813 | Iron Concentrates | 7463 | 7051 | 7329 | 7513 | 8310 | 7594 | 8769 | 8823 | 62852 |
| 840 | Non-ferrous metal scrap | 486 | 785 | 1453 | 1018 | 3157 | 2279 | 1421 | 1434 | 12033 |
| 831 | Copper Concentrates | 17985 | 21305 | 24582 | 33271 | 50750 | 56944 | 71869 | 105807 | 382513 |
| 911 | Bones, ivory, horns, etc. | 6 | 15 | 23 | 67 | 105 | 145 | 267 | 459 | 1087 |
| 923 | Veg. materials for plaiting | 3 | 2 | 1 | 533 | 1 | 1 | 1 | 2 | 544 |
| 929 | Other veg. materials | - | - | - | - | 216 | 40 | 50 | 18 | 324 |
| 122 | Alcohols, phenol, etc. | 177 | 533 | 512 | 934 | 366 | - | 374 | 174 | 3070 |
| 410 | Pharmaceutical products | - | - | - | - | - | - | - | - | - |
| 811 | Veneer | - | 9 | 13 | 35 | 129 | 644 | 714 | 419 | 1963 |
| 656 | Cordage, ropes | 66 | 62 | 21 | 13 | 28 | 3 | 11 | 68 | 272 |
| 910 | Special transaction | 5 | - | 40 | 131 | 1488 | 5663 | 3021 | 4552 | 14900 |
| | Subtotal | 120494 | 155635 | 151963 | 172421 | 222152 | 259899 | 274369 | 324800 | 1681733 |
| Total | Japanese Imports from the Philippines | 127664 | 160858 | 159238 | 181235 | 232922 | 270707 | 288678 | 342426 | 1781344 |

# APPENDIX A

## Iron Ore (SITC 2813)

Freight rates explain largely the high degree of concentration of Philippine exports of iron ores to Japan. The f.o.b.-c.i.f. ratio of .4288 indicates that iron ore freight charges run to more than 50 per cent of total cost. That freight cost is a strong determinant of geographic concentration is also evident from the observed regional concentration in world iron ore export trade. Japan, being one of the largest steel producer in the world, is the sole importer of the ECAFE region's export supplies of this commodity, 95 per cent of her total iron requirements supplied from foreign sources. On the other hand, the United States, another large net importer of iron ores, gets most of her foreign supplies from nearby sources like Canada, the Latin American republics especially Venezuela, and other Africa.

## Logs (SITC 2423)

While Japan is not an exclusive importer of Philippine logs, nevertheless she absorbs such a dominant share (from 80 to 90 per cent of the total) that comparatively speaking the U.S. market share appears negligible. Factor endowments and relatively heavy freight charges can explain to a large extent the present market concentration of Philippine logs to Japan. Relatively few countries are major exporters of tropical hardwoods, so that a little over half of Japanese import requirements of sawn-veneer logs (non-conifer) is met by Philippine exports. The United States also happens to be an important net exporter of logs, especially to the Japanese market, although specializing in the conifer variety.

Again freight charges can explain why log trade is characterized by regional concentration: for instance log trade in tropical hardwoods is narrowly confined to flows from West Africa to Europe, from insular Southeast Asia (Philippines, Sarawak, Sabah) to Japan and East Asia (i.e. Taiwan, Republic of Korea and Hongkong). Practically no such trade in log exists between West Africa and Japan and flows from Southeast Asia to Europe is comparatively smaller than that between West Africa and the European countries. It is estimated that 30 to 40 per cent of the c.i.f. cost of logs from West Africa into Europe is explained by transport cost. A similar figure (about 32 per cent) can be derived from the f.o.b.-c.i.f. ratio of Philippine log exports to Japan

(cf. Appendix Table 1). Like iron ore exports where transport cost is a major determinant in regional concentration of trade, the scope for substitution between the United States and Japan with shifts in relative prices is very limited.

Sugar (0611, 0612)

The United States has been traditionally an exclusive outlet for Philippine exports of centrifugal and refined sugar. This stems quite naturally from the privileged position accorded the Philippines in the U.S. sugar market. By virtue of the U.S. Sugar Act, sugar quotas have been assigned to different foreign producers of sugar, thus determining largely their individual shares of the American market. The biggest quota assignment has been received by the Philippines, especially after U.S. diplomatic relations with Cuba were severed. Aside from such quantitative encouragement to sugar exports, the other most important provision is the exemption of Philippine sugar exports to the United States from duty until January 1, 1956, after which progressive increases in rates are imposed every three years at 20, 40, 60, 80 and 100 per cent of the Cuban rates until July 4, 1974 (the date of termination of the Laurel-Langley Agreement), after which date only the Philippines will start paying the rate of full-duty countries. Other provisions have also given boost to Philippine sugar exports: in the event of failure of any domestic or foreign country to supply its quota, the Philippine quota is increased by a proportionate amount first, the remainder being allocated thereafter to Western Hemisphere countries with basic quota proration. Moreover the Philippine quota exports are exempt from the 'premium' rate on imports that replace such quotas granted due to a lack of diplomatic relations, a rate equal to the difference between the price in the U.S. that will fulfill the objectives of the Act and the price with which sugar is available for imports.

No such preferential treatment of bilateral trade agreement in sugar exists between Japan and the Philippines, so that virtually the entire Philippine sugar exports during the period had found its way to the United States to fulfill quota requirements.

Coconut oil, copra meal or cake (SITC 4223, 0813)

The country's coconut oil and copra meal or cake exports have been discriminated against in the Japanese market because of a deliberate import policy encouraging the influx of unprocessed rather than the processed imports, hence the relative preference for copra rather

than its two by-products. A specific duty of ¥4,80/kg. has been imposed on groundnut imports, while groundnut oil imports are discouraged by a duty of ¥30,00/kg. The preference for groundnut rather than coconut oil is not an isolated case either. A cursory examination of her trade statistics reveals heavy imports of copra substitutes such as soya beans excluding flour (221,4), cotton seed excluding flour (2216), linseed oil excluding flour, meal (221.5), and other oil seeds (221.8) from the United States, Canada and the U.S.S.R. Corresponding values of oil extract imports, that is of cotton seed oil, linseed oil, and other soft and non-soft fixed vegetable oils are minimal. Another point worth mentioning is that the comparatively lower value of coconut oil imports relative to other edible oils can probably be explained by a tariff rate that is higher for coconut oil by ¥2.00-6.00/kg.

On the other hand, practically all U.S. imports of copra and coconut oil come from the Philippines, a phenomenon that can again be explained by a preferential treatment received by Philippine coconut products in that country. For instance, copra of non-Philippine origin has been subject to an import tax of 1.25 cents per pound.

Plywood (SITC 6312)

Compared with her imports of unprocessed wood (i.e., SITC 242: Wood, rough, in the round or square) Japan's imports of Philippine plywood are negligible. In fact Japan is a large net exporter of plywood selling mostly to the United States and to Western Europe, even if 84 per cent of her total wood raw materials have to come from imported logs. For instance, the value of Japanese plywood exports in 1967 was almost thrice that of the Philippines: $6.8 million vs. $2.34 million. This is again an offshoot of an import policy similar to that cited earlier in the case of coconut oil and copra meal or cake, i.e., her predilection for unprocessed imports over that of processed by-products. Indeed the Japanese import pattern is a striking feature of trade in tropical hardwood plywood and veneer, that is, about one-half of world exports come from non-tropical countries which manufacture them from imported logs. Examples other than Japan are Taiwan and South Korea.

Inspite of the United States' being herself an important source of wood products she is the Philippines' biggest market for plywood, being responsible for more than 95 per cent of our exports of plywood. These are however, varieties which are not directly competitive with her own exports of the conifer type.

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