Bela Balassa

Prospects for Trade in Manufactured Goods between Industrial and Developing Countries, 1978-1990

Prospects for Trade in Manufactured Goods Between Industrial and Developing Countries, 1978–1990*

Bela Balassa, The Johns Hopkins University and the World Bank

This paper examines prospective changes in trade in manufactured goods between the industrial and the developing countries. Assuming the continuation of the policies followed by the industrial countries, it is projected that the manufactured imports of these countries from the developing countries would rise at an average annual rate of 1.5% between 1978 and 1980 while their manufactured exports would increase 9.7% a year. Nonetheless, the export surplus of the industrial countries in trade in manufactured goods would rise, contributing to the growth of industrial output. The expansion of their exports of manufactured goods would also contribute to economic growth in the developing countries, and both groups of countries would benefit from specialization according to comparative advantage.

This paper examines prospective changes in trade in manufactured goods between the developed industrial (for short, industrial) and the developing countries in the period 1978–1990. The former group is defined to include the United States, Canada, the European Common Market (EEC),1 the European Free Trade Association (EFTA),2 and Japan; within the latter group, separate estimates will be made for OPEC3 and for the non-OPEC developing countries.4

1Belgium, Denmark, France, Germany, Ireland, Italy, Luxemburg, Netherlands, and the United Kingdom.
2Austria, Finland, Iceland, Norway, Portugal, Sweden, and Switzerland.
3Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Quatar, Saudi Arabia, United Arab Emirates.
4The countries of Latin America and the Caribbean, Africa (other than South Africa), Asia (other than Japan), and Oceania (other than Australia and New Zealand), excluding centrally planned economies and the OPEC countries.

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The opinions expressed in the paper are the author’s own and should not be construed to represent the views of the World Bank.

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Trade in manufactured goods\(^5\) is estimated as a function of the growth of GDP in the two groups of countries. This requires first of all making projections of GDP growth. The projections will be presented in the first section of the paper, drawing on, and making comparisons with, estimates of a study prepared for the United Nations by Wassily Leontief and Associates, the second World Development Report of the World Bank, and the Interfutures study of the OECD.

Projections of manufactured trade between the industrial and the developing countries are provided in a seven-commodity group breakdown. The results will be presented in the second section while in the third section the estimated trade flows will be related to the production and the consumption of manufactured goods in the industrial countries. In the conclusion, the increased interdependence of industrial and developing countries through trade in manufactured goods will be noted and suggestions will be made for policies that may contribute to the further expansion of this trade.

I. PROJECTIONS FOR ECONOMIC GROWTH, 1978–1990

Industrial Countries

The rate of growth of GDP in the industrial countries averaged 2.5% between 1973 and 1978 as compared to 4.6% in the 1963–73 period. The deceleration of the rate of economic expansion reflects the effects of the 1974–75 recession, aggravated by the quadrupling of oil prices and the subsequent slow recovery. The decline in the growth rate was especially pronounced in the European Free Association, where the 1973–78 growth rate barely exceeded one-third of that in the 1963–73 period; it was the smallest in the United States, where the GDP growth rate declined by less than one-third (Table 1).

The base scenario of the second World Development Report (hereafter WDR II) calls for a GDP growth rate of 4.2 percent for the industrial countries, taken together, in the 1980–90 period. The deceleration of the rate of economic expansion reflects the effects of the 1974–75 recession, aggravated by the quadrupling of oil prices and the subsequent slow recovery. The decline in the growth rate was especially pronounced in the European Free Association, where the 1973–78 growth rate barely exceeded one-third of that in the 1963–73 period; it was the smallest in the United States, where the GDP growth rate declined by less than one-third (Table 1).

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\(^5\) Commodity classes 5 to 8 in the UN Standard International Trade Classification less nonferrous metals (68).

\(^6\) Compared to the definition of industrial countries used in this study, the estimates include Australia and New Zealand and exclude Portugal. Making adjustments for these countries would not modify the results, however. The same conclusion applies to the estimated GDP growth of 4.1% a year for the 1978–90 period.

\(^7\) The cited estimates pertain to the same group of countries as in the present study, except that they exclude Portugal.
<table>
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<tr>
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<td>4.5</td>
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<td>na</td>
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</tr>
<tr>
<td>Japan</td>
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<td>4.7</td>
<td>7.6</td>
<td>6.4</td>
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<td>3.9</td>
</tr>
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<td>5.6(^b)</td>
<td>5.0</td>
<td>6.7(^c)</td>
<td>6.0(^c)</td>
<td>5.6</td>
</tr>
</tbody>
</table>

\(^a\)For definitions, see text.

\(^b\)1980-90.

\(^c\)1975-2000.

Projected: World Bank (1979) and related documents—base variant.
Leontief et al. (1977).
growth, and 3.6% under the moderate convergent growth, scenario for the 1975–90 period. (Interfutures 1979, pp. 121, 131, and 328).8

Although these estimates show considerable similarity, there are substantial differences in the projected pattern of growth for the individual countries and country groups. As shown in Table 1, WDR II foresees the approximate maintenance of Japan’s growth advantage vis-à-vis the other industrial countries, taken as a group, and a slightly higher GDP growth rate for the United States than for the EEC and EFTA. In turn, Leontief expects little difference in the growth performance of Japan and Western Europe but a much lower GDP growth rate for the United States. Interfutures also sees the United States as the laggard while it postulates a substantially higher GDP growth rate for Japan than for the European Common Market.

The estimates by Interfutures are supposedly based on the convergence of productivity levels, with Japan catching up with the United States and the Common Market reaching four-fifths of the U.S. per capita income level by the end of the century (Interfutures 1979, p. 89).9 While the convergence hypothesis appears reasonable, the Interfutures estimate is subject to error insofar as it expresses data for 1975, and for all subsequent years, in 1970 prices and exchange rates. However, the 1970 exchange rates were far from being equilibrium rates and underwent considerable changes in later years, involving in particular the depreciation of the U.S. dollar.

The magnitude of the error can be indicated by comparing ratios of per capita incomes for the year 1975, estimated in 1970 and in 1975 prices and exchange rates. The relevant ratios, expressed as a proportion of U.S. incomes, are 0.54 and 0.73 for the European Common Market and 0.46 and 0.63 for Japan (Interfutures 1979, p. 89).10 Correspondingly, utilizing data expressed in 1975 prices and exchange rates, under Interfutures’ rapid convergent growth scenario Japan would surpass per capita incomes in the United States by 8% in 1990 while the European Common Market would establish approximate parity with the United States; furthermore, Japanese and EEC incomes would exceed the U.S. per capita

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8 The estimates pertain to the entire OECD, thus including Southern Europe, Australia, and New Zealand as well. The exclusion of these countries would hardly affect the results, however, as they account for only 7%.

Interfutures also provides additional scenarios, involving changes in social values in the industrial countries, with a consensus on slowing down economic growth; a rift between the industrial countries and the developing countries; and mounting protection on trade among the industrial countries, together with preferential ties between particular industrial countries and developing countries. The assumptions underlying these scenarios may be considered less realistic, however, and they are not reported here.

9 Under the rapid convergent growth scenario, Interfutures postulates a long-run productivity growth rate of 1.84 percent for the United States on the basis of an estimate of the Council of Economic Advisors. This is raised to 2.2% in the period 1975–2000 because of the assumed catch-up to the prerecession productivity trend (Interfutures 1979, p. 121).

income level by 42% and 11% percent, respectively, in 2000 (Interfutures 1979, pp. 13 and 89). It appears, then, that the Interfutures estimates would lead to a divergence rather than a convergence of productivity levels and per capita incomes, with the EEC surpassing the United States and Japan surpassing both of them. In the present investigation, GDP growth rates have been estimated by utilizing the labor force estimates of Interfutures and postulating a convergent pattern of productivity levels among the industrial countries, with the exception of Japan, which has been assumed to get ahead of the European Common Market.

Interfutures projects that the labor force will rise at an average annual rate of 1.2% in the United States, 0.4% in the European Common Market, and 0.8% in Japan between 1975 and 1990. At the same time, the higher level of unemployment prevailing in 1975 would permit the United States to increase employment further to an extent greater than the other industrial countries (Interfutures 1979, p. 138). We have nevertheless assumed the differential productivity growth rates would lead to increases in Common Market GDP (3.6% a year) slightly exceeding the U.S. growth rate (3.5%) and that a substantially higher growth rate would be experienced in Japan (6.0%). Still, substantial differences in per capita incomes would remain, with the EEC reaching 77%, and Japan 84%, of the U.S. level in 1990.

Assuming further GDP growth rates of 3.7% for Canada and 3.3% for EFTA, the combined gross domestic product of the industrial countries would rise at an average annual rate of 3.9% during 1978–90. This projection compares with a 4.1% GDP growth rate projected under the base scenario of WDR II for the same period, a growth rate of 3.8% estimated by Leontief et al. for 1980–90, and prospective growth rates of 4.9 percent and 3.6 percent under the two Interfutures scenarios for 1975–90.

Developing Countries

According to WDR II, the gross domestic product of the developing countries would rise at an average annual rate of 5.6% under the base scenario and by 6.6% and 4.8% under the high- and low-growth scenarios, respectively, between 1980 and 1990. The corresponding projections are 5.0 percent for 1980–90 by Leontief et al. and 6.7% under the rapid convergent growth, and 6.0% under the moderate convergent growth, scenario for 1975–2000 by Interfutures (Table 1).

The WDR II and Interfutures estimates reflect the assumption that economic growth in the developing countries is linked with growth in the industrial countries.

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11In the calculations, population growth rates estimated for the period 1975–2000 (United States, 0.6% percent; Common Market, 0.1%; and Japan 0.7%) have been assumed to apply to the 1975–90 period as well.

12The estimates include the countries of Southern Europe (Cyprus, Greece, Israel, Malta, Portugal, Spain, Turkey, and Yugoslavia) and exclude the capital-surplus oil exporters (Kuwait, Libya, Oman, Qatar, Saudi Arabia, and the United Arab Emirates). Adjusting for these countries would not affect the results, however.
This relationship may be explained by reference to the fact that higher rates of economic growth in the industrial countries entail a more rapid increase of their imports from the developing countries and that growth rates of exports and GDP in the latter group of countries are positively correlated. [For empirical evidence on the latter point, see Balassa (1978).]

A positive correlation between rates of economic growth in the industrial and in the developing countries has been manifest in the past. Thus, GDP growth rates in the two groups of countries were 4.6% and 6.2% respectively, in the 1963–73 period, and 2.5% and 5.3%, respectively, in the 1973–78 period. At the same time, in the latter period, OPEC and non-OPEC countries need to be considered separately. This is because economic growth in the former group of countries, with an average annual increase of 8.2% a year between 1973 and 1978, was largely a function of increases in oil earnings, while the transmission of economic growth from the industrial countries retained its relevance for the latter group, which experienced an average annual GDP growth rate of 4.1% between 1973 and 1978. In the following, GDP growth rates for the two groups of developing countries will be separately estimated, with further distinction made between the capital-surplus oil exporters and other OPEC countries.

Under the base scenario of WDR II, the gross domestic product of the capital surplus oil-exporting countries would rise at an average annual rate of 5.0% percent between 1980 and 1990 (World Bank 1979, p. 18). This estimate reflects the assumption the oil prices remain unchanged in real terms. We have postulated that, following an increase by about two-thirds between 1978 and 1980, the real price of oil would remain unchanged during the 1980s. Assuming further moderate increases in oil output, the real value of the export earnings of the capital surplus oil-exporting countries may double between 1978 and 1990. With increased investment activity, especially in Saudi Arabia, which accounts for one-half of the total, the combined gross domestic product of these countries has been projected to rise at an average annual rate of 6.0 percent a year. This figure compares with GDP growth rates averaging 12.8% percent a year during 1973–78 (United Nations 1978, and World Bank Data Base), when increases in the real price of oil and in oil production were considerably larger.

The other OPEC countries experienced a rise in GDP of 7.1% a year between 1973 and 1978. Continued rapid growth is expected to occur in these countries, the exception being Iran, where a long period will be needed to remedy economic dislocation under the Revolution once political conditions stabilize. With Iran accounting for three-tenths of the total, we have projected an average annual rate of growth of 6.0% in the other OPEC countries also.

The growth of GDP in the non-OPEC developing countries will be much affected by economic growth in the industrial countries. Assuming the continuation of past relationships, a 3.9% rate of growth of GDP in the industrial

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countries may be accompanied by a 5.5% percent growth rate in the non-OPEC developing countries. With these countries accounting for nearly three-fourths of the combined gross domestic product of the developing countries, the average GDP growth rate for the developing countries, taken together, would be 5.6%.

This figure equals the estimate of WDR II, which, however, entails a lower projection for the capital-surplus oil exporters and a higher projection for the other developing countries. At the same time, it exceeds the estimate by Leontief et al. while it is lower than the two Interfutures scenarios, which appear to overestimate the growth potential of the developing countries.

TRADING PROJECTIONS, 1978–1990

Industrial Country Imports

Under the base scenario of WDR II, the manufactured exports of the developing countries are projected to rise at an average annual rate of 10.9% between 1976 and 1990 (World Bank 1979, p. 5). This figure barely exceeds the 10.2% rate of increase observed in the 1973–78 period, although WDR II expects the rate of growth of GDP in the industrial countries to be two-thirds higher than the actual growth rate of 2.5 percent in 1973–78 (Table 1).

WDR II trade projections appear to be overly pessimistic. They seem to have been influenced by the experience of the year 1977, when increased protectionism in the industrial countries led to a rundown in the growth of their manufactured imports originating in the developing countries. However, with an easing of protectionist trends and a slight increase in the rate of economic growth in the industrial countries, the volume of their manufactured imports from the developing countries increased at a rate twice as high in 1978 than in 1977. This compares with the statement made in WDR II: “Preliminary information indicates that developing countries’ manufactured exports grew somewhat faster in 1978 than in 1977” (World Bank 1979, p. 5).

Leontief et al. are even more pessimistic, as they project the GDP of the industrial countries and the total manufactured exports of the developing countries, respectively, to rise at average annual rates of 3.8% and 8.5% between 1980 and 1990. These estimates correspond to an “apparent” income elasticity of import demand of 2.2, on the assumption that developing country exports to the industrial countries would rise at the same rate as their total manufactured exports. The apparent income elasticity is higher (3.2) for the period 1990–2000, when Leontief et al. estimate that industrial country GDP and the manufactured exports of the developing countries will grow at average annual rates of 2.9% and 9.4%, respectively.

14 While the former estimate pertains to exports to all destinations and the latter to exports to the industrial countries alone, from WDR II it would appear that, if anything, the projected rate of growth of manufactured exports to the industrial countries is lower than average (World Bank 1979, pp. 5, 27–28).

15 The relevant figures are 7.6% for 1977 and 15.5% for 1978 (Balassa 1980).
In turn, the United Nations Industrial Development Organization (UNIDO) projection for the 1974–2000 period assumes a GDP growth rate of 3.0% for the industrial countries and an increase of 12.3% a year in their imports of manufactured goods from the developing countries, i.e., an apparent income elasticity of import demand of 4.1 (Comparable estimates are not available in the Interfutures study.) At the same time, UNIDO expects the share of the industrial countries in the manufactured exports of the developing countries to decline from 63.4% in 1974 to 54.0% in 2000, representing increases in the shares of intra-LDC trade and, in particular, of exports to the centrally planned economies. (UNIDO 1979—data for the industrial countries include Southern Europe, Australia, and New Zealand).

In estimating future trade flows, I have assumed an apparent income elasticity of demand of 3.2 in the industrial countries for manufactured imports originating in the developing countries. This compares with an apparent income elasticity of 3.6 in the 1963–73 period and 4.1 in 1973–78 (Balassa 1980, Table 1).16 In postulating a decline in the apparent income elasticity, consideration has been given to the fact that the base year figures of the imports of manufactured goods from the developing countries, and their share in industrial country markets, are considerably higher in the period of projection than in previous periods (cf. pp. 453–454 below). At the same time, we have assumed the continuation of existing policies in the industrial countries, including the maintenance of the Multifiber Arrangement.

Given the 3.9% projected rate of economic growth for the industrial countries and the assumed apparent income elasticity of demand of 3.2, the industrial countries' manufactured imports from the developing countries would rise at an average annual rate of 12.5% between 1978 and 1990. At the same time, I have followed WDR II in assuming that the imports of machinery and equipment, and of engineering goods in general, would rise much more rapidly than the average.17 The projected growth rate for this product group is 17%, reflecting expected rapid increases in the imports of consumer electronics, machinery, motor vehicles, and ships from the developing countries, in particular the newly industrializing countries, as well as the further extension of the international division of the production process, with rising imports of parts, components, and accessories of various engineering products, first from the newly industrializing, and subsequently from other, developing countries (Table 2).

Correspondingly, the share of engineering products in the manufactured imports of the industrial countries from the developing countries would rise from 29.6% in 1978 to 47.6% in 1990. For the same period, a decline in the combined shares of textiles and clothing from 31.4% to 18.1% is projected. These estimates reflect

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16 Estimates of the apparent income elasticity of import demand in the developing countries for manufactured imports originating in the industrial countries, cited below, derived from the same source.
17 The projections in WDR II are 15.3% for machinery and transport equipment and 9.0% for other manufactures for the period 1976–90 (World Bank 1979, p. 5); the differences are smaller, with growth rates of 9.5% and 8.2%, in the estimates of Leontief et al. during 1980–90.
Table 2: Trade in Manufactured Goods (1978–90) between Industrial and Developing Countries (in 1978 Prices)

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<tr>
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<th>Developing Countries</th>
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</thead>
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<td>6.0</td>
<td>10.06</td>
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<td>Chemicals</td>
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<td>6.0</td>
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<td>Other</td>
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<tr>
<td>Engineering</td>
<td></td>
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</tr>
<tr>
<td>Products</td>
<td>46.14</td>
<td>13.3</td>
<td>207.36</td>
<td>57.66</td>
</tr>
<tr>
<td>Textiles</td>
<td>1.95</td>
<td>8.0</td>
<td>4.91</td>
<td>3.70</td>
</tr>
<tr>
<td>Clothing</td>
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<td>Other</td>
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<tr>
<td>Goods, total</td>
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<td>252.62</td>
<td>93.62</td>
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</tbody>
</table>

Source: GATT (1979) and text.
the assumption that the continuation of the Multifiber Arrangement will limit the rate of growth of the imports of textiles and clothing from the developing countries to 6% and 7%, respectively, between 1978 and 1990. The projected growth rates may be on the low side, given the continued upgrading of the quality of developing country exports. At the same time, a shift in the origin of these imports is expected to occur from the newly industrializing developing countries to countries at lower levels of industrial development.

Below-average increases are projected also for the imports of other semimanufactures (11%) and for other consumer goods (11%), where the shares of imports originating in the developing countries in the total imports and in the consumption of the industrial countries are relatively high. Finally, above-average increases are postulated for iron and steel (15%) and chemicals (14%), as some of the newly industrializing countries can be expected to follow the example of Japan in exporting these commodities. Still, the combined shares of the two product groups in the manufactured imports of the industrial countries from the developing countries would not reach 10% in 1990.

While separate projections for the two groups of countries have not been made, the preceding considerations point to changes in the export structure of the newly industrializing countries and of countries at lower levels of industrial development. In accordance with the stages approach to comparative advantage, developing countries at lower levels of industrialization would increase their market share in unskilled-labor intensive products whereas the newly industrializing countries would upgrade and diversify their exports (Balassa 1979a).

**Industrial Country Exports**

The growth of the manufactured imports of the developing countries from the industrial countries will be determined by increases in their gross domestic product and in their foreign exchange earnings, as well as by their import substitution efforts. It is anticipated that increases in industrial capacity in the OPEC countries would lead to a decline in their apparent income elasticity of import demand for manufactured goods originating in the industrial countries. Nevertheless, in view of the expected rapid rise of foreign exchange earnings, an elasticity of 2.0 is projected, giving rise to an average annual increase in manufactured imports of 12.0 percent.\(^{18}\) This compares to an apparent income elasticity of 3.0 in the period 1973–78.

The OPEC countries are expected to make a considerable effort to expand the production of iron and steel and of chemicals, thereby limiting the growth of imports of these commodities. Increases in domestic capacity are foreseen also in other semimanufactures, textiles, clothing, and some other consumer goods, leading to below-average increases in these imports. In turn, in view of the large

\(^{18}\)These projections exceed the estimates earlier made by the author (Balassa 1979b), which were based on the first *World Development Report*. 
investment effort underway in the OPEC countries and their inability to produce
investment goods in substantial quantities during the 1980s, imports of engi-
neering products are projected to rise relatively rapidly.

In the non-OPEC developing countries, the apparent income elasticity of
demand for manufactured goods originating in the industrial countries was 1.8 in
the 1973–78 period, representing a considerable increase in comparison to an
apparent income elasticity of 1.3 in 1963–73. The relatively high elasticity in the
more recent period reflects rapid increases in foreign borrowing by the non-OPEC
developing countries as well as their increased participation in the international
division of the production process, involving in part the importation of manu-
factured inputs for further processing. The latter, but not the former, tendency is
likely to continue during the period of projection. Correspondingly, we have
assumed an apparent income elasticity of demand of 1.5 for these countries,
resulting in increases of manufactured imports from the industrial countries at an
average annual rate of 7.8% during 1978–90.

Again, above-average increases are expected for engineering products, in part
because of the increased need of the non-OPEC developing countries for
sophisticated machinery and transport equipment that the industrial countries can
provide and in part because of the international division of the production process
in engineering products. Conversely, increases are expected to be the smallest in
relatively labor-intensive textiles, clothing, and other consumer goods. And,
import substitution efforts are likely to limit increases in relatively capital-
-intensive iron and steel, chemicals, and other semimanufactures, too.

These projections would entail an increase of 9.7% a year in the manufactured
imports of the (OPEC and non-OPEC) developing countries from the industrial
countries in the 1978–90 period as compared to the growth of their combined
GDP at an average annual rate of 5.6%. The resulting apparent income elasticity
of demand of 1.7 exceeds the 1.3 figure observed in the 1963–73 period when the
relative importance of the OPEC countries was substantially less. It is lower,
however, than the apparent income elasticity of 2.4 in the 1973–78 period.

WDR II and Interfutures do not provide estimates of the manufactured imports
of the developing countries. In turn, Leontief et al. project the total manufactured
imports of the developing countries to rise at an average annual rate of 7.7% between
1980 and 1990, corresponding to an apparent income elasticity of 1.5, on
the assumption that their imports from the industrial countries would rise at the
same rate as imports from all destinations. The apparent income elasticity is lower
(1.3) for 1990–2000 period, for which GDP and imports are projected to grow at
rates of 6.0% and 7.9%, respectively.

Finally, the UNIDO report estimates that the developing countries will increase
their imports of manufactured goods from the industrial countries at an average
annual rate of 8.2% between 1974 and 2000 but does not provide GDP
projections. At the same time, the report expects a decline in the share of the
industrial countries in the manufactured imports of the developing countries from
84.0% in 1974 to 61.0% in 2000, representing increases in intra-LDC trade and
in imports from centrally planned economies (UNIDO 1979, p. 220).
THE CHANGING IMPORTANCE OF TRADE IN MANUFACTURED GOODS BETWEEN INDUSTRIAL AND DEVELOPING COUNTRIES

Estimated increases of 9.7% a year in the industrial countries' exports, and 12.5% a year in their imports, of manufactured goods in trade with the developing countries would reduce their export-import ratio in these products from 3.6 in 1978 to 2.7 in 1990. Nevertheless, the export surplus of the industrial countries in manufactured trade with the developing countries would nearly triple, from $115 billion to $303 billion, during this period.

In turn, UNIDO foresees a growth of 8.2% a year in the industrial countries' exports, and 12.3% a year in their imports, of manufactured goods from the developing countries in the 1974–2000 period. As a result of these changes, the trade surplus of the industrial countries in manufactured goods traded with the developing countries would increase nearly four times between 1974 and 2000 while their export-import ratio would decline from 4.2 to 1.6 (UNIDO 1979, p. 220). In turn, Interfutures projects the export-import ratio to fall from 3.1 in 1970 to 2.0 under the high convergent growth, and to 1.7 under the moderate convergent growth scenario between 1970 and 2000 (Interfutures 1979 p. 332).

Comparable estimates are not available in WDR II while the projections by Leontief et al. pertain to the total manufactured exports and imports of the developing countries. According to these estimates, the trade deficit of the developing countries in manufactured goods will double between 1980 and 1990 and quadruple between 1980 and 2000 while the ratio of imports to exports would decline from 3.7 in 1980 to 3.5 in 1990 and to 2.9 in 2000.

In turn, we have projected that two-thirds of the increase in the export surplus of the industrial countries in manufactured trade with the developing countries will occur in engineering products. An increase in the industrial countries' trade surplus is also foreseen in iron and steel and in chemicals. By contrast, the industrial countries' trade surplus in other semimanufactures and in textiles are projected to decline, while their trade deficit in clothing and in other consumer goods increase, during the period under consideration.

The next question concerns the share of the developing countries in the industrial countries' exports and imports of manufactured goods. Excluding trade between the United States and Canada and trade within the European free trade area in manufactured goods (to be referred to as partner country trade), the manufactured exports of the industrial countries amounted to $336.3 billion, and their imports to $180.2 billion, in 1978 (Table 3). In the same year, exports to, and imports from, the developing countries were $158.5 and $43.9 billion, respectively, while the mutual trade of the industrial countries, excluding trade with the partner countries, was $105.6 billion as reported by the exporting countries and $110.7 billion as reported by the importing countries. Finally, the

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19 In interpreting these figures, emphasis should be given to changes in the ratios rather than the ratios themselves as the Interfuture figure for 1970 represents an underestimate.

20 The difference in the results were due in part to statistical discrepancy and in part to the cif valuation of imports in the EEC, EFTA, and Japan.
Table 3: Production, Trade and Consumption of Manufactured Goods in the Industrial Countries ($ Billion in 1978 Prices)

<table>
<thead>
<tr>
<th>A. Absolute Values</th>
<th>Production (1)</th>
<th>World (2)</th>
<th>World less Partner Countries (3)</th>
<th>LDCs (4)</th>
<th>World (5)</th>
<th>World less Partner Countries (6)</th>
<th>LDCs (7)</th>
<th>Consumption (1) + (5) - (2) (8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron and Steel</td>
<td>429.59</td>
<td>45.45</td>
<td>26.78</td>
<td>11.92</td>
<td>29.35</td>
<td>10.64</td>
<td>1.25</td>
<td>413.49</td>
</tr>
<tr>
<td>Chemicals</td>
<td>372.36</td>
<td>84.93</td>
<td>43.30</td>
<td>19.22</td>
<td>62.16</td>
<td>20.70</td>
<td>2.43</td>
<td>349.59</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semimanufactures</td>
<td>362.89</td>
<td>49.61</td>
<td>19.71</td>
<td>9.69</td>
<td>48.40</td>
<td>16.33</td>
<td>6.17</td>
<td>361.68</td>
</tr>
<tr>
<td>Engineering Products</td>
<td>1143.15</td>
<td>364.31</td>
<td>215.63</td>
<td>103.80</td>
<td>239.25</td>
<td>89.98</td>
<td>12.99</td>
<td>1018.09</td>
</tr>
<tr>
<td>Textiles</td>
<td>184.78</td>
<td>27.65</td>
<td>11.47</td>
<td>5.65</td>
<td>24.91</td>
<td>8.97</td>
<td>4.12</td>
<td>182.04</td>
</tr>
<tr>
<td>Clothing</td>
<td>85.39</td>
<td>13.32</td>
<td>3.22</td>
<td>1.32</td>
<td>24.11</td>
<td>13.98</td>
<td>9.64</td>
<td>96.18</td>
</tr>
<tr>
<td>Other Consumer Goods</td>
<td>532.11</td>
<td>40.90</td>
<td>16.70</td>
<td>6.85</td>
<td>43.81</td>
<td>19.61</td>
<td>7.29</td>
<td>535.02</td>
</tr>
<tr>
<td>Manufactured Goods</td>
<td>3110.27</td>
<td>626.18</td>
<td>336.27</td>
<td>158.46</td>
<td>471.98</td>
<td>180.20</td>
<td>43.89</td>
<td>2956.07</td>
</tr>
<tr>
<td>Manufactured Goods, total</td>
<td>3110.27</td>
<td>626.18</td>
<td>336.27</td>
<td>158.46</td>
<td>471.98</td>
<td>180.20</td>
<td>43.89</td>
<td>2956.07</td>
</tr>
<tr>
<td>1990</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron and Steel</td>
<td>521.37</td>
<td>82.84</td>
<td>49.23</td>
<td>22.49</td>
<td>57.27</td>
<td>23.59</td>
<td>6.69</td>
<td>495.80</td>
</tr>
<tr>
<td>Chemicals</td>
<td>621.22</td>
<td>195.18</td>
<td>96.02</td>
<td>38.67</td>
<td>152.56</td>
<td>53.80</td>
<td>11.71</td>
<td>578.60</td>
</tr>
<tr>
<td>Other</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semimanufactures</td>
<td>567.69</td>
<td>111.87</td>
<td>43.32</td>
<td>21.98</td>
<td>116.68</td>
<td>44.46</td>
<td>21.59</td>
<td>572.50</td>
</tr>
<tr>
<td>Engineering Products</td>
<td>2057.77</td>
<td>983.26</td>
<td>628.68</td>
<td>369.76</td>
<td>611.49</td>
<td>260.46</td>
<td>85.47</td>
<td>1685.00</td>
</tr>
<tr>
<td>Textiles</td>
<td>240.08</td>
<td>45.57</td>
<td>21.30</td>
<td>10.83</td>
<td>45.69</td>
<td>17.00</td>
<td>8.28</td>
<td>240.20</td>
</tr>
<tr>
<td>Clothing</td>
<td>115.07</td>
<td>24.32</td>
<td>6.14</td>
<td>2.68</td>
<td>48.35</td>
<td>30.12</td>
<td>21.71</td>
<td>139.10</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>794.50</td>
<td>93.44</td>
<td>38.94</td>
<td>16.77</td>
<td>106.84</td>
<td>52.34</td>
<td>25.50</td>
<td>808.90</td>
</tr>
<tr>
<td>Manufactured Goods</td>
<td>4917.70</td>
<td>1536.48</td>
<td>883.63</td>
<td>483.18</td>
<td>1138.88</td>
<td>481.77</td>
<td>108.95</td>
<td>4520.10</td>
</tr>
</tbody>
</table>

Source: GATT (1977, Table 2) and text.
The industrial countries had manufactured exports of $72.2 billion and imports of $25.6 billion in trade with the rest of the world (Southern Europe, Australia, New Zealand, and South Africa, the centrally planned economies) and with unreported destinations (GATT 1979, Tables B–F).

In the mutual trade of the industrial countries in manufactured goods, an apparent income elasticity of 2.4 was observed in 1963–73 and an elasticity of 1.9 in 1973–77 (United Nations 1978, 1979). We have assumed that the decline in this elasticity will moderate in the future. For the period 1978–90, we have calculated with an apparent income elasticity of 1.8, resulting in an average annual rate of growth of 7.0 percent in this trade.

Exports of manufactured goods to the centrally planned economies have been growing rapidly, financed in part by foreign loans. In 1978, these exports amounted to $30.1 billion as compared to imports of $10.2 billion. In view of limitations on their foreign borrowing, the centrally planned economies cannot increase their trade deficit at past rates. Correspondingly, we have assumed a lower rate of growth for the exports (6.0%) than for the imports (7.0%), of the industrial countries in their trade in manufactured goods with the rest of the world that includes the centrally planned economies.

In projecting the mutual trade of the industrial countries and their exports to the rest of the world, above-average increases have been assumed for chemicals and engineering products, approximately average increases for other semimanufactures and consumer goods, and below-average increases for iron and steel, textiles, and clothing. In turn, the commodity composition of the industrial countries' imports from the rest of the world is expected to resemble that of imports from the developing countries.

The described changes in trade flows would entail an increase in the share of the developing countries in the industrial countries' exports to nonpartner countries from 47.1% to 54.7%, and an increase in the developing countries' import share from 24.6% to 37.6%, between 1978 and 1990. The incremental shares of the developing countries would be 59.3% for exports and 45.4% for imports during this period (Tables 3 and 4).

The developing countries would assume special importance as markets for the industrial countries in engineering products, where they would provide nearly two-thirds of incremental exports, and their incremental share would also exceed 50% in the case of other semimanufactures and textiles. In turn, developing countries are expected to account for nearly three-fourths of the increment in clothing imports, and for approximately one-half of the increment in the imports of other semimanufactures, engineering products, textiles, and other consumer goods in the industrial countries.

Of further interest is the changing share of exports to the developing countries in the production—and that of imports from the developing countries in the consumption—of manufactured goods in the industrial countries. For this purpose, we have estimated prospective changes in the consumption of manufactured goods in the industrial countries in the seven commodity group breakdown. In turn, production estimates for 1990 have been derived by adjusting the consumption forecasts for the projected trade flows.

The consumption of manufactured goods has been projected by utilizing
Table 4: The Share of the Developing Countries in the Production, Consumption, and Trade of Manufactured Goods in the Industrial Countries

<table>
<thead>
<tr>
<th></th>
<th>1978</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$X_{LDC/X}$</td>
<td>$X_{LDC/P}$</td>
</tr>
<tr>
<td>Iron and Steel</td>
<td>44.5</td>
<td>2.8</td>
</tr>
<tr>
<td>Chemicals</td>
<td>44.4</td>
<td>5.2</td>
</tr>
<tr>
<td>Other Semimanufactures</td>
<td>50.5</td>
<td>2.7</td>
</tr>
<tr>
<td>Engineering Products</td>
<td>48.1</td>
<td>9.1</td>
</tr>
<tr>
<td>Textiles</td>
<td>49.3</td>
<td>3.1</td>
</tr>
<tr>
<td>Clothing</td>
<td>41.0</td>
<td>1.5</td>
</tr>
<tr>
<td>Other Consumer Goods</td>
<td>41.0</td>
<td>1.3</td>
</tr>
<tr>
<td>Manufactured Goods, total</td>
<td>47.1</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Incremental Shares, 1978–1990

<table>
<thead>
<tr>
<th></th>
<th>$\Delta X_{LDC/X}$</th>
<th>$\Delta X_{LDC/P}$</th>
<th>$\Delta M_{LDC/M}$</th>
<th>$\Delta M_{LDC/C}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron and Steel</td>
<td>47.1</td>
<td>11.5</td>
<td>42.0</td>
<td>6.6</td>
</tr>
<tr>
<td>Chemicals</td>
<td>36.9</td>
<td>7.8</td>
<td>28.0</td>
<td>4.1</td>
</tr>
<tr>
<td>Other Semimanufactures</td>
<td>50.9</td>
<td>6.0</td>
<td>54.8</td>
<td>7.3</td>
</tr>
<tr>
<td>Engineering Products</td>
<td>64.4</td>
<td>29.1</td>
<td>48.2</td>
<td>10.8</td>
</tr>
<tr>
<td>Textiles</td>
<td>52.7</td>
<td>9.4</td>
<td>51.8</td>
<td>7.2</td>
</tr>
<tr>
<td>Clothing</td>
<td>46.6</td>
<td>5.0</td>
<td>72.9</td>
<td>28.1</td>
</tr>
<tr>
<td>Other Consumer Goods</td>
<td>44.6</td>
<td>3.7</td>
<td>55.6</td>
<td>6.6</td>
</tr>
<tr>
<td>Manufactured Goods, total</td>
<td>59.3</td>
<td>18.0</td>
<td>45.4</td>
<td>8.9</td>
</tr>
</tbody>
</table>

Source: Table 3.
Key: $X$ = exports to nonpartner countries; $M$ = imports from nonpartner countries. $X_{LDC}$ = exports to developing countries; $M_{LDC}$ = imports from developing countries; $P$ = Production; $C$ = Consumption.
information provided by Landsberg et al. (1963) and, subsequently, Houthakker and Taylor (1970) for the United States, Deaton (1975) for the United Kingdom, and Berner (1976) for the European Common Market, as well as the projections made by Leontief et al. for the industrial country groups under consideration.

An income elasticity of 0.8 has been assumed for clothing and 0.9 for other consumer goods. Among intermediate products, an income elasticity of 0.6 has been postulated for textiles, reflecting the shift towards higher-quality clothing. The same elasticity has been assumed for iron and steel, which are being replaced in several uses by lower-weight materials, which belong to both the chemical and other semimanufactures categories. Taking account of increased demand at higher income levels, an income elasticity of 1.2 has been postulated for chemicals while an elasticity of 1.0 has been assumed for other semimanufactures.

Engineering products include durable consumer goods as well as investment goods. With increased congestion and high petroleum prices, the sales of passenger cars are expected to rise at a relatively slow rate. The introduction of new products is likely to lead, however, to rapid increases in the demand for household appliances and other durable consumer goods. Finally, with increases in capital-labor ratios, the demand for machinery can be expected to rise at a rate exceeding that of the gross domestic product. All in all, we have calculated with an income elasticity of 1.2 for engineering products.

These estimates correspond to an average income elasticity of demand of 0.9 for manufactured goods, resulting in average annual increases of 3.6% in the consumption of manufactured goods between 1976 and 1990. Adjusting for projected values of exports and imports, estimates are that manufacturing production will rise by 3.9% a year during this period.\textsuperscript{21} The difference between the production and the consumption estimates is explained by the increase in the industrial countries' export surplus in manufactured goods from 5.0% of their manufacturing production in 1978 to 8.2% in 1990. The bulk of this increase would occur in trade with the developing countries, with the relevant ratios being 3.7% and 6.2%.

The projected growth rate of manufacturing production equals that of GDP in the industrial countries during 1978–90. By comparison, manufacturing production increased at an average annual rate of 2.2% and GDP grew 2.5% a year, i.e., a ratio of 0.9, between 1973 and 1978 while the ratio was 1.1 during 1963–73 (United Nations 1978, and national statistics).

Table 3 indicates the increased share of the developing countries as markets for the manufacturing production of the industrial countries. While exports to the developing countries amounted to 5.1% of manufacturing output in 1978, this share is projected to reach 9.8% in 1990, with an incremental share of 18.0%. Incremental shares are the highest for engineering products (29.1%) and vary between 4% and 12% for the remaining product groups.

In the same period, the share of imports originating in the developing countries in the industrial countries' consumption of manufactured products is projected to

\textsuperscript{21}It should be emphasized that the consumption as well as the production estimates are expressed in terms of gross values rather than value added.
rise from 1.5% in 1978 to 4.0% in 1990, with an incremental share of 8.9%. Incremental shares are by far the highest for clothing (28.1%). Nevertheless, clothing production in the industrial countries would increase at an average annual rate of 2.3% between 1978 and 1990. For the same period, the projected increase is 2.2% a year for the production of textiles, where the incremental share of the developing countries (7.2%) would be below the overall average.

CONCLUSIONS

The projections reported in this paper assume the continuation of existing policies in the industrial countries, including the maintenance of the Multifiber Arrangement. They further assume that the newly industrializing countries will upgrade and diversify their manufactured exports and that countries at lower levels of industrial development will take their place in exporting unskilled-labor intensive products.

This scenario represents the application of the stages approach to comparative advantage, with changes in export patterns occurring in the process of industrial development. It also points to the interdependence of the industrial and the developing countries through trade in manufactured goods, with benefits accruing to both groups of countries.

To begin with, the estimates indicate that the developing countries will increase in importance as markets for the manufactured exports of the industrial countries. Excluding trade between the United States and Canada and within the European free trade area in manufactured goods, the share of the developing countries in the manufactured exports of the industrial countries is expected to increase from 47% in 1978 to 55% in 1990, with the developing countries accounting for 59% of the increment in exports during this period.

In this scenario, the developing countries would assume increased importance in the total (domestic and foreign) sales of the industrial countries. While only 5.1% of the industrial countries' manufacturing output was sold in the developing countries in 1978, it is projected that this share will double by 1990, with exports to the developing countries accounting for 18% of the increment in output between 1978 and 1990. The incremental share of the developing countries would be particularly high, nearly three-tenths, for engineering production in the industrial countries.

In turn, the share of the developing countries in the imports of manufactured goods by the industrial countries would increase from 25% in 1978 to 37 percent in 1990, with an incremental share of 45 percent. In the same period, it is expected that the ratio of imports from the developing countries to the consumption of manufactured goods in the industrial countries will rise from 1.5% to 4.0%, with the incremental ratio being 8.7%.

Although import growth rates (12.5% a year) are expected to exceed the rate of growth of exports (9.7%), the increased export surplus of the industrial countries in their trade in manufactured goods with the developing countries would contribute to the growth of their manufacturing output. To the extent that manufactured goods tend to be more skill-intensive than agriculture and services,
this trade would make a positive contribution to economic growth in the industrial countries.

The industrial countries stand to obtain further gains as a result of resource allocation according to comparative advantage, involving the exchange of commodities embodying physical and human capital, including research intensive products, for products that have higher unskilled-labor intensity. Furthermore, international specialization permits two exploitation of economies of scale in the industrial countries, and the growth of imports from the developing countries tends to limit price increases for the consumer.

The developing countries, too, enjoy gains from improved resource allocation and the exploitation of economies of scale through trade in manufactured goods with the industrial countries. They have the further benefit of procuring sophisticated machinery and transport equipment in a world of rapidly changing technology. Moreover, the industrial countries provide markets for the skill-intensive products the newly industrializing developing countries are increasingly able to manufacture as well as for the incipient manufactured exports of countries at lower levels of industrial development.

At the same time, as we have seen, none of the industries of the industrial countries would experience a decline in output under the projections for the period 1978–90. Thus, production would rise at a rate of over 2% a year even in the case of textiles and clothing, the future prospects of which have been of particular concern to the governments of the industrial countries.

These considerations indicate the common interests of the industrial and the developing countries in a liberal trade environment that permits the rapid expansion of their mutual trade. Trade liberalization by the industrial countries could proceed over a ten-year horizon without involving excessively large adjustment costs, even though it would lead to more rapid increases in imports than projected in the present study under the continuation of existing policies. More rapid increases in the manufactured imports of the industrial countries from the developing countries, in turn, would permit the latter to increase their purchases of manufactured goods, with benefits to all concerned.

The newly industrializing countries, too, would need to reduce their trade barriers in order to improve economic efficiency and to admit imports from countries at lower levels of industrial development. Efficiency considerations call for moderate levels of protection in the latter group of countries also, in order to avoid high-cost import substitution and discrimination against the exportation of manufactured goods. At the same time, in the event that appropriate policies are followed, the newly industrializing, as well as the less developed, countries could increase their manufactured exports more rapidly than projected in this essay.

REFERENCES


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