World Trade and Output of Manufactures: Structural Trends and Developing Countries' Exports

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This is a revised version of a paper originally completed in February 1978, as a background study for the World Development Report 1978. Compared to the Report, it uses somewhat narrower definitions of developing countries and of manufactures.

Developing countries' manufactured exports increased from 1960 through 1976 at rates around 15 percent per year. This paper is concerned with the changing structural features of these exports and how they relate to world manufacturing output and markets, which have expanded much more slowly. Numerous relationships are explored, with speculative interpretations as well as tables. Here are examples of findings: the share of manufacturing output traded internationally in market economies has risen rapidly, but remains less than one sixth, and is lower in developing countries. The share of LDC exports in manufactures in developed countries has recently passed one percent, and ranges in individual countries from about 0.5 to 2 percent; but examples are given of much higher penetration in narrow product lines. Even these exports come mainly from a few countries and consist predominantly of labor-intensive goods such as clothing and electronic assembly products; rapid export growth has also taken place in a wide range of other products and in many other LDCs, and has extended to trade in manufactures among developing countries themselves, which has quite a different composition.

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WORLD TRADE AND OUTPUT OF MANUFACTURES: STRUCTURAL
TRENDS AND DEVELOPMENT COUNTRIES' EXPORTS

Introduction

This note examines some of the major trends in world trade and output of manufactures in the 1960's and 1970's with special reference to the growth of developing countries' exports. To spice up what might otherwise be a mindless parade of tables, some attention is paid to what the writer sees as likely reasons for (or implications of) some of the relationships. These remarks will serve their purpose if they stimulate thought and discussion.

The World Location of Manufacturing Output vs. GNP

Before looking at trade and trends it may be useful to look briefly at the world location of manufacturing output in a recent year. In 1973—the latest year for which suitable data are fully available--GNP originating in manufacturing appears to have been close to $1,080 billion in the market economies, or about 27% of their total GNP. By regions the picture was approximately as follows. No estimate is given for centrally-planned economies (CPEs) because of the conceptual problems involved, but Chenery gives an estimate of $308 billion for their manufacturing output in 1973, for purposes of comparison with market economy figures. 1/

1/ Hollis B. Chenery, "Transitional Growth and World Industrialization," in Bertil Ohlin, Per-Ove Hesselborn and Per Magnus Wijkmans, editors, The International Allocation of Economic Activity: Proceedings of a Novel Symposium held at Stockholm, Macmillan Press, 1977. The World Bank's World Tables, 1976, gives a ratio of 51.7% of GDP at factor prices coming from manufacturing in 1973. Combined with World Bank Atlas' GNP figure of $996 billion, this might imply manufacturing costs of $500 billion.

Table 1: GNP ORIGINATING IN MANUFACTURING AND TOTAL GNP BY REGION AND GROUP OF COUNTRIES, 1973

	GNP (Billion in US$)	GNP from Mfg. (Billion in US$)	Percent from Mfg.	GNP from Mfg. Per Capita	"Real" 1965-73 Growth of Mfg.
Developed Market Economies	3,303.8	957.2	29.0	1,319	4.9
Transitional Countries /a	117.6	31.0	26.4	545	9.3
Other Western Europe	1,241.1	434.6	35.0	1,512	5.0
North America	1,435.2	348.8	24.3	1,500	3.3
Japan	411.3	117.6	28.6	1,085	13.0
Australia, N.Z., S. Africa	98.6	25.2	25.6	624	4.6
Developing Market Economies	645.2	121.6	18.9	64	6.9
Latin America	237.6	60.4	25.4	208	7.8
East Asia	86.0	17.4	20.2	54	12.3
Turkey and Yugoslavia	48.3	12.9	26.7	218	8.0
South Asia	92.4	12.1	13.2	15	3.9
Middle East	83.2	8.2	9.8	112	5.4
North Africa	35.6	4.4	12.4	60	6.0
Sub-Saharan Africa	62.1	6.1	9.9	21	5.0
Total Market Economies	3,949.0	1,078.8	27.3	411	5.1
Centrally Planned Economies	(966.2)	/b	/b	/b	(8.7) /b

/a Spain, Portugal, Greece, Cyprus, Malta and Israel.

/b Meaningful estimate difficult; see test.

Sources: GNP from World Bank Atlas 1976; GNP from manufacturing estimated based on shares of GDP from manufacturing at factor prices in World Tables 1976; real output growth from World Tables.

A striking feature of this comparison is the enormity of the contrasts in absolute and per capita manufacturing output among different groups of countries, not least among the developing countries themselves. 1/ At the extremes, GNP per head from manufacturing is in the order of 100 times larger in leading developed countries than in South Asia or, for that matter, the lower-income countries as a group.

1/ GNP from manufacturing is in effect a net form of value added, not output in the usual phase of gross output, but the two are, of course, closely related.

Although not free of price distortions caused by protection, these contrasts in GNP from manufacturing are more "real" than the corresponding contrasts in total GNP. Contrasts in the dollar value of GNP are partly caused by very different price levels among different countries, particularly in regard to services and construction, and also in regard to the less tradeable agricultural products, which are often very cheap in low-income areas. What looks like a fifty-to-one difference in per capita income turns out to be much less in the richer country's prices. Depending on how this is done, the difference can be narrowed to much less than ten to one, or (as in the Kravis, et al., international comparisons project) some in-between number in the order of 20 to 1. In manufacturing, however, the contrast is not only larger prior to adjustment, but if agricultural processing, repair and handicrafts are not counted, this difference is very real indeed, because prices of manufacturers tend to be broadly similar in different countries as a result of trade.

Contrasts in industrial output per head are partly caused by, but also help to cause the more familiar contrasts in income. Manufacturing produces a smaller proportion of GNP in the poorest and least developed countries than in richer ones, partly because the structure of demand favors food and other simple products for subsistence, and partly because industrial capabilities tend to be especially backward. If this second obstacle can be overcome, an impoverished country can begin to export manufactures as a way out of both inadequate demand and poverty itself, as Hong Kong and later South Korea did. But the route around the dilemma may be more difficult and the road to industrialization may be a long one for a country with fairly ample natural resources but underdeveloped human resources. Here it may be difficult to export <u>and</u> difficult to generate much domestic demand.

In any event, using Chenery's figure for the CPEs, the developing countries' share of world GNP from manufacturing reached 8.8% in 1973. Three fifths of this came from Latin America, Yugoslavia and Turkey. 1/ Only 1.3% of world manufacturing value added came from South Asia and Sub-Saharan Africa which together contained 27.8% of the world's population.

The total GNP from manufacturing in the developing countries in 1973 was about equal to that of Japan and smaller than that of West Germany. Only six developing countries had GNP from manufacturing of more than $4 billion in 1973, according to the estimates underlying Table 3: in billions of dollars the value of this GNP was 19.6 in Brazil, 13.9 in Mexico, 12.2 in Argentina, 9.8 in India, 7.0 in Yugoslavia and 5.9 in Turkey. 2/ Nineteen of the developed market economies (as defined in the table) were above this level, together with the eight largest CPEs.

1/ The definition of developing countries can be seen from Table 1; it is not the same as the one used in the World Bank's <u>World Development Report 1978</u>.

2/ These numbers are distorted in varying degrees by protection and unrealistic exchange rates.

Table 1 also shows sharp differences among regions in output growth within manufacturing, as illustrated by "real" growth rates for 1965-73. The fastest growth rates (12-13% per year) have been achieved by Japan and the East Asian developing countries, relying on exceptionally export-oriented policies. The next highest growth rates (8-9%) have come in the transitional and developing countries of Southern Europe and the Mediterranean, closely rivalled by Latin America (defined here to include the Caribbean). The slowest growth rates (under 5%) have been recorded in the "older" developed countries, especially those of North America (3.3%), and in South Asia and Sub-Saharan Africa. Taking into account population growth the industrial growth record in these low-income regions has been dismal.

Trends in Output by Broad Product Groups

Manufacturing output has grown faster in developing countries than in developed ones. Within manufacturing relatively high growth rates of output have been achieved at a world level in machinery, transport equipment, chemicals, and other industries producing technically complex products. Reflecting trends in demand, the slowest growth is found in the textile, clothing, footwear and leather product industries. Growth rates in developing countries have been especially high relative to those in developed countries, in metal products including machinery and equipment, basic metals, and clothing and footwear. Advances in supply capability play a role along with demand.

Table 2: GROWTH RATES OF MANUFACTURING PRODUCTION BY BRANCHES, 1960 to 1977

Product Group	Developed	Developing	World (incl. CPEs) /a
Food, beverages, tobacco	3.7	5.5	4.4
Textiles	2.9	3.8	3.7
Apparel, leather, footwear	2.1	6.3	3.8
Wood products, furtniture	4.0	5.4	4.9
Paper, printing, publishing	3.6	6.6	4.4
Chemicals, petroleum, rubber products	7.5	7.4	8.1
Non-metallic mineral products	4.2	7.8	5.5
Basic metals	3.5	7.8	4.7
Metal products, machinery, equipment	5.3	10.6	7.5
All manufacturing	4.8	6.7	6.1

/a Weights and rates for CPEs must be considered dubious.

Source: UN *Monthly Bulletin of Statistics*, August 1978.

The faster overall growth of manufacturing output in the developing countries is probably due in part to long-run influences, for example:

(1) Starting from low incomes and a low base, developing countries have greater needs to meet, and as "latecomers" have much scope to expand output and generate demand by imitating the techniques and tastes of the richest countries; while developed countries have less guidance on where to go next.

(2) Population has grown faster in the poor countries, enlarging the market while reducing the contrast in growth rates on a per capita basis. 1/

(3) Even though there have been wide differences among countries and regions, over the last 15 years, as a group, developing countries have almost certainly made greater strides than developed ones in improving economic management and policies, and may have tried harder to foster growth of output and industry.

These three influences do not begin to explain, however, why the poorest and least industrialized of the developing countries have done worse than the rest. The explanations here may lie in a combination of poorly chosen policies and difficulties in expanding the market.

Export vs. Output Growth in Manufacturing

International trade in manufactured products has expanded in the 1960's and 1970's at much higher real growth rates than manufacturing output, especially in the market economies. As one result, the market economies increased their exports of manufactures relative to their output of manufactures by about 60 % in the nine-year period from 1965 through 1974 and more since then. This trend appears to result from trade liberalization in and among the industrial countries, improved long-distance communications, increased export efforts in many countries, and increased international operations by private business firms.

Meanwhile, especially in recent years since 1965, exports as well as output of manufactures have grown faster in the developing countries than in the developed countries. The next table shows some of the long-term trends. Statistics refer to different definitions of manufactures

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1/ The difference in population growth has been in the order of 1.5% per year in recent years. Populations of developed countries have been growing at 0.8% to 0.9%, those of developing counries at 2.3% to 2.4% per year. Note, however, that the relationship between population growth and industrial development can be complex, because savings and the structure of demand are likely to be affected.

because the output data include natural-resources processing industries, for example, food, petroleum refining, and nonferrous metals, in which exports are countered as primary commodities. 1/

Table 3: GROWTH OF MANUFACTURING OUTPUT VS. EXPORTS IN MARKET ECONOMIES, 1960-1974

Index Numbers (1970=100)

	1960	1965	1976	Real Growth Rates 1960-76	1965-76
Developed Countries					
Manufacturing output	57	78	121	4.8	4.1
Exports of manufactures /a	41	60	157	8.8	9.1
Exports of all products	44	63	149	7.9	8.1
Developing Countries					
Manufacturing output	54	75	153	6.7	6.7
Exports of manufactures /a	37	55	205	12.1	12.7
Excl. nonferrous metals	28	49	232	15.1	15.2
Exports of all products	52	70	137	6.2	6.3
Excl. petroleum	62	77	142 /b	5.3	5.7

/a Plus nonferrous metals, which are not counted among exports of manufactures in this paper.

/b Estimated; 124 in 1975.

Sources: United Nations Monthly Bulletin of Statistics, April, June, August, 1978; developing countries' exports of manufactures excluding nonferrous metals are estimated based on price indexes for developed countries' export of manufactures and UN trade data.

Reasons for especially rapid growth in exports of manufactures from developing countries appear to include above all the following:

(1) Export incentives and industrial policies have been improved in many developing countries, shifting away from excessive emphasis on import substituion and production only for the domestic market;

(2) Exporting of manufactures is so new that it has expanded from a small base with much benefit from learning and cumulative experience;

1/ Throughout this paper statistics on exports of manufactures refer to Standard International Trade Classification (SITC) 5-8 less 68, excluding non-ferrous metals.

(3) Supply capabilities have leaped forward through transfer of technology and borrowing of production methods from developed countries, aided by rapid buildups of skilled manpower, know-how, and investment in some developing countries;

(4) Trade liberalization in developed countries has been favorable to imports from developing countries;

(5) Businesses in developed countries--retail chains, other large buyers, trading firms, and multinational manufacturing corporations--have played an active and crucial role while seeking low-cost sources of supply based on low-cost labor. Their efforts, which have greatly accelerated export growth, have been spurred by slow labor force growth and rising real wages in developed countries as well as by declining transport costs, technological and organizational innovations, and a favorable international policy environment.

Recent Vicissitudes and the Worldwide Recession

The growth performance of developing countries looks all the better when compared to the depressed state of the developed countries in recent years as a result of the recession that reached the bottom in 1975. Index numbers of manufacturing production and exports illustrate the pattern of their recent fluctuations. Production in the developed countries was hardly greater in 1977 than in 1973, while industrial output in developing countries has continued to expand.

Table 4: INDEX NUMBERS OF THE VOLUME OF MANUFACTURING OUTPUT AND EXPORTS
(1970 = 100)

	1973	1974	1975	1976	1977
World value added /a	124	128	126	136	143
Developed countries	120	121	111	121	126
Developing countries	129	137	141	153	163
Exports of manufactures					
Developed countries	134	148	141	157	163
Developing countries	149	167	169	205	/b

/a Includes dubious numbers and weights for centrally-planned economies.
/b Not available but probably in the 220-225 range.
Sources: UN Monthly Bulletin of Statistics, June and August, 1978; UN Yearbook of Industrial Statistics, 1975, Vol. I; UN and national statistics for 1976.

The disruption caused in the developed countries by the recession can be seen further in the following index numbers by product groups.

Table 5: INDEX NUMBERS OF MANUFACTURING OUTPUT IN DEVELOPED COUNTRIES BY BRANCHES, 1972 to 1977 (1970=100)

Product Group	1972	1973	1974	1975	1976	1977
Food, beverages, tobacco	108	113	115	116	121	125
Textiles	112	118	112	104	113	112
Apparel, leather, footwear	108	110	108	105	114	113
Wood products, furniture	116	125	119	109	120	125
Paper, printing, publishing	107	113	113	102	111	114
Chemicals, petroleum, rubber products	116	128	130	120	135	143
Non-metallic mineral products	111	121	120	109	119	124
Basic metals	104	118	118	99	108	107
Metal products, machinery, equipment	110	124	124	113	122	129
All Manufacturing	110	121	121	111	121	126

Source: UN Monthly Bulletin of Statistics, August, 1978.

The reasons for the severity of the 1974-75 recession and the weakness of the recovery are obviously a matter of much concern and dispute. Perhaps it would not be out of place to mention here a few of the explanations that are widely offered as hypotheses, together with postulated reasons why these troubles have not equally afflicted the developing countries.

(1) The sharp rise in oil prices in 1973-74 has had deflationary effects in developed countries and has shifted the structure of relative prices and demand in directions that have made some of their production capacity obsolete. Developing countries had fewer investments affected, while some--the oil exporters--gained from the price rise.

(2) Deflationary policies, pursued in leading developed countries following the 1972-73 "superboom" and the rise in oil prices, aggravated the deflationary effects. Most developing countries tried instead to maintain the pace of development, by borrowing if necessary.

(3) A long downswing or down cycle in economic stimulation from technological innovation may have aggravated this recession. Advances in technology have led in the richer countries to much displacement of unskilled labor through automation and reorganization; this has not been adequately offset by new "boom" industries. Meanwhile, the developing countries still know where to go next.

(4) More than the usual overbuilding of capacity may have taken place in the late 1960's and early 1970's while the world economy was "overheating" through excess creation of liquidity (e.g., from the U.S. payments deficit caused by inappropriate fixed exchange rates and the Vietnam War). Some developing countries (especially oil exporters) may now be overbuilding capacity in expensive projects, but as a group, they could not afford much of this in the past.

(5) Developed countries have little capability as yet to grow in the face of inflation because their tax systems are poorly designed for this--not being indexed, they still tax income earners, businesses, and investors as if nominal gains were real gains, leaving them inadequate purchasing power, capital investment and replacement funds, and incentives. Developing countries have this problem less because their tax system are cruder or (in a few cases) better indexed.

(6) Leading developed countries have not yet learned to manage their economies jointly and cannot agree on the principles in the face of recession combined with inflation. More specifically, West German anti-inflationary preferences combined with a high degree of interdependence have induced Western Europe to adopt a slow-slowth response which helps to hold back recovery everywhere. Developing countries generally seek growth even at some cost in inflation.

(7) Private businesses in the richer countries are said to be dissuaded from investing by added uncertainty connected with shifting exchange rates, and by policies emphasizing social welfare, the environment, etc., at the expense of business profits: growth and other older goals have been downgraded as priorities. In most developing countries no such change has taken place: policies aim squarely at growth and development while uncertainty springs mainly from conditions at a local level.

Some of these explanations, if correct, would imply that the depressed condition of the developed countries can be expected to continue for several more years until different policies or new technological stimuli appear. Thus, the developing countries might have to contend with a discouraging international economic environment for years to come. In these circumstances it is fortunate that their growth has not proved highly dependent on a buoyant world economy.

Trade as a Share of Output

To derive a figure for manufacturing output that would be roughly comparable to exports, two main adjustments become necessary: