Does Japan Import Less Than It Should?

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Conflicting studies on Japan's imports of manufactures leave open
the question of whether the country's import volume is lower than
normal.

Japan's continuing large current account surpluses have promoted a series of investigators to examine the volume and the structure of the goods that Japan imports.

The usual charge is that Japan's level of manufactured imports is too low and that it is low because Japan has erected a wall of trade barriers that limits access by foreign suppliers of manufactured goods. Recent studies have looked at this question to see if Japan's overall imports are lower than they should be, and specifically if Japan imports fewer manufactures than other industrial countries.

A review of the econometric literature gives diverse results. Gary Saxonhouse, Luca Barbone, Marcus Noland, and C. Fred Bergsten and William Cline found no strong evidence that Japanese imports are abnormally low when

allowances are made for economic circumstances. But other economists came to the opposite conclusion. Bela Balassa, Kazuo Sato, and Robert Z. Lawrence concluded that Japanese imports were distinctly lower than other countries. Geoffrey Carliner tended to support the latter group.

IJapan does import a lower volume of manufactures, why is that so? Is it because of trade and tariff barriers, the Japanese marketing system, or the tastes of Japanese consumers? None of the studies resolved these questions.

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DOES JAPAN IMPORT LESS THAN IT SHOULD?

A REVIEW OF THE ECONOMETRIC LITERATURE

I. Introduction

1.   Since the late 1960s, J pan has been running a surplus on its current account, except for the two brief periods (1973-75 and 1979-C0) when oil prices rose sharply (Table 1). Moreover, the size of the surplus has been rising since 1981, reaching $87 billion in 1987. Japan's merchandise trade balance has been in surplus without interruption and has been similarly growing, reaching $96 billion in 1987. The growing current account surplus of Japan has led to an increasing concern that Japan may be exporting too much while it imports too little.

2.   Table 2 shows the ratio of exports of goods and nonfactor services to GNP for selected industrial countries for the years 1970, 1980, and 1984-1986. The ratio for Japan has been consistently lower than for every rther country shown except for the United States. Having similarly compared the ratio of manufactured exports to the manufacturing component of GNP among the industrial countries, Kazuo Sato reached the following conclusions: "Japan has not exported too much. Its export ratio is the second lowest, next to the U.S.." 1/

3.   Does Japan, then, import too little? While Japan's ratio of imports to GNP has remained consistently higher than that of the United States since

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1/ Sato (1986).

Table 1. External Balance of Japan: Current Account,
Merchandise Exports and Imports, 1968-1987

Billions of US Dollars

Year	Merchandise Exports	Merchandise Imports	Trade Balance	Current Balance
1968	12.8	10.2	2.5	1.0
1969	15.7	12.0	3.7	2.1
1970	19.0	15.0	4.0	2.0
1971	23.6	15.8	7.8	5.8
1972	28.0	19.1	8.9	6.6
1973	36.2	32.5	3.7	-0.1
1974	54.4	53.1	1.4	-4.7
1975	54.7	49.7	5.0	-0.6
1976	66.0	56.2	9.8	3.7
1977	79.2	62.0	17.2	10.9
1978	95.3	71.0	24.3	6.5
1979	101.1	99.4	1.7	.7
1980	126.7	124.6	2.1	-10.8
1981	149.5	129.6	20.0	4.8
1982	137.7	119.6	18.1	6.9
1983	145.5	114.0	31.5	20.8
1984	168.3	124.0	44.3	35.0
1985	174.0	118.0	56.0	49.2
1986	205.6	112.8	92.8	65.8
1987	224.4	128.0	96.5	86.7

Source: Bank of Japan, Economic Statistics Monthly,
various issues.

Table 2. Ratio of Exports to GNP, Selected
Industrial Countries, 1970, 1980, 1984-86 a/
(Unit: Percent)

Country	1970	1980	1984	1985	1986
Japan	10.8	13.7	15.1	14.6	11.7
Australia	14.7	16.4	16.4	16.4	16.8
Austria	31.2	37.1	39.2	40.8	37.1
Belgium	51.5	61.0	78.3	76.1	69.2
Canada	23.1	29.2	29.5	29.3	28.3
Denmark	28.0	33.5	38.7	38.3	33.2
Finland	25.9	33.5	31.1	29.7	27.1
France	15.7	21.4	24.3	24.1	21.6
Germany, FR	21.2	26.4	30.5	32.4	30.0
Italy	15.4	21.7	23.2	23.2	20.4
Netherlands	44.6	52.6	62.2	63.7	54.1
Norway	42.1	48.9	48.7	47.8	38.3
Sweden	24.1	30.0	37.0	36.2	33.7
Switzerland	31.6	35.3	35.6	36.9	35.0
United Kingdom	23.1	27.7	28.9	29.2	26.2
United States	5.8	10.0	7.5	7.0	6.9

a/ Exports of goods and nonfactor services.

Source: The World Bank, World Tables 1987, 4th ed., 1988

1966 (except for 1986), it has remained distinctly lower than those for other major industrial countries (Table 3). It is widely presumed that it is natural for the United States to have a lower ratio than Japan because (a) the United States has a larger economy and (b) it has a more abundant per capita endowment of natural resources. In contrast, because of its poor endowment of natural resources, Japan must import larger volumes of raw materials, fuels and food per unit of GNP than the United Sates. If we accept these hypotheses for the moment (more on these below), Japan should have a higher ratio of (total) imports to GNP than the United States. Thus, it does appear prima facie that, compared with most other industrial countries, Japan imports too little for its size of GNP.

4.   Why Japan's current account surplus has become so large is basically a macroeconomic question and therefore has macroeconomic explanations. The widening current account surplus has been accompanied by a growing outflow of long-term capital, which reached $137 billion in 1987. A widely accepted explanation for this growing current account surplus is that it is an inevitable counterpart of the Japanese tendency to "oversave." In other words, to the extent that the excess saving over investment in the private sector is not offset by a fiscal deficit in the government sector, there should necessarily be a current account surplus in the balance of payments ex post.

5.   Savings-investment balances in Japan have undergone dramatic changes in the last quarter century as indicated below:

Japan: Savings-Investment Balance, Average Percentage Ratio to GNP

	Net Savings			
Period (FY)	Private Sector	Government Sector	Trade Surplus	Discrepancy
1960-74-1.17	+ 53	+0.36	+0.06	
1975-80+4.23	-4,15	+0.32	-0.23	
1981-85+4.22	-2.80	+1.90	-0.48	

(Source: Lincoln, 1988, pp. 72-77)

In short, until early 1970s, a persistent negative net saving in the private sector was marginally more than offset by a positive net saving in the government sector with the current account running a marginal surplus. In the second half of the 1970s, however, the private sector balance turned to a substantial surplus (because of a sharp fall in the investment level), while the government sector balance turned to a deficit of almost equal proportion, with the current account balance remaining marginally positive. In the 1980s, the government deficit was substantially reduced while the private sector surplus remained high. At the same time, the current account surplus expanded dramatically. One important part of the story here is the liberalization of external financial transactions since 1978, which has permitted a growth in capital outflows. 1/

6.   The above "explanation", however, is not to be interpreted to mean that the "oversaving" has caused the current account balance surplus. The relationship is not a unidirectional, causal relationship. The identities only indicate ex post accounting relationships between the internal and external

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1/ See Lincoln (1988).

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Table 3. Ratio of Imports a/ to GNP, Selected
Industrial Countries, 1966, 1970, 1980, 1984 -1986
(Unit: percent)

Country	1966	1970	1980	1984	1985	1986
Japan	9.0	9.5	14.6	12.4	11.2	7.6
Australia	15.7	14.8	18.4	18.7	19.5	18.7
Austria	26.6	30.2	39.1	39.0	40.6	36.2
Belgium	44.9	49.0	63.5	76.6	73.7	65.3
Canada	20.0	20.5	27.3	25.7	26.7	27.0
Denmark	30.0	31.0	34.6	37.3	37.9	33.4
Finland	21.6	27.2	34.3	28.5	28.7	25.8
France	12.7	14.9	22.6	23.6	23.5	20.6
Germany, FR	17.5	19.1	27.0	28.2	28.9	24.9
Italy	12.5	15.0	24.4	23.4	23.5	18.7
Netherlands	42.8	46.3	53.1	57.0	58.8	50.0
Norway	42.8	43.4	42.6	39.3	39.5	41.8
Sweden	22.0	24.7	32.0	33.1	33.9	30.2
Switzerland	28.6	33.3	38.7	35.9	36.5	34.0
United Kingdom	19.5	22.2	25.3	29.1	28.2	27.0
United States	4.7	5.4	10.5	10.3	10.0	10.2

a/ Imports of goods and nonfactor services.

Source: The World Bank, World Tables 1987, 4th ed., 1988

macroeconomic balances. In fact, these variables are all determined simultaneously, in a general equilibrium framework, including other important variables such as GNP, terms of trade, exchange rates and price levels. 1/

7.   Even if the question is redirected, to whether or not Japan imports too little compared to its GNP rather than its exports, the question remains. Does it import too little because the access to Japan's market is limited by official and/or unofficial barriers, or because there

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1/ See Lincoln (1988), p. 71 and Turner (1986).

are other economic and noneconomic factors that are responsible for it?
Undisputably, there have been extensive barriers to limit the imports of
agricultural products into Japan. 1/ It is equally well accepted that
imports of non-agricultural primary products (fuels and minerals) have
been relatively free of barriers in Japan for decades, with the notable
exception of coal. Setting aside agricultural and other primary products,
then, is the level of Japan's manufactured imports too low? It is often
alleged that it is too low, and that it is because the market access for
manufactured imports is limited by official and unofficial barriers.

8.   Is the import behavior of Japan distinctly different in this
sense from those of other countries? This question has been investigated
by a number of researchers through econometric methods since the early
1980s. The purpose of this note is to review the results of these
investigations which have shown astonishing diversity in their
conclusions. Among these studies, Gary R. Saxonhouse (1982, 1983, 1985,
and 1986), C. Fred Bergsten and William R. Cline (1985), Luca Barbone
(1988) and Marcus Noland (1987) came to the conclusion that Japan's import
behavior is not significantly different from those of other countries when
allowances are made for differences in relevant economic circumstances.
They found no strong evidence to support the allegation that Japanese
imports were abnormally low in distinction to the comparators. In
contrast, some other investigators came to an opposite conclusion. Bela
Balassa (1986b, 1988), Kazuo Sato (1986) and Robert Z. Lawrence (1987)
concluded that Japanese imports were distinctly lower than the norm set by
other countries, even when allowances were made for relevant economic

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1/ See, for example, Delbert Fitchett (1988).

circumstances. In addition, Geoffrey Carliner (1985) found modest
evidence to support a similar conclusion.

9.   Broadly speaking, these studies can be classified into three
types in terms of methodologies/approaches used. The first type of study
is based on the factor endowment theory of trade (the Heckscher-Ohlin
type). This type is represented by the series of studies undertaken by
Saxonhouse (1982, 1983, 1985, 1986). Edward E. Leamer's studies (1984,
1987) would also fall in this category. However, Leamer's   .es will
not be reviewed here because they aim at a much broader objective, i.e.,
finding empirical relevance of the Heckscher-Ohlin theory of international
trade, and thus have relatively little to say about the level of imports
of Japan.

10.   The second type may be called the Chenery type, and includes the
studies undertaken by Bergsten/Cline (1985), Sato (1986), Balassa (1986b,
1988) and Barbone (1988). The methodology used in these studies follows
that cf Hollis Chenery's study of the patterns of industrial growth. 1/
No particular trade theory is formally used as a basis for the empirical
investigation, although various hypotheses are posed and tested on the
factors that influence the level and structure of trade.

11.   The third type of studies is based on the theory that attempts to
explain the development of intra-industry trade. This theory explains
intra-industry trade in terms of imperfect competition, economies of
scale, and product differ ziation, all of which are assumed away in the

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1/ Chenery (1960). Chenery also used the same approach in his latest study
 of industrialization. See Chenery, Robinson and Syrquin (1986).

Heckscher-Ohlin trade model. 1/ Carliner (1985), Noland (1987), and Lawrence (1937) fall in this category.

12.   The precise objects of econometric investigations of these studies were varied. Some studies attempted to determine whether the level of total imports in Japan was unusually low, relative to comparator countries, while some other studies were primarily concerned with the level of manufactured imports of Japan. Yet, some others investigated both of these issues. Furthermore, some studies compared Japan's performance with other industrial countries, while some others compared Japan with mixed groups of industrial and developing countries.

13.   Table 4 summarizes the key characteristics and conclusions of the studies reviewed below. The order of review is generally based on the chronology of publication, but partly modified by the typology explained above.

II.   Saxonhouse (1982, 1983, 1985, 1986)

14.   Saxonhouse (1982) estimated a Heckscher-Ohlin (H-O) type model of trade involving 109 product categories, for a sample of 9 countries

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1/ The growing empirical relevance of intra-industry trade among the
industrial countries was first pointed out by Bela Balassa (1966), who
hypothesized that economies of scale, imperfect competition and product
differentiation were the basis for the growth of such trade. Based on the
Dixit-Stiglitz (1977) analysis of monopolistic competition, Krugman (1979,
1980, 1982) and Dixit and Norman (1980) developed rigorous theoretical models
to explain the basis for intra-industry trade. Lancaster (1980) and Helpman
(1981) also developed a similar but somewhat different approach. For a
convenient review of the development of the economics of intra-industry
trade, see Greenaway and Milner (1986). As a short-hand expression for these
theories, we will refer to the Helpman-Krugman (H-K) model below.

Table 4. Summary Features of Econometric Studies of Japan's Trade Barriers

Author(s) of Study	Time Period	Countries in Sample	Level of Aggregation	Dependent Variable	Independent Variable	Model	Findings
Balassa (1986b)	1973-1983	18 Industrial	One economy wide sector, imports disaggregated by total manufacturing, primary, and by source; developing, industrial economies	Log import/GNP, Import/GNP	Log GNP/per capita, log population, primary imports/ total imports, transport costs	Stylized version of Chenery (1960) model	Significant dummy variables for Japan
Balassa-Noland (1988)	1973-1983	18 Industrial	One economy wide sector, imports disaggregated by total manufacturing, primary, and by source; developing, industrial economies	Log import/GNP, Import/GNP	Log GNP/ per capita, log population, primary imports/ total imports, transport costs	Stylized version of Chenery (1960)	Significant dummy variables for Japan
Barbone (1988)	1974-1983	23 OECD countries	One economy wide sector	Ratio of imports to GDP; Ratio of manufactured imports to GDP	Log per capita GNP; Log of population; Log squared population; Square GNP	Stylized version of Chenery (1960) model	Dummies negative and significant for 6 countries but not for Japan; For manufactured goods ratio, dummy is significant for Japan
Bergsten-Cline (1985, 1987)	1974-1984	11 Industrial countries plus EEC as a single group	One economy wide sector	Import/GNP	Log GNP, log crude oil production per capita log arable land per capita, transport costs, dummy for iron reserves	Stylized version of Chenery (1960) model	Insignificant dummy variable for Japan

Table 4. Summary Features of Econometric Studies of Japan's Trade Barriers (cont'd)

Author(s) of Study	Time Period	Countries in Sample	Level of Aggregation	Dependent Variable	Independent Variable	Model	Findings
Carliner (1985)	1967, 1972 1977, 1980, 1982	19 Industrial, developing	One economy wide sector	Index of intra-industry trade; trade balance	Log GNP per capita, log GNP, distance, absolute value of in manufactures	Helpman-Krugman	Negative but insignificant dummy variable for Japan
Lawrence (1987)	1970, 1980, 1983	13 Industrial	21 manufacturing sectors	Imports/total domestic use	Exports/Total OECD use; production/ total OECD production; distance	Helpman-Krugman	Generally significant Japanese dummies indicating underimporting of manufactures
Noland (1987)	1980	45 Industrial, developing, separately and together	One economy wide sector	Log imports, log exports,	Log GDP, log GDP per capita, factor endowment similarity index, transport costs	Stylized version of Heckscher-Ohlin and Helpman-Krugman	Insignificant dummy variables for Japan
Sato (1986)	1960, 1970, 1980	15 Industrial	One economy wide sector	Imports of one country as a share of imports of all 15 countries	Log population ratio of net imports of primary products to GDP in manufacturing	Chenery (1960) model	Japanese dummy significant

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Author(s) of Study	Time Period	Countries in Sample	Level of Aggregation	Dependent Variable	Independent Variable	Model	Findings
Saxonhouse (1983)	1959, 1962 1964, 1967, 1969, 1971 1973	9 industrial and developing	109 Sectors	Net trade	Capital, 2 varieties of labor, petroleum reserves, iron ore deposits, arable land, distance	Heckscher-Ohlin with factor price equalization normalized for factor quality	17 significant Japanese dummy variables out of 109 possible instances; covers 4.9% of total trade;
Saxonhouse (1985)	1964 1971, 1979	22 industrial and developing	109 Sectors	Net trade	Capital, 2 varieties of labor, petroleum reserves, iron ore deposits, arable land, distance	Heckscher-Ohlin with factor price equalization normalized for factor quality	61 out of 327 instances Japanese trade outside forecast interval; covers 6.1% of Japanese gross external trade; 39 out of 327 instances for Canada; 30 327 instances for United States

Source: Adpated from and expanded on Saxonhouse and Stern (1988), Table 5.

covering the years 1959, 1962, 1964, 1967, 1969, 1971 and 1973. Then,
Saxonhouse (1985) estimated the same model for a sample of 22 countries
for the years 1964, 1971 and 1979. We review the latter study below.

15.   Based on the H-O model (factor-endowment theory), he derived
equations in which net exports of each product were a function of six
factor endowments and the distance from trading partners. The regressions
were estimated excluding Japan from the sample. Actual Japanese values
were then compared to the values predicted by the estimated equations.
His conclusion was as follows: "In 327 commodity equations over three
years (i.e., 1964, 1971 and 1979), there are only 61 instances where
Japan's trade flows do fall outside the forecast interval ...(T)aken
together on average, they account for no more than 6.1% of Japan's gross
external trade." 1/ Among the 24 product categories 2/ that exhibited
"abnormal" results for Japan for at least one year, seven were
agricultural products (i.e., maize, unmilled; other cereals; bananas and
plantains; other fruits and nuts; saw/veneer logs (conifer); saw/veneer
logs (non-conifer); shaped wood; and silk) and four were non-agricultural
primary products (i.e., pearls, precious and semi-precious stones;
aluminum; zinc; and pulp and waste paper). Saxonhouse did not focus
exclusively on manufactured products.

16.   The Saxonhouse paper has several problems. First, the sample of
22 countries included several developing economies (such as Hong Kong,
Israel, Korea, Peru and Philippines). Given its level of development,
Japan should probably have been compared with other industrial countries.

1/ Saxonhouse (1985), pp. 21-22.

2/ The 61 instances involved only 24 product categories, because some
  products showed "abnormality" for more than one year.

17.   Second, the 6.1% figure assigned by Saxonhouse to the share of products in which Japanese behavior was unusual was "downwardly biased" because the import values of these products were presumably already suppressed by the trade barriers concerned. 1/

18.   Third, Saxonhouse's model assumed that trade policy did not affect the balance of trade, as he assumed that the balance of trade was largely determined by macro-economic factors. Saxonhouse, therefore, focused on the behavior of net exports instead of the level of imports itself. Balassa, however, asserted that the investment-saving balance is influenced by the balance of trade as well. 2/

19.   Fourth, Saxonhouse's variable for distance from trading partners was challenged by Balassa (1986b). Saxonhouse's model used seven factors as the variables to "explain" the trade structure -- production capital stock, labor, educational attainment, petroleum reserves, iron ore resources, arable land, and physical distance from trade partners. Balassa (1986b) asserted that transport costs rather than physical distance would be the better measure to represent the distance from trading partners.

20.   Fifth, Saxonhouse's country specific factor quality terms may have picked up the effects of protection of production factors, as argued by Balassa (1988). Staiger, Deardorff, and Stern (1987) found that protection was correlated with factor intensity. Therefore, one cannot distinguish factor quality and protection in Saxonhouse's model.

1/ Noland (1987), p.4.

2/ Balassa, (1986b), pp. 746-747.

III. <u>Bergsten and Cline (1985)</u>

21.   Following Chenery (1960), Bergsten and Cline (1985), using data

for eleven industrial countries plus the EEC as a region for the years

1974-1984, estimated the ratio of imports of goods and nonfactor services

to GNP as a function of income, population, natural resource endowments,

and transport costs incurred in importing goods from trading partners. In

this exercise, all EC member countries were grouped as one region, and

only the imports from outside the region were taken as EC imports. Data

on imports of goods and nonfactor services and on GNP were both in

national currencies. GNP data were in real terms at 1974 dollars as

adjusted for cross country differences in purchasing power. Based on the

regression analysis using these data, Bergsten and Cline concluded that

the ratio of imports to GNP for Japan was explainable by the size of GNP,

the natural resource endowments and the transport costs involved in

trading and that there was nothing abnormal in Japan's import behavior. 1/

22.   Several issues were raised with the study by Bergsten/Cline

(1985). First, the use of per capita income instead of GNP itself is

preferable. Second, combining all EC member countries into one "country",

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1/ The regression results obtained were as follows:

$$Z = 0.7731 - 0.0628 \log Y + 0.0100 \log P - 0.0378 \log L$$
       (28.4)   (26.2)   (7.57)   (7.25)
$$+ 0.0414 \ I - 0.00069 \ T + 0.0082 \ D_j, \quad R^2 = 0.8950,$$
        (3.96)   (9.7)   (0.47)

where Z is the ratio of imports of goods and nonfactor services to GNP, Y
is GNP in real terms at 1974 dollars, as adjusted for cross-country
purchasing power differences, P is crude oil production per capita, L is
arable land per capita, I is a dummy variable for presence of significant
iron ore reserves (1 if present, zero if not), T is the index of
transportation costs discussed above, D_j is a dummy variable for Japan (1
for Japan, zero otherwise), and log is the natural logarithm; t-
statistics are in parentheses. This equation is from annual data for
1974 through 1984, for the pool of 11 countries plus the EEC, giving 132
observations. See Bergsten and Cline (1985), p. 77.

or treating EC member countries effectively as one country, is a debatable point, as individual EC members had differnt trade measures in the data period. Third, averaging of the "transport costs" as obtained from the IMF data with air cargo rates was a duplication; the IMF data already included air cargo transport costs. Fourth, another possible issue is the purchasing power adjustment made to the GNP data. Although there may be some justification for this adjustment, the implications of this adjustment for the interpretation of results are not so clear (see para. 66, p. 32).

IV.   Balassa (1986b, 1988)

23.   Using essentially the same approach as Bergsten and Cline (1985), Balassa (1986b, 1988) reached an opposite conclusion. Balassa found that Japan was an "outlier" on the downside among industrial countries. In other words, when Japan dummies were added to the equations, regression results improved significantly and the negative coefficients of the dummies were statistically significant.

24.   Balassa (1986b, 1988) included 18 industrial countries in his sample. Instead of including the EC as a unit as had been done by Bergsten and Cline (1985), Balassa included the EC members as individual countries but used an EC dummy in each regression equation. He also used a dummy for EFTA. In his selection of countries, Balassa decided to include only countries which had per capita incomes of $2,200 or higher and a share of manufactured goods in total exports of at least 20 percent in 1973. Thus, New Zealand, high income oil-exporting countries and all developing countries were excluded.

25.   In order to account for the differences in natural resource
endowments, Balassa (1986b) used the ratio of primary imports to total
imports as an explanatory variable. This differs from Bergsten/Cline who
used crude oil production per capita, arable land per capita and a dummy
variable for presence of significant iron ore reserves.

26.   A critical difference between Bergsten/Cline (1985) and Balassa
(1986b) lay in the variable accounting for the distance with trading
partners. While Bergsten/Cline used a simple average of the c.i.f./f.o.b.
import ratio and an index of air transport costs, Balassa (1986b) used the
transport costs adjusted for inter-country differences in commodity
composition of imports. 1/

27.   Balassa (1988), then, undertook re-estimations of his model for
the sake of comparison with Bergsten/Cline (1985). In other words,
Balassa (1988) re-estimated his model using some of the Bergsten/Cline
assumptions. More specifically, it "involved (a) combining the per capita
income and population variables; (b) using a single variable for the EEC;
and (c) employing the unadjusted cif-fob ratio for the transport cost
variable" (except for ignoring the air cargo rates due to unavailability
of data). The results thus obtained showed the dummy variable for Japan
to be negative and statistically significant at the 7% level. Balassa
(1988), then, concluded that "adopting the Bergsten-Cline specification
reduces but does not eliminate the statistical significance of the
Japanese dummy variable." This exercise, however, did not exactly
duplicate the Bergsten-Cline study, and that the difference in the results

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1/ Balassa presented results of both versions using the unadjusted and
    adjusted transport cost variables.

should be attributed to the remaining differences with respect to the country coverage (New Zealand), data periods used, the air cargo rates, the purchasing power adjustment to GNP data, etc.

28.   In addition, Balassa (1986b) also undertook an exercise specifically focused on the ratio of manufactured imports to GNP. This differs from Saxonhouse (1985), who focused on a mixed range of products, manufactured and primary, and Bergsten and Cline (1985) who focused on total imports (including primary and manufactured goods and nonfactor services). Balassa (1986b)'s regression results showed that the Japan dummy's coefficient was negative and significant in every case examined except for two, indicating that Japan was an "outlier" on the downside among the industrial countries. The two exceptions were the regression for total imports when physical distance (instead of transport costs) was used and the regression for total imports from developing countries.

29.   Among the possible issues arising from the results of Balassa (1986b), the most important is the measure of transport costs. Since good ready-made data for transport costs for the purpose at hand did not exist, Balassa (1986b) derived transport cost data from available sources, but the transport costs thus derived for manufactures were markedly lower than those implied by the data from an authoritative source, Lipsey and Weiss (1974). 1/ Balassa (1988) used alternative estimates of the transport costs, or generally higher transport costs for manufactures. Yet, the results continued to show that Japan dummy's coefficient was negative and significant in every case except for a few cases. The exceptions were

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1/   Cited by Noland (1987).

again the cases where distance was used for the "transport cost" variable and the cases where total imports or primary imports from developing countries were the dependent variable.

30.   Barbone (1988) was dissatisfied with the procedure chosen by Balassa (1986b) to correct for the endogeneity of transport costs. The problem is the following: When actual cif-fob data are used to derive the measure of transport costs, that transport cost measure is endogenous in the sense that it is already influenced by the structure of the country's imports, which in turn is presumed to be "determined" by transport cost differences. Therefore, Balassa's measure of transport costs would tend to underestimate the influence of Japan's especially long distance from her major trading partners.

31.   Another significant point raised by Barbone was that the country dummies used in the one-at-a-time fashion as done by Balassa (1986b) would result in biased estimation of remaining variables. Barbone indeed found that dummies for several other countries were significant (see below).

V.   Sato (1986)

32.   Kazuo Sato (1986) found that the level of Japanese imports was too low when compared to the norm developed on a sample of 15 industrial countries, allowing for certain economic factors presumed to affect the import performance. The approach taken was similar to those of Bergsten/Cline (1985) and Balassa (1986b). Data covered the years 1960, 1970 and 1980.

33.   Sato focused on the ratio of manufactured imports to GDP originating in the manufacturing sector, or more precisely, he compared

this ratio for each country with the average ratio for the 15 sample
countries. He considered two factors as the determinants of this ratio.
One was the size of population which was to represent the size of the
domestic market and was hypothesized to affect negatively the ratio of
manufactured imports to manufacturing value added. The other determinant
was the difference between the ratio of net imports of primary goods to
GDP originating in manufacturing for each country and the average ratio
for the sample countries. If the ratio of imports of primary goods to
manufacturing GDP in a country were raised for some reason, the above
difference was expected to rise and to depress the ratio of manufactured
imports to manufacturing GDP. Sato also added dummies for Japan, EEC and
other European countries.

34.   The coefficient for population was found to be negative and
significant as expected. The coefficient for the difference between the
individual country's ratio of net primary imports to manufacturing GDP and
the sample country average ratio for the same was found to be negative as
expected but not significant statistically. As for the coefficients of
the dummy variables, the coefficients for non-EC European countries were
found to be statistically insignificant and thus dropped, that for the EC
positive and significant and that for Japan negative and significant.
Thus, Sato concluded that Japan was an "outlier" on the downside, or Japan
was importing less manufactures than it should.

35.   What was peculiar with Sato (1986)'s formulation is that it
ignored other factors that are presumed to influence the ratio of
manufactured imports to manufacturing GDP. Notably, the distance or
transport cost from the trading partners --so important according to
Balassa-- and differences in natural resource endowment were omitted.

VI.   Barbone (1988)

36.   Using the Chenery-type methodology as Bergsten/Cline and Balassa did, Barbone (1988) formulated his "non-theoretical" model hypothesis that "the degree of openness of a country (measured by the share of imports of goods and services in GDP) is related to indicators of structural characteristics, economic development and impediments to trade..." Although Barbone used essentially the same approach as Bergsten/Cline and Balassa, he modified a few aspects, Notably, Barbone differed from Balassa in two important respects -- the transport cost variable and the treatment of country dummy variables.

37.   First, Barbone was dissatisfied with the ways Saxonhouse and Balassa handled the variable that took account of the influence of the exceptionally long distance between Japan and its trading partners on the level of imports. Barbone (1988) argued that the use of physical distance is not appropriate because it should be the cost of transportation that matters, as argued by Balassa (1988). However, Barbone (1988) took a different route from Balassa (1986b) in calculating transportation costs, asserting that the procedure chosen by Balassa (1986b) to correct for the endogeneity of transport costs was based on a "rather arbitrary assumption." To overcome the endogeneity problem, Barbone constructed a measure of "objective transportation cost" faced by countries, using a translog specification for the cost of transportation as a function of distance and composition of trade.

38.   Second, Barbone asserted that the country dummies used in the one-at-a-time fashion as done by Balassa would result in biased estimation of remaining variables. Barbone's regression analysis on the total

imports indeed found that, country dummies were significantly different from zero for Denmark, Australia, Greece, Spain, France, Finland, Norway, and Belgium, while the dummy for Japan was indeed not significant. However, on the manufactured imports, he found that the dummy coefficient was significantly different from zero for Japan, as well as for eight other countries.

39.   Barbone's conclusions were:

"Although the tests are of a rather heuristic nature, the evidence presented lends support to the views that argue that the trade imbalances of Japan are of a macroeconomic origin, rather than being determined by excessively closed domestic markets, as the real import share of the country does not appear to be out of line with the rest of the OECD area."

"While the estimates also show that Japan stands out as having unusually low manufactured good imports, ... the implications for the reduction of international imbalances are less clear-cut." 1/

VII.   Carliner (1985)

40.   In studying the abnormalcy of Japanese import behavior, three authors -- i.e., Geoffrey Carliner (1985), Marcus Noland (1987) and Robert Z. Lawrence (1987)-- focused on the inter-country differences in participation in intra-industry trade. Their studies were in contrast to Saxonhouse, who used the traditional (H-O) factor endowment theory of comparative advantage as the theoretical foundation, and in contrast to

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1/   Barbone (1988), p.9.

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the works of Bergsten/Cline, Balassa and Sato, who, concentrated on
empirical estimation of statistical significance of regression
coefficients rather than testing of any comprehensive model-based
hypothesis. Carliner, Noland and Lawrence focused their attention on the
question of what factors determine a country's participation in intra-
industry trade.

41.   Traditional Heckscher-Ohlin trade theory suggests that
international trade should occur primarily among countries that are
different in factor endowments. For example, countries with high levels
cf capital per worker should trade with countries with abundant natural
r. ources, and countries well endowed with highly skilled labor should
trade with countries in which such labor is scarce. Although much of
trade does follow this pattern, a growing part of world trade does not.
Most trade today takes place between countries with similar levels of
physical capital per worker, similar average skill levels, and similar
natural resource endowments. Thus, a large proportion of international
trade today occurs within industries rather than across industries.

42.   Intra-industry trade theory attempts to explain the growing
intra-industry trade in the framework of imperfect competition, economies
of scale and increasing product differentiation. 1/ This approach
suggests that the relative similarities, rather than differences, in
country characteristics are the basis for the growth of intra-industry
trade.

1/ See page 9 above.

43.   Carliner (1985) hypothesized that the extent of participation in intra-industry trade reflected the degree of openness to international trade. 1/ Since intra-industry trade is far more common for manufactured products than for primary products which are relatively homogeneous worldwide, Carliner focused on "differences among countries in the rate of intra-industry trade in manufactures." 2/ Carliner theorized that the index of intra-industry trade was a function of factor endowment, capital (investment flows instead of stock), per capita income, total income, distance from potential trading partners, and a dummy for the market access barriers representing tariffs and non-tariff barriers (including quotas, standards, government procurement practice and cultural factors).

44.   Operationally, Carliner estimated the relationship between the index of intra-industry trade (Y) as the dependent variable, and four independent variables --i.e., per capita GNP, GNP, distance from trading partners (D), and the manufactured trade balance (B)-- plus dummy variables for Japan and the United States. The dummy variables were supposed to reflect the market accessibility. Data included a sample of 19 countries (mostly industrial countries but also some developing countries such as Brazil, Chile, Greece, Korea, Malaysia, Mexico and Turkey) for the years 1967, 1972, 1977, 1980 and 1982. Exports and imports for the 27 two-digit industries in the four SITC categories (5 through 8) were used to obtain the index of intra-industry trade. Table 5 shows the index of intra-industry trade for selected countries for the years of 1967 and 1982, as calculated by Carliner.

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1/ Carliner (1985), p.7.

2/ Carliner (1985), p.9.

Table 5

Intra-Industry Trade for Selected Countries

	1967	1972	1977	1980	1982
Australia	.24	.35	.25	.29	.23
Brazil	.19	.21	.34	.44	.49
Canada	.55	.64	.65	.61	.65
France	.77	.80	.81	.82	.82
Germany (West)	.52	.61	.61	.66	.63
Italy	.59	.62	.61	.64	.60
Japan	.30	.29	.24	.27	.26
Korea (South)	.14	.33	.61	.40	--
Mexico	.19	.35	.30	--	--
Netherlands	.73	.74	.74	.76	.76
Norway	.45	.55	.52	.46	.52
Sweden	.66	.68	.71	.69	.68
United Kingdom	.64	.72	.78	.81	.77
United States	.58	.57	.61	.62	.59

Note: This index of intra-industry trade was calculated on the basis of:

$$Y = 1 - \frac{\Sigma \ |xi - Mi|}{\Sigma \ (Xi + Mi)}$$

where Y is an index ranging from zero to one, and Xi and Mi are exports and imports in the i-th industry.

Source: Reproduced from Geoffrey Carliner (1985), Table 2.

45.   Carliner's regression results 1/ showed that all the independent variables had the "correct" signs but that the coefficients for GNP and manufactured trade balances (B) were not statistically significant. The coefficient for the Japan dummy had a negative sign but was not significantly different from zero, while the US dummy took a positive sign and was significant. Based on these results, Carliner inferred that "in spite of a considerable lowering of formal trade barriers, Japanese markets are somewhat less open than markets in similar countries and significantly less open than U.S. markets." 2/

46.   Carliner then concluded:

> "Japan's level of intra-industry trade is far lower than the
> levels of almost all other developed countries. Part of the
> difference can be explained by Japan's need to run a large
> surplus in trade in manufactures, and its distance from
> potential markets. However, taking these and other factors
> into account, Japan's intra-industry trade is still somewhat
> lower than for other countries. Although the difference is not
> large, adjusted for other factors, it does suggest that Japan
> may be less open than other countries." 3/

1/ The regression over 109 observations gave the following results:

$$Y = 0.349 + 0.081 \log (GNP/POP) + 0.024 \log GNP + 0.201 D$$
$$\quad\quad\quad (0.016) \quad\quad\quad\quad (0.013) \quad\quad\quad (0.021)$$

$$\quad - 0.003 B - 0.058 \text{ Japan} + 0.139 US$$
$$\quad\quad (0.003) \quad (0.067) \quad\quad\quad (0.07)$$

$R^2 = 0.78$; NOBs = 109; standard errors in parentheses.

2/ Carliner (1985), p. 15.

3/ Carliner (1985), p.18.

VIII.   Noland (1987)

47.   Having complained that the Saxonhouse studies were based on a wrong
theory (the H-O theory) and that Bergsten/Cline and Balassa studies had no
underlying formal models, Noland (1987) relied on the Helpman-Krugman trade
theory. Noland's model specifically involved two kinds of international trade
-- the usual Heckscher-Ohlin inter-industry trade and intra-industry trade in
differentiated manufactures. The volume of inter-industry trade was posed to
be a function of differences in factor endowments while the volume of intra-
industry trade was theorized to be a function of countries' relative size
similarity.

48.   In Noland's model, thus, the volume of trade was to be explained by
variables relating to country size and factor endowment. Specifically, three
explanatory variables were utilized: (a) GDP as a scale variable (data were
adjusted for purchasing power); (b) per capita income as a proxy of the
capital-labor endowment ratio; and (c) a GDP-per-capita-related index devised
as a measure of endowment similarity.[1] In addition, two "resistance"
variables were included --transportation costs and a dummy for participation
in the EC. Dependent variables were (i) exports, (ii) imports and (iii) total
trade (exports plus imports).

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[1] Noland defined the endowment similarity measure as follows:

$$GDPCAPEQ_j = -[(q)\ln(q) + (1-q)\cdot\ln(1-q)]/\ln 2$$

$$q = \frac{GDPCAP_j}{GDPCAP_j + GPDCAP_w}$$

j = home country

where $GDPCAP_w$ indicates world per capita income, calculated from the
countries in the sample (excluding the home country). GDPCAPEQ reaches
its maximum when home and partner country per capita incomes are equal and
its minimum as q approaches 0 or 1.

49.   Noland's sample included 45 countries --i.e., 19 developed countries and 26 developing countries. The sample included only countries with over one billion US dollars of manufactured exports in 1980. Estimations were made for a full sample of 45 countries, and subsamples of developed and less developed countries, separately.

50.   In the regression results for the developed country subsample, all coefficients estimated were statistically significant at a 1% or 5% confidence level, and R^2's were extremely high. However, the endowment similarity variable was estimated with an unexpected positive sign. Noland explained that it reflected the Linder hypothesis that the volume of intra-industry trade increases with similarity in production and consumption. Noland's interpretation was that for the developed country subsample the volume of intra-industry trade so dominated the volume of inter-industry trade that a positive coefficient on the endowment similarity variable was obtained.

51.   The studentized residuals obtained from the developed country subsample regressions showed highly abnormal values for Denmark and Switzerland, but the residuals for Japan were comparatively small. Noland thus concluded that, while Japan's actual exports were 16% higher than "predicted" by the model, Japan's actual imports were "nearly exactly the level forecast by the model."

52.   The above model ignores differences in natural resource endowments. Balassa (1986b) argued that countries without significant natural resource endowments would exhibit a greater volume of trade because they would both import primary products and engage in intra-industry trade in differentiated manufactures. Noland thus modified the model adding three variables representing natural resource endowments --i.e., arable land, the value of fuels production and the value of production of 13 nonfuel minerals. The

regression results based on this modified version on the developed country
subsample showed that the coefficients on arable land were negative and
significant as expected. However, it was found that the coefficients on fuels
were not significant, while the coefficients on nonfuel minerals had "wrong"
signs and were not significant. In this modified version, Japan continued to
exhibit insignificant studentized residuals, indicating that there was no hard
evidence that Japan's import behavior was unusual among the comparator sample
of developed countries. However, Japan now was found to be participating less
in international trade (on both exporting and importing sides) than expected
by the model. Japan's imports were found to be 7% lower than predicted by the
model.

IX.   Lawrence (1987)

53.   Complaining that Noland explained total merchandise trade volumes
without providing any separate test of trade in manufactured products alone,
Lawrence (1987) formulated a special case of the intra-industry model.
Assuming inter-country similarity in tastes, absence of trade barriers and
zero transactions costs, the Lawrence model would predict that a country's
share in national markets should be proportional to its share in world
production. In other words, when all products involved were differentiated,
relative country size was presumably the sole determinant of trade: "The
larger the country's share in world production, the larger is its share in its
home market and thus the smaller exports or imports as a share of GNP." 1/

1/   Lawrence (1987), p. 525.

54.   The Lawrence model thus suggested that market shares could be
explained by production shares, transportation and transactions costs, trade
barriers and taste differences, namely:

$$Mij/DUij = f (Pij/Pi, Tij, Bij)$$
$$= A + B (Pij/Pi) + C (Tij),$$

where i denotes products, j denotes countries, M is imports, DU is domestic
use (consumption plus investment), P is production, T is transactions costs,
and B is trade barriers <u>and</u> taste differences.   In the frictionless economy,
the coefficient C is expected to be zero, A would be 1.0, and B should be
-1.0.   Since in the frictionless model, the shares of a country's products in
its domestic markets should equal its shares in the foreign markets for the
respective products, Lawrence formulated an alternative specification
involving shares of exports in the use of products in foreign countries as the
dependent variable.

55.   In either of these alternative formulations, a country dummy variable
should indicate the impact of only those trade barriers and taste differences
that are unusual.   A negative dummy variable would indicate "the aggregated
impact of three kinds of unusual behavior: unusual preferences for domestic
goods, abnormally high import barriers, and unusual foreign discrimination
against the dummy country's exports."1/

56.   Lawrence (1987) actually estimated both versions of the hypothesis
for the year of 1980, covering 21 industries in 13 industrial countries.
Similar exercises were also carried out for the years of 1970 and 1983 as
well, but his discussions were focused on the results for 1980.

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1/   Lawrence (1987), p. 528.

57.   The results of the estimations indicated that the model's explanatory
power was fairly high. The Japan dummy variable was found to be negative in
16 out of 21 equations for 1980; in 9 of the 16, the t-ratio was greater than
2; in 5 others it ranged between 1 and 2. The industries with significant and
negative coefficients accounted for 50% of Japanese manufacturing
production. Japan's imports were found to be significantly higher than
predicted in only one case, nonferrous metals. The results of the exports-
share version yielded similar results, suggesting statistically unusual import
behavior in products accounting for 20% of production. When all industry data
were pooled into single regressions, each with 273 observations with the
coefficients constrained to be similar for all industries, the results
indicated that the coefficients of the Japanese dummy took negative values,
which were statistically highly significant. Even when the EC member
countries were aggregated into one "country", the results showed that the
Japan dummy was negative in 12 out of the total of 14 industries; nine of
these negative values were statistically significant (with larger than 2 t-
ratios).

58.   Lawrence concluded:

        "These results reject the view that Japanese manufactured
        imports are not unusually low. They also indicate that the
        superior quality of Japanese products cannot explain
        Japanese imports. Japanese export volumes are too small to
        justify Japan's high share of its home market. But the
        results leave some issues unresolved because they do not
        indicate the relative importance of export barriers, import
        barriers, and unusual buyer preferences....To interpret the
        coefficient on the dummy variables as a reflection of

difference in preference, we must assume that Japan has
different tastes and displays an abnormal bias for home
products." 1/

59.   One issue with the results of the Lawrence study is an apparent
identification problem. As Saxonhouse and Stern (1988) point out,
comparing the results of Lawrence's analysis of 1970 export shares with
his analysis of 1983 export shares would lead us to conclude that
Japanese protection for manufacturing increased substantially between
1970 and 1983. Saxonhouse and Stern ask if it is really plausible,
because "this is precisely the period when virtually all formal Japanese
barriers to the import of manufactured goods were eliminated."2/
Saxonhouse and Stern, therefore, would conclude:

> "If the Japanese trade structure did become more distinctive
> between 1970 and 1983, this can be more properly attributed to
> increasing foreign barriers against Japanese exports. Japan's
> import shares of manufactures may well be a better index of
> Japanese competitiveness rather than its export shares." 3/

X.   Conclusions

60.   The purpose of this note is to review the recent major efforts
of econometric investigation into two related but separate questions;
namely (i) whether Japan imports less of all products than it should,

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1/ Lawrence (1987), pp. 536-37.

2/ Saxonhouse and Stern (1988), p. 31.

3/ Saxonhouse and Stern (1988), p.31.

and (ii) whether Japan imports less manufactures than it should. This review leads to some conclusions.

61.   First, it should be noted that only two studies investigated both questions, while others dealt with only one or the other of the two questions. Saxonhouse (1985), Bergsten/Cline (1985) and Noland (1987) focused on Japan's trade in all products, while Sato (1986), Carliner (1985) and Lawrence (1987) concentrated on the manufactured imports. Balassa (1986b) and Barbone (1988) were the only ones which dealt with both total and manufactured imports.

62.   Second, it is important to be clear on the precise definition of the norm against which Japan's performance is compared. Should Japan be compared with all other countries, or with industrial countries only? If we prefer to compare Japan only with industrial countries, then some of the results of the statistical investigations where Japan was compared with a mixed group of industrial and developing countries would become less relevant. The cases in point are the exercises of Saxonhouse (1985) and Carliner (1985) and a part of Noland's study (1987) where some developing countries were included in the samples. However, Noland's (1987) statistical investigations on his industrial country subsample remain relevant.

63.   Third, the definition of several variables chosen as determinants of "normal" import behavior varied substantially among the researchers. The level of per capita income would represent the stage of the country's economic development. Balassa hypothesized that the per capita income would negatively affect the ratio of imports to GDP. However, he found that this was not so clear in the case of imports from developing countries. The explanation offered by Balassa was that

"possible increases in the gains from trade associated with intercountry differences in factor endowments, represented by the per capita income variable, may have contributed to the observed results." 1/ Furthermore, Noland's exercise on the industrial country subsample found that per capita GDP had a positive impact on the level of imports. Carliner also found a positive impact of per capita GNP on the index of intra-industry trade. These conflicting results suggest that there are both types of trade occurring -- i.e., the Heckscher-Ohlin type and the intra-industry type.

64. Fourth, the size of the market was hypothesized to have a positive impact on the level of imports by Bergsten/Cline, Balassa, Barbone, Carliner and Noland, all of whom indeed confirmed such a relationship. But Sato found a negative relationship on this score. Furthermore, while Bergsten/Cline, Balassa, Barbone and Sato used population as the proxy variable for the size of the market, Carliner and Noland used GNP as the variable.

65. Fifth, the varying use of the income variable is an issue. Balassa used GDP in real terms and Carliner used GNP in real terms, but Bergsten/Cline and Noland used GNP or GDP adjusted for purchasing power. This purchasing power adjustment may have made a difference as the latter two studies generally found Japan's import behavior not abnormal while Balassa and Carliner found Japan's import behavior abnormal.

66. The purchasing power parities (PPP) of national currencies have differed substantially from the prevailing exchange rates, and the

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1/ Balassa (1986b), pp. 748-49.

difference also fluctuated considerably over the years. For example, in the case of Japan, the PPP was only 66% of the exchange rate in 1970, while the PPP was 106% of the exchange rate in 1980. 1/

67.   Sixth, we found serious divergences in the definition of the variable to represent the distance from trading partners. All the studies reviewed here presumed that countries that were farther away in distance from their trading partners tended to trade less because of higher transport costs involved. However, each researcher chose to measure the transport cost differently. The results generally seem to show that transport costs indeed have a negative impact on the trade volume, and that the results are sensitive to the choice of the measure of transport costs. Unfortunately, none of the measures used by the researchers seems to be completely satisfactory. The problem is the unavailability of necessary data on the measure of transport costs that would precisely meet the requirements.

68.   Seventh, the treatment of another important presumed determinant of trade volume, i.e., the natural resource endowment, also varied widely among the researchers. Bergsten/Cline, Noland, and Saxonhouse variously used arable land, and either production values or physical sizes of resources of petroleum, iron ore and/or nonfuel minerals. Balassa, in contrast, used the share of primary products in total imports as the measure. Sato and Barbone ignored the natural resource endowment. These attempts gave varying results. As Noland remarked, "the impact of natural resources on the pattern of trade is still not well understood, and further research would be desirable."2/

1/ Ward (1985), p. 92.

2/ Noland (1987), p.29.

69.   Eighth, another issue is the treatment of participation in the EC and EFTA. Participation in such preferential trading arrangements is presumed to promote intra-membership trade, thus increasing the imports of each member country. Bergsten/Cline grouped all EC member countries as one region, treating the EC effectively as one country. Balassa, in contrast, included these countries as separate countries, and used a dummy variable for each to measure the impact of EC membership. Others also tried dummy variables for this purpose. They generally found the dummy for the EC to be positive and significant while the dummy for the EFTA was rarely found to be significant.

70.   One final, but perhaps the most important, issue is the choice of underlying theories in defining the model for import behavior. For example, Saxonhouse chose the Heckscher-Ohlin factor endowment theory as the basis for his model, while Lawrence and Carliner chose to base their models on the Helpman-Krugman theory of intra-industry trade exclusively. Commenting on the Lawrence paper, Martin Baily questioned the choice of the exclusive use of the H-K model by Lawrence over the H-O model, in which comparative advantage is critical and specialization occurs in production. Baily argued: "If the Japanese do not have a taste for product diversity, then the latter model is more relevant, and low imports of manufactured goods would be expected because Japan has a comparative advantage in producing manufactured goods." 1/ Along the same lines, William Branson went as far as to say that "the peculiar

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1/ See "Comments and Discussions" on the Lawrence paper, Brookings Papers on Economic Activity, 2nd issue, 1987, p. 552.

thing may be that Japan imports any manufactured goods at all."1/ In this respect, Noland's model may be superior to others as it allows for both types of trade.

71. It appears that the econometric investigations undertaken so far have not led to any consensus conclusion on the question as to whether Japan is a distinct underimporter among the industrial countries. However, the evidence found in the literature seems to justify the following tentative conclusions:

(a) Japan's trade structure has so far been based very much on the Heckscher-Ohlin theory of comparative advantage.

(b) If Japan's manufactured imports have been too low, compared to the normal import behavior of industrial countries, it is because Japan's participation in intra-industry trade has been abnormally low.

(c) If Japan has been importing less manufactures than it should have, the question remains why it is so. Whether it is because of government-induced visible and invisible barriers, or because of other types of intangible barriers such as the way industries are organized, peculiar marketing systems and even "culture," or because of the Japanese consumers' unique tastes and preferences does not seem to have been resolved by the econometric investigations reviewed here.

(d) This does not mean that the studies reviewed here did not discuss the existence of specific barriers that exist in Japan. On the contrary, some of these studies provide extensive reviews of Japanese barriers --e.g., Saxonhouse,

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1/ Ibid.

Saxonhouse and Stern, and Balassa. However, the present note has concentrated on the evidence provided by the econometric studies. Indeed, if these remaining official barriers as well as unofficial "barriers" were to be eliminated, Japan's imports are likely to rise substantially, although any culturally-imbedded "barriers" might take considerable time to be reduced substantially.

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