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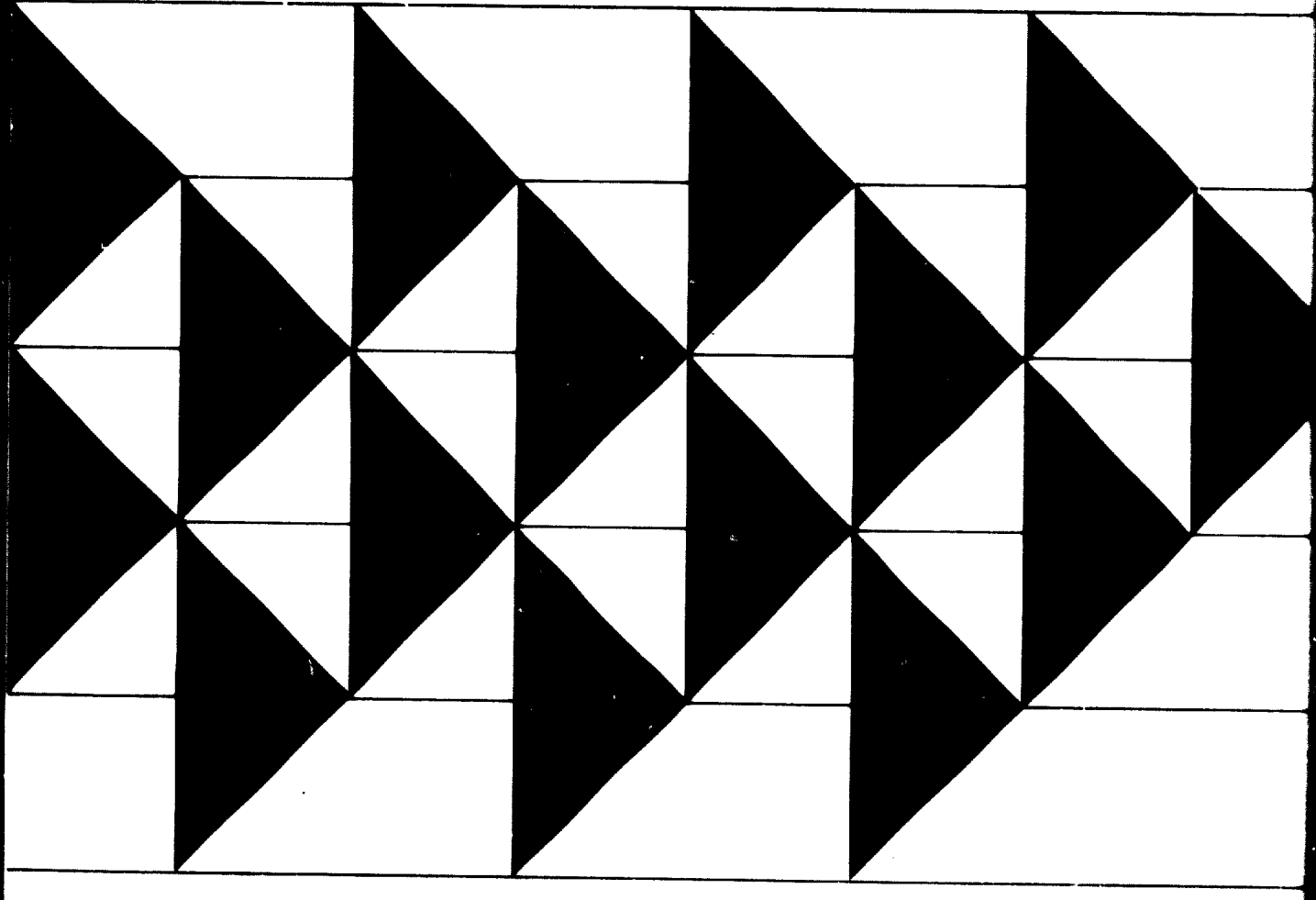

UNITED NATIONS

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EXPLANATORY NOTES

Unless otherwise indicated "developing countries" refers to countries in Africa (excluding South Africa), Asia (excluding Japan) and Latin America.

"Developed market economies" include Australia, Canada, Japan, New Zealand, South Africa, the United States and Western Europe.

The term "centrally planned economies" refers to the Union of Soviet Socialist Republics and Eastern Europe. Unless otherwise indicated, data for the centrally planned economies exclude mainland China.

The term "billion" signifies a thousand million.

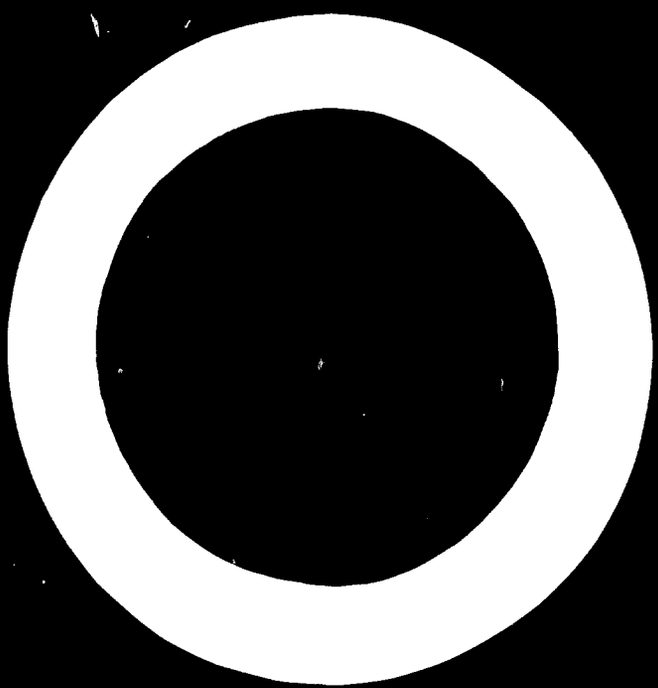
ISIC refers to the International Standard Industrial Classification.

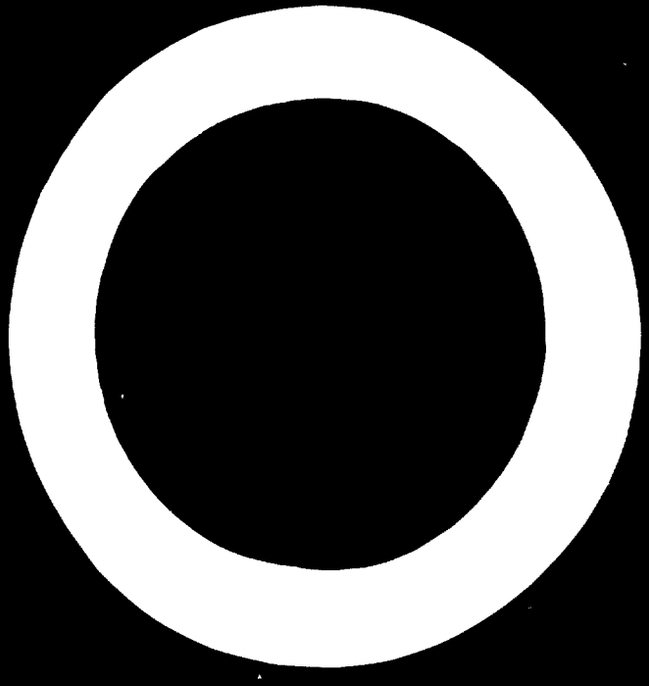
SITC refers to the Standard International Trade Classification.

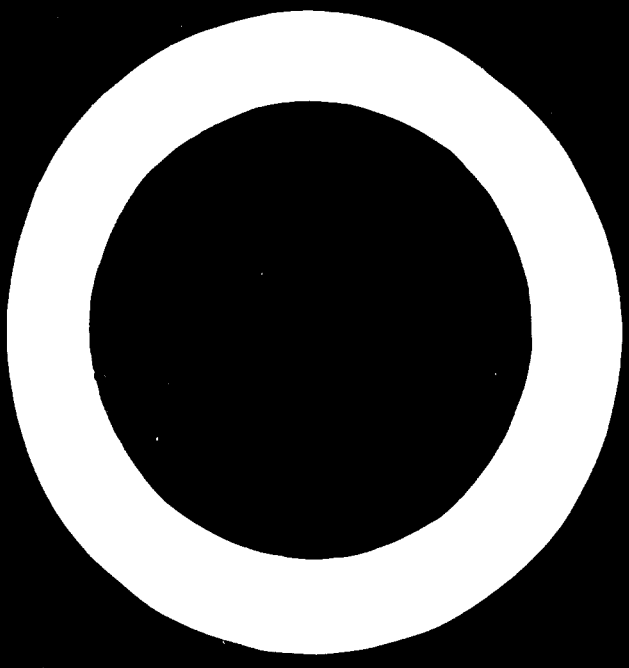
Inclusion of a particular country or territory in any economic or geographical grouping (or its exclusion) has been dictated by considerations of availability of comparable data in statistics of the United Nations and other international agencies.

Countries are referred to by their titles at the time the relevant data were collected.

Exchange rates used in computations in this survey relate to those before currency devaluation of November 1967.







Chapter I

RECENT TRENDS IN INDUSTRIAL PRODUCTION AND DEMAND IN DEVELOPING COUNTRIES

A. THE GROWTH OF INDUSTRIAL PRODUCTION

Growth rates in manufacturing

In recent years the developing countries have made undoubted progress in their effort to introduce a significant industrial sector into their economies. This is indicated by their annual growth rate for manufacturing output, which was almost 7 per cent in the ten years up to 1965, the mid-point of the United Nations Development Decade[1] (see table 1), and which did not slacken off in the mid-1960's. It is not the purpose of this survey to pass judgement on the adequacy of 7 per cent growth of industrialization in the developing countries. However, it may be suggested that immediate self-congratulation is hardly appropriate.

An optimistic reaction to this expansion might be prompted, in part, by the fact that over the period 1955—1964, the growth rate of manufacturing was significantly higher in developing countries than in the developed market economies, where it was only about 5 per cent a year. However, the base to which this latter growth was added was about ten times the size of the manufacturing base of developing countries. Consequently, in achieving a 7 per cent annual growth rate in 1955—1964, developing countries produced an increased volume of manufactured goods equivalent to only one seventh of the increment produced by the developed market economies in the same period. Furthermore, the centrally planned economies not only had a considerably

[1] The period 1960—1970 was designated by the General Assembly as "the United Nations Development Decade, in which Member States and their peoples will intensify their efforts to mobilize and to sustain support for the measures required on the part of both developed and developing countries to accelerate progress towards self-sustaining growth of the economy of the individual nations and their social advancement" (resolution 1710 (XVI) of 19 December 1961).

TABLE 1. GROWTH OF MANUFACTURING AND INDUSTRIAL PRODUCTION BY MAJOR REGIONS, 1938–1966

(Average annual change in index numbers between the dates indicated)[a]

	Manufacturing production[b]			*Industrial production*[b]		
	Developing countries[c]	*Developed market economies*[c]	*World excl. centrally planned economies*[c]	*World excl. centrally planned economies*[c]	*Centrally planned economies*[c]	*World*[c]
1938 and 1948	4	4	4	4	...	...
1948 and 1950	7	7	7	8	...	...
1950 and 1951	8	9	9	9	17	11
1951 and 1952	1	2	2	3	14	5
1952 and 1953	3	8	8	7	12	8
1953 and 1954	9	—	—	1	11	3
1954 and 1955	11	11	11	11	12	11
1955 and 1956	8	4	5	5	9	6
1956 and 1957	6	3	3	3	10	5
1957 and 1958	6	−3	−3	−2	11	1
1958 and 1959	7	11	11	10	12	10
1959 and 1960	8	7	7	7	11	8
1960 and 1961	8	4	4	4	10	6
1961 and 1962	6	7	7	7	10	8
1962 and 1963	6	6	6	6	8	7
1963 and 1964	8	8	8	8	8	8
1964 and 1965	6	7	7	7	9	7
1965 and 1966[d] . . .	7	7	7	7	...	...
1938 and 1960–1964 .	5.9	4.9	5.0	5.0	...	...
1948 and 1960–1964 .	7.8	5.7	5.8	5.8	...	...
1950–1954 and 1960–1964	7.1	5.0	5.2	5.2	10.7	6.6
1955–1959 and 1960–1964	6.9	5.2	5.4	5.4	10.4	6.7

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Statistical Yearbook*.

[a] In this table, and throughout the survey unless otherwise indicated, rates of change refer to percentage changes calculated on a compound basis.

[b] Manufacturing Production includes ISIC categories 2–3; Industrial Production includes ISIC categories 1–3, and 511–512.

[c] In this table, and throughout the survey unless otherwise indicated, the following definitions have been adopted: *Developing countries* – Africa (excluding South Africa), Asia (excluding Japan) and Latin America; *Developed market economies* – Australia, Canada, Japan, New Zealand, South Africa, United States and Western Europe; *Centrally planned economies* – Eastern Europe and USSR; *World* – sum of above regions.

[d] Estimated changes between the first nine months of 1965 and the corresponding period of 1966.

larger industrial base than the developing countries in the early 1960's, they also achieved an average annual growth rate of about 10 per cent in the same period.

There are several other points to make with regard to the 7 per cent growth rate of manufacturing output experienced by developing countries. First, it could not fully meet the increasing demand for manufactured goods by these countries, which, as a result, became more

dependent on net imports of manufactures.[2] Secondly, in the large majority of developing countries, growth in manufacturing fell far short of the aspirations expressed in their official plans for economic development. Thirdly, growth in this sector was not sufficient to permit the developing countries as a whole to reach the General Assembly's suggested target of a minimum annual increase of 5 per cent of aggregate national income[3] which would have implied an increase of 8.6 per cent in the manufacturing sector.[4] Fourthly, owing to the population growth in developing countries, the annual *per capita* increase in manufacturing was only about 5 per cent.[5]

In attempting to expand the manufacturing sector, the developing countries have also had to bear in mind the need to modernize and expand agriculture and to provide an appropriate infrastructure for these and other sectors of the economy. Some of the conditions under which these objectives had to be achieved were: a labour force which, though generally large enough, often lacked skills; a general deficiency in the domestic supply of capital, with the corollary of significant reliance on foreign aid and investment; and a limited supply of foreign exchange owing to inadequate expansion of exports. The influence of these conditions will be considered later in this survey. The remainder of this chapter is confined, essentially, to an analysis of how the 7 per cent growth rate is made up, which is necessary since the growth rate of manufacturing has varied considerably in time and from one country to another.

After enjoying a burst of growth in the domestic manufacturing sector during the first years after the Second World War, as machinery and supplies for industry again became available from overseas, the developing countries experienced a recession in the early 1950's that reduced the expansion rate in manufacturing: in 1952, growth fell below 2 per cent. However, after an acceleration in the years immediately following, the developing countries have since achieved annual growth rates in manufacturing which have never been below 5 per cent and which occasionally rose above 8 per cent. Growth for the period 1964–1966 was close to 7 per cent. It would be going too far to interpret

[2] See chapter II.

[3] Resolution 1710 (XVI), para. 1.

[4] See *The United Nations Development Decade. Proposals for Action* (E/3613), 1962 (United Nations publication, Sales No.: 62.II.B.2).

[5] At the 7 per cent growth rate of manufacturing production, it would take developing countries about 35–40 years to reach the present aggregate level of manufacturing output of the developed market economies, a level which the latter would meanwhile have left far behind. Repeating this mechanical projection exercise on a *per capita* basis, if the growth rate of *per capita* manufacturing production in developing countries can be taken at roughly 5 per cent annually, then it would take about 60–70 years for the developing countries as a whole to reach the present level of *per capita* manufacturing production of the developed market economies. The gap between some of the more advanced of the developing countries, with relatively high rates of *per capita* growth and the poorer performers among the developed market economies would, of course, be substantially smaller.

TABLE 2. GROWTH OF MANUFACTURING PRODUCTION, BY DEVELOPING REGIONS AND COUNTRIES, 1938–1966

(Average annual change in index numbers between the dates indicated)

	1938 and 1948	*1948 and 1950–1954*	*1950–1954 and 1955–1959*	*1955–1959 and 1960–1964*	*1960 and 1961*	*1961 and 1962*	*1962 and 1963*	*1963 and 1964*	*1964 and 1965*	*1965[a] and 1966*
Latin America	5.1	5.6	6.0	5.8	8	4	1	7	5	...
Argentina[b]	5.7	−0.6	2.5	1.4	10	−7	−6	15	11	...
Brazil[b,c]	6.6	11.2	8.9	10.7	10	7	...	...	..	...
Chile[d]	4.0	7.1	3.4	5.1	6	10	6	5	5	7
Colombia	0.6	...	...	6.2	6	7	5	...	...	...
El Salvador	...	...	...	7.2	4	9	18	30	23	...
Guatemala[e]	...	1.8	4.6	4.2	5	−3	12	4	9	4
Mexico[f]	4.1	...	...	7.5	4	6	9	13	7	10
Nicaragua	...	...	...	4.5	9	4	−3	12	...	...
Venezuela[g]	...	20.5	14.1	9.1	5	12	8	13	10	—
Africa										
Algeria[h]	...	7.6	7.9	5.5	−2	...	...	...	...	...
Ghana	...	...	...	...	...	...	23	8	−4	...
Kenya[i]	...	...	...	5.0	3	3	3	13	...	...
Morocco	4.9	10.8	3.5	4.2	4	5	6	2	...	...
Rhodesia[j]	...	...	...	5.2	1	−3	4	9	9	...
Senegal[k]	...	...	...	...	6	−3	1	3	−2	29
United Arab Republic[l]	...	...	...	16.2	22	...	...	...	...	—
Zambia[m]	...	...	...	...	...	−1	7	17	31	16

Asia	0.8	5.5	9.9	8.5	7	9	10	9	8	6
Ceylon[a]	...	...	...	6.6	5	7	4	7	...	...
China (Taiwan)[b]	...	...	...	13.0	13	14	10	28	14	11
India[c,d]	1.4	4.6	6.2	7.4	7	7	9	7	5	1
Israel	...	...	...	12.5	16	14	14	14	10	5
Korea, Rep. of[e]	...	...	...	9.8	5	16	13	7	20	12
Pakistan[f] . . .	...	...	19.1	13.6	16	16	13	11	4	...
Philippines[g] . . .	...	...	11.5	6.6	6	6	6	8	3	9

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Statistical Yearbook*.

[a] Estimated changes between the first nine months of 1965 and the corresponding period of 1966.

[b] Data shown under 1960 relate to 1960.

[c] Excluding coal and petroleum products and wood products. Prior to 1957 excluding also clothing, foot-wear, furniture and metal products.

[d] Data shown under 1960 relate to 1956–1960. Excluding slaughtering, sawmills and smelting and refining of copper. Prior to 1957, including manufactured gas, but excluding furniture, printing and publishing and wood, leather, rubber and metal products.

[e] Excluding furniture, paper and paper products, printing and publishing, rubber and metal products.

[f] Excluding clothing and foot-wear, wood products, furniture, printing and publishing, chemical products and metal products. (Mexico, also leather and leather products and non-ferrous metal industry until 1950. From 1950, excluding non-ferrous basic metal industry and furniture only; Pakistan, also most food and non-metallic mineral products.)

[g] Excluding foot-wear, basic metal and machinery.

[h] Excluding clothing and foot-wear, wood products, furniture, leather, rubber, petroleum and coal products. In addition, in 1948 and 1953, excluding food products, beverage, and glass products.

[i] Excluding products of petroleum and coal and basic metals.

[j] Excluding motor vehicle repairs and non-ferrous metallurgy.

[k] Including food, beverages, tobacco, textiles, shoes, chemicals, non-metallic mineral products, beds, mattresses and some metal products only.

[l] Excluding cotton ginning and pressing, except in 1961.

[m] Excluding leather and leather products, non-ferrous metallurgy, vehicle and cycle repairs.

[n] Excluding machinery and transport equipment.

[o] Excluding repair work and finishing of furniture and fixtures. Prior to 1961, excluding the making of wearing apparel, printing and publishing.

[p] Prior to 1957, excluding clothing, wood products and furniture (except plywood), printing and publishing, petroleum and coal products.

[q] Excluding clothing and foot-wear, furniture and fixtures. Prior to 1960 also products of petroleum and coal.

[r] Excluding basic metals; prior to 1957 excluding printing and publishing, petroleum and coal products and transport equipment.

these aggregate statistical data as evidence of a recent acceleration of the growth rate of manufacturing activity in the developing countries as a whole. Rather, the recent ten-year period might be characterized as one of a fairly steady advance in industrialization.

Taking the period from the years immediately after the Second World War to the present, developing countries as a group did not exhibit the same degree of year-to-year fluctuation as the developed market economies or the declining tendency of the centrally planned economies. The growth of manufacturing activity in developing countries appears to hold promise of some loosening of the close link between general economic conditions in the developed market economies and the developing countries. The chief operative factor in this linkage has been the demand by the industries of developed economies for the primary products of developing countries. Recession in developed countries has been accompanied by deterioration in the terms of trade of, and economic instability in, developing countries. It has become evident in recent years that changes in the manufacturing activity of developing countries as a whole, have generally been independent of similar changes in developed countries and have thus contributed not only to the growth but to the stability of developing countries. As shown in table 1, neither the industrial recessions nor the subsequent recoveries that affected some industrial countries in 1954–1955 and 1958–1959 produced parallel movements in developing countries. The second achievement of developing countries has been that they have not experienced a general slackening of the growth rate in manufacturing. This contrasts with the experience of the centrally planned economies. Without entering into a detailed and comparative examination, that is warranted, it should be noted that while the latter economies had a substantially larger industrial base than the developing countries at the outset of the post-war period, they nevertheless generally achieved annual growth rates considerably in excess of those of the developing region. However, the earlier growth rates of about 15 per cent gave way in the 1960's to rates below 10 per cent, roughly comparable with those currently achieved by developing countries.

Before examining the growth experiences of individual countries, it should be observed that while the major regions comprising the developing countries did not share equally in the aggregate 7 per cent growth in manufacturing, they did not differ markedly. Thus, between the second half of the 1950's and the first half of the 1960's, growth of manufacturing output was close to 6 per cent in Latin America, possibly in the range of 7–8 per cent in Africa,[6] and above 8 per cent in Asia (see table 2). However, in earlier years industrial growth in the major regions was less even; Latin American manufacturing growth changed little from

[6] For the further data on Africa, see Economic Commission for Africa, "A Note on the Present Stage of Industrial Development in Africa" (document IND/IF/WP/2).

TABLE 3. GROWTH OF PER CAPITA MANUFACTURING PRODUCTION AND OF POPULATION IN DEVELOPING COUNTRIES, 1950–1964

(Average annual change in index numbers between the dates indicated)

	Manufacturing production		*Population*	
	1950–1954 and 1955–1959	*1955–1959 and 1960–1964*	*1950–1954 and 1955–1959*	*1955–1959 and 1960–1964*
Latin America				
Argentina	0.6	−0.3	1.9	1.7
Brazil	5.5	7.4	3.2	3.1
Chile	1.0	2.6	2.4	2.4
Colombia	...	2.9	3.2	3.2
El Salvador	...	4.0	2.8	3.1
Guatemala	1.4	1.1	3.1	3.1
Mexico	...	3.9	3.4	3.5
Nicaragua	...	1.4	3.0	3.0
Venezuela	9.7	5.3	4.0	3.6
Africa				
Algeria	5.6	3.4	2.2	2.0
Kenya	...	1.9	3.1	3.0
Morocco	0.8	1.3	2.7[a]	2.9[a]
United Arab Republic	...	13.4	2.3	2.5
Asia				
Ceylon	...	3.9	2.5[b]	2.6[b]
China (Taiwan)	.,.	9.2	3.5	3.5
India	4.2	5.1	1.9[c]	2.2[c]
Israel	...	8.6	4.4	3.6
Korea, Rep. of	...	6.7	...	2.9
Pakistan	16.6	11.3	2.1	2.1
Philippines	8.1	3.3	3.1	3.2

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Statistical Yearbook* and *Demographic Yearbook*.

[a] Prior to 1965, excluding southern part of Northern Zone (former Spanish protectorate).

[b] Prior to 1960, excluding non-resident military and shipping personnel, together numbering 56,606 at 1946 census.

[c] Prior to 1965, including data for Sikkim.

one quinquennium to the next, while in Asia the rate was apparently below 6 per cent in the early 1950's and considerably lower than that in the previous decade, owing to the effect of the war. The general picture that industrial activity proceeded at a not substantially different pace in the various regions of the developing world in more recent years, may be obscured by over-concentration on year-to-year changes. These would indicate that, thus far in the 1960's, annual growth rates in Latin America, Africa and Asia may have fallen as low as 1, 2 and 6 per cent, and may have risen as much as 7, 10 and 10 per cent, respectively.

Taking the average annual growth rate over a number of years as an indication of accomplishment, it is clear that the manufacturing

sector has been developed under very diverse conditions of resources, aims and policies in particular countries. Countries as dissimilar as Brazil and China (Taiwan), as the United Arab Republic and the Republic of Korea, and as Pakistan and Venezuela, have all achieved recent growth rates in their manufacturing sector well above the average for all developing countries. Essentially the same conclusion emerges from comparison of countries with significantly lower growth rates. The experience of many developing countries in different economic situations points to an inability to break through to high rates of growth or to a disheartening slackening in previously attained rates of expansion.

TABLE 4. GROWTH OF MANUFACTURING PRODUCTION IN DEVELOPED MARKET ECONOMIES, 1950–1964

(Average annual change in index numbers between the dates indicated)

	1950–1954 and 1955–1959	*1955–1959 and 1960–1964*
Australia	...	5
Austria	...	6
Belgium	4	5
Canada	4	3
Denmark	4	7
Finland	6	7
France	7	6
Germany, Fed. Rep. of	10	7
Ireland	2	6
Italy	8	10
Japan	15	16
Luxembourg	4	3
Netherlands	6	6
Norway	...	5
South Africa	6	6
Sweden	3	5
United Kingdom	3	3
United States of America	3	4

Source: United Nations Industrial Development Organization, based on data from the relevant issues of United Nations *Statistical Yearbook*, and United Nations, *The Growth of World Industry; National Tables, 1938–1961* (Sales No. 63. XVII. 5).

The relatively high rates of population growth have significantly moderated the degree of success in manufacturing attained by a number of developing countries, when measured in *per capita* terms. In the majority of the countries shown in table 3, growth of population was 3 per cent or more per year in 1955–1964 so that only a few of the countries had a *per capita* growth rate of manufacturing above 7 per cent. There is no evidence of any clear relation, either positive or negative, between rates of growth of population and manufacturing in developing countries. This is in apparent contrast with the experience of Western European

TABLE 5. WORLD MANUFACTURING AND INDUSTRIAL PRODUCTION AND POPULATION, BY MAJOR REGIONS, 1938–1964

	Developing countries			Developed market economies	World excl. centrally planned economies	Centrally planned economies	World
	Total[b]	Latin America	Asia[b]				
Structure of manufacturing production (percentage)							
1938	5.3	3.1	2.2	94.7	100.0	...	...
1948	5.1	3.5	1.6	94.9	100.0	...	...
1950–1954	5.5	3.3	1.5	94.5	100.0	...	..
1955–1959	6.1	3.4	1.9	93.9	100.0	34.6	134.6
1960–1964	6.6	3.5	2.2	93.4	100.0	44.0	144.0
1955–1959	4.5	2.6	1.4	69.8	74.3	25.7	100.0
1960–1964	4.6	2.4	1.6	64.9	69.5	30.5	100.0
Per capita manufacturing production (in 1958 dollars)							
1950–1954	12	47	5	410	142	...	...
1955–1959	15	55	8	489	167	346	193
1960–1964	19	64	10	592	198	533	245
Structure of industrial production (percentage)							
1950–1954	5.4	2.9	1.4	74.5	79.9	20.1	100.0
1955–1959	5.6	2.9	1.6	69.1	74.4	25.3	100.0
1960–1964	6.1	2.8	1.8	64.0	70.1	29.9	100.0
Per capita industrial production (in 1958 dollars)							
1950–1954	16	60	7	469	165	248	177
1955–1959	22	72	10	560	194	395	223
1960–1964	29	83	13	674	231	603	283
Population (in millions)[c]							
1950–1954	1,170	170	720	570	1,740	290	2,035
1955–1959	1,280	200	800	605	1,885	315	2,200
1960–1964	1,420	225	890	645	2,065	335	2,400

Source: See tables 3 and 4.

[a] Including Africa (excluding South Africa), Asia (excluding Japan), and Latin America.

[b] Including Afghanistan, Brunei, Burma, Ceylon, China (Taiwan), Hong Kong, India, Indonesia, Iran, the Republic of Korea, Malaysia (excluding Sabah), Pakistan, Philippines, Singapore, Thailand and the Republic of Viet Nam. Excludes Middle East.

[c] Population data are rounded to nearest 5 million. For 1951 to 1960, data are estimated.

countries in the early stages of their industrial development, when there was a positive association between the growth rates of manufacturing and of population.

Differences in the rates of progress found among developing countries may equally well exist among the developed countries. As shown in table 4, industrial advance during 1955—1964 was at or above the developing countries' 7 per cent annual average in such different developed countries as Denmark, Finland, the Federal Republic of Germany, and Italy. In Japan, the expansion of manufacturing was more than twice the 7 per cent average. On the other hand, the increase in manufacturing activity was only about one half of the 7 per cent level in such developed countries as Canada, the United Kingdom and the United States.

Structure of manufacturing

The total efforts of developing countries to build up a manufacturing sector during the first half of the Development Decade have apparently represented no more than one tenth of the combined output of the developing and the developed market economies. This estimate, based on available national accounts data, is higher than the estimate shown in table 5, which was derived from available industrial production data and which indicates a proportion closer to one sixteenth. Further, the figure given in the table is significantly reduced, to below 5 per cent, when the manufacturing output of the centrally planned economies is also taken into account. The more optimistic estimate, that 10 per cent of world output excluding that of the centrally planned economies was contributed by developing countries, represents only a small advance on the estimated figure for the second half of the 1950's, 9 per cent. Given these magnitudes and assuming a broad continuation of recent rates of growth, simple arithmetic shows that even after the next twenty-five years, the manufacturing output of the developing countries is not likely to account for much more than 15 per cent of the combined manufacturing output of developing and developed economies. Coming back to the present, as the developing countries have more than twice the population of the developed market economy countries, their *per capita* output of manufactures is less than one twentieth of that of the developed market economies. It may be surprising that roughly the same order of magnitude is found when the position of developing countries is compared with that of the centrally planned economies. Assuming for purposes of illustration that the recent rates of population growth, which are markedly higher in developing than in developed countries, persist over the next twenty-five years, there will probably be only a small change in the relative level of *per capita* output in manufacturing.

At present, more than half of the manufacturing activity in developing regions is centred in Latin America, though the share of that region

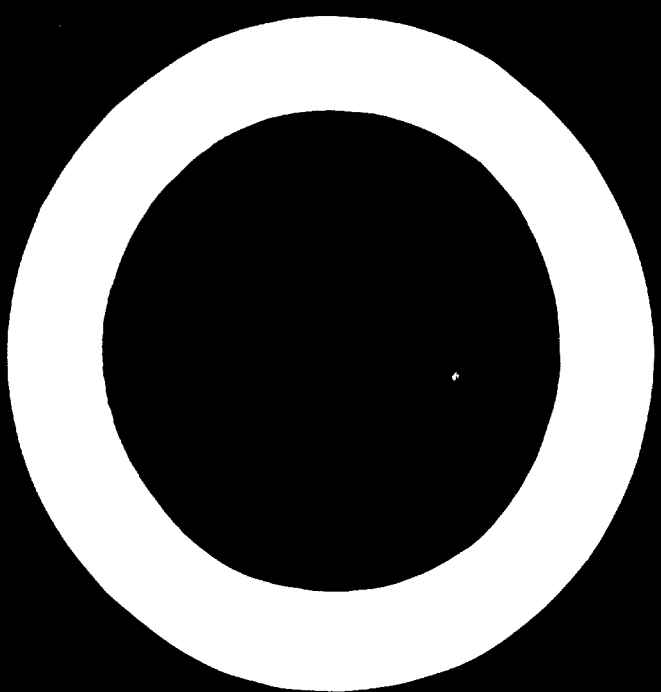


TABLE 6. PER CAPITA MANUFACTURING PRODUCTION IN DEVELOPING COUNTRIES, 1953, 1958, 1963

(Current dollars)[a]

	1953	1958	1963
Puerto Rico	78	108	201
Argentina	121	183	179
Uruguay	...	131	125
Mexico	57	83	108
Venezuela	52	80	96
Trinidad and Tobago	40	62	80
Jamaica	32	48	79
Panama	...	74	...
Chile	65	75	77
Mauritius	37	33	52
Iran	...	...	52
Colombia	28	37	47
Peru	24	31	44
British Guiana	41	38	43
Southern Rhodesia	...	38	42
Guatemala	23	30	39
Costa Rica	26	31	36
Barbados	...	42	34
Ecuador	22	26	30
El Salvador	...	11	29
Nicaragua	16	22	29
China (Taiwan)	10	17	27
Honduras	17	21	26
Tunisia	...	...	25
Bolivia	...	20	22
Malaysia[b]	...	21	22
Morocco	...	17	21
Philippines	10	17	21
United Arab Republic	...	17	...
Paraguay	17	19	21
Iraq	6	10	16
Korea, Rep. of	5	11	15
Zambia	...	10	14
India	11	11	14
Thailand	9	10	13
Haiti	...	10	...
Burma	3	8	13
Viet-Nam, Rep. of	...	...	8
Pakistan	4	6	8
Kenya	...	8	8
Ceylon	...	5	7
Uganda	...	5	6
Sudan	...	3	...
Tanzania[c]	...	2	3
Malawi	...	3	3
Nigeria	...	2	...

Source: United Nations Industrial Development Organization, based on the relevant issues of the United Nations *Yearbook of National Accounts Statistics*.

[a] Estimates refer to *per capita* gross domestic product, in current US dollars, multiplied by the share of manufacturing production in total product. Since the basic data are in current dollars the figures shown in the table can be compared between countries for each year but not between years. Countries are ranked by their level of manufacturing production in 1963.

[b] State of Malaya only.

[c] Tanganyika.

has declined since the early post-war years. The share of Asia has increased and that of Africa, though very modest, has also been growing in recent years.

The unequal distribution of manufacturing within the developing world is better illustrated at the country level and serves as a reminder that, in considering policies of industrial expansion for the large number of countries designated as a developing region, there has to be recognition of what is likely to be the incidence of resulting benefits. At present, four developing countries — Argentina, Brazil, India and Mexico — together probably account for about half of the total manufacturing of the developing world, and they also account for a sizable proportion of the total population of the developing world. The obverse of the preponderance of these four countries is that the combined share of the manufacturing production of some fifty developing countries is markedly less than one twentieth of world manufacturing output. Concentration of activity is not unique to developing regions; in the developed market region, where the number of countries concerned is smaller, the four countries with the largest manufacturing sectors probably account for as much as three quarters of the total manufactures of that region. To go a step further, in formulating any general industrial development policy, it cannot be ignored that in Latin America, for example, only about five countries have more than one tenth of the *per capita* output of the United States, while about ten countries have less than one twentieth. In the other developing regions, the majority of countries have less than one fiftieth of the United States *per capita* manufacturing output and only a few countries materially exceed the one-fiftieth level (see table 6).

B. Industry and general economic development

To strive for the maximum rate of growth of manufacturing in a developing country without regard to the development of other sectors is bound to be self-defeating sooner or later. The potential benefits of rapid industrialization can be realized only when there is a harmonious expansion[7] of other sectors and when the infrastructure required to accommodate efficiently the levels of production, trade and consumption of all commodities and services is built. For each country, the decision as to what is "harmonious" will, of course, depend on the pattern of consumption and saving, the ability to engage in profitable international trade, the availability of natural resources and man-power, and the willingness and ability to attract capital, skills and technology from foreign sources. The result of economic harmony in each developing

[7] The reference to "harmonious expansion" should not be taken as involvement in the discussion on the "balanced growth" theory of economic development.

country is not likely to be that all of these countries will have growth rates of a similar order in their manufacturing sector or precisely similar patterns of relative development in their manufacturing, primary or infrastructure sectors. Before considering the pattern of individual country development in recent years, reference should be made to regional aggregate experiences. The more conventional statistical data available on industrial origin relate to manufacturing, agriculture and other sectors of a country's total product.

Sectoral growth rates

In recent years developing countries as a whole have achieved a 7 per cent growth in manufacturing; at the same time they have expanded output in agriculture by 3 per cent a year — only 1 per cent in *per capita* terms — and in other sectors by an average of 5 per cent (see table 7). This pattern, which was broadly the same in the years immedi-

TABLE 7. GROWTH OF MANUFACTURING AND AGRICULTURE BY MAJOR REGIONS, 1950–1964

(Average annual change in index numbers between the dates indicated)

	Manufacturing	*Agriculture*	*Other sectors*	*Total gross domestic product*
Developing countries				
1950–1954 and 1955–1959	6.8	2.9	5.1	4.6
1955–1959 and 1960–1964	6.6	2.9	4.7	4.4
Developed market economies				
1950–1954 and 1955–1959	4.1	2.0	4.0	3.9
1955–1959 and 1960–1964	4.5	2.3	4.1	4.1
Total				
1950–1954 and 1955–1959	4.4	2.4	4.1	4.0
1955–1959 and 1960–1964	4.7	2.5	4.2	4.1

Source: United Nations Industrial Development Organization, based on the relevant issues of the United Nations *Yearbook of National Accounts Statistics*.

ately after the Second World War, resulted in an average expansion of gross domestic product somewhat below 5 per cent, the annual target of the Development Decade, and has differed markedly from that of the developed market economies as a whole, whose growth in the major sectors of productive activity has been less disparate as well as slower. However, rates of growth were highest for manufacturing and lowest for agriculture in both groups of countries. Because the developed market economies relied far less on agriculture, their lower rates of growth in each sector — 4—5 per cent in manufacturing, a little over 2 per cent

TABLE 8. GROWTH OF GROSS DOMESTIC PRODUCT, BY MAJOR ECONOMIC SECTORS AND MAJOR REGIONS, 1950–1964

(Average annual change in index numbers between the dates indicated)

	1950–1954 and 1955–1959	1955–1959 and 1960–1964[a]	1950–1954 and 1960–1964	1960 and 1961	1961 and 1962	1962 and 1963	1963 and 1964[a]
Manufacturing industries (ISIC 2–3)							
Developing countries	6.8	6.6	6.7	8	5	4	5
Latin America	6.9	6.7[b]	6.7[b]	8	4	2	...
Asia	6.8	6.7[b]	6.8[b]	7	7	8	...
Developed market economies	4.1	4.5	4.4	3	8	5	7
Total	4.4	4.7	4.6	4	7	5	7
Primary industries (ISIC 0–1)[c]							
Developing countries	3.3	3.3	3.3	2	3	3	3
Latin America	4.4	3.5[b]	4.0[b]	4	4	–	...
Asia	2.8	2.9[b]	2.9[b]	2	–	3	...
Developed market economies	2.4	2.3	2.4	2	2	3	3
Total	2.8	2.7	2.7	2	2	3	3

Agriculture (ISIC 1, 2, 7)[a]														
Developing countries	...	5.0	4.4	...	5	4	4	5	4	4	4	5	4	4
Latin America	5.7	4.9[b]	5.9[b]	5.9[b]	6	3	6	4	4	4	3	4	...	...
Asia	...	5.9[b]	...	...	5	6	5	6	6	6	6	6	...	7
Developed market economies	4.7	4.3	4.5	4.5	4	5	5	6	6	6	5	6	7	7
Total	...	4.5	...	...	4	5	5	6	6	6	5	6	7	7
Non-durable goods, total (ISIC 4-9)														
Developing countries	4.6	4.4	4.5	4.5	4	4	4	4	4	4	4	4	4	4
Latin America	5.2	4.8[b]	5.0[b]	5.0[b]	6	4	4	2	2	2	4	2	...	...
Asia	3.8	4.0[b]	3.9[b]	3.9[b]	4	3	3	5	5	5	3	5	...	...
Developed market economies	3.9	4.1	4.0	4.0	3	5	5	4	4	4	5	4	6	6
Total	4.0	4.1	4.1	4.1	4	5	5	4	4	4	5	4	5	5

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Yearbook of National Accounts Statistics* and other data of the Statistical Office of the United Nations.

[a] Estimates.

[b] The period 1980—1983 was used to obtain 1980—1984 average.

[c] Since the published national accounts data by industrial origin do not indicate separate information for ISIC sectors 1 and 5, estimates were made on the basis of their relative importance in gross industrial production data.

in agriculture and 4 per cent in other sectors — had less effect on the growth of their total gross domestic product than might otherwise have been expected; the average annual growth in the gross domestic product of developed market economies was about 4 per cent, compared with 4.5 per cent in developing countries.

The complementary nature of economic development can be demonstrated by relating growth in manufacturing to increase in all primary activities (agriculture and mining), and also to growth in such infrastructure elements as energy, construction and transportation. In recent years, developing countries as a whole have expanded manufacturing one-third faster than the infrastructure and twice as fast as the agricultural and mining industries (see table 8). Developed market economies have maintained a broadly similar growth pattern in their primary and secondary industries, but have apparently directed greater efforts towards the growth of the infrastructure industries, a pattern, however, that has become less pronounced in more recent years. Study of the differences between the two groups of countries with regard to the structure of the primary and manufacturing sectors shows, as would be expected on theoretical grounds, that the developing countries have been compelled to attain higher growth rates than the developed market economies in the infrastructure, as compared with the commodity sectors. While recognizing the need to support commodity production with an increase in infrastructure facilities, it should be borne in mind that infrastructure development is also required for purposes other than the transport and processing of commodities.

Regional aggregate rates of growth of manufacturing, primary industries and infrastructure are the combined results of a large number of policy decisions with respect to supply and demand. Naturally, therefore, the shorter the time span or the narrower the geographic unit in which relative growth is measured, the less clear is the pattern of sectoral advance. On the one hand, the change from 1962 to 1963 provided an example in which the disparity between growth in the primary and secondary industries of developing countries as a whole was not as substantial as previously indicated for a longer recent period, and the emphasis on infrastructural growth was greater. On the other hand, such emphasis by less developed countries on infrastructural growth in relation to the growth of commodity production was confirmed at the regional level by the different growth strategies of Asia and Latin America. In contrast with Latin America, Asia, the less advanced region, concentrated more on infrastructural growth than on commodity production.

It is not surprising that there is no uniform pattern of sectoral growth rates from country to country. This is due to the wide range of structural differences among developing countries today. Except for Venezuela, where the influence of petroleum has been particularly significant, the developing countries have had lower growth rates in the primary in-

TABLE 9. GROWTH OF GROSS DOMESTIC PRODUCT, BY MAJOR ECONOMIC SECTORS IN SELECTED DEVELOPING COUNTRIES, 1950–1964

(Average annual change in index numbers between 1950–1954 and 1960–1964)

	Manufacturing production ISIC 2–3	*Primary production* ISIC 0–1	*Infrastructure* ISIC 4–5, 7	*Gross domestic product* ISIC 0–8	*Gross domestic product per capita* ISIC 0–8
Latin America					
Argentina	4.4	2.1	2.6	3.2	1.4
Chile	3.3	1.9	5.1	3.1	0.6
Colombia[a]	6.5	3.3	5.8	4.5	1.2
Ecuador	4.8	3.8	5.6	4.6	1.4
Guatemala	5.6	3.6	5.9	4.5	1.4
Honduras	6.6	2.5	2.9	3.6	0.5
Mexico	7.4[b]	4.3	6.0	6.1	2.9
Nicaragua[c]	7.2	2.7	10.0[d]	4.6	1.5[e]
Peru	7.0	5.0	...	5.2	2.6[e]
Puerto Rico[f]	9.1	1.7	9.0	8.1	6.7[e]
Venezuela[g]	9.2[h]	6.3[h]	3.8	6.6	2.7
Africa					
Morocco[i]	3.9	1.3[j]	...	1.4[k]	−1.4
Asia					
Burma	13.5	2.7[l]	5.7[m]	5.2	3.2
Iraq[f]	13.5[n,o]	4.7[n]	6.1	6.1	3.7
Korea, Rep. of	12.5	5.7[p]	12.4	5.7	...
Pakistan	8.4	2.0	7.4	3.4	1.3
Philippines	9.1	2.5	5.4[q]	5.2[r]	2.0[r]
Thailand[a,i]	5.8	4.5[s]	12.4	6.1	3.0

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations, *Yearbook of National Accounts Statistics;* and United Nations, *Demographic Yearbook.*

[a] 1960–1963 average is used for 1960–1964.

[b] Extraction of crude oil is included in manufacturing.

[c] 1956–1964 average is used for 1950–1964.

[d] Excludes "communication".

[e] Mid year estimates of population were taken from *Demographic Yearbook.*

[f] 1953–1964 average is used for 1950–1954.

[g] Data for 1960–1963 are not strictly comparable with those of the preceding years.

[h] Refining of crude oil is included in ISIC 1.

[i] 1951–1964 average is used for 1950–1954.

[j] Coal mining is included in "Electricity, Gas and Water".

[k] The domestic production concept used here differs from that of domestic product primarily in the exclusion of the product originating in general government agencies, private non-profit institutions, financial intermediaries, and households (domestic services).

[l] Includes marketing and milling of forest products.

[m] Gas and water supply are not included.

[n] Agricultural services and related activities such as cotton ginning and pressing are included in manufacturing.

[o] Gas distribution is included in manufacturing.

[p] Figures beginning 1960 are not strictly comparable with those for preceding years due to revisions in the annual rice crop estimates.

[q] Electricity, gas and water (ISIC 5) are not available.

[r] Data represent net national product.

[s] Blending, topping and gasoline preparation are not included.

dustries than in the other major sectors. A wide range of experience has accumulated concerning the relation between manufacturing and infrastructure. While the annual growth rate of primary industries in the countries shown in table 9 ranged from 1 to 6 per cent in 1950–1964, the range for manufacturing industries was from 3 to 13 per cent and for infrastructure from 3 to 12 per cent. Manufacturing developed annually by more than 12 per cent in Burma, Iraq and the Republic of Korea, while the development of their primary sectors varied from 3 to 6 per cent. At the other end of the scale, countries with a much lower growth in manufacturing, less than 6 per cent, achieved primary industry growth rates ranging from 2 to 4.5 per cent. This hardly significant relation between sectoral growth rates within individual countries becomes even clearer when comparative growth rates of manufacturing and infrastructure are compared. For example, although Thailand and the Republic of Korea had similar growth in the infrastructure, their manufacturing sectors expanded at very different rates, 12 and 6 per cent, respectively. However the lack of a statistically significant relation between the growth rates of different sectors of a country's economy may be due to the fact that widely different structural characteristics of individual developing countries are ignored. Indeed, as observed below, a pattern of complementary relations does emerge when absolute figures rather than percentages are considered. First however, the essential magnitudes of the economic structure of developing countries should be examined.

Sectoral structure

The main structural characteristic of developing countries viewed as a whole is that, at present, their manufacturing sector accounts for less than one fifth, some 18 per cent, of their total commodity and services production (see table 10). Agriculture is much more important in terms of volume of output, accounting for three tenths of the total product. The gap between the contribution of these two sectors has closed to some extent: a decade earlier, in 1950–1954, agriculture accounted for two and one-half times as much output as manufacturing. Nonetheless, the present situation in the developing countries still remains substantially different from that in the developed market economies. Nearly one third of the product in the latter group now originates in the manufacturing sector and only one fourteenth in the agricultural sector. There was little variation in this pattern during the post-war years.

In individual developing countries, the complementary relation between activity in manufacturing and in primary commodity production and infrastructure, a relation which was somewhat obscure when examined in terms of growth rates over the span of 1950–1964, becomes clearer when a cross-country analysis is made in terms of estimated

TABLE 10. STRUCTURE OF GROSS DOMESTIC PRODUCT, BY MAJOR ECONOMIC SECTORS AND MAJOR REGIONS, 1950–1964

(Percentages)

	Manufacturing	*Agriculture*	*Other sectors*	*Total gross domestic product*
Developing countries				
1950–1954	14.5	35.7	49.8	100.0
1955–1959	16.1	33.0	50.9	100.0
1960–1964	17.9	30.5	51.6	100.0
Developed market economies				
1950–1954	30.2	8.6	61.2	100.0
1955–1959	30.6	7.8	61.5	100.0
1960–1964	31.3	7.2	61.5	100.0
Total				
1950–1954	27.8	12.7	59.5	100.0
1955–1959	28.4	11.8	59.9	100.0
1960–1964	29.2	10.9	59.9	100.0

Source: See table 7.

absolute levels of activity for a recent period. The difficulty of such analysis lies in the need to express absolute levels of sectoral activity in different developing countries by means of a comparable unit. If parity rates of exchange are used, or if output is expressed in *per capita* terms, a fairly clear relation emerges between manufacturing and infrastructure activity. Some expansion of the infrastructure is needed to support other activities, regardless of the size of *per capita* manufacturing output; for 1963, the *per capita* expansion may have been almost $ 7. Estimates based on the data in table 11 suggest that, in addition, $ 50 of *per capita* manufacturing output in 1963 were associated with about $ 30 of *per capita* infrastructural activity. Kenya and Uruguay are examples of countries with substantially different levels of manufacturing development in which the infrastructural activity was closely in accord with the relation suggested above. However, Argentina and Jamaica give some indication of the extent to which there are deviations from this relation.

Among developing countries there may well also be a significant but looser relationship in absolute terms between manufacturing activity and the output of the primary industries of agriculture and mining. Thus a further separate exercise in simple statistical regression shows that, for a developing country without any significant level of manufacturing activity in 1963, the general result would have been a *per capita* output in the primary industry sector valued at close to $ 60. But, for example, where the manufacturing sector of a developing country had a *per capita*

TABLE 11. PER CAPITA GROSS DOMESTIC PRODUCT BY MAJOR ECONOMIC SECTORS, IN DEVELOPING COUNTRIES,[a] 1963

(In dollars)

	Manufacturing Production	*Primary Production*	*Infrastructure*	*Gross domestic product*[b]
Puerto Rico	201	82	146	895
Argentina	179	103	72	560
Uruguay	125	94	80	558
Mexico	108	79	37	396
Venezuela	96	259	71	716
Trinidad and Tobago	80	234	85	608
Jamaica	79	115	98	510
Chile	77	68	56	446
Panama	74	102	66	465
Mauritius	52	90	51	270
Iran	52	44	19	176
Colombia	47	100	31	268
Peru	44	66	16	223
Rhodesia	42	65	42	252
Guatemala	39	86	20	283
Barbados	34	115	58	386
Ecuador	30	74	17	187
El Salvador	29	57	12	178
Nicaragua	29	84	21	217
China (Taiwan)	27	35	14	122
Honduras	26	91	23	195
Tunisia	25	51	99	198
Bolivia	22	54	20	143
Malaysia	22	98	22	236
Morocco	21	59	11	154
Philippines	21	43	9	127
Paraguay	21	45	9	126
Iraq	16	97	18	175
Korea, Rep. of	15	54	14	134
Zambia	14	140	26	236
Thailand	13	42	16	113
Burma	13	27	5	80
Viet-Nam, Rep. of	8	24	5	75
Kenya	8	38	11	88
Pakistan	8	40	8	79
Ceylon	7	68	19	138
Uganda	6	47	6	75
Tanzania	3	49	6	80
Malawi	3	23	6	49

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations, *Yearbook of National Accounts Statistics*. For eight gross domestic product data were taken from table 3B of the basic source and estimates of the sectoral values shown in this table were obtained by reference to the data in the country tables of the basic source. These estimates should be regarded as highly tentative and the basic source should be consulted for detailed notes.

[a] Countries arranged in order of estimated value of *per capita* manufacturing production in 1963.

[b] Including other sectors not identified in this table.

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output of $ 50, there was a further volume of output from the primary sector of about $ 20—25. Again, while Ceylon and Mauritius exemplify this relation, Puerto Rico and Venezuela indicate the extent to which specific countries diverged from it. To take a general view of the role of manufacturing, in relation to total economic activity as indicated by gross domestic product, further regression analysis of the *per capita* data suggest that every dollar of manufacturing output was associated with $ 4 of gross domestic product, in addition to a constant element of close to $ 90. The Republic of Korea, Tunisia, Chile and Uruguay, countries at successively higher levels of attainment in developing a manufacturing industry, illustrate this relation quite well. This comparison is only one rather unsophisticated way of analysing the relation between a country's manufacturing output and total gross product. Three of the many other factors, apart from the *per capita* income, that have been shown to have a bearing on the share of industry in a country's total product are the size of its population, the extent to which it exports primary products, and the degree to which it has allocated resources to investment.[8]

The size of population is one factor which — taken in conjunction with *per capita* income, the pattern of income distribution etc. — determines the size of the domestic market for manufactures. The fact that many developing countries today have a relatively small population and *per capita* income in comparison with most developed market economies, means simply that they have had to forgo the establishment of manufacturing, particularly that with a large-scale optimum range of output, unless they have had access to supplementary foreign markets, including neighbouring countries. The share of industry is likely to vary directly with the investment ratio, and inversely with the ratio of production of primary commodities for export. Other things being equal, the more a country's output is concentrated in the primary sector, to satisfy external demand, the lower is the employment of domestic resources in the industrial sector.

The interdependence of industry and other sectors of a developing economy has been stressed partly because of inferences that might be drawn from current discussions on the need for many developing countries to concentrate their resources on finding an adequate solution to their domestic food problems. However, the need to intensify efforts in that direction does not imply abandonment of the target of rapid industrialization. In many respects, more careful attention to the nature and direction of the industrialization effort may help to solve the agricultural problem still besetting many developing countries.

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[8] See H. B. Chenery and L. Taylor (1966) "Intercountry and Intertemporal Patterns of Industrial Growth", Memorandum No. 5, Centre for International Affairs, Harvard University, Cambridge, Mass.

TABLE 12. INPUT CO-EFFICIENTS OF MAJOR ECONOMIC SECTORS,[a] SELECTED DEVELOPING AND DEVELOPED COUNTRIES, RECENT YEARS

Country and purchasing sector		Purchases from:					Value added	Gross production
		Agriculture	Manufacturing		Energy, construction and services	Imports		
			Mainly processing agriculture	Metal, non-metal and chemical				
		A	B	C	D			
Australia	A	5	3	8	9	1	74	100
	B	16	12	4	10	11	37	100
	C	—	2	8	15	14	61	100
	D	—	4	9	21	5	61	100
Italy	A	18	3	3	8	2	66	100
	B	22	26	4	8	9	30	100
	C	—	4	37	15	8	36	100
	D	—	3	8	17	4	67	100
Japan	A	14	4	6	8	1	67	100
	B	26	25	3	12	9	25	100
	C	1	5	42	19	4	29	100
	D	1	10	10	17	2	60	100
Colombia	A	...	...	...	...	...	...	...
	B	39	12	2	1	12	34	100
	C	6	3	7	3	25	56	100
	D	78	—	—	1	1	20	100

Iraq	A	10	—	—	3	—	86	100
	B	18	17	2	9	25	28	100
	C	—	2	5	16	26	52	100
	D	—	2	4	8	4	82	100
Peru	A	14	1	2	1	1	82	100
	B	23	17	5	8	10	38	100
	C	12	1	19	8	8	51	100
	D	—	—	5	—	—	94	100
Senegal	A	10	—	—	2	—	88	100
	B	37	4	1	16	17	26	100
	C	1	—	8	28	24	40	100
	D	—	—	3	21	4	72	100
United Arab Republic	A	12	1	2	38	3	43	100
	B	38	27	3	13	4	15	100
	C	—	6	24	17	11	42	100
	D	—	1	5	13	3	78	100

Source: United Nations Industrial Development Organization, based on input-output tables of individual countries: Colombia, 1953; Iraq, 1963; Pakistan, 1955; Peru, 1955; Senegal, 1959; U.A.R., 1954; Italy, 1959; and Japan, 1955. The construction of the estimates shown in the table above involved very substantial reclassification and consolidation of original data and the results shown should be regarded as tentative.

• The definitions of the sectors shown in the table are as follows: "agriculture" includes also livestock, forestry and fisheries; "manufacturing, mainly processing agriculture" includes farm processing, food, beverages and tobacco, oils and fats processing, textiles, clothing and leather, wood manufacturing, pulp, paper and printing, and rubber products; "metal, non-metals and chemicals" includes non-metal mineral mining, chemicals, metal mining, basic metals, metal works and machinery, and other manufacturing; "energy, construction and other services" includes coal, oil and gas mining, petroleum and coal products, electricity, construction, trade, transport, communication, other services, scrap, and unallocated.

The extent of some of the connexions between agriculture and industry can be shown by input-output data of selected countries at different levels of economic development. The major manufacturing industries which serve directly as an outlet for the output of both the food and non-food sectors of agriculture and forestry include food, beverage and tobacco processing; the processing of oils and fats; and the textile, clothing, leather, wood, pulp, paper and rubber products sectors. The value of the primary sector output is, of course, enhanced by interposing industrial sectors for the processing of primary products between farms and forests and final consumers. In simple terms, for example, one ton of processed agricultural product may satisfy the same final demand as two tons of unprocessed material, or the ability to process domestically may open up new possibilities for local agricultural production. Furthermore, the development of a manufacturing sector to process agricultural output may call for an improvement in the quality and regularity of agricultural production. In developing countries as a whole, industries processing agricultural products dominate other industries in terms of value added. The data for three developed and five developing countries listed in table 12 suggest that, for every million dollars of value added by industries processing agricultural products, these industries depended on nearly the same amount of purchases from the agricultural sector. Individual country experience varied widely. In addition, these industries, which were based primarily on inputs from domestic agriculture, required significant purchases from the construction, energy and other service industries and further purchases from the heavier manufacturing sector. Broadly speaking, it appears that for every million dollars of purchase from the agricultural sector, to which the agricultural processing industries add more than a million dollars of value by the use of labour and capital, the average demand of these industries on the energy, construction and other sectors is nearly $ 400,000, and on the heavy manufacturing industries nearly $ 150,000. Taking account of other demands also (from within the agricultural processing sectors and from imports), data for a small sample of countries indicate that for every million dollars of purchases of agricultural products, the agricultural processing sectors of manufacturing have a gross product of nearly $ 4 million. It should not be forgotten that the development of the heavy manufacturing industries also relies, although much less, on inputs from the agricultural sector. The major primary inputs of many heavy manufacturing industries are obtained from the mining sector.

The fact that the link between agriculture and industry is not necessarily limited to the so-called light sector of manufacturing, but that some heavy industries are also often involved is made clear by the extent to which the advance of agriculture depends on purchases from manufacturing. To create added value in agriculture, this sector must purchase both from the infrastructure (power etc.) and the manufacturing sector. Though experience varies widely, it appears that for every

million dollars of value created in the agricultural sector, there has been a dependence on purchases of somewhat less than one tenth of that amount from the infrastructure and also, to a similar extent, from the manufacturing sector. Invariably, most of the latter purchases were from heavy manufacturing industries which sell farm machinery and fertilizers. The limited data available are not inconsistent with the interpretation that this particular link tends to be stronger in countries which have a more developed industry and which are therefore less dependent on imports of such products. Apart from the physical input-output relation, the existence of a domestic farm supply industry with a local sales force is likely to stimulate a larger volume of purchases by agriculture in countries that have been relying on imports. This is one of many examples of the more dynamic gains from a complementary development of all sectors which includes a rapidly growing manufacturing sector using up-to-date techniques and which does not disregard the dynamic comparative advantage of exploiting international trade as far as possible.

Of the many more general economic relations between economic sectors within a country, industrialization with its concomitant of urbanization has historically played an important part in creating domestic cash markets for food and has been a major instrument in transforming subsistence or local exchange systems of agriculture into commercialized farming. This, in turn, has been the basis for the substantial increases in agricultural productivity now being observed in the developed countries.

C. The sectoral pattern of industrial growth

The 7 per cent annual growth rate in manufacturing achieved in recent years by the developing countries was brought about mainly by a determined growth effort in the heavy industries. Between the latter half of the 1950's and the first half of the 1960's, the output of these industries expanded at an average annual rate of over 9 per cent, while growth in light industries was slightly more than 5 per cent.

Growth in heavy industry

The pace of growth in heavy industry in more recent years was more rapid than in previous decades. The recent persistent effort to expand the output of paper products, chemicals, petroleum products, non-metallic mineral products, basic metals and metal products has been so great that in the near future the value added in heavy industries may equal the value added in light industries. This would be a landmark in the industrial advancement of developing countries. In the early post-

war period, the rate of expansion of heavy industry in the developing countries as a whole was erratic, and at one time slowed to a halt, but has become relatively stable in recent years. Year-to-year fluctuations in output are natural, since the demand for capital goods is more susceptible to cyclical influences, and some of the heavy industrial plants tend to be large and come into full production irregularly. Since the early 1950's, the annual growth of heavy industry has seldom fallen below 8 per cent and rarely exceeded 12 per cent (see table 13).

TABLE 13. GROWTH OF LIGHT AND HEAVY MANUFACTURING PRODUCTION, BY MAJOR REGIONS, 1938–1965

(Average annual change in index numbers between the dates indicated)

	Light manufacturing production[a]			*Heavy manufacturing production*[b]		
	Developing countries	*Developed market economies*	*World, excl. centrally planned economies*	*Developing countries*	*Developed market economies*	*World, excl. centrally planned economies*
1938 and 1948	3	2	2	5	6	6
1948 and 1950	5	6	6	11	8	8
1950 and 1951	6	2	3	10	15	14
1951 and 1952	3	1	1	−2	4	3
1952 and 1953	3	6	6	3	10	10
1953 and 1954	7	2	3	12	−2	−1
1954 and 1955	10	7	7	13	14	14
1955 and 1956	6	4	4	11	5	5
1956 and 1957	4	2	2	9	3	4
1957 and 1958	4	—	—	8	−5	−5
1958 and 1959	6	8	8	9	13	12
1959 and 1960	6	5	5	12	8	8
1960 and 1961	6	3	4	8	4	4
1961 and 1962	4	5	5	9	8	8
1962 and 1963	4	4	4	7	6	6
1963 and 1964	6	6	6	10	9	9
1964 and 1965	7	5	5	6	8	8
1965 and 1966[c]	5	4	5	11	7	8

Source: See table 1.

[a] ISIC major groups 20–26, 28–30 and 39.

[b] ISIC major groups 27 and 31–38.

[c] Tentative estimate based on nine months data for each year.

The extra concentration of growth effort in heavy industry goods must not be considered to be a unique achievement or characteristic of developing countries alone; it reflects the universal change in the pattern of demands as incomes have risen and, in some instances, a deliberate strategy of industrialization. The same trend has also been apparent in the centrally planned and the developed market economies. Indeed, in the centrally planned economies, just as aggregate growth rates in manufacturing exceeded those of developing countries, so did the extent

of the relative concentration on heavy industry. On the other hand, in developed market economies, the aggregate growth rate in manufacturing was less than in developing countries, and concentration on the heavy sector was relatively less pronounced. In addition to its lower average aggregate rate, growth in the developed market economies was considerably more uneven than in the developing countries. On two occasions since 1950, their output of heavy industry goods fell below the level of the preceding year; in several other years, growth rates were in the range of 5—8 per cent, but at times output increased in the course of one year by 12—15 per cent.

Recent growth in developing countries was the most pronounced in the heavy sector of manufacturing, with an annual rate reaching 12 per cent in the important sector of the metal products industries (see tables 14, 15, and 16). Factories in this sector produce a wide range of goods and require widely different amounts of capital, technology and skill. The products include tin cans, cutlery, wire products etc.; tractors, refrigerators, sewing machines etc.; electrical machinery, appliances, communication equipment etc.; and the whole line of transport equipment. Particularly in developing countries, a considerable part of this output is not of a type normally considered as heavy. Perhaps some limited indication of this lies in the fact that about two thirds to three quarters of the international trade in metal products of developing countries — both import and exports — consists of what may be considered as capital equipment, and the remainder of industrial supplies or consumer goods. Repair work is also a significant part of total activity in these industries. Metal products, as a group, have been a leading sector of developing countries' growth, as measured by their average rate of growth in 1955—1964 and by the relative consistency of their growth since before the Second World War. Within the developing region, the more pronounced growth effort took place in Asia rather than in Latin America, but the gap has narrowed in recent years. Metal products industries were the most rapidly expanding of the heavy sector in the centrally planned economies also, and expanded even more rapidly than in developing countries; the chemical and petroleum products sector has played an equivalent part in the developed market economies.

Overwhelmingly, the metal products industries in developing countries have supplied domestic rather than foreign markets; their domestic markets having accounted for about 8—10 per cent of the world market for such products. In *per capita* terms, however, this highly income-elastic demand has amounted to less than $ 20 in developing countries; this is less than one fortieth of the *per capita* level of demand for such products in the United States. Local output of metal products probably satisfied more than half of the domestic demand by developing countries as a whole but, for instance, a much smaller proportion for the African region. The bulk of domestic demand was for non-electrical

TABLE 14. GROWTH OF MANUFACTURING PRODUCTION, BY MAJOR GROUPS[a] AND REGIONS, 1938–1964

(Average annual change in index numbers between the dates indicated)

	Manufacturing			Food, beverages and tobacco	Textiles	Clothing, foot-wear and made-up textiles	Wood products, furniture	Paper and paper products	Chemicals, petroleum and coal products	Non-metallic mineral products	Basic metals	Metal products
	Total	Light	Heavy									
Developing countries												
1938 to 1948	3.7	3.1	5.0	3.3	2.3	...	...	13.4	5.0	10.3	2.7	6.6
1948 to 1953	5.1	4.5	6.2	5.2	3.0	...	...	15.2	3.4	11.3	6.4	6.2
1953 to 1955–1959 . .	9.9	8.0	13.1	6.6	8.3	...	...	16.2	13.5	10.9	9.4	15.6
1955–1959 to 1960–1964	6.9	5.3	9.3	4.5	4.5	6.3[b]	6.4[b]	9.2	8.0	5.9	9.5	11.8
1954 to 1964[b]	7	6	8	7	3	...	...	14	7	7	5	...
Latin America												
1938 to 1948	5.1	4.5	6.3	4.4	5.5	...	...	6.0	5.7	8.0	4.6	7.6
1948 to 1953	4.1	3.0	6.0	4.9	0.8	...	...	5.7	6.4	8.1	4.9	5.4
1953 to 1955–1959 . .	8.4	5.8	12.1	5.7	5.7	...	...	11.4	14.2	9.1	10.4	12.0
1955–1959 to 1960–1964	5.8	3.9	8.1	3.9	2.6	3.7[b]	3.3[b]	7.1	6.6	4.8	7.6	11.3
1954 to 1964[b]	...	...	...	...	...	...	...	...	...	...	6	...
Asia												
1938 to 1948	1.2	1.0	1.9	1.4	−0.6	...	...	2.0	1.9	1.4	−1.8	4.1
1948 to 1953	4.2	4.9	1.7	4.7	5.0	...	...	14.9	−5.2	12.9	6.2	8.0
1953 to 1955–1959 . .	13.8	11.3	19.9	7.5	10.7	...	...	32.8	17.8	15.4	9.0	26.7
1955–1956 to 1960–1964	8.5	6.7	12.0	5.3	4.8	10.0[b]	9.2[b]	12.2	9.8	10.6	14.8	13.2
1954 to 1964[b]	8	7	7	10	1	...	...	9	6	8	8	2

Developed market economies												
1938 to 1948	4.0	2.2	5.6	2.3	1.5	1.8	3.2	3.6	5.2	3.9	4.9	6.4
1948 to 1953	7.0	4.3	8.8	6.8	4.0	3.5	3.5	6.0	9.6	5.9	5.4	10.1
1953 to 1955–1959 . .	4.8	4.3	5.1	4.0	2.8	3.9	4.1	7.1	9.2	5.9	3.1	4.2
1955–1959 to 1960–1964	5.2	4.2	5.8	3.7	3.7	4.0	4.0	5.4	8.6	5.1	3.4	5.7
1964 to 1965[b]	6	4	8	3	5	5	3	7	9	5	4	9
World, excluding centrally planned economies												
1938 to 1948	3.9	2.3	5.6	2.4	1.6	1.0	0.8	3.6	5.2	4.0	4.8	6.4
1948 to 1953	6.8	4.3	8.7	4.3	3.9	3.3	8.6	6.2	9.0	6.4	5.5	10.0
1953 to 1955–1959 . .	5.1	4.6	5.4	4.3	3.5	4.0	4.0	7.3	9.5	6.4	3.3	4.5
1955–1959 to 1960–1964	5.3	4.3	6.0	3.8	3.8	4.2	4.2	5.5	8.5	5.2	3.7	5.8
1964 to 1965[b]	6	5	8	3	5	5	6	7	9	5	4	9
Centrally planned economies												
1955–1959 to 1960–1964	10.5	6.7	12.9	6.8	5.2	7.2	11.4	7.1	12.8	13.4	9.4	14.1
1964 to 1965	8	6	10	11	4	2	4	8	14	9	9	9
World												
1955–1959 to 1960–1964	6.8	5.0	7.8	4.7	4.3	5.0	6.8	5.7	9.5	8.6	5.4	8.0
1964 to 1965	8	6	9	5	4	5	6	6	9	7	6	9

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations, *Statistical Yearbook*, and *Monthly Bulletin of Statistics*.

[a] The format of this table is somewhat different from that normally employed in the Survey. For definitions of the major groups shown in terms of ISIC please refer, for instance, to table 17.

[b] Tentative estimates.

TABLE 15. GROWTH OF MANUFACTURING PRODUCTION, BY MAJOR GROUPS AND REGIONS, 1960–1966

(Annual change in index numbers between the dates indicated)

	Food, beverages and tobacco	*Textiles*	*Paper and paper products*	*Chemicals, petroleum and coal products*	*Basic metals*	*Metal products*
	ISIC 20–22	*ISIC 23*	*ISIC 27*	*ISIC 31–32*	*ISIC 34*	*ISIC 35–38*
Developing countries[a]						
1960 and 1961	5	5	13	7	4	12
1961 and 1962	2	1	10	7	9	11
1962 and 1963	3	4	8	9	6	6
1963 and 1964	4	8	8	9	8	13
1964 and 1965	7	3	7	6	2	8
1965 and 1966[b]	7	—	12	7	9	...
Latin America						
1960 and 1961	5	5	14	8	7	12
1961 and 1962	3	—4	5	7	6	8
1962 and 1963	2	—	7	4	5	—2
1963 and 1964	3	7	5	7	10	12
1964 and 1965	7	5	7	6	—	6
1965 and 1966[b]	4	2	...	...	12	...
Asia						
1960 and 1961	8	3	9	5	—1	13
1961 and 1962	2	6	8	10	26	15
1962 and 1963	3	7	14	16	12	14
1963 and 1964	6	8	8	13	2	16
1964 and 1965	9	4	7	5	4	12
1965 and 1966[b]	13	—2	9	6	12	4
Developed market economies						
1960 and 1961	4	3	5	7	1	3
1961 and 1962	4	5	5	10	3	9
1962 and 1963	4	5	6	9	6	6
1963 and 1964	4	5	8	10	14	8
1964 and 1965	3	4	6	8	6	9
1965 and 1966[b]	3	6	8	11	2	10
World, excluding centrally planned economies						
1960 and 1961	4	3	6	7	1	4
1961 and 1962	4	4	5	10	3	9
1962 and 1963	4	5	6	9	6	6
1963 and 1964	4	5	8	10	13	8
1964 and 1965	3	4	6	8	6	9
1965 and 1966[b]	4	6	8	10	2	10

Source: See table 1.

[a] Includes data for Africa (excluding South Africa) which are not shown separately.

[b] Estimated from data for the first nine months of 1965 and the corresponding period of 1966.

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machinery and transport equipment with a smaller absolute demand for other metal products, including electrical machinery. For many of the more sophisticated products of this sector, the proportion of domestic demand satisfied by domestic production in many of these countries has been limited, *inter alia*, by the size of the domestic market. Exports of metal products from developing countries have been very limited, accounting for less than 1 per cent of world trade in such products, and only few developing countries have been involved in such exports. It has been suggested, for example, that the relatively weak export position of Latin America in this sector derives partly from high production costs, lack of standardization and inability to provide suppliers' credits on favourable terms, particularly for heavy engineering products. The possibility of expanding export through increased regional co-operation continues to evoke interest.

Domestic production of the metal product industries in developing countries has been facilitated more by the local availability of a basic metals industry, particularly steel, than by resources from primary industries. In some cases where imports have been heavily relied on for inputs, balance of payments or other difficulties have resulted in a high degree of unused capacity in the metal products industries although the same pattern of external reliance has given good results elsewhere. Capital required per unit of output for the expansion of the industry has probably been as high as that required in developed countries, if not higher. Where the capital costs have been higher, this has sometimes been the result of higher costs of machinery and equipment and less intensive utilization, a greater need for fixed investments of the infrastructure type, or higher working capital requirements owing to the unreliability of supplies and a low turnover.

Foreign private investment has played a significant role in a number of developing countries, particularly in financing the assembly or manufacture of automobiles. Domestic capital has been employed, *inter alia*, through joint ventures and participation by local development banks. In some countries, state financing has been an important source of capital. In some instances, capital outlay has been deliberately increased to compensate for the shortage of skilled labour, notably in the specialized areas of the metal products sector, such as electrical machinery plants. To solve such problems, technological efforts have been devoted to the adaptation of techniques to prevailing patterns of factor availabilities in developing countries. This has included promoting the production of manufactures that are not as demanding of skilled labour; utilizing second-hand machinery; adapting machine designs; increasing the use of small establishments for certain products, and so on. Until their domestic metal products industry expands substantially, however, many developing countries will continue to use a very large proportion of their foreign exchange budget for imports of metal goods. More efforts towards

TABLE 16. GROWTH OF MANUFACTURING PRODUCTION, BY MAJOR GROUPS IN SELECTED DEVELOPING COUNTRIES, 1950–1964

(Average annual change in index numbers between the dates indicated)

	Food, beverages and tobacco		*Textiles*		*Chemicals, coal and petroleum products*		*Basic metals*		*Metal products*	
	1950–1954 and 1955–1959	*1955–1959 and 1960–1964*	*1950–1954 and 1955–1959*	*1955–1959 and 1960–1964*	*1950–1954 and 1955–1959*	*1955–1959 and 1960–1964*	*1950–1954 and 1955–1959*	*1955–1959 and 1960–1964*	*1950–1954 and 1955–1959*	*1955–1959 and 1960–1964*
Latin America										
Argentina . . .	3.4	−1.4	−1.3	−6.5	5.1	0.6	6.9	0.4	2.6	0.1
Brazil	4.6	7.5[a]	5.4	4.1[b]	...	...	7.3	9.9[a]	...	...
Chile	3.4	3.5	0.1	3.2	2.1	5.9	4.4	1.3[a]	...	...
Colombia . . .	4.3	4.9[a]	8.6	6.5[a]	11.8	8.0[a]	53.3	...	18.6	...
El Salvador . . .	...	0.1	...	14.5	...	11.5[c]	...	...	...	...
Guatemala . . .	2.8	2.2	3.9	6.6	7.8[d]	19.5[d]	...	...	...	...
Peru	8.3	8.6	5.6	5.3	6.9	11.2	11.2	...	...	...
Venezuela . . .	10.9	8.8	14.5	14.3	15.6	8.2	...	...	22.6	12.5

Africa										
Algeria	10.2	5.5[a]	...	11.7[a]	10.5[d]	7.9[a,d]	3.5	4.2[a]	4.4	2.3[a]
Congo, Dem. Rep. of	11.4	...	12.3	...	14.4[d]	...	4.8	5.2[a]	...	...
Morocco	4.0	5.2	4.3	10.0	4.6[d]	5.9[d]	...	...	...	2.6[e]
Rhodesia and Nyasaland, Fed. of	...	7.7[a]	...	5.0[a]	...	15.8[a,d]	...	9.8[a]	...	3.4[a]
United Arab Republic . . .	...	10.8[a,f,g]	...	8.3[a,g]	...	18.2[a,d,g]	...	27.6[a,g]	...	...
Asia										
China (Taiwan)	10.5	5.2	12.7	10.2	12.8	17.8	22.5	14.8	22.5	13.4
India	5.2	4.5	3.5	3.3	...	11.2	4.4	15.5	18.0	13.7
Israel	...	8.0	...	15.1	...	12.5	...	...	...	13.3
Philippines . . .	9.7[h]	6.4	7.8[h]	12.0	...	4.5[d]	...	...	...	9.4
Korea, Rep. of	...	5.1	...	3.6	...	...	...	15.9	...	10.9

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations, *Statistical Yearbook*, and *The Growth of World Industry, National Tables, 1900–1961*.

[a] Data for 1958–1961 used to obtain average for 1960–1964.
[b] Data for 1959–1962 used to obtain average for 1960–1964.
[c] Data for 1960–1963 used to obtain average for 1960–1964.
[d] Chemicals only (likewise: Chemicals and rubber products).
[e] Includes basic metals.
[f] Food only.
[g] Data for 1956–1959 used to obtain average for 1955–1959.
[h] Data for 1952–1954 used to obtain average for 1950–1954.

import substitution continue to be made in the case of durable consumer goods than heavy mechanical or electrical equipment, since the former category makes smaller demands on the capital, skilled labour and technological capacities of developing countries.

In the chemicals and petroleum products industries, the second largest category of heavy industry in developing countries, both the longer-term and shorter-term rates of growth were somewhat below the average for all heavy industry. However, in 1955—1964, the growth rate in developing countries attained an annual average of 8 per cent. Until the mid-1950's, the greatest growth had been experienced in Latin America but the leading role was subsequently assumed by Asia. Though significant, the recent growth rate in developing countries as a whole has been somewhat below that of the developed market economies and well below that of the centrally planned economies. Especially in the chemical sub-sector, the general indications of growth require further examination in view of the enormous range of products involved. They include the broad categories of basic industrial chemicals, including fertilizers; vegetable and animal oils and fats; paints, varnishes and lacquers; miscellaneous chemical products etc. Accurate statistical registration of growth in all these sectors is a difficult task.

The developing and the developed countries have different patterns of activity in the chemical industry. For example, in comparison with developed countries, Latin America derives a greater proportion of chemical production from man-made fibres, pharmaceuticals, soaps and detergents and a smaller proportion from organic and inorganic industrial chemicals and plastics. The proportion of total output contributed by fertilizers and by varnishes, paints, printing inks etc. is broadly similar in both regions. Modern chemical production is still at an early stage in many developing countries; under such circumstances, pharmaceuticals and soap often dominate. In 1962, these two groups accounted for two thirds of the total chemical output of India. As industry grows in developing countries, the shares of organic industrial chemicals, plastics, man-made fibres, paints and varnishes, and fertilizers in total output will probably increase.

Domestic demand for chemical products has been generated by an ever-increasing number of economic sectors as general development has proceeded. Interindustry demand has arisen from the primary industries, especially fertilizers for agriculture, and within the manufacturing sector from basic metals, metal products, textiles, leather products, wood processing industries etc. Final demand has arisen, *inter alia*, from expenditure on clothing, health and hygiene. In 1964, the *per capita* domestic consumption of chemicals in developing regions was estimated at about $ 17 in Latin America, but only $ 3 in Asia and the Far East and in Africa. As a yardstick, comparable estimates of *per capita* chemical consumption were nearly $ 50 for centrally planned economies, nearly

$ 100 for Western Europe, and nearly $ 200 for the United States. Foreign demand for chemical products of developing countries has accounted for less than one tenth of their domestic production, or about 3 per cent of world exports. However, if efforts towards regional and sub-regional co-operation are successful, chemicals are likely to share in the resulting increase of exports by developing countries.

On the supply side, the chemicals industry derives its raw and auxiliary materials from a particularly wide range of primary and secondary industries, and processing of these materials by the chemicals industry can be especially capital intensive. Capital requirements for big petrochemical plants, for example, have been estimated at about $ 100,000—150,000 per worker, with amortization, maintenance and interest on capital running at 20 per cent a year. The automation of many modern processes, which may involve numerous measuring and control devices, is one of the factors responsible for the high investment cost; a further factor is the extent of investment expenditure for research. Only seldom can the domestic capital market of developing countries finance modern chemical plants so that much reliance has had to be placed on foreign sources. In the chemicals industry, such finance often comes from chemical companies of developed countries, arrangements being made for the transfer of licences and know-how. In many cases, foreign capital and domestic capital have been used to form a joint venture. The problem of labour requirements for the modern chemicals industry has been one of skills rather than supply, the difficulty having been to find key personnel to run plants rather than workers with lower or medium-level skills. Such demands have increased as processes have become more complicated and plants bigger. While recourse to having workers trained in developed countries, prior to the establishment of a factory, has proven useful, a lack of adequate practical experience has persisted. Skilled labour in the modern chemicals industry must cope with rapid technological advances whose application to a particular country requires appreciation of unique facts of cost-price structure, power supply, product-mix etc. At a different level, skilled employees must contend with continuous, automatically controlled processes and, at another stage, with the requirement for indigenous industrial research. To help to solve these problems, widespread attention has been given to obtaining licences, often through joint ventures. Because of the problems involved, developing countries have met a large part of their domestic demand for chemical products by imports from the developed countries, and it has been estimated that in 1964 the share of imports in the consumption of chemicals exceeded 50 per cent in Africa and was close to 40 per cent and 30 per cent in Asia and Latin America, respectively. In many instances, dependence might have been still greater but for the scarcity of foreign exchange.

Of the remaining three heavy sectors of industry examined in this

survey — non-metallic mineral products, paper and paper products, and basic metals — the two last mentioned have had the more marked recent growth. Basic metals output in developing areas has expanded at an uneven pace. The average annual growth rate in basic metals between the late 1950's and the early years of the Development Decade (1960's) was nearly 10 per cent — a rate equalling that of the early post-war years — but the industry developed much slower during the 1950's; earlier, during the decade encompassing the war, development was markedly slower. The uneven expansion in these industries, which for some developing countries primarily involved the manufacture of basic iron and steel and for others the manufacture of basic non-ferrous metals, was mainly due to conditions in the Asian region. Nevertheless, the average rate of expansion since 1948 has been considerably greater in the developing countries than in the developed marked economies; in their more recent higher rate of development, the developing countries have not been surpassed by the centrally planned economies. The distinction that must be made between iron and steel on the one hand and non-ferrous metals on the other hand arises primarily — but not entirely — from the different nature of the demand for the developing countries' output of these two subsectors of the basic metals industry.

The demand for the developing countries' output of iron and steel has been mainly domestic; it is income-elastic and its extent is clearly influenced by the size of the local metal products industry. It has been suggested that the aggregate domestic demand has tended to expand more in countries with a domestic rather than a foreign supply of iron and steel. The varying pattern of the end-use of steel in individual developing countries is significant; while in some of the poorer tropical countries a high proportion of steel consumption has been allocated to galvanized sheets, the pattern in other countries has reflected more the nature of their primary production. Thus, where agriculture has been significant and where agricultural products have been processed locally, the main steel consumption has been in tinplate and wire. To give another example, while oil-producing countries have required steel especially for tubing, countries producing other minerals or concentrating on infrastructural development have used steel particularly for the expansion of railways. In addition to individual concentrations, there has emerged an increasingly wide range of domestic demand for iron and steel. In terms of *per capita* consumption, however, even the more industrialized developing countries still consume relatively little steel. In 1964, *per capita* steel consumption was above 0.6 tons in the United States of America but was only about 0.09, 0.06 and 0.04 tons in Argentina, Mexico and Brazil, respectively. Some of the smaller developing countries that are subject to special influences, including Hong Kong, Lebanon and Israel, had a higher *per capita* consumption. Some of the larger developing countries — including Ghana, Nigeria and the United Arab Republic in Africa and India, Indonesia, Pakistan and the Philippines

in Asia — had a *per capita* domestic demand near or well below half of the Brazilian level (see above). Where foreign demand has influenced domestic output, the reason has often been a desire for increased outlets to permit gains from economies of scale. However, relative to the total world exports of steel in 1964, even the exports of India and Mexico, nearly 0.2 million tons and 0.1 million tons, repectively, were quite small. A large proportion of the exports of developing countries was directed to other developing countries.

These countries' output of iron and steel is, of course, strongly influenced on the supply side by the availability of local resources of iron ore or scrap and of energy. In more than one instance the failure to recognize fully this requirement has been detrimental to the industrial endeavour of the countries in question. Many steel producers have considerable excess supplies of iron ore for export to developed countries after meeting the requirements of the local steel industry. Several developing countries now produce iron ore exclusively for export. In 1964, for example, only 13 per cent of the total iron ore production of developing countries was retained for local conversion into iron and steel. The desire of some of these countries to engage in domestic processing has been clearly expressed. Nevertheless, in 1964, only fifteen developing countries had an iron ore production of more than 500,000 tons. Good coking coal is generally less available; however, the use — though limited — of large resources of natural gas in some developing countries raises hope of some potential offset.

Where the lack of natural resources and the small size of market have not imposed a barrier, the financing problems of the capital intensive steel industry have often been met by governmental involvement, direct or indirect, total or partial. Private capital has sometimes tended to avoid this industry and, for reasons of public policy, some governments have decided to control it in view of its basic importance. They have had recourse, in certain instances, to international agencies and consortia for finance. In the attempt to construct an efficient industry, a major technical problem has been to achieve low unit costs for relatively small-scale plants at a time when increasingly larger unit sizes are indicated by many of the technological advances in developed countries. Being capital intensive, the industry has the usual need for highly skilled technicians. All of these domestic supply problems in developing countries have been of such magnitude that substantial imports of iron and steel, mainly from developed countries, were valued at nearly $ 1,900 million in 1964.

In the other sub-sector of the basic metals industry, non-ferrous metals, growth in output was directed mainly to the foreign market. Thus in 1965, the four developing countries leading in the production of the major non-ferrous metals such as copper, lead, zinc and tin, exported between 70 and 100 per cent of their smelter or refined metal

production. The situation was radically different with aluminium metal output. Domestic demand for unworked non-ferrous metals was governed largely by the relative utilization of ferrous and non-ferrous metals. Local availability of copper, lead, zinc and tin has not, by itself, generated a significant internal demand for semi-fabrication despite extensive consideration of this possibility. Commercial and economic barriers have generally prevented export at the semi-fabricated stage. Until recently, growth in the output of unwrought non-ferrous metals for export by individual countries was strongly influenced by long-established patterns of export trade flows. However, there is evidence today of some movement by developing countries towards a more diversified and thus possibly more stable pattern of international trade. Most of the foreign demand for unwrought metal comes from developed countries, but there has been increasing attention to possibilities of expanded regional trade in aluminium and other non-ferrous metals among developing countries.

Growth of non-ferrous metal output on the supply side is determined by local availability of natural resources, i.e., ores. It is rare for a developing country to establish a non-ferrous basic metal sector on the basis of imported ores. Until recently, production of each of the non-ferrous ores had been sharply concentrated in a few developing countries, but improved exploration techniques and changes in the structure of financing may provide a greater potential for non-ferrous ore production. The local availability of additional energy resources has strongly influenced the extent to which ore output could be transformed locally into metal output. Institutional influences have also been significant, since some of the non-ferrous metal industries tend to be rather closely organized and governmental concern in this area is often strong. The major international companies that control a significant portion of world output and consumption of various non-ferrous metals are generally the main sources of capital for smelters and refineries in developing countries. However, in a number of developing countries, the rate of capital formation in this sector and the growth of its output have been increasingly influenced by policy decisions of the government, and assistance has been sought from other outside sources of finance. In restructuring financing and control, developing countries have had to bear in mind the need to maintain an adequate corps of skilled technicians.

Up to the present, developing countries as a whole have not developed a substantial paper and paper products industry, but vigorous efforts for growth have been under way in post-war years. More recently, the rate of expansion has declined somewhat; the average annual rate in 1955—1964 was nearly 9 per cent. This aggregate rate, which owed more to developments in Asia than Latin America, was higher than in the other two major groups of countries.

The expansion in developing countries of manufactures of pulp,

20. 9. 71

Foreword

The *Industrial Development Survey* contained in this volume is the first in a series of comprehensive reviews of industrialization to be undertaken by UNIDO. It was prepared in response to Economic and Social Council resolution 1030 (XXXVII), by which the Secretary-General was requested to make arrangements for the preparation of a periodic world industrial development survey. This survey is intended to provide a review and assessment of developments that may be significant for the industrialization programmes of developing countries and to review the over-all progress achieved in this field up to the present.

The present survey was prepared in 1967 by the secretariat of UNIDO as part of the documentation for the International Symposium on Industrial Development, held in Athens in November and December of that year. The discussion of the survey during the symposium is covered in the Report of the Symposium distributed initially as document ID/Conf. 1/62 and now being printed as ID/11.

General information is given on recent world developments in industrialization, while the situation in developing countries is considered in detail.

The term "industrialization" is used throughout the survey in the sense of an expansion of manufacturing output. The types of manufactures covered are those classified in Divisions 2 and 3 of the International Standard Industrial Classification, i.e.:

> Food manufacturing and beverages; tobacco manufactures; textiles; footwear, other wearing apparel and made-up textile goods; wood and cork; furniture and fixtures; paper and paper products; printing, publishing and allied industries; manufacture of leather, and leather and fur products except foot-wear and other wearing apparel; rubber products; chemicals and chemical products; products of petroleum and coal; non-metallic mineral products, except products of petroleum and coal; basic metal industries; metal products, except machinery and transport equipment; machinery; electrical apparatus, appliances and supplies; transport equipment; miscellaneous manufacturing industries.

The dimensions of recent growth of manufacturing in developing countries are reviewed in Chapter I. Since the mid-1950's, the rate of expansion has averaged 7 per cent a year. This is examined in relation to the recent and early efforts of the developed countries towards industrialization, and also in relation to the recent expansion of other sectors in the developing countries. The influence of domestic demand for manufactured products in the latter countries is also discussed.

In Chapter II, three aspects of the relationship between international trade and industrialization are examined: import substitution, the need for the expansion of exports, and efforts towards regional co-operation.

In Chapter III, an attempt is made to provide a perspective with regard to financial resources for industrialization. After a discussion of investment requirements, this chapter deals with the extent of external financial resources which have been available to developing countries and with the crucial nature of domestic savings for industrialization.

A review of other inputs required for more rapid industrialization is contained in Chapter IV, in which the role of employment in manufacturing and the urgent need for development of skills in the labour force are also discussed. The availability of primary products for processing in the manufacturing sector is then examined.

Some of the problems involved in the choice of technology are briefly reviewed in the concluding section.

The secretariat wishes to acknowledge with thanks the co-operation received from members of the United Nations family of organizations and from other international organizations.

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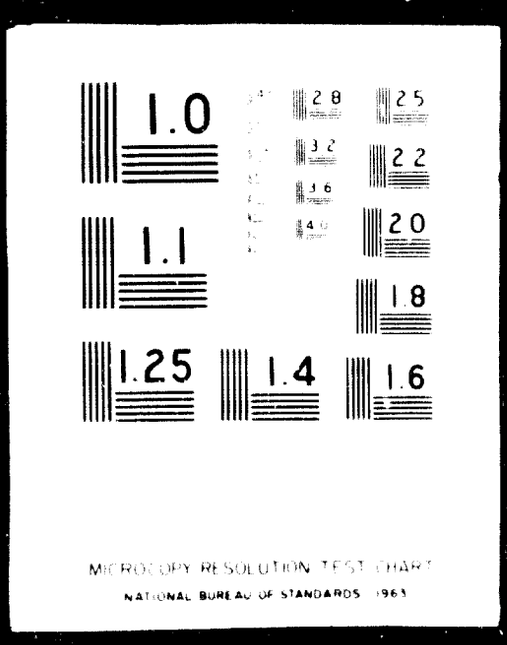
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963

Ivory Coast	1963	100	57	43	24	13	1	15	...	14	3	...	26
Zambia	1963	100	59	41	39	——3——		7	—	—	13	—	28
Kenya	1963	100	60	40	37	4	4	5	2	14	7	...	17
Libya	1964	100	62	38	25	6	1	4	...	4	8	—	27
Algeria	1957	100	62	38	40	7	...	4	1	6	9	—	22
United Arab Republic	1962	100	64	36	24	32	2	1	3	14	5	5	8
Nigeria	1963	100	65	35	38	7	1	8	—	12	6	1	16
Morocco	1958	100	66	34	38	14	6	4	4	5	6	1	19
Uganda	1963	100	80	20	49	26	2	4	2	3	5	...	10
Ghana	1963	100	80	20	42	2	3	26	1	12	1	—	6
Mozambique	1958	100	81	19	43	26	1	8	—	4	9	...	6
Mauritius	1964	100	86	14	79	1	1	2	—	1	5	—	8
Ethiopia	1962	100	88	12	39	40	...	3	—	4	8	—	—
Tanganyika	1958	100	89	11	60	7	1	12	...	1	1	—	9
Asia													
Iraq	1963	100	46	54	32	8	3	1	1	36	15	—	1
Singapore	1963	100	51	49	24	——2——		7	1	15	10	2	22
Israel	1963/64	100	52	48	19	10	4	6	2	7	10	4	25
India	1962	100	52	48	13	32	—	1	2	11	4	10	21
Jordan	1963	100	53	47	23	3	13	9	—	20	15	—	12
Ceylon	1963	100	57	43	37	5	8	1	2	27	5	—	9
China (Taiwan)	1963	100	58	42	36	10	2	5	3	14	9	4	12
Burma	1960/61	100	59	41	33	10	2	7	—	34	2	—	5
Philippines	1962	100	60	40	39	6	2	5	2	17	4	1	15
Korea, Rep. of	1963	100	64	36	32	17	2	4	4	12	6	4	10
Malaya, Fed. of	1963	100	69	31	25	1	1	14	1	11	7	1	11
Cyprus	1962	100	71	29	44	1	11	6	—	3	13	—	13
Lebanon	1955	100	72	28	42	10	6	6	—	2	...	...	25
Indonesia	1958	100	72	28	38	7	1	2	1	12	4	...	11
Pakistan	1962/63	100	83	17	14	66	1	—	1	9	2	2	4

Source: United Nations Industrial Development Organization, based on the United Nations, *The Growth of World Industry: National Tables, 1938–1961* and *1953–1965* and data provided by the Statistical Office. See basic sources for detailed country notes.

[a] Within each region countries are ranked in order of share of heavy manufacturing output.

In the majority of developing countries, the textile industry was the second most important light industry in terms of value added. Textiles serve a basic need, and the industry employs a wide range of technological processes. However, for the majority of developing countries, the share of textiles in total manufacturing still did not exceed one-tenth. In only a few countries, including India, Mozambique, Pakistan, Uganda and the United Arab Republic, was the recent share of textile manufacturing in total manufacturing activity equal to or more than one quarter. All of these countries are noted for domestic availability of cotton and other fibres.

Apart from the prime importance of manufacture of foodstuffs and textiles, there was no common ranking of light industries within the developing countries. Thus, while in many developing countries the wood and furniture industries occupied third place, that position was held by the clothing and foot-wear industries in many other developing countries. In a few countries one or the other of these industries made a relatively large contribution to total manufacturing, say, more than 10 per cent, but in the majority of developing countries, neither accounted for more than 5 per cent.

The similarity in the internal patterns of the light and heavy sectors was that the dominant industry within each sector often accounted for over half of the output of that sector. However, the important difference was that in the heavy sector, no one industry was clearly dominant in almost all developing countries, as was food in light industry. Rather, there were two industries in the heavy sector that vied for dominance in individual developing countries, metal products and chemical and petroleum products. The metal products industry is highly responsive to income growth and the level of technology. In the majority of developing countries, the share of total manufacturing output contributed by this industry around the turn of the present decade did not exceed one eighth. Local availability of natural resources was often an important influence in the development of industries manufacturing chemicals and chemical products and petroleum and coal products. Reflecting differences in endowment with natural resources, some countries had a relatively large chemical and petroleum products industry; however, as with the metals products industry, their contribution to total manufacturing output in the majority of developing countries did not exceed one eighth.

Among other heavy industries, non-metallic mineral products were often more important than basic metals and paper products industries. All three industries were also influenced by the local availability of natural resources. The first of these industries is closely concerned with building and construction; for the majority of developing countries the output did not exceed 5 per cent of total manufacturing. Basic metals industries were important, either in relatively less developed countries which

specialized in mining and smelting the basic metals, mainly for export, or in some of the larger and more industrialized of the developing countries. However, in the majority of developing countries, their share in total manufacturing did not exceed 2 per cent. About the same order of magnitude held good for the paper and paper products industries.

Some insight into the emerging structure of manufacturing in developing countries may be provided by a cursory examination of the recent pattern of manufacturing in developed market economies. The structural pattern differed from that of developing countries in the greater emphasis on heavy industry and the sharply different profiles within heavy and light industries. Except where the role of agriculture was important, as in Ireland and New Zealand, there was a positive, but not necessarily close, relation between the share of heavy industries in total manufacturing and the level of *per capita* income for individual developed market economies. In 1958, apart from the exceptions indicated, heavy industry accounted for between one half and two thirds of total manufacturing (see table 18). However, one industry — metal products — always dominated in the heavy sector of individual developed market economies, in contrast to the recent experience of developing countries. Generally, metal products accounted for the major part of heavy industry activity — about three tenths of total manufacturing in the majority of these countries. This special role of metal products might be ascribed to the greater influence of demand in higher income countries over that of the supply of specific natural resources, which in lower income countries may more often determine the pattern of manufacturing production. The chemical and petroleum products industries were generally second in importance in the heavy sector of the developed market economies, but contributed far less to value added than the metal products industries.

Generalization about the relative roles of the other and smaller industries in the heavy sector is less easy, except in regard to the influence of endowment with natural resources. Thus, the extent of exploited forest resources contributed to the relatively more important contribution made by the paper and paper products industries in Oceania and most of the Scandinavian countries, while the relative paucity or absence of metallic minerals contributed to the limited role of the basic metals industries of Denmark, Finland, Ireland and New Zealand. Reflecting the more general availability of, and demand for, non-metallic minerals and the influence of relatively high transportation costs for such products, the non-metallic mineral products industry was distinguished from the paper products and basic metals industries by its stable though relatively small contribution, 4—5 per cent, to total manufacturing.

Within the light industry sector, the structural pattern of the developed market economies differed from that of the developing coun-

TABLE 18. STRUCTURE OF MANUFACTURING OUTPUT, BY MAJOR GROUPS, IN DEVELOPED COUNTRIES, 1958

(Percentages of total value added in manufacturing in each country)

	Manufacturing		*Food, beverages and tobacco*	*Textiles*	*Clothing foot-wear and made-up textiles*	*Wood products and furniture*	*Paper and paper products*	*Printing and publishing*	*Leather and leather products*	*Rubber products*	*Chemicals and their products petroleum and coal*	*Non-metallic mineral products*	*Basic metals*	*Metal products*	*Other manufacturing*
	Light	*Heavy*													
	ISIC	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*
	20–26 28–30 39	*27 31–38*	*20–22*	*23*	*24*	*25–26*	*27*	*28*	*29*	*30*	*31–32*	*33*	*34*	*35–38*	*39*
Australia . . .	41	59	13	5	6	7	3	4	1	2	9	5	9	33	3
Canada	42	58	17	4	4	6	9	5	—	2	12	4	9	25	2
Denmark . . .	45	55	18	6	6	5	4	6	1	1	8	6	2	34	3
Finland	47	53	19	6	6	10	16	6	1	1	8	4	2	23	1
Ireland	74	26	40	10	9	4	4	6	2	—	4	4	—	14	4
Italy	42	58	17	9	3	4	2	4	—	1	16	4	9	27	2
Japan	37	63	10	10	1	4	4	5	—	2	12	5	10	31	4
Netherlands . .	47	53	18	8	6	4	3	6	1	1	11	4	5	31	3
New Zealand	58	42	23	5	8	11	6	6	1	3	5	6	7	24	2
Norway	37	63	16	4	5	6	10	4	—	1	11	4	10	28	2
South Africa	47	53	19	4	10	5	4	5	1	1	11	7	10	21	2
Sweden	34	66	11	4	5	6	9	5	—	1	6	4	8	40	1
United Kingdom	35	65	12	7	4	3	3	5	—	1	10	4	9	39	3
United States	38	62	13	3	5	4	4	6	1	2	11	4	8	35	5

Source: United Nations Industrial Development Organization, based on data from United Nations, *The Growth of World Industry, National Tables, 1938–1961.*

tries in the importance of the food industry. Reflecting the lower income elasticity for food in the more developed countries, only in Ireland did the food industry account for the major portion of the output of light industry. The food industry was, nevertheless, the most important light industry in almost every country, Japan being the exception. In the less wealthy of the developed market economies, textile manufacturing is generally the second most important of the light industries. Otherwise, the relative importance of the made-up textiles, clothing and foot-wear, wood products and furniture, and printing and publishing industries varied from country to country, reflecting special influences. Industries producing leather (other than foot-wear) and rubber goods were almost always of less importance in developed market economies than the other light industries indicated above.

In the endeavour of developing countries to achieve a certain structural pattern of manufacturing activity, the interdependence of industries cannot be ignored, since manufacturing as a whole cannot grow without reference to development elsewhere in the economy. Moreover, within manufacturing, it is clear that the interdependence of different industries increases with the degree of industrial development. From approximate data for a limited number of developed and developing countries, it appears that the textile and metal products industries, more than others, tend to rely for their output on inputs from within manufacturing.[10] The exceptions to this very broad generalization are clearly indicated in table 19. Further, these two industry groups would also seem to be the most important suppliers of the whole manufacturing sector, again including intra-group transactions. Apart from the latter transactions, the textile industries rely for their purchases mainly on the complex of the chemicals, petroleum and coal products industries. In many instances, of all industries in the manufacturing sector, the wood, paper and rubber products industries rely most on sales to the textile industries. Similarly, in many cases, metal products industries appear to rely the most on industries producing chemicals etc.; however, the tentative evidence is less clear with respect to the major dependent industry. In the food products industry and the non-metallic mineral products industry the backward and forward linkages within manufacturing do not appear to be so strong. In these instances, there are strong backward linkages with the agricultural and mining sectors, and more immediate forward linkages with final demand. Finally, the recognition of interindustry dependence in industrial development has to be supplemented by appreciation of intra-industry dependence. In all of the manufacturing industries, except for the two mentioned immediately above, there is evidence of large intra-industry transactions. Within each of the other industries, there are a number of closely related activities often representing successive stages of fabrication

[10] Including imports in the delivery flow of counterpart domestic industries.

TABLE 19. INPUT CO-EFFICIENTS[a] OF TRANSACTIONS WITHIN MANUFACTURING INDUSTRIES IN SELECTED DEVELOPING AND DEVELOPED COUNTRIES, RECENT YEARS

(Gross value of production of each individual sector equals 1,000)

Purchases from each sector \ *Purchases of individual sectors*		*Purchasing sectors*[b]					
		A	*B*	*C*	*D*	*E*	*F*
				Colombia			
Food	A	82	—	—	8	—	—
Textiles	B	7	283	64	9	10	18
Wood	C	8	6	253	34	35	35
Chemicals	D	24	89	39	182	138	39
Non-metallic Mineral	E	4	—	1	26	48	2
Metal Products	F	10	3	17	7	—	352
Total		136	381	374	265	231	446
				Pakistan			
Food	A	1	—	—	—	—	—
Textiles	B	3	241	28	138	—	—
Wood	C	2	—	26	5	—	—
Chemicals	D	3	15	96	68	48	18
Non-metallic Mineral	E	—	—	3	—	—	—
Metal Products	F	—	4	26	11	262	367
Total		9	260	119	222	310	385
				Senegal			
Food	A	121	—	—	—	—	—
Textiles	B	10	180	6	10	43	4
Wood	C	4	—	173	—	—	—
Chemicals	D	6	20	19	44	21	—
Non-metallic Mineral	E	—	—	—	—	86	—
Metal Products	F	10	7	32	1	21	300
Total		152	207	231	55	171	304
				Italy			
Food	A	166	23	—	34	—	—
Textiles	B	2	378	31	3	—	9
Wood	C	12	19	323	18	41	24
Chemicals	D	19	84	79	343	99	34
Non-metallic Mineral	E	3	1	5	6	72	7
Metal Products	F	9	6	22	15	32	410
Total		211	511	460	419	244	484
				Iraq			
Food	A	144	1	—	—	—	—
Textiles	B	—	434	54	—	—	—
Wood	C	42	8	498	25	45	3
Chemicals	D	17	35	19	123	96	18
Non-metallic Mineral	E	—	—	20	—	48	—
Metal Products	F	7	6	194	15	52	461
Total		210	485	726	163	241	483

Purchases from each sector	*Purchases of individual sectors*	*Purchasing sectors*[b]					
		A	*B*	*C*	*D*	*E*	*F*
				Peru			
Food	A	128	1	4	7	—	—
Textiles	B	21	191	20	2	1	31
Wood	C	18	20	318	13	68	12
Chemicals	D	52	68	35	90	212	30
Non-metallic Mineral	E	8	1	4	7	50	1
Metal Products	F	21	3	17	6	1	155
	Total	248	284	398	125	332	229
				United Arab Republic			
Food	A	280	16	53	2	—	—
Textiles	B	26	274	189	18	52	47
Wood	C	4	11	83	4	58	2
Chemicals	D	19	31	44	136	216	21
Non-metallic Mineral	E	—	2	—	—	—	—
Metal Products	F	4	23	105	26	2	389
	Total	333	357	474	186	328	459
				Japan			
Food	A	103	2	1	28	—	—
Textiles	B	1	410	14	1	—	6
Wood	C	11	36	246	27	46	28
Chemicals	D	16	44	26	238	44	34
Non-metallic Mineral	E	3	1	1	7	52	15
Metal Products	F	9	14	13	22	10	466
	Total	143	507	301	323	153	549

Source: See table 12.

[a] Includes imports on the delivery flow of counterpart.

[b] The definitions of the industrial sectors are as follows:

A Food, beverages and tobacco;

B Textiles, clothing, leather and miscellaneous manufactured goods;

C Wood, paper and rubber products;

D Chemicals, petroleum and coal products;

E Non-metallic mineral products;

F Metal products.

from semi-manufactures to final manufactures. It would appear that the significance of these intra-transactions also increases to some extent with industrial development, reflecting the "lengthening" of fabrication processes applied to specific raw materials and the corresponding sophistication of industrial organization.

D. INDUSTRIAL GROWTH IN PERSPECTIVE

The present 7 per cent growth rate in manufacturing prevailing in developing countries is not extraordinary when compared with the early experience of some of the now-developed countries. While that rate is high in relation to the advance of the United Kingdom at its

TABLE 20. GROWTH OF MANUFACTURING PRODUCTION IN SELECTED DEVELOPED COUNTRIES, 1810-1935

(Average annual change in index numbers between preceding quinquennium and quinquennium indicated)

United Kingdom		*United States*		*Germany*		*Sweden*		*Japan*	
1810–1814	2.0	1876–1880	3.0	1876–1880	1.4	1891–1895	8.0	1901–1905	9.5
1815–1819	2.7	1881–1885	7.3	1881–1885	4.1	1896–1900	11.7	1906–1910	7.9
1820–1824	3.1	1886–1890	5.6	1886–1890	4.6	1901–1905	3.9	...	
1825–1829	4.3	1891–1895	3.2	1891–1895	3.7	1906–1910	3.7	1926–1930	7.4
1830–1834	3.5	1896–1900	3.8	1896–1900	7.0	...		1931–1935	4.7
1835–1839	4.4	1901–1905	7.7	1901–1905	4.0	1926–1930	7.5	...	
1840–1844	2.5	1906–1910	3.7	1906–1910	3.3	1931–1935	3.1	...	

Source: United Nations Industrial Development Organization, based on W. G. Hoffman (1955) *British Industry, 1700–1950*, Basil Blackwell, Oxford, and League of Nations, *Industrialization and Foreign Trade*, Geneva.

early stages of industrialization (see table 20), there are obvious reasons, apart from specific circumstances, why advance should have been slower in a country which was first in the industrial field. The peculiar role of the United Kingdom was to create by itself the means of industrialization. However, annual growth rates well above 7 per cent in the early phase were not uncommon in some countries which began their "take-off" into industrialization seventy-five to a hundred years after the United Kingdom, i.e. in the latter part of the nineteenth century. It would be an oversimplification, however, to suggest that the developing countries of today, which are industrializing seventy-five to one hundred years later than, say, Sweden and Japan, have therefore failed in their endeavour.

Certainly, developing countries today would appear to have a potential advantage over those of earlier times in the availability of technology. However, the value of the increase in the volume of current technology available may well be lessened by the degree of remoteness of some of this technology from the needs and possibilities of newly developing countries. The question for these countries is whether they are able to adopt and adapt existing technologies rather than whether they can create wholly new technologies. At present technological innovation is generally an activity of highly industrialized rather than of newly industrializing countries. Of course, many other factors influence comparative rates of growth in manufacturing; few of them operate uniformly in a single direction, or with the same force in all developing countries.

The problem of finance is universal and often extremely serious. This problem has been aggravated for countries which on the basis of their present low standards of living have sought to start rapid industrialization since this has often impeded the development of adequate domestic

savings for industrial investment. In real terms, *per capita* income in some developing countries may well be below that of some countries which started their industrialization in the nineteenth century. Further, the present situation may be still more serious in countries where highly unequal domestic patterns of income and distribution of wealth exist but where the potential for saving is not exploited. The existence of a growing complex of international institutions, in addition to the private and public national organs concerned with transfer of savings from developed to developing countries, might indicate that overseas savings can fill the gap left by domestic savings. However, it should be recalled that, under a less sophisticated institutional framework, international capital flows in some cases were not insubstantial in the nineteenth century. With regard to demand for capital, it is true that efforts for rapid industrialization are being made simultaneously in a larger number of individual developing countries now than several decades ago. At that time, the situation might have been described as one of overlapping consecutiveness.

Nor is the situation in all countries unequivocally more favourable today with regard to human and natural resources. In too many of the developing countries there is still a wide gap between optimum and actual standards of formal and vocational education. Moreover, in many developing countries, potential financial savings for industrial and general economic and social development have been diverted to meet the consumption requirements of populations whose rate of growth is much higher than that of many of the countries at the beginning of their industrialization several decades ago. Further, while newer technical means of discovery and exploitation of natural resources are undoubtedly a positive influence in the contemporary world, there is an unfavourable ratio of human to natural resources in many developing countries, as a result of continuously expanding populations. In some of the petroleum-producing countries, however, this adverse pressure does not apply.

The increasing emergence of planning machinery, designed to improve the co-ordination and utilization of factors of production, has undoubtedly created a potential for a more orderly and rapid industrialization effort in many developing countries today. In ideal situations, co-ordination between planning and industrialization has created the environment needed to achieve the greatest social benefits. In many developing countries, however, the desire to plan has not been accompanied by a corresponding ability to plan, and the ability to plan has not been matched by facilities to implement a plan. Successful use of planning techniques requires not only an adequate and efficient administration, but also continuing political support to ensure the primacy of social over internal or external private benefit if conflict emerges. In addition, the possibility of rapid industrialization in many developing countries has been increased by the involvement of the public sector

in the actual production process. Without such effort, some of the industrial achievements in developing countries would not have been realized. It is clear, of course, that only efficiently run public enterprises can serve the ultimate purpose of industrialization.

Without question, the conditions of international trade have changed substantially over the decades. In the broadest terms, the present drive for industrialization in developing countries has been facilitated by a vigorous expansion of international trade which, by permitting greater specialization, has swelled world income. The question arises, however, whether all developing countries have shared adequately in the gains from such exchange. International trade has undoubtedly made it less necessary for developing countries to take the expensive road of self-sufficiency in their industrial development; foreign inputs for industrial growth have become available more cheaply than otherwise. However, the barriers to trade in manufactures that have been set up by the long-established industrial nations have been among the powerful influences that have severely reduced the proportion of developing countries participating in international trade in manufactures. Some of these obstacles, such as high tariffs on semi-manufactures, have been particularly awkward. The issue has therefore been raised, not simply of dismantling or at least reducing present barriers in developed countries, but of granting some kind of preferential treatment to the manufactures of newly industrializing countries. The need for such action to promote a more export-oriented industrialization is all the more compelling in view of the small size of national markets.

Whether or not developing countries have a greater ability to industrialize more rapidly today than formerly, there is now far greater recognition by governments of the need for more rapid industrialization. The realization that more rapid industrialization, hand-in-hand with over-all economic development, will bring a higher level of living has spread far and wide, as a result of the demonstrable achievements of the developed countries.

Turning to the historical role of manufacturing in relation to other sectors of the economy, there is abundant evidence bearing out the experience of contemporary developing countries that a relatively rapid rate of growth in manufacturing is normally associated with agricultural growth, rather than with stagnation or decay in the agricultural sphere. It was observed earlier in this survey that agricultural production is continuing to grow in developing countries as a whole, although at significantly lower rates than the manufacturing sector. The growth rate in the larger sector of agriculture has served to provide supplies and demand for the products of a more rapidly growing but smaller manufacturing sector, although a higher growth rate of agriculture would have been desirable to prevent some of the stresses and strains that have arisen.

paper and paperboard, and related articles reflects the particularly high income elasticity of demand for such products. It has been estimated that the countries with lower *per capita* income have a much higher income elasticity of demand than more developed countries. Domestic demand was the dominant outlet for the paper and paper products output of developing countries. While part of this demand has been related to the needs of general economic growth, as with the demand for packaging material, a considerable element was closely related to educational advance. There has been a sizable growth of demand for newsprint and other paper for the transmission of information, as indicated in country estimates made by the United Nations Educational, Scientific and Cultural Organization (UNESCO) of increases in the number of book titles and translations and newsprint consumption. A random sample relating to newsprint consumption, for example, shows that average *per capita* consumption rose between 1955—1959 and 1964 from 2.4 to 2.9 kg in Mexico and from 9.5 to 10.3 kg in Uruguay. Increases in the same period for Israel, Ghana and the United Arab Republic were, respectively, from 3.0 to 6.2, 0.4 to 1.5, and 1.0 to 1.4 kg. In India and the Philippines, *per capita* consumption of newsprint rose from 0.2 to 0.3, and from 1.3 to 1.4 kg, respectively. In the same period, the relevant increase in the United States was from 35.7 to 37.9 kg. Just before the 1960's, the average *per capita* consumption of all pulp and paper in developing countries as a whole was about one twentieth of the average level in developed countries as a whole. So far, very little of the output of the paper and paper products industry of developing countries has gone into foreign markets, less than 1 per cent of world exports by value. In the early 1960's, most of these exports, which came from a limited number of developing countries, went to other developing countries in the same geographic region.

Key requirements for growth in the paper industry are the availability of natural or estate forest resources which must be abundant, accessible, uniform and cheap, and supplies of fresh water. While the major part of pulp and paper output has been traditionally obtained from the coniferous species, attention has been given to the possibilities of other available inputs, such as various timbers including bamboo and non-wood materials, such as esparto and other grasses, cereal straw and bagasse. The availability of low-cost energy and a number of chemicals has also influenced the location of the pulp and paper industry. A further problem is raising the capital for this relatively capital-intensive industry. Apart from the cost of developing a specific infrastructure, a large chemical pulp plant of 100,000 tons annual capacity requires an estimated capital of some $ 35 million, i.e. $ 350 a ton. The large size of efficient modern plants in this industry is a dominant technological consideration for developing countries where the market is not large enough to sustain the necessary output. Since capital costs per unit of output tend to rise significantly with decrease in mill size, the technol-

Generally speaking, the availability of labour has not restricted the growth to only one sector. The relation of the volume of agricultural output to the volume of manufacturing output in developing countries as a whole at the present time is not materially different from that in the United States a century ago. As shown in table 21, the relative

TABLE 21. GROWTH OF MANUFACTURING AND AGRICULTURAL PRODUCTION IN SELECTED DEVELOPED COUNTRIES, 1869–1937

(Average annual change of index numbers between the dates indicated)

	Manufacturing[a]	*Agriculture*[b]	*All sectors*[c]
United States			
1869 to 1874	9.4	2.8	5.6
1874 to 1879	3.0	5.6	4.3
1879 to 1884	10.4	2.9	6.6
1884 to 1889	5.3	1.5	3.5
1889 to 1894	5.7	0.2	3.4
1894 to 1899	2.7	3.7	2.8
Canada			
1870 to 1880	4.5	3.0	3.3
1880 to 1890	4.9	2.2	3.3
1890 to 1900	2.9	3.4	2.7
1900 to 1910	5.6	3.2	6.1
1910 to 1920	1.4	1.2	1.6
1920 to 1930	4.7	2.7	3.2
Japan			
1903–1907 to 1908–1912	5.8	2.9	4.1
1908–1912 to 1913–1917	6.4	0.8	2.6
1913–1917 to 1918–1922	5.5	3.7	5.0
1918–1922 to 1923–1927	6.2	−0.8	4.9
1923–1927 to 1928–1932	4.9	0.1	3.1
1928–1932 to 1933–1937	6.3	3.3	4.6

Sources: United Nations Industrial Development Organization, based on data from National Bureau of Economic Research, *Trends in the American Economy in the 19th Century*, Studies in Income and Wealth, 24, Princeton University Press (1960); C. J. Firestone (1958) *Canada's Economic Development 1867–1953*, Income and Wealth Series VII, Bowes and Bowes, London; W. W. Lockwood (1954) *The Economic Development of Japan, 1868–1938*, Princeton University Press.

[a] Manufacturing includes construction and electricity for Canada up to 1910, includes construction for Japan.

[b] Agriculture includes other primary production for Japan.

[c] All sectors average refers to all commodity output for the United States, to gross domestic product for Canada and to net national product for Japan.

growth rates of these two sectors in the United States in the decades following the 1860's were broadly similar to those of the developing countries today. In the early years following the take-off into industrialization of countries such as Canada and Japan, the relative advance of these two sectors was of a different order but — taking a broad view — not markedly different.

Finally, a glance at other historical data corroborates the observation that within the manufacturing sector, there is no hard and fast rule of specific sectoral development valid for all countries at all times. The specific sectoral pattern reflects supply and demand influences, which vary in time and from country to country. Differences in the early industrialization of Canada and Japan, for example, reflect the exploitation of their vastly different natural resources. In general, however, the more recently industrialized of the present developed countries exhibited a strong tendency in their earlier as well as subsequent phases to develop heavy industry more than light industry. This reflects the shift in demand for the products of this sector as incomes rise and is observable from the data for Canada and Japan in the decades around the turn of the century, and for the United Kingdom after the first quarter of the nineteenth century. Before then, however, the United Kingdom, in its early phase of industrialization, concentrated on light industry, reflecting the fact that increasing incomes at that time spurred demand primarily for food and textiles.

The present section and, more directly, the preceding three sections of this chapter have concentrated on some of the features of recent industrial growth in developing countries. This growth has been largely due to rapidly changing patterns of demand for industrial goods, and the next section is therefore devoted to a brief discussion of some aspects of these changes in demand in developing countries.

E. The influence of domestic demand

The growth of domestic demand for manufactured products in developing countries, and related changes in the pattern of that demand, have been among the major factors influencing the pace and pattern of secondary sector development in these countries.[11] Discussion might be simplified if a detailed association could be established for each of the developing countries between the pattern of expansion in manufacturing output and the pattern of expansion of domestic demand for this output, but precise statistics are not generally available because of the present limitations of statistical services. The nearest association that can be generally stated at the country level from readily available data relates to the pattern of demand for all goods and services by such domestic expenditure categories as investment, government con-

[11] Terms in this paragraph are used in the following sense: domestic demand equals domestic investment plus domestic consumption (government and private); total demand equals domestic demand plus exports (the latter being alternatively termed "foreign demand"); total supply equals domestic supply (or gross domestic product) plus foreign supply (or imports).

sumption and private consumption. The trends in demand for all goods and services by the categories just mentioned will be described in this section; the possible implications, specifically for manufacturers, can be indicated only in broad terms. Even then, there is difficulty in distinguishing between the part of the demand for manufactured products that is satisfied by supply from developing countries themselves, and the part supplied from external sources, i.e. imports. Nevertheless, the conclusion of this section is that the changing pattern of manufacturing production in developing countries has resulted more from changing patterns of demand within the private consumption sector in developing countries than from shifts between this sector and the other major domestic demand sectors indicated above. Before examining the pattern of domestic demand in developing countries, the general level of such demand may be set in the perspective of the total demand for goods and services of developing countries, i.e. demand from foreign as well as domestic purchasers.

From 1955 to 1964, there was no clear general pattern of change, for instance, in the relative roles of domestic and foreign demand for all goods and services of developing countries. Exports from developing countries, i.e. foreign demand, in the mid 1950's accounted in most cases for between one tenth and one quarter of total (foreign and domestic) demand. Although the level of aggregate demand was higher, there was very little essential change in this position in the first half of the 1960's. However, as the data in table 22 suggest, a number of developing countries displayed a slight tendency towards increased exports. This may have been due to a series of special circumstances — for example, those relating to specific product markets or to specific governmental policies aimed at reallocating goods from domestic to foreign markets. It may also reflect, more generally the substantial increase in exports to developed countries resulting from the latter's increased income. It will be recalled that the aggregate growth rates of the economies of developed countries were not substantially different from those of the developing countries and that there was some evidence, admittely faint, of slightly increased reliance by developed countries on imports from developing countries, as gauged by the change in the quantum of imports per unit of domestic product in the former.[18]

While it is difficult to measure the impact of these slight changes in the relative role of export demand for all commodities on the pattern of domestic manufactured products in each developing country, it may be suggested that the role of foreign demand remained decidedly modest as far as it concerned manufacturing activity in the developing region as a whole. Both in the late 1950's and the early 1960's, foreign demand for manufactures from the developing regions as a whole accounted for perhaps one tenth, at most, of the total output of manufactures of

[18] For a more detailed consideration of foreign demand, see Chapter II.

TABLE 22. DOMESTIC AND FOREIGN DEMAND, SELECTED DEVELOPING COUNTRIES,[a] 1955–1964

(Average annual investment, consumption and export expenditures in each period equal 100)

	1955–1959		1960–1964	
	Domestic (investment plus consumption)	*Foreign (exports)*	*Domestic (investment plus consumption)*	*Foreign (exports)*
Korea, Rep. of	98	2	95	5
Chile	91	9	91	9
Uruguay	89	11	89	11
China (Taiwan)	87	13	88	12
Guatemala	89	11	86	14
Bolivia	85	15	85	15
Colombia	84	16	85	15
Ecuador	84	16	85	15
Israel	90	10	85	15
Paraguay	87	13	85	15
Honduras	83	17	83	17
Iran	83	17	81	19
Cyprus	81	19	79	21
Dominican Republic	80	20	79	21
Ceylon	76	24	77	23
Puerto Rico	72	28	73	27
Jamaica	76	24	72	28

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Yearbook of National Accounts Statistics*. This table only includes developing countries with data available in constant prices. The use of a larger sample may convey a somewhat different over-all conclusion. See basic source for detailed country notes.

[a] Countries ranked in order of relative importance of domestic demand in 1960–1964.

the region. This estimate refers only to exports of manufactures by the developing regions to countries outside these regions. The other side of the coin is that, in most developing countries, the relative importance of domestic demand by their investors and consumers changed little during the past decade.

Investment and government expenditures

Within the domestic sector, the changes in the general role and pattern of demand by the investment sector were not usually of a dramatic nature in 1955–1964 as far as developing countries as a whole were concerned. As a group, the developing regions have continued to allocate about 13 to 14 per cent of their total domestic expenditure to gross fixed capital formation (see table 23). Further, individual countries which were striving for above-average growth and which therefore made a relatively major effort to build and maintain their capital stock, tended to maintain their high relative position. With regard to Latin American developments, there is little evidence of general change in the relative involvement of the public sector in total investment. In the Latin American region as a whole, both in the late 1950's and early

TABLE 23. DOMESTIC DEMAND, BY MAJOR CATEGORIES, IN SELECTED DEVELOPING COUNTRIES,[a] 1955–1964

(Average annual fixed and inventory investment[b] and government and private consumption expenditures in each period equal 100)

	1955–1959				1960–1964			
	Gross domestic fixed capital formation	Consumption expenditures			Gross domestic fixed capital formation	Consumption expenditures		
		Total	Government	Private		Total	Government	Private
Israel	23	76	17	59	24	75	15	60
Zambia	31	69	9	60	20	77	11	66
Puerto Rico	17	81	11	70	19	79	11	68
Colombia	19	78	6	72	18	80	6	74
Iran	18	82	9	73	18	82	9	73
China (Taiwan)	12	85	18	67	17	79	17	62
Jamaica	18	80	8	71	17	81	10	72
Rhodesia	27	71	8	63	17	82	10	71
Bolivia	14	86	8	78	16	83	9	74
Paraguay	14	86	9	77	16	84	7	77
Uruguay	16	84	10	74	15	84	11	74
Ceylon	15	86	14	71	14	86	14	72
Cyprus	15	85	18	67	14	85	10	75
Ecuador	13	85	12	73	14	84	13	71
Chile	10	90	10	80	12	88	10	78
Honduras	13	86	8	78	12	87	8	79
Sudan	10	90	9	81	12	84	9	75
Malawi	14	86	10	76	12	86	12	74
Guatemala	14	86	7	79	11	88	7	82
Korea, Rep. of	10	88	15	74	11	87	13	74
Philippines	8	91	9	83	10	90	9	81
Dominican Republic	17	83	16	68	9	91	18	73

Source: See table 22.

[a] Countries ranked by relative importance of gross domestic fixed capital formation in 1960–1964.

[b] The percentage share of inventory investment is not shown.

1960's, there were about two dollars of private investment for every dollar of investment by the public sector. Country variations in these proportions were, however, significant.

It appears that there was a greater degree of uniformity among developing countries with regard to the proportion of the resources they allocated to investment. In some developing countries there has been an increased ratio of investment to total domestic expenditure; this may reflect either a more general appreciation of the need for such expenditures or a greater ability, secured by political, social or economic change, to meet a long recognized need. A further determining influence, however, may well have been some levelling of the availability of foreign exchange resources to individual countries for allocation to investment. Some countries with foreign exchange reserves accumulated during the 1940's and early 1950's exhausted these accumulations partly to support investment activities in the latter period. At a later stage, other countries received special help in their investment programmes through foreign assistance. Furthermore, foreign private investment has often shifted its effort to a new set of countries after having financed the building or extension of, say, an extractive industry in a particular group of countries. More generally, price changes in the export products of developing countries have been a significant influence. Thus, for example, while coffee prices in the early 1960's were well below the level of the early 1950's, the situation was reversed in other primary products. With relatively few exceptions, the extent of change among developing countries in the role of investment in the total of domestic demand between 1955–1959 and 1960–1964 was below 3 percentage points. The proportion of domestic expenditure allocated to investment by developing countries in the early 1960's, about one seventh to one eighth, was well below that of developed countries, where the range was between one third and one quarter. If all of this element of demand in developing countries had been met by the countries themselves, the impact would have been as favourable for the machinery and equipment sector of their heavy industry as for the building sector, since investment expenditure in many developing countries is divided fairly evenly between these two sectors. However, a large proportion of expenditure by these countries for machinery continues to be made in developed countries.

Again, within the consumption sector in developing countries there was not, as might have been expected, a general and pronounced relative shift away from expenditures by private consumers to an increasing demand role by government in its current or consumption expenditures. Private and public consumption expenditures together have accounted for about 80 to 90 per cent of total domestic demand, with by far the larger demand emanating from the private sector. Throughout the 1955–1964 period demand by government alone,

i.e. its current expenditure, accounted on the average for about 11 per cent of total domestic demand or about 13 per cent of total domestic consumption demand. However, as indicated in table 23, the role of government in relation to total domestic consumption varied widely around this average, being two to three times greater in some developing countries than in others. Although variations in the responsibilities assumed by governments in the area of economic and social improvement accounted partly for these differences, a further influence was undoubtedly the different incidence of the defence burden. The impact of government current expenditures on manufacturing was probably greater with regard to defence than for non-military expenditures; the latter appears to be more intensive in its use of services than manufactured goods. It was exceptional for the share of government in all consumption expenditures to change by more than about two percentage points between the late 1950's and early 1960's. The fact that there was so little change in these quinquennial averages for almost all countries should not be mistaken for year-to-year stability. In some newly independent countries, there was an initial attempt to build up the role of government but internal or external circumstances kept any increase within moderate limits.

Private consumption

Changes in the pattern of rising private consumption in developing countries were reflected in the relative greater growth of domestic production of heavy industry goods, than of light industry manufactures. Increasing incomes, urbanization and changes in consumer goods prices were among the contributing influences resulting in this relative shift away from the products of light industry.

The pattern of income elasticities, i.e. the ratios of changes in consumption expenditures for specific products to changes in personal income (interpreted loosely to include whatever changes may have resulted also from relative price changes), suggests that there were a number of diverse developments in private consumption in the developing countries during 1955—1964. The most vigorous response of private consumption demand as incomes rose was for durable commodities such as passenger cars and many types of household equipment, furniture and furnishings. As shown in table 24, income elasticities were higher for this than for other categories of private consumption expenditure in eight out of eleven developing countries; the extent of this income elasticity over the period 1955—1964 was often in the range of 1.5 to 2.0. A more modest degree of response to changes in income was for such non-durables as fuel and light, some forms of transport (other than automobiles) and communications, household operations and personal care, but in most of the countries examined the response was nevertheless elastic. The demand for food, beverages, tobacco,

TABLE 24. PRIVATE CONSUMPTION EXPENDITURES: ESTIMATED INCOME ELASTICITIES OF DEMAND,[a] BY MAJOR CATEGORIES,[b] SELECTED DEVELOPING COUNTRIES,[c] 1955–1964

	Durables	*Semi-durables*	*Non-durables*			*Services*
			Total	*Food, beverages, tobacco*	*Other*	
Israel	1.8	0.6	0.8	0.7	1.2	1.3
Puerto Rico	1.7	1.2	0.7	0.6	1.2	1.2
Trinidad and Tobago	1.1	0.7	1.0	0.9	1.3	1.2
Jamaica	1.5	1.1	1.0	1.0	0.9	0.9
Panama	0.8	−0.3	1.2	1.4	0.2	1.3
Malaysia	1.5	0.8	1.0	0.9	1.5	1.0
Dominican Republic	1.5	1.2	0.8	0.7	1.2	1.3
Honduras	3.6	1.1	0.7	0.5	2.8	1.3
Ecuador	2.2	−0.2	0.8	0.2	4.9	2.3
China (Taiwan)	2.6	0.4	0.9	0.8	1.7	1.3
Thailand	2.3	0.7	0.7	0.6	1.1	1.6

Source: United Nations Industrial Development Organization.

[a] The measure of income elasticity used in this table relies on C. E. V. Leser, *Forms of Engel Functions*, Econometrica, 31, 694–703 (1963). The measure is as follows: $e = 1 + \frac{b}{\bar{y}}$, where e is the income elasticity, and b is the co-efficient of regression in the equation $y = a + b \log x$ fitted to annual observations for the year 1955 to 1964. Further, y is the percentage of total private consumption expenditures in a year spent on a particular major category of expenditure and x is the corresponding *per capita* gross domestic product. Finally, $\bar{y}$ is the mean of the y's as defined above.

[b] The classification of items of private consumption expenditure into the major categories shown in table is to be regarded as experimental, particularly for other non-durables and for services. The major category of food etc. is the best defined of those shown. In this regard, please see table 1 of "Proposals for Revising The SNA, 1952; June 1966", U.N. document, number E/CN. 3/345, dated 28 June 1966. The basic data used were obtained from United Nations *Yearbook of National Accounts Statistics*.

[c] Countries are ranked in order of the value of *per capita* gross domestic product in 1963.

clothing and other personal effects, and for some types of furniture and house furnishings was more generally inelastic to income changes, i.e. a given percentage increase in income called forth a smaller percentage increase in demand. Not all of the commodities in the above-mentioned category showed the same degree of inelastic response to income change; demand was undoubtedly more elastic for manufactured than for unmanufactured foodstuffs, and for beverages and tobacco than for foodstuffs. The experience in developed countries has been that, for example, income elasticity of demand was generally low and sometimes negative for staple foods such as cereals, bread, potatoes and sugar. Considerably higher elasticities of demand have been found for meat, especially the more expensive varieties, as well as for fish, fruit and luxury foods. Furthermore, studies by the Food and Agriculture Organization of the United Nations (FAO) have shown that the elasticity of demand for all food expenditures, i.e. final demand, has tended to be considerably higher than the elasticity of demand for food at the prices paid to the farmer. The difference is explained by the fact that, with higher living standards, the manufacturing and the

TABLE 25. STRUCTURE OF PRIVATE CONSUMPTION EXPENDITURES, BY MAJOR CATEGORIES, DEVELOPING AND DEVELOPED COUNTRIES,* 1963

(Percentages of total private consumption expenditure)

Developing countries	*Food, beverages and tobacco*	*Clothing and other personal effects*	*Developed countries*	*Food, beverages and tobacco*	*Clothing and other personal effects*
Trinidad and Tobago	47.7	9.8	Canada	29.9	8.6
Jamaica	46.1	11.8	Sweden	36.0	12.1
Panama	50.9	8.2	Norway	36.3	14.7
Singapore	38.7	14.9	Australia	31.7	10.6
Barbados	49.2	12.1	Germany, Fed. Rep. of	36.0	11.9
Malaysia	55.3	7.2	Luxembourg	37.3	11.0
Dominican Republic	47.4	5.6	United Kingdom	39.2	10.6
Ghana	59.4	11.6	Denmark	33.4	9.6
Jordan	55.4	9.9	France	38.6	12.7
Honduras	55.0	14.0	Belgium	33.4	10.5
Ecuador	53.3	13.4	Netherlands	36.9	15.8
Ceylon	60.9	9.0	Italy	52.6	9.5
Korea, Rep. of	62.1	9.1	Austria	42.3	13.8
China (Taiwan)	56.9	5.9	Finland	39.6	10.0
Thailand	50.0	6.9	Ireland	51.5	10.3
Vietnam, Rep. of	55.7	8.1	South Africa	35.6	11.7
United States	25.4	8.8	Japan	43.4	8.1

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations, *Yearbook of National Accounts Statistics*.

* Countries in each group are ranked in order of *per capita* levels of gross domestic product in 1963.

TABLE 26. STRUCTURE OF HOUSEHOLD BUDGETS IN SELECTED DEVELOPING COUNTRIES, RECENT YEARS

(Percentages of total consumption expenditure of households)

	Year	Area[a]	Code[b]	Food and drink	Clothing	Household equipment	Fuel and light	Others
Countries with separate expenditure patterns for urban and rural								
Ghana	1961–1962	U	I	53.6	12.0	1.2	4.3	28.9
	1961–1962	R	I	60.0	14.8	1.6	9.1	14.5
India	1957–1958	U	I	62.1	7.9	0.9	6.3	22.8
	1957–1958	R	I	69.8	10.1	1.7	6.0	12.4
Jamaica	1958	U[c]	I	49.5	9.9	3.6	2.6	34.4
	1958	R	I	59.0	14.5	3.8	2.0	20.7
Malaysia	1957–1958	U	I	59.2	3.6	1.4	4.0	31.8
	1957–1958	R[d]	I	64.3	7.2	2.2	3.0	23.3
Morocco	1959–1960	U	I	60.0	7.6	1.2	5.3	25.9
	1959–1960	R	I	76.4	8.1	2.5	2.1	10.9
Countries with expenditure patterns for urban and rural combined								
British Guiana	1955–1956	U+R	I	52.9	11.9	2.5	3.8	28.9
Ceylon	1952–1953	U+R	I	63.0	9.2	2.0	2.0	23.8
Mauritius	1961–1962	U+R	I	53.8	10.7	1.4	3.5	30.6
Puerto Rico	1953	U+R	IV	50.9	14.0	5.5	3.1	26.5
Countries with expenditure pattern for urban area only								
Argentina	1960	U	IV	59.2	20.0	1.1	4.0	15.7
British Honduras	1958	U	I	52.1	11.9	4.3	5.6	26.1
Burma	1958	U	I	65.5	4.8	0.5	5.7	23.5

ogical challenge is to secure some offset in costs by more efficient use of basic raw materials, chemicals, energy and labour. This is a fairly widespread challenge. At present special plants and even mills in developing countries are often small. The advantages of large-scale output undoubtedly represent one of the main reasons for substantial reliances on imports of paper and paper products from developed countries.

In non-metallic mineral products, a sector which excludes the products of petroleum and coal, recent growth in the developing countries has been relatively modest, below 6 per cent a year for the group, the most significant achievements having been made in Asia. The aggregate rate of growth of this industry, which includes the manufacture of structural clay products, glass and glass products, pottery, china and earthenware, cement etc., was little different from that in other regions of the world.

Growth in light industry

Up to the present, the light industries of developing countries have been the most important in terms of the total volume of manufacturing output. However, the annual rate of growth in developing countries in 1955—1964 was 5.3 per cent, little more than half the growth rate in the heavy sector. The light industry sector satisfies basic requirements in the private consumption of food and clothing and also the need for wood products and furniture, leather and rubber products etc. Bearing in mind the rate of population growth in developing countries, the *per capita* rate of expansion of domestic production of these light industry goods was some 3 per cent, about 1 per cent greater than the average increase in *per capita* income in these countries during recent years. However, the rate of increase of *per capita* output varied considerably between the major developing regions. Asia had a more pronounced growth rate of output of light industry goods than Latin America, but a lower rate of population increase. The higher growth rate of output of light industry goods in developing countries as a whole, as compared with all developed market economies, in the period 1955—1964 was mostly absorbed by their higher rate of population growth.

In the main group of light industries — food, beverages and tobacco — the average annual increase of about 4—5 per cent in the output of the developing countries in 1955—1964 was higher than the rate in developed market economies, but lower than that of the centrally planned economies. This figure is undoubtedly a very rough approximation since these industries in developing countries involve a particularly wide range of products and establishments: meat and dairy processing, fish and fruit preservation, grain milling, baking, sugar refining, cocoa and chocolate production, spirit distilling, wine, soft drink and beer production, tobacco manufactures etc. The fact

Colombia	1952–1954	U	III	38.5	12.4	2.9	2.7	43.5
Colombia	1952–1954	U	IV	51.3	11.8	2.6	3.6	30.7
El Salvador	1954	U	IV	65.5	5.2	1.2	4.3	23.8
Guatemala	1952–1953	U	II	40.4	15.5	7.5	4.1	32.5
Indonesia	1957–1958	U[e]	IV	63.6	8.4	0.5	4.4	23.1
Iran	1959	U[f]	I	48.7	10.4	4.6	4.1	32.2
Iraq	1961	U	I	48.7	8.4	8.1	4.7	30.1
Israel	1959–1960	U	II	35.9	10.4	7.1	3.1	43.5
Ivory Coast	1956	U	II	51.7	8.8	5.2	6.2	28.1
Kenya	1963	U	II	40.2	9.4	5.6	2.8	42.0
Korea, Rep. of	1964	U	I	59.0	4.9	0.6	5.2	30.3
Libya	1962	U[g]	II	45.7	13.3	1.9	4.8	34.3
Niger	1961–1962	U[h]	I	45.3	10.0	0.9	6.1	37.7
Nigeria	1959–1960	U[i]	II	43.1	9.7	1.8	3.0	42.4
Nigeria	1959–1960	U[j]	II	49.2	9.8	1.5	3.0	36.5
Panama	1952	U	I	40.9	13.6	5.8	3.0	36.7
Pakistan	1955–1956	U[k]	II	54.1	10.3	0.9	6.1	28.6
Sierra Leone	1961–1962	U[l]	II	58.8	7.4	2.3	7.6	23.9
Southern Rhodesia	1960	U[m]	I	27.9	6.5	3.3	4.2	58.1
Sudan	1963	U[n]	I	50.6	13.8	2.8	6.0	26.8
Tanganyika	1956–1957	U[o]	II	65.4	3.9	0.8	6.4	23.5
Thailand	1962–1963	U[p]	I	47.4	8.9	1.3	4.2	38.2
Uganda	1957	U	IV	69.9	8.1	2.1	1.5	18.4
Zambia	1960	U	II	66.5	16.3	4.7	3.7	8.8
Zanzibar	1962	U[q]	IV	59.9	3.9	—	2.7	33.5

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the International Labour Office, *Yearbook of Labour Statistics*.

[a] U – urban; R – rural.

[b] I – all households; II – wage earners and salaried employees; III – salaried employees; IV – wage earners.

[c] Kingston. [d] Five towns. [e] Djakarta. [f] Thirty-two towns. [g] Tripoli. [h] Niamey. [i] Middle income families. [j] Low income families. [k] Commercial employees. [l] Freetown. [m] Salisbury, European population. [n] Omdurman. [o] Dar-es-Salaam. [p] Bangkok. [q] Zanzibar.

service content of food expenditures increase far more steeply than the agricultural content.

The extent of the resulting decline in the share of income used for purchases of foodstuffs as incomes rise — Engel's Law — may be illustrated from national accounts time series data. In the period 1953—1963, the average experience of nine developing countries examined was that the percentage of private consumption expenditure allocated to food, beverages and tobacco fell by about two percentage points to around 53 per cent of the consumer's budget. The significant fact however, is that in the same period, *per capita* incomes in these countries increased by more than one third so that the absolute level of expenditure on foodstuffs rose considerably. It may be noted that for the year 1963, in developed countries as a whole, with an average *per capita* income about five times as large as in the nine developing countries, the private consumer's expenditures allocated to fill these basic requirements were about fifteen percentage points less, or 38 per cent, as indicated in table 25. This again illustrates the extent to which the absolute level of demand for foodstuffs rises with income, even though its relative share falls.

The tendencies revealed by examination of national accounts data are confirmed by a country-by-country analysis of household budget surveys (see table 26). When the data relating to urban areas are converted into a common unit of currency, they show that, even though the share of total expenditures allocated to foodstuffs was significantly lower in those developing countries where real incomes were higher, the absolute level of expenditure for this category at higher income ranges was markedly higher. Thus, for example, while households with a total annual expenditure of less than $ 500 spent about 63 per cent of their budget on foodstuffs, those with a total expenditure of more than $ 1,200 spent, on the average, about 42 per cent. In absolute terms, the latter expenditure of foodstuffs is, of course, markedly greater. These figures clearly indicate that, for a very considerable period to come, a prime concern of developing countries will continue to be the satisfaction of basic food needs. This will require an increasingly efficient domestic industry for food manufacturing.

The urgency of this requirement in developing countries arises partly from substantial shifts of population from the farms to urban areas. The household budget surveys of consumption expenditure in five developing countries indicate that although households in urban areas spent on the average about nine percentage points less of their total consumption expenditure on foodstuffs etc. than rural ones, urban expenditures on foodstuffs were markedly higher than rural expenditures inasmuch as urban incomes and expenditures were about two thirds higher than those of rural households. Furthermore, a higher proportion of this greater urban expenditure was undoubtedly devoted to purchases

of preserved and other forms of manufactured food products. In rural households, a good deal of primitive food processing is customarily carried out by family members. It may also be noted that the higher proportion of urban food expenditure involves a greater indirect demand for transport, storage facilities, equipment etc. in connexion with moving the foodstuffs to the cities.

In addition to increased demand for food resulting from higher incomes and the trend towards urbanization, it would appear that further expansion of food demand might come from some reversal of recent price movements. Expenditure on foodstuffs during 1955–1964 was undoubtedly inhibited by the fact that in a majority of developing countries — three out of every five — food prices increased in relation to the prices of other consumer expenditure items. This was particularly true of a number of countries in Latin America and Asia, but was far less characteristic of several countries in Africa and the Middle East. Without doubt, however, there is a considerable country-to-country range in the price elasticity of substitution between food and other consumer items.

While it was indicated earlier that, on the basis of the experience of eleven developing countries over the 1955–1964 period, the income elasticity of demand for clothing was not particularly high, further analysis indicates that demand for clothing was probably more responsive to income changes than demand for foodstuffs. This appears to be true for the ranges of income covering the vast majority of developing countries. Thus, in two sets of country-to-country data previously considered, the indication is that, while the average less developed country allocated 10 per cent of its private consumption budget to clothing, the percentage in the lower income countries fell below 8 but rose above 12 in the higher income countries of the developing world. The relationship is complicated, *inter alia*, by climatic factors. However, while this degree of elasticity may prevail within the present income ranges of developing countries, data in table 25 indicate that at still higher income levels which now exist in developed countries, income elasticity of demand for clothing may drop off towards unity. The extent of income elasticity of demand in developing countries clearly varies according to the type of textile. It was previously indicated that man-made fibres often show greater income elasticity of demand than cotton. Similarly, in cotton goods, the demand appears relatively greater for finer and lighter products. Both of these examples indicate the advantageous position for the expansion of textile manufacturing. Finally, as in the case of food, urban demand for clothing undoubtedly represents a higher demand for factory-produced textiles and a lower demand for home-made or artisan products.

The fairly high income elasticity of demand for durable consumer goods in developing countries, as noted earlier, has not yet had a major

impact on the expansion of local manufacturing. This is partly because expenditure on food and clothing often eats up about two thirds of private consumption expenditure; after considering expenditures on other non-durables and services, it is likely that no substantial proportion of private expenditure has so far been allocated to durable consumer goods in developing countries. Further there has been significant reliance for such goods on imported rather than local products. In 1963, for example, the developing countries may have spent as much as $ 2,000 million on imports of durable consumer goods from developed countries. Import substitution may have been particularly difficult in regard to the stream of products emerging from the new technologies of the developed countries.

Finally, with respect to the composition of private consumption expenditure, it should be observed that the income elasticity of demand for services and non-durables other than foodstuffs in developing countries has tended to be larger than for food and clothing, but smaller than for durable consumer goods. In almost all countries for which data are available, it appears that the increase in demand for the first items mentioned grew substantially more than the rise in total private consumption expenditure. It is clear that this has less impact on the manufacturing sector than on other production sectors of the economy, since this demand covers expenditures on rent, fuel, light, water, household operation, personal care, transport and communication other than automobiles, and recreation and entertainment. Consequently, where expenditure on these services has risen proportionately more than total private consumption expenditure, the impact of the rise in the latter on the demand for manufactured goods, domestic or imported, has been less than it would have been if the rise had been concentrated on non-services.

Total domestic expenditure

A summary statement of the growth of total domestic expenditure may be attempted by bringing together the major elements of domestic demand in developing countries. This might be done by considering, as a very rough approximation, that government expenditures are primarily for services and that fixed capital formation constitutes a demand primarily for durable goods. On the basis of data for the thirteen developing countries listed in table 27, it appears that much the same conclusion emerges as from the analysis of private consumption expenditures. Thus, generally speaking, the demand for durable goods, which consist mainly of manufacturing components, appears to have increased most in the period 1955—1964. However, in this category more than in others, the range of country experience varied widely, from a decline to an annual average increase of 15 per cent in recent years. The second highest expansionary demand was for services, where

TABLE 27. GROWTH OF TOTAL DOMESTIC EXPENDITURES, BY MAJOR CATEGORIES, IN SELECTED DEVELOPING COUNTRIES,[a] 1955–1964

(Average annual rate of growth for each major category between 1955–1959 and 1960–1964)

	Durables	*Semi-durables*	*Non-durables*	*Services*	*Total domestic expenditure*
Israel	11	8	8	10	10
Puerto Rico	11	9	6	8	8
Trinidad and Tobago	6	5	6	7	6
Jamaica	3	5	3	4	4
Panama	9	—	7	8	7
Malaysia	13	4	4	5	6
Dominican Republic	−3	8	5	8	5
Honduras	4	6	3	4	4
Ecuador	2	3	4	6	4
Ceylon	2	6	3	6	4
Korea, Rep. of	7	4	6	2	5
China (Taiwan)	15	3	6	8	8
Thailand	14	7	6	8	8

Source: United Nations Industrial Development Organization. See notes to table 24. This table differs from table 24, in that it attempts to classify all items of domestic expenditure and is, thus, not restricted to private consumption expenditure only. Basic data refer to values in constant prices.

[a] Countries are ranked by the value of their *per capita* gross domestic product in 1963.

the manufacturing component was probably quite small. While there was more moderate expansion in semi-durable and non-durable goods, the rate of growth of the value added in the manufacturing stages of these products was almost certainly higher than the rate of growth of inputs from the agricultural and other primary sectors into the manufacture of these commodities.

The result of this recent pattern of growth of aggregate final domestic demand, together with the accumulated tendencies of earlier growth, was that by the first half of the 1960's, the dominant elements in the structure of final domestic demand in developing countries were foodstuffs, services and durable goods, in that order. Expenditure on foodstuffs, expressed as a proportion of total final domestic demand, for the thirteen developing countries shown in table 28, ranged from above two fifths to one fifth in 1960—1964. Although other influences have intruded, there is a quite clear inverse relation between *per capita* income and the share of foodstuffs in domestic demand. Thus, Israel, Puerto Rico, and Trinidad and Tobago (countries with relatively high *per capita* incomes) allocated on the average one quarter of their domestic expenditures to foodstuffs etc., while Ceylon, Honduras and the Republic of Korea (with the lowest *per capita* incomes of the countries listed in table 28) spent between 40 and 45 per cent. Countries which had a lower relative expenditure on foodstuffs had higher expenditures on durable goods and services. These cross-section data indicate that in many countries

TABLE 28. STRUCTURE OF TOTAL DOMESTIC EXPENDITURE, BY MAJOR CATEGORIES, IN SELECTED DEVELOPING AND DEVELOPED COUNTRIES, 1960–1964

(Percentages)[a]

	Durables	*Semi-durables*	*Food, beverages and tobacco*	*Other non-durables*	*Services*	*Total domestic expenditure*
Developing Countries						
Israel	28	7	21	5	40	100
Puerto Rico	25	10	24	7	34	100
Trinidad and Tobago	33	8	30	5	24	100
Panama	23	7	33	6	31	100
Jamaica	23	9	32	7	29	100
Malaysia	22	5	36	6	31	100
Dominican Republic	14	5	35	8	38	100
Honduras	16	11	43	6	23	100
Ecuador	16	10	38	5	30	100
Ceylon	18	8	42	6	27	100
Korea, Rep. of	13	8	45	6	29	100
China (Taiwan)	22	5	36	4	33	100
Thailand	21	6	37	9	27	100
Developed countries						
Netherlands	30	11	23	6	30	100
Italy	26	6	32	6	30	100
Austria	29	10	27	7	27	100
Finland	31	8	24	7	30	100
Ireland	21	9	36	7	28	100

Source: United Nations Industrial Development Organization.

See table 27 for notes.

[a] Percentages do not necessarily add up to 100 due to rounding.

where relative food expenditures were lower, there was expansion in both of the other dominant expenditure categories, but this was not always the case. Thus, in Trinidad and Tobago, the relatively low expenditure on food was offset by a particularly high expenditure on durables while expenditure on services, in relative terms, was among the lowest in the countries examined. On the other hand, in the Dominican Republic, where the allocation to foodstuffs was average for the countries considered, there was a particularly high relative expenditure on services but a particularly low expenditure on durable goods. In addition to these major elements, about one seventh of final domestic demand in developing countries is still allocated to the purchase of semi-durables and non-durables other than food. Expenditures on the first of these categories now tend, on the average, to be somewhat larger than those on the second category.

An examination of the situation in a group of developed countries with *per capita* incomes ranging upwards from the highest of the develop-

ing countries confirms, to a large extent, that the above-mentioned changes in the pattern of final domestic demand are likely to occur as incomes rise in developing countries. Thus, while none of this small group of developed countries spends less than one fifth of its total domestic expenditure on food, none spends much more than one third on food, i.e. significantly less than the allocations of a number of developing countries. All of these developed countries, spent more than one fifth of their total domestic expenditure on durables, in contrast with several developing countries whose allocation was as low as one sixth or one seventh. A comparison regarding services is more difficult to establish. It is suggested, from this supplementary examination, that as the incomes of developing countries rise, the rates of change in patterns of demand tend to level off.

An alternative view of the nature of total demand expenditure may be obtained from an analysis of input-output data. In examining the sales of both domestic and imported goods by individual supply sectors to different purchasing sectors, both intermediate demand (sales to industry) and final demand (sales to the export, investment and consumption sectors) have to be considered. Considering supply from all sectors, i.e. agriculture and service industries as well as manufacturing, individual developing countries shown in table 29 sold from seven tenths to virtually all of their supplies to satisfy domestic demand requirements. The extent to which sales of the manufacturing sector alone — a relatively small sector for the countries shown — were directed to internal demand rather than to exports varied more widely. In one instance, there was virtually no foreign demand for the country's manufactures. Elsewhere, sales to the export sector consisted of some processed oil and fats, foodstuffs, tea, textile, basic metals etc. In developing countries, the manufacturing sector directed about one third of its available supplies to the internal market to satisfy intermediate demand. This was slightly smaller than the commitment of domestic output and imports by the other supply sectors in the developing countries towards satisfying intermediate demand, and also smaller than the proportion of total sales by the manufacturing and other sectors of the selected developed countries to intermediate demand. Furthermore, in regard to final domestic demand, i.e. internal requirements for investment and consumption, the observed tendency was that from one twentieth to one quarter of total sales for final domestic demand by the manufacturing sector of the selected developing countries went to the investment sector; the relative involvement of the heavy manufacturing industries in investment was, of course, greater than that of the light industries. While this extent of commitment of sales of manufactures to the investment sector, as against consumption, was naturally much greater than that of the agricultural sector, where sales to investment represent inventory accumulation, sales by the service industries to investment appear in most instances to have been greater than those of manufacturing.

TABLE 29. INTERMEDIATE AND FINAL DEMAND,[a] BY MAJOR ECONOMIC SECTORS, IN SELECTED DEVELOPING AND DEVELOPED COUNTRIES, RECENT YEARS

(Percentages of total demand for all goods and services)[b]

Domestic and imported products: Purchases by demand sectors: / *Sales by supplying sectors*[a]*:*	*Intermediate demand*	*Consumption, private and public*	*Investment, total*	*Exports*	*Total*
		Iraq			
Agriculture	4	10	—	1	15
Manufacturing	12	13	3	—	27
Agricultural processing	5	11	—	—	17
Metals, non-metals, chemicals	6	1	2	—	10
Others	7	17	6	28	58
Total	23	40	8	29	100
		Peru			
Agriculture	11	11	—	3	24
Manufacturing	12	20	7	5	44
Agricultural processing	5	17	—	2	24
Metals, non-metals, chemicals	7	3	6	4	20
Others	3	20	5	4	32
Total	26	51	12	12	100
		Senegal			
Agriculture	11	9	—	1	20
Manufacturing	5	16	2	15	38
Agricultural processing	2	14	--	13	29
Metals, non-metals, chemicals	3	2	2	2	9
Others	13	17	5	7	42
Total	29	41	7	22	100
		United Arab Republic			
Agriculture	13	6	1	—	21
Manufacturing	16	18	1	5	40
Agricultural processing	9	15	—1	5	28
Metals, non-metals, chemicals	7	3	2	—	12
Others	18	14	4	4	40
Total	46	38	6	9	100
		Pakistan			
Agriculture	18	27	—	—	45
Manufacturing	7	20	1	3	31
Agricultural processing	4	19	1	3	27
Metals, non-metals, chemicals	3	1	1	—	5
Others	10	13	1	—	24
Total	34	59	3	4	100

Domestic and imported products: Purchases by demand sectors: / *Sales by supplying sectors[a]:*	*Intermediate demand*	*Consumption private and public*	*Investment, total*	*Exports*	*Total*
		Australia			
Agriculture	4	3	1	4	11
Manufacturing	14	15	4	3	36
Agricultural processing	6	10	—	2	18
Metals, non-metals chemicals	8	5	4	1	18
Others	16	29	6	2	53
Total	34	47	10	9	100
		Italy			
Agriculture	9	3	—	1	13
Manufacturing	23	16	5	4	47
Agricultural processing	9	14	1	1	25
Metals, non-metals, chemicals	13	3	4	2	22
Others	14	18	6	1	40
Total	46	37	11	6	100
		Japan			
Agriculture	11	2	1	—	14
Manufacturing	26	13	3	3	45
Agricultural processing	12	11	1	2	25
Metals, non-metals, chemicals	14	2	3	2	20
Others	15	18	5	2	41
Total	52	34	9	5	100

Source: United Nations Industrial Development Organization. See table 19 for notes.

[a] Intermediate demand consists of inter-industry transactions; final demand consists of private consumption, public expenditure, gross domestic fixed capital formation and changes in inventories, and exports.

[b] Totals of rows and columns do not always add to the sums shown, due to rounding.

[c] See note [a] in table 12 for definitions of these sectors.

The response to domestic demand

While the impact of these changes in demand on domestic manufacturing production cannot be elucidated in detail, four indirect indications may be outlined. First, with regard to all goods and services, over the ten-year period developing countries in general do not appear to have markedly changed their reliance on imports in their accumulation of supplies to meet both domestic and foreign demand. On the average, developing countries relied on imports for about one fifth of their total supplies (imports and domestic production) of all goods and services both in the late 1950's and early 1960's but there was a substantial difference in individual countries' dependence on international trade for supplies (see table 30). At the two extremes, national accounts statistics

TABLE 30. DOMESTIC AND FOREIGN SUPPLY IN SELECTED DEVELOPING COUNTRIES,[a] 1955–1964

(Average annual gross domestic product and imports in each period equal 100)

	1955–1959		1960–1964	
	Gross domestic product	*Imports*	*Gross domestic product*	*Imports*
Chile	91	9	89	11
Korea, Rep. of	88	12	89	11
Iran	85	15	88	12
Uruguay	87	13	87	13
Guatemala	86	14	86	14
Colombia	83	17	85	15
Ecuador	85	15	85	15
Paraguay	86	14	84	16
Dominican Republic	80	20	81	19
Honduras	80	20	81	19
Ceylon	75	25	77	23
Bolivia	78	22	75	25
China (Taiwan)	79	21	75	25
Cyprus	72	28	71	29
Israel	72	28	70	30
Jamaica	70	30	70	30
Puerto Rico	61	39	60	40

Source: See table 22.

[a] Countries ranked in order of relative importance of gross domestic product in 1960–1964.

indicate those countries (listed in the table) which depended on imports for one tenth and four tenths of their total supplies, respectively. In individual countries, the extent of change in import reliance between the late 1950's and the early 1960's did not generally exceed two percentage points. The direction and extent of shift in import reliance from one quinquennium to the next were not clearly related either to the degree of import dependence in the base period, or, apparently, to differences in the rate of growth of total supply and demand for all goods and services.

The second indication of the impact of demand changes on domestic manufacturing is more aggregative and is based on regional data on sectoral production and international trade. However, it distinguishes between individual commodity sectors. While the rate of growth of imports of all goods into developing countries as a whole does not appear to have differed markedly from the rate of growth of domestic production of all goods in those countries, summary estimates suggest that this was the result of some increased import reliance on primary goods, offsetting a move to some import substitution in the area of manufactures. Further, any such import substitution lay mainly in light industry goods and less in the heavy industry sector. This point will be dealt with in detail in the next chapter.

that the production in developing countries particularly involves the small-scale sector, as well as perhaps a quarter of a million larger establishments, also limits the significance of broad approximation.

The growth of food manufacturing industries in developing countries has reflected rising domestic demand rather than exports. While the income elasticity of demand for food often may be below unity in developed countries, it has tended to be higher in many developing countries where *per capita* incomes are relatively low. Domestic demand for processed foods has increased with the rapid growth of population in developing countries. The potential difficulty arising from the slow increase in the value of food output from the farm sector and a more rapid expansion of domestic final expenditure on food has created a gap that the domestic food processing sector might close by efficient processing of local farm output. In fact, rising incomes and the general shift to urban areas call for more intake of food in the processed or manufactured rather than the unprocessed form. Rising incomes have brought a taste for higher quality and also for more prepared foodstuffs. Urbanization, by lengthening the average distance between centres of production and consumption, has compelled greater use of preserved foodstuffs.

Increased foreign demand for manufactured foodstuffs from developing countries has been of a more specialized nature. This has been of considerable importance to some countries. At the beginning of the present decade, processed vegetable oils and oilcake were the major food exports to developed countries, though exports of processed meat, fish and fruit were also significant. In addition, substantial exports of cocoa, coffee and tea required some degree of local processing. In the attempt to expand food exports, conflicting influences have sometimes been encountered. Although the income elasticity of demand in developed countries for the more highly processed commodities tends to be relatively high, many of these items face considerable commercial barriers in some developed countries. Increasing attention has been focused in international discussions on the relatively high incidence of tariffs on value added by processing, a fact sometimes concealed by the use of nominal tariff rates.

A central task in expanding the output of manufactured foodstuffs in developing countries has been to upgrade the average level of technology used. While transformation of all food processing plants in developing countries into largescale, fully modernized units is neither possible nor desirable, there is a need to diminish the use of small-scale, high-cost and almost primitive processing facilities. However, it has been suggested, for example, that in auxiliary operations, such as weighing, trimming, grading, sorting, coring, transporting, storing etc., developing countries might, where appropriate, efficiently employ more labour-intensive processes than those used in developed countries, which

TABLE 31. CONSUMPTION OF SELECTED COMMODITIES IN DEVELOPING COUNTRIES, 1955-1964[a]

(Average annual percentage change between 1955 – 1959 and 1960 – 1964)

	Rice, milled	*Sugar, refined*	*Cotton*	*Fertilizers*	*Tin*	*Steel*
Argentina	2	2	−2	...	—	—
Brazil	8	5	2	8	2	10
Ceylon	4	3	...	7	22	13
China (Taiwan)	3	...	12	5	...	18
Colombia	6	5	7	...	16	9
India	4	10	3	17	2	13
Israel	6	9	15	4	−2	8
Mexico	9	4	3	7	5	10
Pakistan	5	2	5	28	18	19
Peru	10	3	4	13	...	10
Philippines	3	6	22	29	13	9
United Arab Republic	5	2	6	9	5	12
Uruguay	7	3	−4	...	6	−7
Total[b]	4	7	4	10	3	10

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Statistical Yearbook*.

[a] Where data were not available for the period 1955 to 1964, the estimate shown is based on data for a shorter period.

[b] Estimate.

A third approximate indication of the impact of changes in demand on domestic manufacturing is provided by measures of the average annual rate of growth in the consumption of selected commodities by developing countries (see table 31). Such data, however, should be interpreted with care since consumption is not always at the same stage of the economic process for each commodity. The consumption of commodities associated with light industry, such as milled rice — a good part of which is not processed in the modern sector — refined sugar and cotton, increased by 4.7 and 4 per cent, respectively, in developing countries during the period 1955—1964. On the other hand, in these countries, there was generally a greater rate of growth in the consumption of commodities related to the heavy manufacturing sector; fertilizers, steel and tin increased at annual rates of 10, 10 and 3 per cent, respectively. The increase in consumption of the two processed foods (milled rice and refined sugar) varied widely in different countries; while most countries increased their demand, by a higher percentage for milled rice than for refined sugar, the opposite occurred in India, Israel and the Philippines. Changes in the consumption of these two food products, however, should not necessarily be regarded as indicative of trends in the food processing industries as a whole. The general increase in the consumption of cotton was not substantially different from that of the two food products, which was in accordance with the broad similarity in the growth rates of the food and textile manufacturing sectors for

TABLE 32. SUPPLIES FROM DOMESTIC PRODUCTION AND IMPORTS, BY MAJOR ECONOMIC SECTORS,[a] IN SELECTED DEVELOPING AND DEVELOPED COUNTRIES, RECENT YEARS

(Percentages of total supplies of all goods and services)[b]

	Gross domestic production[a]	*Imports*	*Total supply*
	Iraq		
Agriculture	14	1	15
Manufacturing	16	11	27
Agricultural processing	12	5	17
Metals, non-metals, chemicals	4	6	10
Others	56	2	58
Total	86	14	100
	Peru		
Agriculture	23	1	24
Manufacturing	34	10	44
Agricultural processing	22	2	24
Metals, non-metals, chemicals	13	7	20
Others	30	2	32
Total	87	13	100
	Senegal		
Agriculture	16	4	20
Manufacturing	22	16	38
Agricultural processing	20	9	29
Metals, non-metals, chemicals	2	7	9
Others	39	3	42
Total	77	23	100
	United Arab Republic		
Agriculture	20	1	21
Manufacturing	33	7	40
Agricultural processing	27	1	28
Metals, non-metals, chemicals	6	5	12
Others	39	1	40
Total	91	9	100
	Pakistan		
Agriculture	45	—	45
Manufacturing	28	3	31
Agricultural processing	26	1	27
Metals, non-metals, chemicals	3	2	5
Others	24	—	24
Total	97	3	100
	Australia		
Agriculture	11	—	11
Manufacturing	32	4	36
Agricultural processing	17	2	18
Metals, non-metals, chemicals	15	3	18
Others	53	—	53
Total	95	5	100

	Gross domestic production[a]	*Imports*	*Total supply*
	Italy		
Agriculture	11	2	13
Manufacturing	44	4	47
Agricultural processing	24	1	25
Metals, non-metals, chemicals	20	2	22
Others	38	2	40
Total	93	7	100
	Japan		
Agriculture	12	2	14
Manufacturing	44	1	45
Agricultural processing	25	–	25
Metals, non-metals, chemicals	19	1	20
Others	40	1	41
Total	96	4	100

Source: United Nations Industrial Development Organization. See table 19.

[a] See footnote [a], table 12 for definitions of sectors.

[b] Totals of rows and columns do not always add to the sums of *components* shown due to rounding.

[c] Gross domestic production is the sum of gross value of production by all industries, including production or inter-industry sales and differs therefore from the concept normally employed of gross domestic product.

developing countries as a whole. Despite country differences in the composition of textile material inputs and in the degree of processing per unit of material input, there was rough correspondence between the relative growth of cotton consumption and the textile industries in individual countries. The growth of fertilizer and steel consumption in developing countries as a whole was substantially higher than for light industry products, but this was not always the case at the country level. In some countries, for instance, the growth of fertilizer consumption was below that of cotton and steel consumption. Technological change, bringing greater economy in use, was an important influence in the more modest increase in the consumption of tin.

To the above estimates of changes over the ten-year period, there might be added some indications of the impact of demand on domestic manufacturing production, based on country-by-country analysis of selected input-output data. Table 32 indicates clearly that the manufacturing sector in developing countries is the least self-sufficient of the major economic sectors, i.e. it is less able than agriculture and the services sector to meet demand for its products from domestic sources. This is also the case in the limited number of developed countries covered in table 32. In considering the statistical magnitudes in this table, it should be noted that domestic activity is represented by the value of gross production, while in examining the first indicator (table 30), such activity was represented by value added. As a result, the present data suggest a higher measure of self-sufficiency. A further indication is that within

the manufacturing sector, the heavy domestic industries (concerned with metals, non-metal minerals and chemicals) by themselves are significantly less able to meet total demand for their products than are the light industries which engage in the manufacturing of agricultural products. Although country conditions vary, it would appear, as a rough generalization, that domestic industry in these developing countries was not much more than one half as self-sufficient in the heavy industry products as in the light industry products sector. However, in developing countries, light industry goods constitute the bulk of production and supplies. In the developed countries shown, where demand for heavy industry goods was closer to that for light industry goods, the degree of self-sufficiency was not substantially different in the two sectors of manufacturing.

Chapter II

INDUSTRIALIZATION AND FOREIGN TRADE

A. THE DISPLACEMENT OF IMPORTS OF MANUFACTURES

Significant progress in industrialization has been achieved in many developing countries through policies of import substitution. However, the future role of these policies should be reconsidered. Attention is increasingly being focused on possibilities of expanding exports of domestic manufactures as an alternative or complementary way of facilitating the industrialization of developing countries through international trade. A summary of recent developments in import substitution is given below. The problems and prospects of an approach through export expansion are discussed in the subsequent sections.

Import substitution has frequently been a necessity for developing countries that are determined to accelerate industrialization but are unable to expand their foreign exchange earnings. This is an imperative need in many cases today. For a number of countries with little industrial output — virtually restricted to domestic markets — the capacity to import has been largely determined by foreign exchange earnings from exports of primary products, for which the income elasticity of foreign demand is generally low. For every three dollars of earnings from commodity exports in 1955—1964, developing countries on the average received about one dollar of foreign exchange from private foreign investment (net) and official (gross) inflows, but the rate of increase in the latter receipts was not greater than for receipts from commodity exports. Further, an increasing proportion of foreign exchange receipts was absorbed by debt servicing, other investment income payments etc., and a significant sum had to be expended as a result of rising import prices. Hence, the average annual increase in the quantum of imports by developing countries has been well below the increase in their commodity exports. The demand by many countries for increased imports of food has further restricted their ability to expand other imports.

The substitution of domestic manufactures for imports has been sought by some developing countries for several decades. During this

period, the stimulus has at times been of a different nature, resulting largely from the inadequate supply of manufactured goods from developed countries rather than from the inadequate capacity of developing countries to import. The desire was to build up local availability of manufactures that would not be subject to fluctuations arising from uncertain conditions in industrial countries. It has often been within the capacity of many countries to implement a policy aimed at the substitution of domestically produced for imported manufactures. The market to which local industry could direct itself was clearly indicated by import lists, which generally specified prices and quantities in considerable detail.

Import substitution is neither an endless nor a uniform process for all countries, and the view is held that for a number of countries the limit has been or is being reached, so that for these countries import substitution is less and less the motivating force in the growth of domestic industrialization. In the case of the larger and more industrialized developing countries which have pursued this policy for some time, further opportunities in this direction have become rare. However, for many of the newly established developing countries with the general characteristic of a relatively small internal market, the range of opportunities at the earliest stages of industrialization is more limited than it was for the larger developing countries.

A general method of facilitating import substitution is to introduce protective tariffs on imported manufactures, which are eventually to be removed when the infant domestic industries have reached a position of competitive efficiency. For a range of final manufactures that require fairly simple technology and skills and a modest capital investment, such a policy would be reasonable. However, there is some doubt about the advisability of selecting substitute goods whose manufacture is likely to require almost permanent government assistance. There is a similar question as to the advisability of extending the range of substitute manufactures to the point where scarce local resources are so widely dispersed that the potential gains of specialization are lost. With the passage of time, many countries have succeeded in establishing a number of substitution industries for fairly simple final manufactures, although the approach towards competitive efficiency has often been painfully slow. For these countries, the next step has been more difficult. The substitution of imported raw materials, intermediate goods, capital goods and specialized consumer goods is considerably more complex and often uneconomic even with generous economic calculations. The attempt to replace imports of these goods too rapidly has sometimes caused strains on the economy, leading for instance, to the emergence of unutilized capacity. When such attempts have been successful, however, countries have been able, through an import substitution policy, to develop a strong pattern of links within the industrial sector, resulting in substantial external economies.

In many of the smaller developing countries, particularly those newly established, it has been difficult even to begin an import substitution process and, when started, it has often proved very costly. Such countries not only lack the necessary infrastructure and human and capital resources required to establish industries, or have difficulties in that respect, but are seemingly locked in by a domestic market too small to sustain plant sizes that would yield the economies of scale available to their competitors. Though the exploitation of their special resources may in some cases offset this, the range of choice of substitute goods tends to be severely limited. Further, in cases where no attempt has been made to couple import substitution with export expansion, the limitations of the former have quickly become apparent.

The growth of imports and production of manufactures

In 1955—1964, a number of developing countries achieved a significant degree of import substitution of manufactures. This conclusion emerges from a comparative measurement, based on a simple definition of the process, of the annual rate of growth of the quantum of domestic manufacturing in developing countries as a whole and of the growth of the quantum of imports of manufactures from outside the developing regions, i.e. from the centrally planned economies and the developed market economies. As indicated in table 33, while manufacturing in developing economies increased by about 7 per cent a year during 1955—1964, the quantum of imports of manufactures from outside the developing regions rose by less than 4 per cent. Although it is statistically difficult to relate import values to production values, an estimate of both in terms of gross value, i.e. value added in manufacturing plus inputs into manufacturing, suggests that the ratio of the quantum of imports of manufactures from outside sources to the total supply of manufactures in developing countries (imports plus production) fell by perhaps two to three percentage points to a little over 20 per cent between 1955—1959 and 1960—1964, the total supply of manufactures being available to meet the requirements of domestic and export (of foreign) demand. A related rough measurement of these developments in the ten-year period is that nearly seven eights of the absolute increment in the supply of manufactures available in developing countries for external or internal demand was obtained from domestic effort and about one eighth from imports from outside the group of developing countries. As a further illustration of the impact of this differential development of growth rates of sources of supply for manufactures, if imports of manufactures by developing countries from outside sources in the early 1960's had maintained the relative role in total supplies (production plus imports) that they held in the late 1950's, then the import bill of developing countries as a whole for manufactures — in present prices — might have been about $ 3,000 million a year greater.

TABLE 33. IMPORTS[a] AND PRODUCTION[b] OF MANUFACTURES[c] AND OF PRIMARY PRODUCTS[d] IN DEVELOPING COUNTRIES AND DEVELOPED MARKET ECONOMIES, 1955–1964

Average annual rate of growth between 1955–1959 and 1960–1964	*Developing countries, total*	*Developed market economies, total*
Quantum of imports from outside region		
Manufactures	3.6	6.1
Primary products	6.6	5.6
Production		
Manufactures	6.6	4.5
Primary products	3.3	3.3
Supplies[e] (imports plus production)		
Manufactures	5.9	4.6
Primary products	3.4	3.4
Percentage of imports to supplies[e]		
Manufactures		
1955–1959	24.5	1.3
1960–1964	21.9	1.4
Primary products		
1955–1959	1.5	7.4
1960–1964	1.8	8.2

Source: United Nations Industrial Development Organization.

[a] Estimates of quantum of imports (1958 prices) from countries outside the region indicated. The basic data employed were the current value and constant value trade matrices appearing in (March and November) issues of United Nations, *Monthly Bulletin of Statistics* and in *Review of Trends in World Trade, Part II: Handbook of International Trade Statistics*, document prepared for the first session of the United Nations Conference on Trade and Development, E/CONF.46/12/Add.1, dated 28 February 1964. It was necessary, *inter alia*, to make estimates about price movements for those trade flows for which no published estimates were available.

[b] Estimates of production (1958 prices) are based on data on gross domestic product by industrial origin as prepared for or shown in the relevant issues of the United Nations, *Statistical Yearbook*.

[c] Whereas the basic published data on production of manufactures is in terms of ISIC 2–3 (see footnote b), the basic published data on imports of manufactures is in terms of SITC (see footnote a). A provisional estimate of imports of manufactures in terms of ISIC 2–3 was made by UNIDO secretariat for use in this table.

[d] Defined on the basic of ISIC 0–1. Estimates were made from sources and by methods indicated in previous footnotes with the additional need, in the case of production, to estimate ISIC 1 since aggregate data on gross domestic product by industrial origin as shown in the *Statistical Yearbook* do not show this category separately.

[e] To obtain the sum of imports, which are available in terms of gross value, and of manufactures, which are in terms of net value added, it was necessary to estimate an appropriate relation between their units. The present tentative estimate by UNIDO secretariat is subject to a significant margin of error.

The substitution of imported manufactures was associated, *inter alia*, with a higher rate of growth of imports of primary products by developing countries, which was necessitated by the relatively modest growth of domestic primary production. Recognition of such progress as has been made by the developing countries in import substitution for manufactures should not minimize the degree of their remaining dependence on supplies from the centrally planned and developed market economies. In contrast to the dependence of developing countries on sources in the developed countries for perhaps one fifth of their total supply of manu-

TABLE 34. IMPORTS[a] AND PRODUCTION[b] OF MANUFACTURES IN SELECTED DEVELOPING COUNTRIES, 1955–1956 AND 1962–1963

	Average annual growth rate between 1955–1956 and 1962–1963		*Imports as percentage of total supplies (imports + production)*	
	Imports	*Production*	*1955–1956*	*1962–1963*
Ceylon	—	5	57	48
Honduras	3	6	41	36
Panama	8	13	41	33
Peru	6	7	28	27
Venezuela	−2	7	36	23
Burma	2	14	38	22
Pakistan[d]	18	7	14	22
Colombia	−3	6	32	20
Uruguay	2	—	17	19
China (Taiwan)	9	10	20	18
Chile	7	3	14	18
Philippines	2	7	21	15
Korea, Rep. of	11	7	10	13
Mexico	3	7	14	11
India[d]	4	4	10	10
Argentina	4	3	9	10

Source: United Nations Industrial Development Organization.

[a] Using national trade publications, a provisional attempt was made to obtain classifications of manufactures and non-manufactures. The classified data were converted into estimated constant price values. Undoubted error was involved in both steps.

[b] Estimates from national accounts industrial origin data for the manufacturing sector.

[c] See table 33, footnote[a].

[d] The years 1957–1958 were used instead of 1955–1956.

factures, it may be noted that the developed market economies are virtually independent of outside sources for such products: in the early 1960's, their imports of manufactures from developing countries and the centrally planned economies were probably below 2 per cent of their total supply.

A review of individual countries, based on a somewhat different measure, indicates that not all developing countries have successfully engaged in this process, at least if a fairly short-term view is taken. Again considering only the aggregate of all manufactures, it is clear that in the majority of the sixteen developing countries for which data are shown in table 34, there was in fact a decline in recent years in the ratio of imports to total supply (production plus imports) of manufactures. It must be recognized that both this development and the opposite may have reflected a varying combination of deliberate policies as well as fortuitous or uncontrollable influences. Further, the use of a measure which relates only to total manufacturing and which shows a development in a particular direction may conceal significant opposite movements in individual industries.

With regard to changes in the degree of import substitution during a limited period between 1955—1956 and 1962—1963, it is clear that,

with one exception, all of the countries listed in table 34 which relied fairly heavily on imports of manufactures for their total supply in the mid-1950's had shifted towards import substitution by the early 1960's. However, countries with a relatively lower degree of import reliance did not generally change, over the same period, either to greater import reliance or greater import substitution. It may well have been that, where some degree of import substitution was achieved during that period, the dominant element was generally a constraint on imports, rather than an extra spurt of domestic manufacturing activity.[18] This may have reflected the fact that many developing countries took advantage of the high prices they obtained for exports in the mid-1960's to step up their imports. Subsequently, up to 1962–1963, the aggregate index of export unit values for the countries fell by as much as 10 per cent. Alternatively, the restraint on the growth of imports of manufactures may have been enforced by the prior claims of debt servicing etc. on foreign exchange proceeds or it may have reflected the successful implementation of planned restraint in import demand for manufactures. In only two countries did the restraint on imports of manufactures result in an absolute cut rather than a moderate rate of increase. Perhaps in only a few developing countries did the shift towards import substitution reflect primarily dynamism in the domestic manufacturing sector, rather than limiting operations in the import sector.

In some of the developing countries listed in table 34, where there was some shift towards increased reliance on imports of manufactures relative to domestic output, one of the more important influences may have been an initial exaggerated attempt to cut back the imports of manufactures, which could not be sustained for nearly a decade. On the other hand, some of the countries increasing their import demand for manufactures were able to do so either because of increased foreign exchange receipts, particularly from foreign aid, or because of relatively declining requirements for imports of non-manufactures. Occasionally, the shift to increased import reliance reflected, to a greater degree, disappointing growth in the domestic manufacturing sector.

A further summary analysis of recent changes in import substitution is facilitated by an examination of data relating to all goods and services expressed in current prices, in contrast to more specific information on the quantum of manufactures as discussed above. The advantage of assessing import substitution as it influences industrialization by comparing total imports with the supply of all goods and services is that such data are generally more accurate and readily available for a larger number of countries. However, the limitation of this approach is that changes over time conceal differences between the manufacturing and

[18] A fall in the ratio of imports to supplies, which is the measure of import substitution used here, may result, *inter alia*, from a decline in imports at a time when domestic production is relatively stable, or from stability in imports at a time of rising domestic production.

have a labour shortage. Upgrading of technological performance has required a greater infusion of capital, not only for processing plants but also for the infrastructure, such as better transport, storage and refrigeration facilities. In addition, such expenditures often have a useful "backward" linkage effect by requiring that the agricultural sector improve the quality of its products and the regularity of its deliveries. By making these changes, developing countries are likely to save more import expenditures for unprocessed than for manufactured foodstuffs, since imports of the latter have not been a substantial influence. The volume of manufactured food imports into developing countries has not been large and, in fact, has been markedly below the level of similar exports from developing countries.

Although the contribution by the second basic light industry of *textiles* to the total manufacturing sector of developing countries in terms of value added is still significantly smaller than that of the food industry and the location of two industries is different, the annual rates of growth in recent years have not been substantially different in the two industries, i.e. 4—5 per cent. While there was a broadly parallel development of these industries in the developed market economies and, to a lesser extent, in the centrally planned economies, the composition of their activities undoubtedly differed. Textile industries include not only spinning, weaving and finishing of natural fibre textiles but also knitting and the manufacture of rope, cordage, twine, linoleum etc.

In the majority of developing countries, the growth of domestic textile production has served primarily to satisfy domestic demand, generally typified by an income elasticity greater than unity, though not markedly so. It has been noted that in some countries the high price of local textiles in relation to other products has inhibited consumption. Cotton has remained the main component of domestic demand for apparel textiles but, as in developed regions, there has been a marked shift to man-made fibres, a product of the chemical industry. For these two fibres and wool, average *per capita* consumption of apparel textiles for developing countries in the early 1960's was nearly 2.5 kg a year, or slightly less than one quarter of the average in developed market economies. As expected for a personal consumption item of this nature, growth rates, levels and fibre composition have varied significantly in different countries. The growth rate of domestic demand was most buoyant in the Far East, which, after Africa, has at present the lowest level of *per capita* consumption. Foreign demand has absorbed less than 5 per cent of the yarn production and less than 10 per cent of the cloth production of developing countries. It should be noted, however, that in the early 1960's the bulk of apparel textile exports were from only two countries, India and Hong Kong. It may be recalled that access to markets in developed countries has been subject to some restriction,

TABLE 35. TOTAL IMPORTS AND GROSS DOMESTIC PRODUCT IN SELECTED DEVELOPING COUNTRIES, 1955–1964[a]

(Imports as percentages of total supplies, i.e. imports plus GDP)

	1955–1959	1960–1964		1955–1959	1960–1964
Barbados	41	41	Peru	20	19
Malta	42	41	El Salvador	20	19
Trinidad and Tobago	37	39	Dominican Republic	20	19
Puerto Rico	40	38	Honduras	18	17
Jordan	32	31	Venezuela	20	16
Mauritius	29	31	China (Taiwan)	15	16
Israel	27	29	Thailand	17	16
Malaysia	25	28	Philippines	12	16
Cyprus	28	28	Paraguay	15	15
Jamaica	27	28	Ecuador	15	15
British Guiana	33	28	Burma	17	15
Panama	26	27	Korea, Rep. of	11	14
Ceylon	25	23	Guatemala	14	13
Nicaragua	21	22	Uruguay	11	13
Tanzania	20	22	Colombia	13	13
Costa Rica	21	21	Iran	14	12
Ghana	22	20	Chile	10	11
Iraq	22	20	Mexico	12	10
Bolivia	21	20	Brazil	7	8
Morocco	19	20			

Source: United Nations Industrial Development Organization, based on data from United Nations, *Yearbook of National Account Statistics.*

[a] With the non-availability of data for 1960–1964, data for 1960–1963 were used for the following countries: Trinidad and Tobago, Jordan, British Guiana, El Salvador, Thailand, Paraguay, Uruguay, Colombia and Iran. Data for Brazil relate to 1960. Similarly, instead of data for 1955–1959 the following data were used: Thailand, 1957–1959; Bolivia, Ecuador and Morocco, 1958–1959; and Iran and Jordan, 1959.

other sectors. This applies particularly to the domestic product of developing countries, where manufacturing is generally a small though more dynamic component, but the problem is less severe with their imports since manufacturing generally constitutes the dominant component. The evidence regarding total imports in relation to the total supply of all goods and services for the thirty-nine countries shown in table 35 does not indicate that a clear majority of developing countries made a marked progress towards import substitution between 1955–1959 and 1960–1964. The apparent contradiction between this and previous more positive indications of progress in import substitution is partly explained by the limitation indicated above, from which it follows that these aggregate data tend to understate the degree of import substitution actually achieved in the manufacturing sector. Furthermore, export prices, which influence the capacity to import, did not fall as much between these periods as between 1955–1956 and 1962–1963. Information on these thirty-nine countries is based on current prices and where import prices may have risen more than domestic prices, any shift to import substitution observed from quantum measures would be less

clearly seen from current prices. The explanation may be that, over a short period, the influence of import policy is overshadowed by that of prices and other factors largely beyond the country's control. Further, the well-known experience of some of the larger and longer established of the Latin American countries in import substitution may weigh too heavily in the discussion of this problem with regard to the rest of the developing world.

Recent changes in the import bill

While changes in the level, commodity composition, prices and sources of supply of imports of manufactures by developing countries are important in planning future import substitution in this sector, there are certain difficulties in measuring the magnitudes of different categories of manufactures that require consideration, particularly by an organization such as UNIDO, whose focus is on industrial development. Alternative measures, described below, of the level of the average annual imports of manufactures by developing countries from all sources in 1960—1964, at 1958 prices, are some $ 20 billion and $ 25 billion, respectively.

Both measures indicate annual rates of growth of such imports of nearly 3.5 per cent during 1955—1964. While the conventional classification of imports and exports, now generally adopted, is the Standard International Trade Classification, Revised (SITC), production data are generally classified according to the International Standard Industrial Classification (ISIC). A prevalent definition of trade in manufactures has comprised sections 5 to 8 of SITC with the exclusion of most base metals.[14] However, on the basis of a recent provisional attempt by the United Nations Statistical Office to provide a bridge between the two above-mentioned classifications,[15] the secretariat of UNIDO has made a tentative conversion of the more than 1,000 items of the SITC partner country data into the generally accepted industrial classification which has been used in this survey, i.e. the ISIC. The conversion factors estimated for 1963 have provisionally been assumed to be valid for 1955—1964. These conversions were applied initially to the total trade of developing countries with developed market economies and then to the remaining trade flows of the developing countries. Despite the need for considerable estimation, which can be refined at a later date, this conversion permits those concerned with general or detailed industrial development, who tend to work in terms of ISIC 2—3 (all manufacturing) and its divisions, to obtain a clearer picture of opportunities for

[14] This definition includes the following: chemicals; manufactured goods classified chiefly by material excluding most base metals; machinery and transport equipment; and miscellaneous manufactured articles.

[15] See United Nations (1966) *Classification of Commodities by Industrial Origin* (Series M, No. 43), New York (Sales No.: 66. XVII. 7).

import substitution and the expansion of exports of manufactures. The substantial remaining deficiency of this exercise, however, is that, as with the SITC, the total value of a product is still ascribed to the sector and industry that contributed only to its final form. Although tentative estimates can be made of the proportion of the final gross value of traded manufactured goods contributed by other sectors, such as agriculture and mining, these estimates cannot be used for tabular presentation until more detailed input-output analysis has been made.

Expressed in terms of gross values and at constant 1958 prices, a more conventional estimate (SITC 5—8, including all base metals) of the annual size of imports by developing countries of manufactures from all sources in the early 1960's is somewhat below $ 20 billion.[16] However, the present estimate using the ISIC approach is about one quarter larger, somewhat below $ 25 billion per year (see table 36). This larger estimate of the recent import bill of developing countries for manufactures is probably due mainly to the fact that a very significant part of trade in food, beverages and tobacco, SITC 0—1, moves in a form incorporating some processing by the food, beverages and tobacco manufacturing sector, ISIC 20—22. Similarly, a large part of the output of oils and fats and of crude materials other than fuels, SITC 2 and 4, moves in international trade to developing countries after some processing by a variety of manufacturing industries. Further, the major part of the flow of fuels, SITC 3, into developing countries is in the form of products of the manufacturing sector, ISIC 32. These indications serve to emphasize that a developing country's policy directed at substituting for, say, $ 100 million of imports of manufactures does not imply that the local manufacturing sector has an opportunity to create an equivalent amount of value added. Indeed, depending on the composition of manufactures, a good part of the value added that is generated by substituting domestic for imported manufactures may well occur in the primary and infrastructure sectors of the developing country. While further examination of the structure of this recent import trade will be considered later, it should be indicated that both of the measures described suggest that between 1955—1959 and 1960—1964 the average annual growth of the quantum of imports of manufactures into developing countries was nearly 3.5 per cent, or about half the rate at which manufacturing expanded in the developing countries. For the present, the composition of this general import growth by the manufacturing sector is investigated in the conventional terms of SITC sections, since detailed estimates of import growth have not so far been made in terms of the major groups of ISIC.

In order to restrict the annual growth of the total quantum of their

[16] At current prices, on these definitions, the value of developing countries' imports of manufactures in 1965, the latest year for which data are available, was $ 24.7 billion.

TABLE 36. IMPORTS[a] OF MANUFACTURES AND OTHER PRODUCTS OF ALL DEVELOPING COUNTRIES, BY AREA OF ORIGIN,[b] 1955–1964

(A = billion 1958 dollars, annual average, B = average annual rate of growth between 1955–1959 and 1960–1964)[c]

		Total	Estimates from ISIC[d]		Estimates from SITC[e]	
			Manufactures ISIC 2–3	Selected other ISIC 0–1	Manufactures SITC 5–8	Selected other SITC 0–4
Developed market economies						
1955–1959	A	19.03	17.37	1.26	15.02	3.63
1960–1964	A	21.86	19.87	1.65	16.91	4.67
	B	2.8	2.8	5.6	2.4	5.2
Centrally planned economies						
1955–1959	A	0.92	0.72	0.17	0.54	0.36
1960–1964	A	2.04	1.69	0.31	1.35	0.67
	B	17.3	18.5	13.2	20.0	13.2
Total[f]						
1955–1959	A	19.95	18.09	1.43	15.56	4.00
1960–1964	A	23.90	21.56	1.96	18.26	5.34
	B	3.7	3.6	6.6	3.2	6.0

Developing countries						
1955–1959	A	5.78	2.44	3.26	0.98	4.73
1960–1964	A	6.74	2.99	3.70	1.35	5.36
	B	3.1	4.2	2.6	6.6	2.5
Grand total[f]						
1955–1959	A	25.73	20.53	4.69	16.54	8.72
1960–1964	A	30.64	24.55	5.66	19.61	10.70
	B	3.5	3.6	3.8	3.4	4.2

Source: United Nations Industrial Development Organization.

[a] Based on partner-country data on exports f.o.b.

[b] For areas other than centrally planned economies, based on trade data published in the relevant issues of the United Nations *Monthly Bulletin of Statistics* and other United Nations publications.

[c] Compound rates of growth based on unrounded data.

[d] Obtained by using and substantially augmenting the reclassification indicated in United Nations (1966) *Classification of Commodities by Industrial Origin*, New York (Series M, No. 43) (Sales No. 66.XVII.7). A product is regarded as a manufacture if its final stage of production occurred in the manufacturing sector. Data for ISIC 0–1 relate to primary products. Data for other ISIC categories are not shown separately but are included in the total column. It is to be stressed that this attempt to reclassify trade statistics from an SITC to an ISIC basis is highly experimental.

[e] SITC Sections 5–8 represent one of the conventional definitions of "mainly manufactures". Separate data are not shown for SITC 9 but are included in total columns.

[f] Detail in table may not add to sums shown due to rounding.

TABLE 37. IMPORTS[a] OF ALL DEVELOPING COUNTRIES, BY MAJOR COMMODITY GROUPS, BY AREA OF ORIGIN, 1955–1964

(A = billion 1958 dollars, annual average, B = billion current dollars)

		Total	Food, beverages and tobacco SITC 0 and 1	Crude materials, excluding fuels; and oils and fats SITC 2 and 4	Mineral fuels and related materials SITC 3	Chemicals SITC 5	Machinery and transport equipment SITC 7	Other manufactured goods SITC 6 and 8
Developed market economies								
1955–1959	A	19.0	2.4	0.7	0.5	1.7	6.9	6.4
1960–1964	A	21.9	3.1	1.1	0.5	2.5	7.7	6.7
1955–1959	B	18.8	2.4	0.7	0.6	1.7	6.6	6.3
1960–1964	B	22.2	3.1	1.0	0.5	2.2	8.1	6.8
Centrally planned economies[b]								
1955–1959	A	0.9	0.2	0.1	0.1	—	0.2	0.3
1960–1964	A	2.0	0.4	0.1	0.2	0.1	0.6	0.7
1955–1959	B	0.9	0.2	0.1	0.1	—	0.2	0.3
1960–1964	B	2.0	0.4	0.1	0.1	0.1	0.6	0.7
Total[c]								
1955–1959	A	19.9	2.6	0.8	0.6	1.8	7.1	6.7
1960–1964	A	23.9	3.5	1.2	0.7	2.6	8.3	7.3
1965–1959	B	19.8	2.6	0.8	0.6	1.8	6.8	6.6
1950–1964	B	24.2	3.4	1.2	0.6	2.3	8.7	7.4

Developing countries								
1955–1959	A	5.8	1.5	0.9	2.4		1.0	
1960–1964	A	6.7	1.7	1.0	2.7		1.4	
1955–1959	B	5.8	1.5	1.0	2.3	0.1	0.1	0.8
1960–1964	B	6.4	1.6	1.0	2.4	0.2	0.2	1.0
Grand total[c]								
1955–1959	A	25.7	4.1	1.7	3.0		16.5	
1960–1964	A	30.6	5.1	2.2	3.4		19.6	
1955–1959	B	25.6	4.1	1.8	2.9	1.9	6.9	7.4
1960–1964	B	30.7	5.1	2.2	3.0	2.5	8.9	8.4

Source: United Nations Industrial Development Organization.

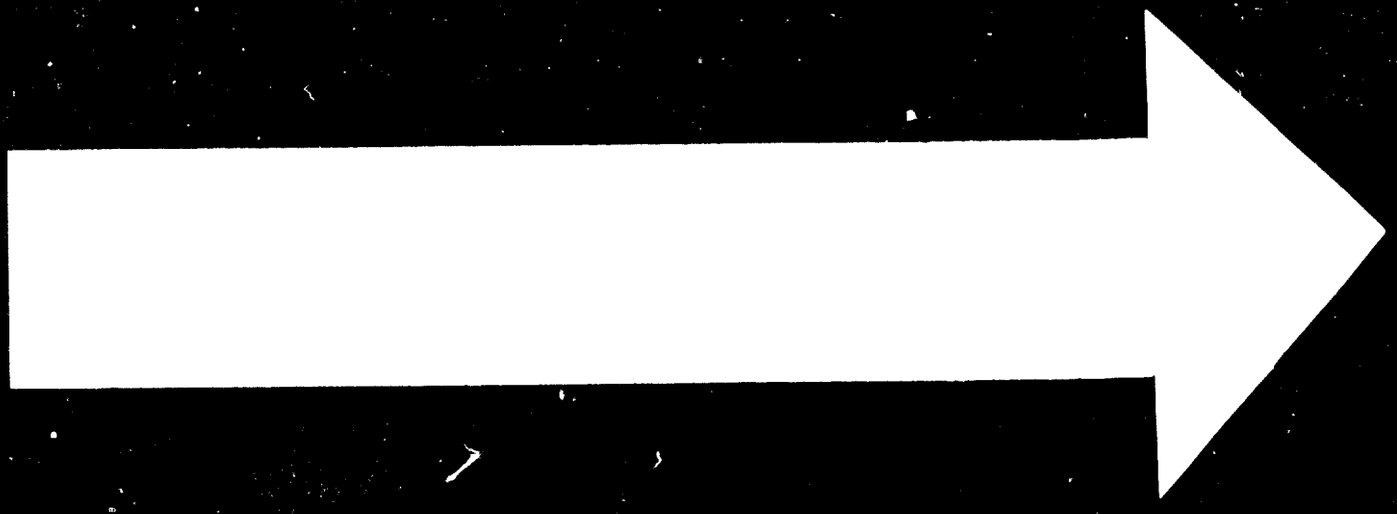
[a] Based on partner-country data on exports f.o.b., published in the relevant issues of the United Nations *Monthly Bulletin of Statistics* and other United Nations documents. In a few instances the rounded data do not adequately reveal the extent of change.

[b] Estimates of trade in constant prices relating to the centrally planned economies are provisional.

[c] Details may not add up to totals shown due to rounding.

imports to 3.5 per cent in the period 1955 to 1964, developing countries made significant alterations in the commodity composition of their imports (see table 37). Greater emphasis was directed to the import not only of crude materials etc. (SITC 2 and 4) and chemicals (SITC 5) but, significantly, also to foodstuffs etc. (SITC 0 and 1). On the other hand, there was a major relative shift away from the importation of what might be loosely termed manufactured consumer goods. Between these extremes, the imports of machinery, transport equipment and fuels increased at about the same rate as growth generally. The most dynamic market in the developing countries for the exports of the developed market economy countries and the centrally planned economies in 1955—1964 was in the chemicals group (manufactured fertilizers, plastic materials, chemical elements and compounds, pharmaceutical products etc.). The quantum of chemical imports by developing countries was about 8 per cent per year. Imports of the vast range of crude materials came second, with an expansion of about 5 per cent. Some of these materials were intended for the chemicals industry, but other main recipients included the food, textile and wood and paper industries. A broadly similar order of importance was attached to the increase of food imports, a substantial proportion of which were in manufactured form. As far as changes within the ten-year period are concerned, imports of machinery and transport equipment — the group of imports of prime consideration for economic development — increased at a significantly lower rate than food imports. Imports of fuel, which were mainly in the form of products, grew at about the same rate as imports of machinery and equipment, nearly 3 per cent a year, but the growth of other manufactures remained below 2 per cent.

While the aggregate nature of these results, which refer to imports of developing countries as a whole, requires cautious interpretation, the growth in import demand for food was more than twice that for miscellaneous manufactures, excluding capital goods. It has been the experience of many individual countries under fairly normal circumstances of development for the squeeze in imports to be initially greater for non-durable consumer goods, and only later for consumer durables. However, the urgent nature of the food problem in some developing countries during this period resulted in a rise in the annual payments for food imports of developing countries as a whole from $ 4 billion *per annum* in the late 1950's to more than $ 5 billion in the first half of the 1960's (both amounts expressed in 1958 prices), the latter amount being equivalent to one sixth of the total import bill. While the import growth of the complex of raw materials and intermediate products incorporating chemicals and crude materials, including fuel, was expected to have been well above the average growth of imports and more in line with the growth of domestic manufacturing, the growth of imports of capital goods, i.e. machinery and transport equipment, was not expected to be much different from the over-all growth of imports. On the assump-



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largely because of an international agreement on cotton textiles. The influence of foreign demand, however, was dominant in jute textile output, even though domestic consumption has been rising rapidly in the major producing countries of India and Pakistan.

In a number of countries, governments have played an increasing role in determining the allocation of investment funds to the textile sector. Thus, in some developing countries in Africa and Asia which have recently begun to produce textiles, the finance obtained from foreign public and private sources was negotiated by governments or with governmental encouragement. In certain developing countries with an older textile industry, the government has established or taken over textile mills. However, in most of these countries, the textile industry is in private hands. In India, the United Arab Republic and some Latin American countries British and United States capital played a significant part in the early development of the textile sector. Extensive use of labour in the textile sector has been an important characteristic in so far as general employment policies in many developing countries have strong implications for this sector. In 1961, the textile manufacturing sector employed close to 7 million wage-earners in developing countries; to this figure must be added several million persons engaged in cloth production in cottage industries. On the whole, requirements for labour skills have not been substantial, compared with other manufacturing sectors. There has been no general marked growth of labour productivity in developing countries, although it has been marked in some of the developed countries. The demand for more advanced skills, however, has grown with the relative expansion of the output of man-made fibres and the introduction of more mechanized plants.

Apart from the need for more adequate labour training, it has been repeatedly suggested that the textile industry in many developing countries, given the current stock of equipment, could have grown significantly through the improved organization of enterprises, better utilization of machinery, less wastage and more regular supplies of raw materials, more industry rationalization etc. However, there has also been the need to introduce more up-to-date machinery, and in this respect an interesting potential may exist for increasing trade within the developing regions. Although economies of scale are present, the problem this poses for textiles may not have been as great as in some other industrial sectors. Developing countries as a whole continue to spend more foreign exchange on textile imports than they earn from exports. However, there is no doubt that import substitution has been an important influence in the expansion of the textile industries of many developing countries. By 1964, the developing countries as a whole were more than 90 per cent self-sufficient in apparel yarn and cloth. Self-sufficiency is highest in cotton — virtually 100 per cent in yarn and 93 per cent in cloth — and lowest for man-made fibres, about

56 per cent for yarn and 85 per cent for cloth. The drive to attain self-sufficiency has been most successful in Latin America, and less so in Africa and the Near East.[9]

In the clothing, made-up textiles and foot-wear industries, the developing countries and other regions shared a common experience in that their rates of growth in this sector in 1955—1964 were somewhat higher than in the textile manufactures sector. The impact of changing requirements as incomes rise may have had an influence in two ways. Rising standards of living may have been manifested in a more sophisticated use of textiles when made up into wearing apparel and textile goods used mainly in house furnishings. Secondly, the income elasticity of expenditure on foot-wear may have been relatively high, leading to requirements for more and better-quality foot-wear. The rate of growth of another sector of light industry, manufacture of wood for all end-uses and of furniture, has been the same as for clothing and foot-wear in recent years. In both sectors, annual growth rates in 1955—1964 were somewhat above 6 per cent and, as with clothing and foot-wear, the growth of the wood products industries was more pronounced in Asia than in Latin America. In the developed market economies, these two sectors have shown broadly similar growth, but in the centrally planned economies, more growth effort occurred in the wood and furniture industries. Aggregate data are insufficient to permit a general indication of the rates of growth in such other light industries as printing etc., tanning etc., and rubber manufacturing.

The structure of heavy and light industry

The most significant result of the pattern of recent growth in developing countries, as has been suggested, is that in the near future these countries as a whole may derive as much value added from their heavy sector industries as from their light sector industries. While all estimates of this kind must be qualified, a transformation of this broad order may be considered a substantial achievement. Only three decades ago, just prior to the Second World War, the contribution to total manufacturing activity in developing countries made by the heavy sector, in terms of value added, was less than one third. Furthermore, the current structure of manufacturing output in developing countries may be broadly similar, in terms of the relative contributions of the light sector and the heavy sector, to the structure existing in the developed market countries as recently as 1938. However, the growth emphasis on the heavy sector which developed market economies also experienced in the interim period has resulted in a present contribution by that sector of about two thirds of the current total of manufacturing pro-

[9] For details on recent developments in the textile sector, see "Sectoral Studies prepared for the Symposium: Textile Industries" (document ID/CONF.1/21).

duction. In the centrally planned economies, the output of the heavy sector may at present also account for nearly two thirds of total manufacturing activity.

A more detailed examination of the structure of manufacturing in individual developing countries clearly shows that the rather optimistic generalization made above is subject to significant modification. Such an examination, which is now possible only for the period around the beginning of the 1960's, reveals that at that time almost a majority of developing countries possessed heavy sector industries which contributed only between one fifth and two fifths of their total manufacturing output. At the time, in only few developing countries did the output of the heavy sectors contribute close to or more than 50 per cent. In a larger number of developing countries the share of heavy industry approached the 50 per cent level. On the other hand, one fifth of the countries shown in table 17 had heavy sectors which accounted for less than one fifth of total manufacturing output. In Latin America, these countries included Barbados, Costa Rica, the Dominican Republic, El Salvador, Guatemala and Jamaica; in Africa, such countries or territories included Ethiopia, Mauritius, Mozambique and Tanganyika; and in Asia, Pakistan. The other side of the coin was that, in a very large number of developing countries, the contribution of the light industry sector to total manufacturing, as recently as around the beginning of the present decade, was in the range of three fifths to four fifths.

When industrial structure is considered in terms of value added by manufacturing, heavy industry in many developing countries appears capable of achieving, by the late 1960's, the same level as that attained by light industry. However, these two sectors are markedly different in the pattern of their development; this dissimilarity has important implications. The food industry often accounted for the bulk of the output within the light industry sector of manufacturing in most developing countries. The exceptions appeared in countries specializing in the production of textiles. It is understandable that most countries rely for manufactured foodstuffs mainly on domestic industry. Consequently, the frequency distribution of the share of the food industry in total manufacturing among developing countries was more nearly normal than in the case of other industries where it tended to be concentrated in the lower range or, in statistical terms, was "skewed to the left". Such is the importance of the food processing industry for developing countries that it accounted until recently for between one quarter and one half of total manufacturing in most countries. Characteristic features of countries with a relatively high share of food manufacturing appeared to be small population and small *per capita* income and the importance of exports of such items as coffee, sugar and meat, which were processed to some degree before export.

TABLE 17. STRUCTURE OF MANUFACTURING OUTPUT, BY MAJOR GROUPS, IN SELECTED DEVELOPING COUNTRIES,[a] RECENT YEARS

(Percentages of total value added in manufacturing in each country)

		Manufacturing			*Food, beverages, tobacco*	*Textiles*	*Clothing, foot-wear and made-up textiles*	*Wood products furniture*	*Paper and paper products*	*Chemicals, petroleum and coal products*	*Non-metallic mineral products*	*Basic metals*	*Metal products*
		Total	*Light*	*Heavy*									
		ISIC	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*
		2–3	*20–26 28–30 39*	*27 31–38*	*20–22*	*23*	*24*	*25–26*	*27*	*31–32*	*33*	*34*	*35–38*
Latin America													
Brazil	1963	100	45	55	19	12	3	4	3	14	5	13	20
Argentina	1957	100	53	47	24	14	4	2	3	11	4	6	23
Mexico	1960	100	54	46	28	12	3	3	3	17	6	7	13
Chile	1963	100	55	45	25	13	5	3	4	11	5	8	19
Trinidad and Tobago	1957	100	61	39	46	2	3	3	...	21	8	...	10
Colombia	1963	100	64	36	33	15	5	2	3	13	6	3	11
Peru	1963	100	56	34	40	13	4	2	3	10	4	6	11
Uruguay	1960	100	69	31	38	13	6	3	2	11	4	1	12
Puerto Rico	1963	100	66	28	34	3	17	3	1	7	6	1	12
Paraguay	1963	100	73	27	48	11	3	5	—	13	5	—	10
Ecuador	1963	100	77	23	51	14	2	2	1	15	5	...	2
Panama	1961	100	77	23	54	—	8	7	2	4	10	—	7
Honduras	1963	100	80	20	49	4	8	14	1	10	4	—	5
Guatemala	1958	100	81	19	50	8	7	6	1	6	9	—	4
Jamaica	1960	100	81	19	57	7	7	5	1	6	4	—	8
Costa Rica	1957	100	86	14	60	5	8	7	—	6	2	...	6
Dominican Republic	1962	100	88	12	78	3	3	2	2	6	3	—	1
El Salvador	1961	100	89	11	58	17	7	2	—	4	2	—	4
Barbados	1958	100	90	10	60	...	6	1	...	...	1	...	9
Africa													
Sudan	1960	100	37	63	30	4	...	2	5	42	10	...	6
Rhodesia	1963	100	54	46	26	6	7	4	3	12	4	6	21

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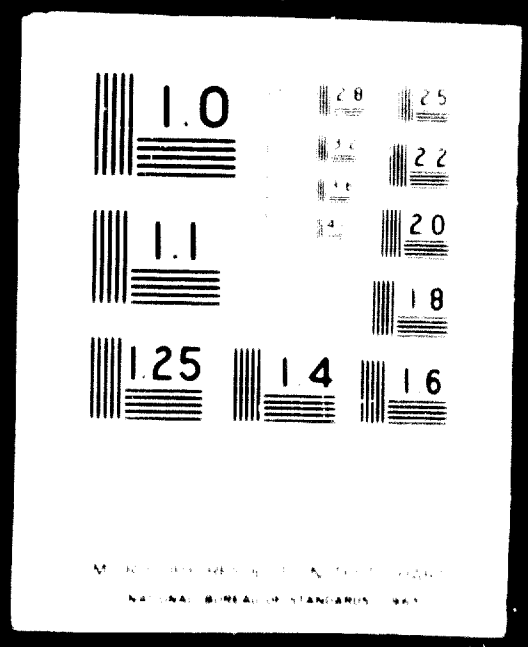

that, in each of the developing regions of Latin America, Asia and Africa, the output value of their manufactured food sector, ISIC 20–22, was greater than that of their metal products sector, ISIC 35–38. However, the expenditure on imports of manufactured food was, in all cases, only a fraction of the expenditure on metal products imports in the three developing regions, the fraction ranging from about one quarter for Africa to one sixth for Latin America.

Taking into account the five more important sectors of manufacturing shown in table 40, it may be tentatively suggested that for developing countries as a whole, reliance on imports as a contribution to total supplies (imports plus production) was greatest for metal products and that such reliance declined for basic metals, chemicals and petroleum products, textiles and food, in that order. The rationale for this order of import reliance by a developing country might be in terms of the immediacy of demand, as well as of the more conventional concepts of complexity of production etc. Generally it can be said that the greater the immediate demand for the products of an industrial sector and the less sophisticated their production etc., the larger the degree of domestic self-sufficiency in developing countries. Thus, food products are clearly the most immediate requirement and generally the most easily produced, and textiles are next in order. Chemicals and petroleum products are a mixed category on both counts, for they include soap and drugs, petroleum products for private consumption and current industrial use and fertilizers for current agricultural use. Basic metals are generally more difficult to produce, and their final use is both for current consumption, sometimes of luxury items, and for investment. While metal products are also destined for mixed use, many items – particularly those for basic investment – are beyond the present production capabilities of most developing countries. Whatever the rationale, the order of relative import reliance indicated above is reflected in the patterns of domestic manufacturing in and imports of manufactures by developing Asia. Elsewhere, the rankings are slightly different, with import reliance greater for chemicals than for base metals in Latin America, and relatively greater for textiles than for chemicals in Africa.

Despite the experimental nature of the statistical method, the above ranking of degrees of import reliance for different categories of industrial products is generally borne out by results of a very limited random sample of five individual developing countries in 1963, though the precise order suggested is reflected in the developments of only one of these countries. In cases in table 40, where, for example, the sector of manufactured foodstuffs was not the least reliant on imports, the problems of the agricultural sector of the countries concerned – and tenure, use of fertilizers etc. – are well known. Or, as a further illustration, the fact that import reliance was greatest for base metals, rather than for metal products, reflected a well-known scarcity of facilities within the country for base metal production. Considering the five countries together, however,

TABLE 40. MAJOR GROUPS OF MANUFACTURES – IMPORTS FROM DEVELOPED MARKET ECONOMIES[a] AND DOMESTIC PRODUCTION[b] IN DEVELOPING REGIONS AND IN SELECTED DEVELOPING COUNTRIES, 1963[c]

(Percentages)

	I – Imports DP – Domestic Production	Manufacturing, total ISIC 2 – 3	Food, beverages and tobacco ISIC 20 – 22	Textiles ISIC 23	Chemicals, petroleum and coal products ISIC 31 – 32	Basic metals ISIC 34	Metal products ISIC 35 – 38
Developing regions, total	I	100	10	7	15	9	45
	DP	100	24	11	15	7	16
Latin America	I	100	8	3	16	8	49
	DP	100	26	8	15	8	17
Asia	I	100	9	9	15	11	43
	DP	100	22	15	12	6	15
Africa[d]	I	100	11	9	13	7	42
	DP	100	26	13	26	8	13
Chile	I	100	5	2	17	6	59
	DP	100	25	13	11	8	19
Colombia	I	100	3	1	22	10	51
	DP	100	33	15	13	3	11
Peru	I	100	7	4	13	7	56
	DP	100	40	13	10	6	11
India	I	100	5	4	12	16	54
	DP	100	13	32	11	10	20
Philippines	I	100	8	11	13	11	43
	DP	100	39	7	17	1	15
Nigeria	I	100	8	15	12	8	36
	DP	100	38	7	12	1	15

Source: United Nations Industrial Development Organization.

[a] Based on partner country data on exports f.o.b. The original SITC data at the most detailed level available were tentatively translated into ISIC categories (see detailed note to table 38). The percentage composition for total developing regions was based on 1963 imports expressed in 1958 prices.

[b] Estimates of the percentage composition for the four regional aggregates are based on value added estimates for 1958, in 1958 prices, and the change in production between 1958 and 1963. For individual countries, estimates are based on value added data from censuses of production.

[c] For India and the Philippines data refer to 1962.

[d] Tentative estimates.

the situation of relative import reliance may be summarized as follows: while the production of all heavy industry goods in these countries accounted for less than one half of the total manufacturing production, heavy industry goods in almost all cases absorbed more than three quarters of their total import of manufactured products.

In developing countries import substitution of manufactures should be considered not only in terms of the potentialities of one sector of manufacturing compared with another, but also in terms of relative potentialities within different stages of each sector. The former has been discussed above, and the latter will now be reviewed in the context of the extent to which savings on import expenditures for a given sector or category of goods might be achieved by the purchase of imports at a more preliminary level of processing. Experimental calculations in table 41 show that of the $ 20 billion worth of imports of manufactures of developing countries from developed market economies in 1963, there was an expenditure of some $ 2 million for imports of finished manufactures for every million dollars worth of imports of semi-finished manufactures. This over-all relation, however, varied significantly within each of the industrial sectors. If the finished imports could have been imported in their semi-finished stage and if the amount of foreign value-added thus saved were equivalent to one third of the value of each finished product, the "import saving" for developing countries in 1963 would have been some $ 4 billion, one fifth of their total import bill for manufactures.

This illustrative calculation of potential import saving as a result of changes in the level of processing is included only in order to introduce a perspective for further refinement, but one of the assumptions on which the calculation rests, i.e. that all manufactures could have been imported in semi-finished state, can be considered immediately. On the one hand, there are clear economic reasons against a wholesale switch by developing countries to imports of only semi-finished manufactures. If developing countries have internal markets which are too small now, or which may be too small in the future to support an economical sized finishing plant, and if export markets are at present closed to such products, it would be difficult to recommend final processing by the local manufacturing sector. The situation is the same where either current or capital costs for such local activity are particularly high or where local are not likely to be readily available. On the other hand, the methodological procedures in arriving at estimates of what constitutes a semi-finished and what a finished manufactured product are highly tentative. Nearly thirty years ago, a committee of statistical experts of the League of Nations published in an annex to the *Minimum List of Commodities for International Trade Statistics* a composite classification of products which made possible, *inter alia*, to distinguish such stages of production as crude, simply processed and elaborately processed. Further attempts in this

TABLE 41. IMPORTS OF MANUFACTURES OF THE DEVELOPING REGIONS FROM DEVELOPED MARKET ECONOMIES, BY MAJOR GROUPS AND BY BROAD ECONOMIC CATEGORIES, 1963

	Total		Stage of production			Use of production		
			Primary	Semi-finished	Finished	Industrial supplies	Consumer goods	Capital equipment
	billion dollars	per cent	per cent	per cent	per cent	per cent	per cent	per cent
Food, beverages and tobacco (ISIC 20–22)	1.9	100	9	23	68	29	71	—
Textiles (ISIC 23)	1.4	100	9	68	24	78	22	—
Clothing etc. (ISIC 24)	0.4	100	1	7	92	13	87	—
Wood products etc. (ISIC 25–26)	0.2	100	1	43	56	58	34	9
Paper etc. (ISIC 27)	0.5	100	—	82	18	98	2	—
Printing etc. (ISIC 28)	0.2	100	1	4	95	15	81	4
Leather products etc. (ISIC 29)	—	100	1	57	42	62	37	1
Rubber products etc. (ISIC 30)	0.3	100	—	7	93	12	50	37
Chemicals etc. (ISIC 31–32)	2.9	100	—	53	47	78	22	—
Non-metallic mineral products (ISIC 33)	0.4	100	2	68	30	84	14	2
Basic metals (ISIC 34)	1.7	100	—	97	3	98	—	2
Metal products (ISIC 35–38)	8.8	100	—	10	90	11	14	75
Other manufactures (ISIC 39)	1.0	100	4	10	86	15	47	38
Total manufactures (ISIC 2–3)	19.7	100	2	33	66	40	24	36
Light manufactures	—	100	6	31	63	38	52	9
Heavy manufactures	14.2	100	—	33	67	40	14	47
Non-manufactures (ISIC 0–1, 4–9)	2.1	100	76	1	23	70	30	—
Total, above	21.8	100	9	30	62	42	25	33

Source: United Nations Industrial Development Organization.

This table should be regarded as experimental in nature since several classification systems are involved. Thus, SITC data at the most detailed level available were translated on the one hand into ISIC categories on the basis of United Nations, *Classification of Commodities by Industrial Origin* (Sales No. 66.XVII.7) and further assumptions (see table 38) and, on the other hand, into two alternative sets of "broad economic categories" – stage of production, and use of production – on the basis of a revision of a classification suggested in UNCTAD document TD/B/C.2/3. With regard to the unrevised classification, the following was assumed: I.A.2 and II.A are primary and industrial supplies; I.A.1 and V.A are primary and consumption goods; I.B. and II.B are semifinished and industrial supplies; I.C, IV, V.B and V.C are finished and consumption goods; III are finished and capital equipment.

direction have subsequently been made by international organizations. The subject received special attention recently in connexion with the consideration of the question of trade preferences by the United Nations Conference on Trade and Development (UNCTAD), and with the work of the Statistical Office of the United Nations. The present preliminary calculations by UNIDO, which build on these recently developed classifications as well as on the previously discussed cross-classification between the trade SITC and the production ISIC, employ the following summary definitions: a primary commodity is a product of farm, forest, fishing and hunting, or any mineral, to whose value manufacturing makes only a minor contribution; a semi-manufactured article is a product of manufacturing which for most uses requires further processing or incorporation in other goods before becoming capital or consumer goods; finished manufactured goods comprise manufactured goods for household consumption plus capital goods for household and for industry.[18] Since each industrial sector plays its unique role as a relative supplier of intermediate and final goods, it follows that in some cases virtually all imports of a given industrial sector may be, by definition, semi-finished. For this reason also, the data in table 41 cannot be regarded as providing a simple indication of the present relative potential for import savings within each industrial sector. Despite these major reservations, however, this preliminary approach has been introduced at this stage in anticipation of future work on a time series which will permit a more useful measure of actual progress in industrialization in developing countries on the basis of import savings resulting from the encouragement of domestic processing of imported semi-finished goods.

A further insight into the nature of the $ 20 billion import of developing countries for manufactures from the developed market economies relates to the use to which these imports have been put. According to the classification work discussed above, preliminary estimates indicate that the major expenditure in 1963, about $ 8 billion, was for importation of industrial supplies. The major part of the remainder, some $ 7 billion, was spent on capital equipment, and a further $ 5 billion was expended on consumption goods in developed market economy countries. It is probably more difficult to displace imports of capital equipment than industrial supplies and consumer goods which constituted two thirds of import expenditures. However, any final decision with regard to the composition of products that could be more gainfully included in an import substitution programme will depend on the particular conditions and endowments of each country.

[18] See "The Definition of Primary Commodities, Semi-manufactures and Manufactures", a paper prepared jointly by the Statistical Office of the United Nations and UNCTAD, 2 July 1965 (document TD/B/C.2/3); and "Classification by Broad Economic Categories", a paper prepared by the Statistical Office for the United Nations Statistical Commission, 8 April 1966 (document E/CN.3/341).

The trade flows to developing countries may be considered, finally, from the point of view of their sources of supply in developed market economies. While the exports of developed market economies to developing countries represent valuable opportunities to employ capital and labour resources, it is also true that, for the group of developed market economies with a gross domestic product of well over $ 7,000 billion measured at factor cost, the export of about $ 22 billion of manufactured and non-manufactured goods in 1963 (see table 38) was relatively small in terms of aggregate resource allocation by the developed market economies as a whole. There is a double advantage in this. On the one hand, if developing countries could expand their imports, it would undoubtedly be well within the physical productive capacity of the developed market economies as a whole to increase their exports to developing countries accordingly. On the other hand, if it were necessary or appropriate for developing countries to pursue a vigorous policy of import substitution, developed market economies as a whole would be able easily to adjust to such a policy, especially in a dynamic context. At recent levels of *per capita* income in developed market economies, exports amounting to $ 22 billion would be equivalent to the statistical income of only about 12 million persons out of a population of nearly 700 million. The number of persons employed in such export activity was considerably less than 12 million. It is plain to see that what could be possible for developed market economies as a whole may be impossible for individual developed market economies.

In 1963 the expenditure of developing countries on imports from developed market economies for major categories of heavy industrial goods was about $ 9 billion for metal products, nearly $ 3 billion for chemicals and petroleum products and a little above $ 1.5 billion for basic metals. As indicated in table 39, the import bill was much lower for light industry categories, including about $ 2 billion for manufactured foods and less than $ 1.5 billion for textiles. The remaining $ 3 billion of the total $ 20 billion for imports by developing countries of manufactures from developed market economies was disbursed for purchases of clothing, wood products, paper and paper products, printing, leather and rubber products and products of the non-metallic minerals industry. For the three heavy industry categories, these costs were rather evenly distributed among the three developing regions, except that the relatively deficient region of Asia imported a somewhat larger amount of basic metals. With regard to manufactured food and textiles, Latin America's import bill was less than that of Asia, and Asia's bill was less than that of Africa.

For various reasons, including differing degrees of openness of their economics, differences in their foreign aid policies, historical associations, unique patterns of comparative advantages etc., the developed market economies have not allocated the same proportions of their aggregate resources for production of exports to developing countries. Even in

Japan and the United Kingdom, which concentrated more than other countries on such exports, the value of these exports did not exceed 4—5 per cent of their gross domestic product. In continental western Europe, the corresponding proportion was 2—3 per cent, while in the United States and other developed market economies, exports to developing countries accounted for about 1.5 per cent of their gross domestic product. About 90 per cent of the total export flow from developed market economies consisted of manufactures. It is not easy to determine the precise proportions of exports of manufactures to the total production of manufactures in individual developed countries but, in general, the proportions are probably only a little higher, less than one per cent more, than the proportions of all exports to total production.

In 1963, the United States and the European Economic Community were the major suppliers of manufactures to developing countries. Both accounted for about $ 6 billion, or 30 per cent, of the total exported by all developed market economies. However, the regional distribution was different: while the United States exported more manufactures to Latin America than to the other two developing regions combined, more of the exports of the European Economic Community went to developing Africa than to the other regions combined. Japan, with $ 2.5 billion of such exports, concentrated to a still greater degree on the developing Asian market. The corresponding total for the United Kingdom was somewhat above $ 3 billion; for other west European countries, $ 1.5 billion; and for other developed market economies, $ 750 million. In general, the regional destination of these exports of manufactures was more diversified, except that the United Kingdom concentrated the least on the Latin America market, while the other west European countries and the remaining developed market economies devoted the smallest proportion to Asia and to Africa, respectively.

The markedly different product mix of manufactured exports from these various sources of supply in the developed market economies was to some extent a reflection of the different patterns of specialization within the domestic manufacturing sectors. Thus, while the developed market economies other than Europe and Japan gave special emphasis to exports of manufactured foodstuffs, Japan specialized more in textile exports. With regard to metal products, which are the major exports of heavy industry to developing countries, the greater contribution of the engineering industries to total manufacturing production within the United Kingdom and the United States was shown by their above-average contribution to exports of such products to the developing countries. In the case of other heavy industry exports, the United States and the European Economic Community concentrated more than other developed market sources on the exportation of chemicals and petroleum products. Similarly, concentration on exports of base metals was more marked in Australia, Canada, the European Economic Community and Japan.

Future attitudes towards import substitution

Import substitution has been a major method of promoting industrialization in a number of developing countries. However, the dissimilar attitudes of these countries towards this method and their different experiences with the process will undoubtedly persist in the future. In some countries where a delicate assessment has convinced them that they are reaching the limits of import substitution, the urgency of exploring the potentialities of expanding their exports of manufactures is clear. The need for such expansion is also urgent in developing countries which have greater possibilities for import substitution. The simultaneous pursuit of both policies by such countries might yield considerable gains for the industrialization of the countries concerned. Solutions to problems of import substitution, such as attaining an efficient plant size in a limited market and improving the quality of local manufactured products, might be easier to find if efforts were concentrated on satisfying the foreign demand for manufactures — regardless of whether the purchasers are from developing regions or outside these areas.

The selection of industries to be governed by import substitution policies should not be dictated by narrow, private-sector considerations. It should be carried out in the context of, and in harmony with, the over-all economic objectives and plans of a country. Such a procedure is more likely to ensure a dynamic framework for selection of industries and to determine the comparative advantages, taking into account the social costs and benefits involved. In the selection and application of incentives to facilitate the substitution process, full recognition should be given to the unique nature of local elasticities of response to particular incentives; the major challenge is to prevent permanent protection or a permanent situation of high domestic prices and low-quality products. An associated need is a social control of oligopolistic groups of manufacturers, groups which may emerge as a result of import displacement policies. It may be possible to prevent blanket protection against outside suppliers. Aside from tariffs, the application of other incentives — such as the channelling of adequate capital, labour skills and foreign exchange resources — to industrial sectors which are to be promoted deserves continuing consideration. An import substitution project aimed at reducing the value of the future stream of import payments may, in the initial stages of the project, be expensive in its claims on foreign exchange resources. Finally, if an appropriate application of incentives should fail to bring progress through established entrepreneurs, consideration of alternative entrepreneurs should not be forgone.

B. THE EXPANSION OF EXPORTS OF MANUFACTURES

Among the possible solutions to problems of industrialization of developing countries, the stimulation of manufactured exports deserves particular emphasis. For many developing countries, failure to rapidly

establish export-oriented manufactured industries as a major growth sector may jeopardize their more general aspirations for a dynamic domestic industrial sector. It is debatable what the record of industrialization in many developing countries might have been, both quantitatively and qualitatively, if much greater consideration had been given in past decades to the need to expand the exports of manufactures. The fact is that the total value of exports of manufactures by the developing countries as a whole in 1960 – 1964 was less, using a conventional and conservative measure, than the sales of manufactures and associated services of just one of the larger private corporations of the United States. The compelling need for action in developing countries to promote export expansion of manufactures requires little justification. The first session of the United Nations Conference on Trade and Development, held in 1964, provided a useful forum for discussion of this matter. The United Nations Industrial Development Organization and many other international bodies have placed this matter high on their agendas.

The balance of payments of many developing countries requires that new sources of foreign exchange should be developed. The prospects facing the export of primary products from developing countries are fairly clear; while the volume will undoubtedly continue to increase, the foreseeable rate of growth is generally considered insufficient to make a major immediate contribution to meeting the import requirements of their development plans. This slow expansion cannot be remedied, even by eliminating all commercial barriers in the developed countries, desirable as this is. Primary products will still remain subject to low income elasticity of demand, to increasing economy in their use, the shifts to less material-intensive products and to rising competition from synthetics. Moreover, even when international economic statesmanship might have provided a remedy, as in the case of export price instability of primary products, developing countries still face considerable problems. not the least of which is the strong de-stabilizing impact on imports for industrial development. As previously indicated, the rate of increase in the flow of financial assistance to developing countries has not been sufficient to meet the remaining foreign exchange needs. Import substitution remains a necessity, often an expensive one. An expansionist answer to the situation caused by the stagnancy of primary product exports requires policies directed to a rapid increase of exports of manufactures, though this is undoubtedly often a risky and difficult endeavour. This route to an improved balance of payments is not advisable for all countries, although the record shows that its adoption is not necessarily determined by a country's size. Together with continuing exploitation of dynamic comparative advantage in primary products, expansion of aid from developed countries and a careful policy of import substitution, the rapid expansion of exports of manufactures can significantly facilitate fulfilment of plans and programmes for industrial development in many countries.

Whatever may be the validity of theories of stages of development in other contexts, it is debatable whether the expansion of manufactured exports from developing countries must always wait until a substantial development of an internally oriented manufacturing industry has been attained or until an effective import substitution policy has shown results. Certainly there are some *prima facie* grounds for a simultaneous approach. The world market for manufactures, for example, is fairly competitive in many branches, with strong demands for quality of products. The necessity of meeting standards set by foreign markets increases the possibility that such standards will also be established for internal markets. Thus beneficial effects might include an increase in general efficiency, as well as an improvement in the quality of products to meet competition in the area of import substitution. Manufacturing for export often requires incorporation of improved production technologies that are generally imported from developed countries. The use of such technology in manufactures for the domestic market would, where appropriate, produce cumulative benefit. Again, the problems posed by small internal markets will seldom yield to a consecutive approach, first to internal and then to external market expansion, within a reasonable period of time. Many countries with a low *per capita* income and a relatively small population are apparently prevented form reaping the gains from economies of scale in manufacturing unless they expand their total market by a simultaneous move towards export markets. To the technical gain of lower unit cost, there may be added in some instances the gains of a healthier structure and performance of industrial organization as the number of producing units is expanded.

This survey does not attempt to ascertain the extent to which the exploitation of opportunities in exports of manufactures by developing countries has lagged behind its potential. Nor can this document indicate with precision the extent to which the factors producing such a lag have been on the supply side, within developing countries, or on the demand side, mainly because of commercial barriers in developed countries. However, a statement of recent progress is given below.

Recent growth in exports of manufactures

Thus far, export-oriented industries have not constituted a dynamic component of manufacturing in developing countries. The recent rate of over-all export expansion of such goods from developing countries can only be indicated in rather broad terms because of the difficulty of defining a "manufactured commodity" in international trade. A more conventional measure based on the Standard Industrial Trade Classification (SITC) indicates that the quantum of manufactured exports of developing countries to all countries expanded at an average annual rate of 8 per cent during 1955—1964, but an experimental measure, prepared in connexion with this survey and based on the International

tion that all categories of imports are competitive, it may be that the relative decline of imports of capital goods was due to the buoyancy of food imports. However, because of the tied nature of some foreign aid with respect to some food and machinery imports, there is no assurance that if one of these categories of imports had been forgone, further imports of the other category would have occurred. It is also possible that the significant rise in import prices of machinery and transport equipment may have acted as a brake on imports and stimulated the growth of the metal products industries within developing countries. Although influences other than prices almost surely dominated — import price rises may sometimes be partly or wholly offset by improvements in quality — the fact mentioned in Chapter I should be recalled that industries which have a significant element of production of machinery and transport equipment expanded in developing countries between 1955–1959 and 1960–1964 at an average annual rate of about 12 per cent. This relatively fast-rising domestic availability, augmented by a modest increase in imported machinery and transport equipment, was sufficient to meet the moderate increase in investment activity of developing countries in 1955–1964.

At a time when the foreign exchange earning capacity of developing countries as a whole was materially affected by a significant decline in export prices, an added burden was imposed by an increase in the prices of their imports. While the increased cost of imports was less than the forgone gain in proceeds resulting from export price declines, the fact that the average increase in prices of imports into the developing countries from developed market economies exceeded 0.6 per cent per year meant an increased import bill of some $ 150 million a year. The indications are that the rising trend of import prices persisted in 1967. Since the pattern of import price changes was not uniform among the various categories of imports, and to the extent that demand was price elastic, this variable may well have had a significant influence on the pattern of import substitution.

The largest increase in prices of imports into developing countries from developed market economies occurred in the very category that is most important for industrial development, i.e. machinery and transport equipment. The import price in this category rose at an average annual rate of about 2 per cent in 1955–1964 (see table 46 in the next section), and the added burden of these rising prices of capital goods was equivalent to almost all of the $ 150 millions *per annum* cited above. Expressed in another way, more than one third of the increase in dollar expenditures of developing countries for capital goods between the late 1950's and early 1960's resulted from the rise in price of these goods. While there was also a more modest rise in import prices of other manufactured goods, SITC 6 and 8, import prices of food, crude materials, fuel and chemicals were at a lower level in the early 1960's than in the late 1950's. The average decline in food prices was less than one half per cent

TABLE 42. EXPORTS OF MANUFACTURES AND OTHER PRODUCTS FROM ALL DEVELOPING COUNTRIES, BY AREA OF DESTINATION, 1955-1964

(A = billion 1958 dollars, annual average, B = average annual rate of growth between 1955-1959 and 1960-1964)

		Exports			Exports	
		Total	Manufactures ISIC 2-3	Selected other ISIC 0-1	Manufactures SITC 5-8	Selected other SITC 0-4
Developed market economies						
1955-1959	A	17.72	7.14	10.36	1.76	15.77
1960-1964	A	22.70	9.20	13.39	2.64	20.01
	B	5.1	5.2	5.3	8.5	4.9
Centrally planned economies						
1955-1959	A	0.73	0.28	0.44	0.05	0.66
1960-1964	A	1.64	0.66	0.93	0.10	1.50
	B	16.0	19.1	16.3	15.5	17.8
Total, above						
1955-1959	A	18.45	7.42	10.80	1.81	16.43
1960-1964	A	24.34	9.86	14.32	2.74	21.51
	B	5.6	5.9	5.8	8.7	5.5
Developing countries						
1955-1959	A	5.78	2.44	3.26	0.98	4.73
1960-1964	A	6.74	2.99	3.70	1.35	5.36
	B	3.1	4.2	2.5	6.7	2.5
Total						
1955-1959	A	24.23	9.86	14.06	2.79	21.16
1960-1964	A	31.08	12.85	18.02	4.09	26.86
	B	5.0	5.5	5.1	8.0	4.9

Source: United Nations Industrial Development Organization.
The footnotes [b] to [f] in table 36 apply also to this table.

Standard Industrial Classification (ISIC), reveals an annual export growth of manufactures of only about 5.5 per cent (see table 42). Irrespective of which of these measures is the better indicator, it is clear that no significant progress was made in expanding the share of production of manufactures destined for export markets, since the total of manufacturing in developing countries for all markets increased by about 7 per cent a year during that period. Either there were no opportunities for more dynamic development in this sector, or they were not grasped.

Before considering some underlying influences, attention should be given to the important problem of defining manufactured goods in the present context. It will be recalled from the preceding section that, in addition to those imports that are generally classified as manufactures

(under SITC sections 5—8), there are many other imported commodities often considered as primary (within SITC 0—4) which undergo some degree of processing before exportation. With regard to imports into developing countries, the latter commodities were estimated as equivalent to about a quarter of the value of conventionally designated manufactures. However, this category of lightly processed primary products was of considerably more importance in value terms in the export pattern of developing countries than the group of conventional manufactures. It may well be that as much as one third of what are normally called primary exports of developing countries passed through a manufacturing industry of a developing country before exportation. This segment of exports of processed primary products includes part of the following categories: meat and dairy products, cereals, fruit and vegetables etc.; beverages and tobacco; hides and skins, simply worked woods, pulp, fibres, fixed vegetable oils and fats etc. and petroleum products. By including all of these processed products in the definition of manufactures, as is the case in measuring the gross output of manufacturing production (ISIC division 2—3), the export manufactures of developing countries in 1960—1964 amounted to $ 13 billion (in 1958 prices), or more than 40 per cent of their total exports. The conventional measure of exports of manufactures (SITC 5—8) from developing countries for the first half of the 1960's was only about $ 4 billion (in 1958 prices), an amount not far from an estimate of the value-added contribution of the manufacturing sector in its $ 13 billion of exports (ISIC 2—3) and equivalent to about one eigth of total exports.

The 8 per cent annual rate of expansion of manufactured exports was based on the $ 4 billion SITC estimate. The growth rate based on the $ 13 billion (ISIC 2—3) measure was about 5.5 per cent, as shown in table 42. This difference in growth rates is due to the slower over-all rate of export growth of primary products subjected to some light processing. This suggests that, to some extent, the greater growth of heavy industry in relation to light industry in all manufacturing was experienced also in the export sector.

The above-indicated dimensions of manufactured export activity may be briefly assessed in relation to such variables as total manufacturing activity in developing and in developed economies and imports of manufactures into developing economies. The relative importance of manufactured exports from developing countries may be considered to have remained small. Employing the much broader definition, manufactured exports (ISIC 2—3) in 1960—1964 to countries outside the developing regions i.e. to their principal markets, accounted for about one tenth to one eighth of the total of manufacturing in developing countries. This pattern shows little change from that of 1955—1959 (see table 43). Further, in the early 1960's, despite a slight relative improvement over the situation of the late 1950's, these same exports of manufactures from developing countries to countries outside their regions

were probably less than 2 per cent of the total manufacturing in the developed market economies and therefore still less as regards manufacturing in all developed countries. Finally, from the point of view of balance of payments, despite the fact that the developing countries during 1955 to 1964 increased their rate of export growth substantially more than their rate of import growth in their international trade in manufactures

TABLE 43. EXPORTS AND PRODUCTION OF MANUFACTURES AND OF PRIMARY PRODUCTS IN DEVELOPING AND DEVELOPED COUNTRIES, 1955–1964

Average annual rate of growth between 1955–1959 and 1960–1964	*Developing countries, total*	*Developed market economies, total*
Quantum of exports to outside region		
Manufactures	5.9	3.3
Primary products	5.8	6.8
Production in region		
Manufactures	6.6	4.5
Primary products	3.3	3.3
Exports to outside region as percentage of production in region		
Manufactures		
1955–1959	11.7	3.7
1960–1964	11.3	3.5
Primary products		
1955–1959	14.5	1.0
1960–1964	16.4	1.2

Source: United Nations Industrial Development Organization. For explanation of sources and methods used in the above tentative calculations, see footnotes to table 33.

with countries outside their regions, their average annual incremental revenue, in dollar terms, from increased exports of their own manufactures between 1955–1959 and 1960–1964 remained considerably smaller than their incremental expenditure on increased imports of manufactures.

The nature of the recent growth of manufactured exports from developing countries is another aspect that emerges from the examination of some of its more detailed characteristics. During the ten-year period, 1955–1964, that most limited success of developing countries in expanding their exports of manufactures occurred in the sensitive area of their trade with one another.[19] Regarding their exports of manuactures to the rest of the world (shown in table 42), the rates of expansion of exports

[19] An elaboration of developments in this sector of trade is contained in the next section dealing with regional co-operation among developing countries.

to the relatively minor markets of the centrally planned economies were significantly greater than the over-all averages, but the rates of expansion of exports to the major markets of the developed market economies were close to the over-all average rates. This ranking of relative success in export expansion into regional markets is indicated by annual percentage rates of both of the measures referred to previously. However, the precise measures of relative expansion were influenced by the extent of the earlier (1955—1959) importance and the subsequent relative growth (between the late 1950's and early 1960's) of exports of the more lightly processed goods in each of the markets. Compared with other areas, such exports — for the most part, lightly manufactured items (SITC 0—4) — were particularly important in the flow to centrally planned economies. In contrast to other markets, these exports expanded at a faster rate to centrally planned economies than the exports of the more conventional manufactured exports of SITC sections 5 to 8. Consequently, while in terms of the SITC sections 5 to 8 manufactures, the quantum of exports from developing countries to one another, to developed market economies and to centrally planned economies expanded annually by 7, 8 and 16 per cent respectively, the rates between 1955—1959 and 1960—1964 were 4, 5 and 19 per cent when allowance is made for inclusion of more lightly processed manufactures in SITC sections 0 to 4. Considering the emphasis on the stagnant performance of exports of primary products, it is striking that the expansion of manufactures during the ten-year period generally displayed no greater dynamism. Compared with the pattern of exports of primary products (ISIC 0—1 in table 42), exports of manufactures by developing countries expanded at a significantly faster rate only in their trade with one another. For exports to the rest of the world, the rate of growth of manufactures (ISIC 2—3) between the late 1950's and the early 1960's was not substantially different, in quantum terms, from that of primary products (ISIC 0—1).

In expanding the over-all level of exports of manufactures at an annual rate of 5.5 or 8 per cent — depending on definitions — between 1955—1959 and 1960—1964, developing countries did not increase their share of world trade in manufactures and, in fact, may not have maintained the position reached in the late 1950's (see table 44). World trade in manufactures increased at a rate of 7 or 8 per cent in 1955—1964. The 7 per cent estimate refers to the more broadly defined products (ISIC 2—3) and the 8 per cent estimate refers to the more narrowly defined products (SITC 5—8). Thus, from an average annual level of $ 77 billion (ISIC) or $ 55 billion (SITC) at 1958 prices in the late 1950's, world trade in manufactures reached a level of $ 109 billion or $ 80 billion in the early 1960's. During this period, the increase of exports of manufactures from developing countries from $ 10 billion to $ 13 billion (ISIC), or alternatively from $ 3 billion to $ 4 billion (SITC), implied that the share of developing countries in world trade in manufactures either declined slightly, from 13 to 12 per cent (ISIC),

TABLE 44. WORLD TRADE IN MANUFACTURES, BY ORIGIN AND DESTINATION, 1955 - 1964

(Billion 1958 dollars)

	Exports in terms of SITC categories 2–9 to:				*Exports in terms of SITC, categories 5–8 to:*			
	Developing countries	*Developed market economies*	*Centrally planned economies*	*All areas*[a]	*Developing countries*	*Developed market economies*	*Centrally planned economies*	*All areas*[a]
Developing countries								
1955–1959	2.4	7.1	0.3	9.9	1.0	1.8	—	2.8
1960–1964	3.0	9.2	0.7	12.9	1.4	2.6	0.1	4.1
Developed market economies								
1955–1959	17.4	37.6	1.6	58.6	15.0	28.2	1.3	46.3
1960–1964	19.9	57.1	2.9	81.9	16.9	44.8	2.2	65.6
Centrally planned economies								
1955–1959	0.7	1.4	6.5	8.6	0.5	0.7	4.7	6.0
1960–1964	1.7	2.3	9.5	13.7	1.4	1.2	7.4	10.1
Total								
1955–1959	20.5	46.2	8.4	77.2	16.5	30.6	6.1	55.1
1960–1964	24.6	68.6	13.1	108.5	19.6	48.6	9.7	79.8

Source: United Nations Industrial Development Organization.

For details of sources and methods, see table 38. Please note that calculations shown are tentative.

[a] Including exports which could not be classified under regions shown. These are of significant amount in some instances.

or remained constant at the 5 per cent level (SITC). The developed market economies experienced a greater expansion of imports of these products (however defined) from countries within their own regions and from the centrally planned economies than from the developing countries. In smaller markets, however, the share of developing countries in the trade in manufactures showed some increase between the late 1950's and the early 1960's. The volume of their imports of manufactures from one another expanded more than their imports from developed market economies. Another aspect was that the developing countries constituted the most rapidly expanding source of supply of the centrally planned economies for imports of manufactures. Despite this expansion, the participation of developing countries in the market of the centrally planned economies still remained very small in 1960–1964 in relation to their share in other regional import markets for manufactures. Of the more narrowly defined manufactures (SITC 5–8), the centrally planned economies obtained only 1 per cent of their imports from developing countries (the amount is 5 per cent if the lightly processed manufactures are included). The corresponding figures for the rest of the world were 6 per cent, or 13 per cent, of total imports of manufactured products from developing countries.

The commodity composition of manufactured exports[20] from developing countries (considered in terms of SITC) remains highly concentrated in what are referred to as "other manufactured goods" (see table 45). These are identified primarily by the materials incorporated in the products, such as leather, rubber, wood, paper, textile yarns and fabrics, ferrous and non-ferrous metals and other miscellaneous manufactured products, including fixtures, furniture, clothing and foot-wear, scientific instruments etc. Such manufactures continued to account for about seven eighths of developing countries' exports conventionally regarded as "manufactured" in 1955–1964. This occurred in spite of a greater rate of expansion of exports of chemicals and machinery and transport equipment. The latter expansion was achieved by developing countries through sales to one another and to developed market economies. It did not extend to the centrally planned economies. Nevertheless, in current prices, the average annual dollar increment in the developing countries' total exports of chemicals and machinery etc. between 1955–1959 and 1960–1964 was only one fifth of the annual increase in their dollar earnings from other manufactured goods. This emphasis by developing countries on "other manufactured goods", as against chemicals and machinery and transport equipment, contrasts with the export experience of the centrally planned and the developed market economies. It further reflects the far less complex nature of manufacturing in developing countries.

[20] In the following paragraphs, the term "primary products" refers to products in SITC 0–4 and the term "manufactures" refers to SITC 5–8.

TABLE 45. EXPORTS BY ALL DEVELOPING COUNTRIES, BY MAJOR COMMODITY GROUPS, BY AREA OF DESTINATION, 1955 – 1964

(Billion current dollars, annual average)[a]

	Total[b]	*Food, beverages and tobacco* SITC 0 and 1	*Crude materials excluding fuels; and oils and fats* SITC 2 and 4	*Mineral fuels and related materials* SITC 3	*Chemicals* SITC 5	*Machinery and Chemicals transport equipment* SITC 7	*Other manufactured goods* SITC 6 and 8
Developed market economies							
1955–1959	18.04	6.32	5.31	4.29	0.13	0.04	1.87
1960–1964	21.60	6.56	5.69	6.30	0.19	0.06	2.72
Centrally planned economies							
1955–1959	0.74	0.16	0.53	—	0.02	—	0.04
1960–1964	1.57	0.66	0.79	—	0.01	—	0.09
Total, above[c]							
1955–1959	19.08	6.49	5.85	4.52	0.14	0.04	1.91
1960–1964	23.54	7.25	6.51	6.59	0.21	0.07	2.84
Developing countries							
1955–1959	5.82	1.49	1.01	2.31	0.09	0.10	0.81
1960–1964	6.42	1.60	1.01	2.41	0.15	0.18	1.00
Total, all areas of destination							
1955–1959	24.90	7.99	6.86	6.83	0.23	0.14	2.73
1960–1964	29.96	8.85	7.52	9.00	0.36	0.26	3.85

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations, *Monthly Bulletin of Statistics.*

[a] In a few instances, the rounded data do not adequately reveal the extent of change.

[b] Includes exports of SITC 9 which are not shown separately in the table.

[c] Includes exports to destinations not classifiable under regions shown.

Detailed data are lacking on the commodity composition of the growth of a substantial segment of manufactured exports — primary products lightly processed prior to export. The growth of exports of these products might therefore be inferred from the growth of exports of all primary products, both processed and unprocessed. An assumption that exports of processed primary products grew more rapidly than unprocessed primary products should be considered with caution. Whatever this relationship, the relatively modest growth of all primary products, compared with the growth of conventional manufactures, resulted from limited expansion of all the major commodity groups of primary products. As shown in table 45, however, the rate of export growth of mineral fuels was two or three times greater, on a current price valuation, than that of food, beverage and tobacco products, crude materials, and animal vegetable oils and fats. Most of the increase of exports of mineral fuels from developing countries went to developed market economies. Such exports to the centrally planned economies remained negligible, and the higher level of these exports to countries within the developing regions remained virtually constant. By contrast, the limited growth of exports of food, crude materials etc. was due as much to the increase in value of purchases by centrally planned economies as to the increase in exports to other areas that continue to be larger markets for these products of developing countries.

TABLE 46. UNIT VALUE INDEX NUMBERS OF TRADE IN MANUFACTURES, 1955–1965

(Index numbers, 1958 = 100)

	Exports from underdeveloped areas to:		*Exports from developed areas to:*		
	Developed areas	*Underdeveloped areas*	*Underdeveloped areas*		
	All manufactures		*Chemicals*	*Machinery and transport equipment*	*Other manufactured goods*
	SITC 5–8		*SITC 5*	*SITC 7*	*SITC 6 and 8*
1955	126	105	100	89	95
1956	135	105	102	91	99
1957	115	104	103	96	102
1958	100	100	100	100	100
1959	106	98	96	101	99
1960	111	102	95	103	102
1961	110	102	92	104	102
1962	110	99	89	106	100
1963	112	97	87	106	101
1964	117	99	88	106	104
1965[a]	124	103	89	108	106

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Monthly Bulletin of Statistics*.

[a] Preliminary.

The impact on the foreign exchange earnings of developing countries of the modest general rate of expansion in their quantum of exports of manufactures was influenced adversely by what might be regarded as a surprising price development. While detailed data on price changes of manufactured exports from developing countries as a whole are not available, it appears that the general unit value of exports of manufactures from developing to developed market economies fell by an annual average of about 0.7 per cent between the latter half of the 1950's and the first half of the 1960's (see table 46). Allowing for a significant margin of error, this reduction of export earning power clearly contrasted with the over-all rise in the unit value of manufactures that moved in the opposite direction, i.e. from developed market economies to developing countries. To some extent, this divergence is explained by the different composition of the trade flows of manufactures to and from the developing countries. It will be recalled that prices of imports into developing countries in 1955—1964 rose the highest for machinery and transport equipment and that these products accounted for only a minute proportion of developing countries' export of manufactured to developed market economies. Even with regard to manufactured goods other than chemicals and machinery, the import unit values of developing countries rose while their export unit values fell. This may have resulted from a different internal composition of products within these broad categories. It may be noted also that the degree and pattern of fluctuation in the unit value of developing countries' manufactured exports, which are predominantly "other manufactured goods", were considerably different from the fluctuation in their unit value of such products.

The lack of any dramatic improvement in export expansion of manufactures by developing countries as a whole in the ten-year period is confirmed by tentative estimates of the exports at the individual country level. In a sample of sixteen developing countries shown in table 47, three major groups emerged, fairly evenly divided. In one group, the share of manufacturing production allocated to export increased; in another, the share decreased. A third group exhibited little change in its export ratio between 1955—1956 and 1962—1963. The sharp difference between the role of manufactures for export and for import is shown by the fact that in these sixteen countries, the average contribution of imports of SITC sections 5 to 8 manufactures to the total supply of manufactures (imports plus production) was broadly 20 to 25 per cent,[21] but the export of manufactures similarly defined accounted on the average, unweighted, for less than 5 per cent of the domestic production of manufactures. Further, the extent to which individual countries deviated from these averages was greater on the export than on the import side. It should be recalled that the ratio of import to total supply of manufactures ranged from 10 to 50 per cent in these countries in 1962—1963.

[21] This was indicated in table 34 in the previous section.

TABLE 47. EXPORTS AND PRODUCTION OF MANUFACTURES IN SELECTED DEVELOPING COUNTRIES, 1955–1956 AND 1962–1963

(Average annual growth rates and percentages)

	Average annual growth between 1955–1956 and 1962–1963		*Exports as percentage of production*	
	Exports	*Production*	*1955–1956*	*1962–1963*
Chile	1	3	20	19
China (Taiwan)	48	10	2	13
Peru	13	7	7	10
India	3	4	4	4
Pakistan	20	7	3	4
Honduras	18	6	2	3
Ceylon	−3	5	5	3
Mexico	−5	7	6	2
Korea, Rep. of	45	7	0.3	2
Philippines	19	7	0.6	1
Uruguay	20	—	0.3	1
Burma	−4	14	3	1
Venezuela	3	7	1	1
Colombia	6	6	0.8	0.8
Argentina	5	3	0.6	0.7
Panama	−29	13	14	0.5

Source: United Nations Industrial Development Organization. See notes to tables 33 and 34.

By contrast, the proportion of domestic production of manufactures that was exported ranged from virtually nothing to about 20 per cent. It should be recognized that there are serious problems of concept and methodology in measuring the export ratio of manufactures as shown. Only in three countries, out of sixteen in the sample, did export markets absorb more than 5 per cent of the domestic manufacturing production by the early 1960's – striking evidence of how little has been achieved thus far in their export of manufactures. Chile, China (Taiwan) and Peru were the exceptional cases.

Changes in the role of export activity in relation to manufacturing production between 1955–1956 and 1962–1963 were often sharp, in one case showing a rise from 2 to 13 per cent in a seven-year period and in another case a fall from above 14 per cent to virtually nothing. While the general pattern of change in the ratio of exports to production of manufactures is blurred, there seems to be a trend that while developing countries with a low initial export ratio often tended to increase the role of their exports, countries which at first had a relatively high manufacturing export ratio tended to experience a subsequent reduction in the role of manufacturing exports. A broad rationalization for such a pattern should perhaps be avoided at present, in view of the restricted sample. However, it may be noted that in a number of countries where the manufacturing export ratio fell between 1955–1956 and 1962–1963,

per year, but the fall in prices of chemical imports exceeded 2 per cent. An elastic response of demand to prices, therefore, would have facilitated current industrial output but would have imposed a handicap on domestic investment for growth of such output.

Detailed information on price developments is not readily available for flows of trade of all products and from all sources, but it is likely that when, in addition to developing countries' total imports from developed market economies, allowance is made for their imports from one another and from centrally planned economies, unit prices increased about 0.2 per cent per year in contrast to an annual rise in their quantum of imports of about 3.5 per year in 1955—1964.

Developing countries spent some $ 31 billion a year on imports of all commodities in the first half of the 1960's, an increase of about 3.7 per cent a year from the 1955—1959 level or some $ 950 million a year in current values. In so doing, developing countries shifted their regional sources of supply somewhat towards the centrally planned economies, from a very small initial base, and reduced the importance of purchases from countries in their own region. Thus in the late 1950's, the percentage distribution of developing countries' import supplies from the developed market economies, from the centrally planned economies (including mainland China) and from other developing countries had been 73.7, 3.5 and 22.8 per cent, respectively. The pattern of reliance by the early 1960's was 72.4, 6.7 and 20.9 per cent, respectively. (See tables 36 and 37.)

In increasing imports from the centrally planned economies — a tendency associated with increased recourse to bilateral agreements which resulted in an annual growth rate of trade of 15 to 20 per cent during 1955 to 1964 — emphasis was placed on the purchase of machinery and transport equipment. The value of these supplies by 1965 had moved rapidly towards the $ 1 billion level, a ninefold increase over 1955, and it is now equivalent to one tenth of the value of developing countries' purchases of such capital goods from the developed market economies. The growth of imports of other mainly-manufactured products from the centrally planned economies was also substantial, though less growth took place in purchases of food and crude materials.

Although the annual growth of total expenditures on imports of developing countries from countries in their own regions was limited to 2 per cent in 1955—1964 (current values), the changes in import patterns exhibited some broad similarities with the changes in the patterns of imports from the centrally planned economies (indicated above). The annual rate of growth of imports of machinery and transport equipment, while still a very small part of the value of the intra-trade of developing countries, was 10 to 15 per cent *per annum*, and by 1965 its value

there was an absolute decline in the volume of manufactures during this period. An absolute decline in the level of exports in these sample countries was more frequent, in fact, than in their primary products. This may indicate the rather high degree of risk for some developing countries in attempting to increase exports of manufactures.

Structure of exports of manufactures to developed market economies

Attention will now be directed to the structural features of manufactured exports in 1963 and to the possibilities for future export expansion of such products. In this examination, the definition of manufactures in terms of ISIC divisions 2 to 3 is used. First, the source and destination of manufactured exports from developing countries will be considered. The basic fact is that, even with this broader definition of manufactures which includes lightly processed primary products, developing countries played a very limited role in world exports of manufactures. In the largest of the world's import markets — the developed market economies (excluding the Republic of South Africa[22]) — developing countries as a whole accounted in 1963 for less than one seventh of the import requirements for manufactures, including lightly processed primary products, of the developed market economies, i.e. for $ 10 billion of the total of $ 75 billion (see table 48). This may be compared with the much greater role of developing countries in meeting import requirements of the developed market economies for non-manufactured products; in these categories, the developed market economies relied on the developing countries for almost half of their import needs. Given the still more limited level of exports of manufactures from the centrally planned economies to the developed market economies, the major sources of competition to the developing countries for the markets of developed market economies were other countries within the developed market group.

In penetrating the manufactures import markets of the developed market economies, developing countries have achieved much greater success in light than in heavy manufactures. Thus in 1963, while the developing countries supplied more than $ 2 out of every $ 10 worth of light manufactures imported into this major market, they accounted for well below $ 1 of every $ 10 worth of imports of heavy manufactures.

Within the developing world the major source of supply of manufactures exported to the developed market economies was Latin America. It supplemented an export flow of light manufactures — more or less

[22] The following examination of the structure of exports from developing countries is limited to their exports to developed market economies (excluding South Africa). The data examined refer to partner country data, i.e. the imports of developed market economies from developing countries. This was necessitated by the limitations of readily comparable data reported by the developing countries.

TABLE 48. EXPORTS OF MANUFACTURES AND OTHER PRODUCTS FROM DEVELOPING AND OTHER REGIONS TO DEVELOPED MARKET ECONOMIES, BY MAJOR GROUPS, 1963

(Million dollars)

	Developing regions				Developed market economies	Other (including centrally planned economies)	All regions
	Total*	Africa	Asia	Latin America			
Food, beverages and tobacco (ISIC 20–22)	3,889	913	1,017	1,924	7,155	502	11,546
Textiles (ISIC 23)	1,572	389	757	427	4,710	165	6,447
Clothing etc. (ISIC 24)	307	10	282	14	1,369	46	1,722
Wood products etc. (ISIC 25–26)	260	73	127	60	2,146	329	2,735
Paper etc. (ISIC 27)	14	11	2	2	3,324	38	3,375
Printing etc. (ISIC 28)	10	3	2	5	623	9	642
Leather products etc. (ISIC 29)	87	8	64	14	458	30	576
Rubber products etc. (ISIC 30)	28	6	21	1	614	10	652
Chemicals etc. (ISIC 31–32)	2,491	661	244	1,574	8,399	585	11,475
Non-metallic mineral products etc. (ISIC 33)	48	10	16	22	1,351	72	1,470
Basic metals (ISIC 34)	1,248	482	206	537	6,902	422	8,572
Metal Products (ISIC 35–38)	169	60	65	44	21,210	378	21,756
Other manufactures (ISIC 39)	212	75	119	18	3.410	82	3,704
Total manufactures (ISIC 2–3)	10,336	2,700	2,922	4,642	61,670	2,668	74,674
Light manufactures	6,366	1,476	2,389	2,463	20,485	1,174	28,025
Heavy manufactures	3,970	1,224	533	2,179	41,185	1,494	46,649
Non-manufactures (ISIC 0–1, 4–9)	15,132	7,709	2,437	4,937	14,288	2,271	31,692
Total, above	25,468	10,409	5,359	9,579	75,958	4,940	106,366

Source: United Nations Industrial Development Organization. See table 38 for basic note.

* Total for developing regions includes some export trade which was not allocated by regions shown in table.

equivalent in value to that from Asia by a flow of heavy manufactures of almost the same amount. As shown in table 48, total manufactured exports from developing Africa were slightly less in value than those of developing Asia, but, like Latin America, Africa nearly balanced the exports of light and of heavy products in 1963. The relative deficiency of Asia in mineral resources for input into heavy manufactures was indicated previously.

As might be expected, individual import markets within developed market economies have provided differing opportunities to developing countries. Japan, the United Kingdom and the United States, which together accounted for three fifths of the developed market economies' imports of manufactures from developing countries, provided relatively greater opportunities for the latter countries than did continental western Europe, including the European Economic Community. Thus, as shown in table 49, while the three countries obtained one quarter of their imports of manufactures (broadly defined) from developing countries, the latter group of countries and also the group of countries comprising Australia, New Zealand and Canada purchased less than one tenth from developing countries.

Leaving aside these differences in magnitudes, both of exports by individual developing regions to the developed market economies as a whole and of imports by individual country groups in the developed market economies from developing countries as a whole, it is noteworthy that there was no random distribution of trade between the individual developing regions which exported manufactures and the individual country groups in the developed market economies which imported these manufactures. Japan, for instance, in its purchase of manufactures from developing countries, placed special emphasis on its relations with neighbouring countries in developing Asia. In these imports from developing countries, the strongest links of the United States were with Latin America, but there was a significant link with developing Asia. Continental western Europe placed the most emphasis on purchases from Africa, and secondly on imports from Latin America. Purchases by the United Kingdom were somewhat more evenly spread among the three developing regions. While this pattern of trading relationships was somewhat similar to that of primary products, it should be noted that the pattern tended to be less pronounced for manufactured products. A possible suggestion, requiring further analysis, is that geographical, historical and commercial influences on the trade pattern may be less decisive in manufactures than in primary products. This might be regarded as a favourable omen for future export expansion of manufactures from developing countries.

As for commodity composition, very few sectors of manufacturing thus far have contributed significantly to the total exports of broadly defined manufactures from developing countries to developed market

TABLE 49. EXPORTS OF TOTAL MANUFACTURES AND OTHER PRODUCTS TO DEVELOPED MARKET ECONOMIES, BY ORIGIN AND DESTINATION, 1963

(Million dollars)

	Exports to:						
	All developed market economies	*United States*	*United Kingdom*	*European economic community*	*Other western Europe*	*Japan*	*Australia New Zealand and Canada*
Manufactures (ISIC 2—3)							
Developing regions	10,336	2,969	2,254	2,770	976	789	578
Africa	2,700	209	692	1,203	329	152	115
Asia	2,922	951	697	423	191	370	271
Latin America	4,642	1,809	824	1,120	454	247	188
Other regions	64,338	8,632	7,054	24,266	15,103	2,211	7,073
All regions	74,674	11,601	9,308	27,036	16,079	3,000	7,651
Non-manufactures (ISIC 0—1 and 4—9)							
Developing regions	15,132	3,192	2,082	5,846	1,331	1,903	778
Africa	7,709	613	1,335	4,067	707	738	249
Asia	2,437	423	329	474	199	848	165
Latin America	4,937	2,156	398	1,291	425	317	350
Other regions	16,560	2,221	2,139	7,323	2,147	1,833	896
All regions	31,692	5,413	4,221	13,169	3,478	3,736	1,674
Total (ISIC 0—9)							
Developing regions	25,468	6,161	4,336	8,616	2,307	2,692	1,356
Africa	10,409	822	2,026	5,270	1,036	890	365
Asia	5,359	1,374	1,026	896	389	1,238	436
Latin America	9,579	3,964	1,223	2,411	879	564	538
Other regions	80,898	10,853	9,193	31,589	17,250	4,044	7,969
All regions	106,366	17,014	13,529	40,205	19,557	6,736	9,325

Source: United Nations Industrial Development Organization.

See footnotes to tables 38 and 48.

economies (see table 48). In terms of gross values of exports of major groups of manufactures (ISIC 2 – 3) to the developed market economies, export of food, beverages and tobacco accounted for between one third and two fifths of the broadly defined manufactures from developing countries in 1963. A quarter of the total value of exports of manufactures to developed market economies was derived from chemicals and petroleum products, and the bulk of remaining exports were from only two sectors, textiles and basic metals. Thus far, the exports of paper products, printing, leather products, rubber products and non-metallic mineral products from developing countries have been negligible as have the exports of clothing, wood products and metal products. As some of these products did not figure prominently in the pattern of imports of manufactures from all sources into the developed market economies, the main difference between the pattern of supplies from developing countries and the intra-trade of developed market economies was that food, textile and chemical exports were of greater relative importance, and paper and metal products were substantially under-represented in the manufactures exports of developing countries. This general commodity pattern of manufactures exports to the developed market economies differed in the individual developing regions: Africa's exports emphasized the category of base metals, and Latin America's exports emphasized the category of chemicals and petroleum products and also food, beverages and tobacco products. The relative emphases in Asia's exports to developed market economies were on textile and clothing items.

It is noteworthy that such exports have not been dominated by products which are labour-intensive at the manufacturing stage. If the measure of a labour-intensive sector is the ratio of employment to value added by the sector, then the food manufacturing sector, for example, is not labour-intensive in relation to other manufacturing sectors; still, the gross value of manufactured food products represented a major part of the exports of developing countries. The ranking of manufacturing sectors by the degree of their labour intensity is probably fairly similar in the various developing regions. The more labour-intensive manufacturing sectors generally are the clothing, textile and wood products sectors, in that order. The manufacturing sectors of average labour intensity are metal products, non-metallic mineral products and food products. Finally, the least labour-intensive sectors tend to be related to basic metals, paper and paper products, and chemicals and petroleum products. This grouping, and the order within groups, which probably reflects the current situation in developing countries, is rather similar to that in developed market economies except that the rankings of the food and paper products sectors should possibly be reversed.

The fact that the manufactured food sector has average or below-average labour intensity may seem surprising. On the one hand, most exports of manufactured food have probably come from the larger

TABLE 59. EXPORTS OF SELECTED MAJOR GROUPS OF MANUFACTURES TO DEVELOPED MARKET ECONOMIES, BY ORIGIN AND DESTINATION, 1963 *(Billion dollars)*

	Exports to:						
	All developed market economies	*United States*	*United Kingdom*	*European economic community*	*Other western Europe*	*Japan*	*Australia, New Zealand and Canada*
Food, beverages and tobacco (ISIC 20–22)							
Developing regions	3.89	0.98	0.98	1.10	0.36	0.30	0.17
Africa	0.91	0.06	0.25	0.48	0.08	0.01	0.02
Asia	1.02	0.29	0.26	0.12	0.06	0.23	0.06
Latin America	1.92	0.63	0.44	0.50	0.22	0.06	0.08
Other regions	7.66	1.17	2.12	2.55	1.08	0.34	0.40
All regions	11.55	2.15	3.09	3.65	1.44	0.64	0.57
Textiles (ISIC 23)							
Developing regions	1.57	0.38	0.28	0.46	0.17	0.19	0.10
Africa	0.39	0.04	0.06	0.17	0.08	0.02	0.02
Asia	0.76	0.26	0.19	0.12	0.05	0.06	0.07
Latin America	0.43	0.08	0.03	0.16	0.03	0.11	0.01
Other regions	4.88	0.58	0.44	2.08	1.09	0.15	0.53
All regions	6.45	0.96	0.71	2.54	1.26	0.34	0.63

Chemicals (ISIC 31—32)							
Developing regions . .	2.49	0.88	0.43	0.53	0.28	0.15	0.22
Africa	0.66	0.03	0.14	0.23	0.11	0.08	0.07
Asia	0.24	0.05	0.05	0.03	0.02	0.03	0.06
Latin America . . .	1.57	0.80	0.23	0.26	0.15	0.03	0.10
Other regions.	8.98	0.57	0.87	3.31	2.89	0.51	0.83
All regions	11.48	1.46	1.29	3.84	3.17	0.66	1.05
Basic metals (ISIC 34)							
Developing regions . .	1.25	0.35	0.27	0.44	0.08	0.09	0.02
Africa	0.48	0.03	0.17	0.22	0.03	0.03	—
Asia	0.21	0.09	0.01	0.04	0.01	0.04	0.01
Latin America . . .	0.54	0.22	0.10	0.16	0.04	0.02	—
Other regions.	7.32	1.24	0.66	3.22	1.58	0.15	0.47
All regions	8.57	1.59	0.94	3.66	1.66	0.24	0.49

Source: United Nations Industrial Development Organization.
See footnotes for tables 38 and 48.

manufacturing establishments rather than from small producing units. The latter, being excluded from many censuses of manufacturing, have not been taken into account when the rankings of labour itensity were drawn up. The exclusion of smaller establishments, which can be assumed to be much more labour-intensive than the larger ones, is particularly important for the manufactured food sector. On the other hand, manufacture of some tobacco and beverage products, as well as of canned foods, milled sugar etc. is often carried out by fairly automatic processes not requiring much labour. Incorporation of substantial inputs of primary foodstuff that are labour-intensive and are often unavailable in developed market economies accounts in part for the large gross value of manufactured food exports (as broadly defined) from developing countries. As for the gross value of exports of chemicals and petroleum products and basic metals from developing countries, these are obvious examples of substantial manufactures exports that are not based on the use of the abundant labour supply in developing countries. Instead, these exports are based on the endowment of specific natural resources and, normally, on the employment of substantial capital. Thus, of the four major commodity categories of manufactures exports from developing countries, only the textile sector is clearly labour-intensive.[38] In the case of metal products and paper and paper products, the role of developing countries in world export trade is particularly small; while the metal products sector is more labour-intensive than the manufactured food sector, the paper and paper products sector is more capital-intensive.

The principal trading links with respect to each of the four major categories of manufactures exports from developing countries in 1963 will now be discussed briefly. To the extent that aggregate data permit, it should be noted that developing countries have had somewhat greater success in penetrating the import markets of the developed market economies with manufactured food and textiles than with the other major categories, chemicals and basic metals. Thus, in the case of manufactured food and textiles, the share of developing countries in the total imports of developed market economies in 1963 was 34 and 24 per cent respectively, and the share for chemicals and basic metals was 22 and 15 per cent respectively (see table 50). In securing these general degrees of market penetration, developing countries were more successful in some countries or groups of countries than in others. In the four major categories of exported manufactures, developing countries consistently achieved relatively greater penetration of the import markets of Japan, the United Kingdom and/or the United States. For example, manufactured foodstuffs from developing countries, mainly outside Africa, ac-

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[38] A more detailed analysis of this subject has been made by Hal B. Lary (1966) "Trade of the LDC's: Manufactures Point the Way", *Columbia Journal of World Business*, 1 (3).

counted for about one half of the import requirements in this category of Japan and the United States. At the other end of the scale of relative penetration were the more limited markets for manufactured food in continental western Europe other than the European Economic Community and also in Australia, New Zealand and Canada. These countries drew little more than one quarter of their import requirements in this category from developing countries. As for textiles, developing countries also penetrated to a greater degree not only Japanese and the United States markets but also the market of the United Kingdom. Developing countries supplied more than two fifths of the textile import requirements of these three countries, mainly as a result of the effort of countries in developing Asia. The pattern of penetration of developed market economies differed in the case of chemicals and petroleum products by being most successful in the markets of the United Kingdom and the United States, which drew about one half of their import requirements in this category from developing countries. While the exports of Latin America were primarily responsible for penetrating the United States market, such products from Africa were also a significant contributing factor in the above-average dependance of the United Kingdom on supplies from developing countries. In addition, developing countries secured a much larger proportion, about one quarter, of the total import requirements for basic metals of Japan, the United Kingdom and the United States than of other developed market economies. This analysis of the recent structure of trade in manufactured commodities does not imply that the potential for future expansion by developing countries rests mainly in the group of developed market economies that has drawn more imports from countries other than those in the developing regions.

At the present stage of industrialization, exports of manufactures of individual developing countries still apparently share with their primary products the characteristic of pronounced concentration. According to a sample of six developing countries (shown in table 51), in which manufactures were tentatively classified into thirteen major groups or subsectors of the total manufacturing sector (ISIC 2 - 3), the value of exports of products from only two of the groups never accounted for less than three fifths of the value of their total manufactures exports. In one country, products from two of the major groups of industry accounted for virtually all of the present export of manufactures. In each of these countries, manufactured foodstuffs constituted one of the two dominant groups. Textiles became the other dominant group in Colombia and India; in Nigeria and the Philippines, this position was held by chemicals and petroleum products; and in Chile and Peru, the basic metals sector was the other dominant group. Although exports of manufactured foodstuffs were significant in all of the sample countries, the degree of importance varied widely, from about 5 per cent for Chile to above 60 per cent for Colombia.

This appearance of limited or concentrated opportunities for the

TABLE 51. EXPORTS OF MANUFACTURES AND OTHER PRODUCTS FROM SELECTED DEVELOPING COUNTRIES TO DEVELOPED MARKET ECONOMIES, BY MAJOR GROUPS, 1963

(Percentages of total exports)

	Chile	*Colombia*	*India*	*Nigeria*	*Peru*	*Philippines*
Food, beverages and tobacco (ISIC 20–22)	4	6	25	7	34	28
Textiles (ISIC 23) . . .	—	2	30	2	8	4
Clothing etc. (ISIC 24)	—	—	3	—	—	3
Wood products etc. (ISIC 25–26) . . .	—	1	—	2	—	4
Paper etc. (ISIC 27) . .	—	—	—	—	—	—
Printing etc. (ISIC 28)	—	—	—	—	—	—
Leather products etc. (ISIC 29)	—	—	4	—	—	—
Rubber products etc. (ISIC 30)	—	—	—	—	—	—
Chemicals etc. (ISIC 31–32)	3	1	3	9	2	6
Non-metallic mineral products etc. (ISIC 33)	—	—	1	—	—	—
Basic metals (ISIC 34)	61	—	—	4	17	—
Metal products (ISIC 35–38)	—	—	1	1	—	—
Other manufactures (ISIC 39)	—	—	1	—	—	1
Total manufactures (ISIC 2–3)	68	10	68	25	61	46
Light manufactures . .	4	9	63	12	42	40
Heavy manufactures	64	1	5	13	19	6
Non-manufactures (ISIC 0–1, 4–9)	32	90	32	75	39	54
Total, above	100	100	100	100	100	100
Total, above (million US $)	520	434	1160	513	564	731

Source: United Nations Industrial Development Organization.
See footnotes to tables 38 and 48.

present export of manufactures from individual developing countries may be misleading and may result in understating the general need for promoting such exports. In the specific case of Nigeria (as shown in table 51), more than three fifths of its broadly defined manufactures were accounted for by the products of only two of its major groups; this however involves the activities of a much larger number of manufacturing plants. An illustrative list of processed and manufactured products exported by some African countries, as contained in a GATT

had exceeded the level of $ 250 million. Intra-trade in chemicals had similar structural and growth characteristics, but for the quantitatively more important flow of miscellaneous manufactures, SITC 6 and 8, annual growth was considerably more modest, about 4 per cent. The bulk of intra-trade, however, was limited to commodities with a generally lower content of manufacture, food and crude materials including fuels (SITC 0 to 4), and the average growth rate in these commodity groups did not reach 1 per cent.

The pattern of exports from developed market economies to the developing countries was substantially different from that indicated above. Thus, for example, the growth of the developing countries' imports of machinery and transport equipment from the developed market economies was only 4 per cent a year over the period 1955–1963 — at a time when such imports from other areas expanded sharply. This marked a significant reduction in the previous, virtually total monopoly of the developed market economies of the flow of such capital goods. Although the rates of growth of commodity groups varied, some reduction in the relative import reliance by developing countries on the developed market economies also took place in other sectors such as fuels, the importation of which declined; chemicals, the importation of which increased; and miscellanous manufactures. The smaller volume of trade relating to food and crude materials actually increased the reliance by developing countries on developed market economies. The increased flow of food resulted, in part, from food aid programmes.

Structure of imports of manufactures from developed market economies

Turning from the growth of imports into developing countries to the structure or pattern of imports from their major source of supply — the developed market economies — it may be useful to analyse the question in terms of the ISIC, which is the primary concept used in this survey. A commodity is regarded in ISIC terms as a manufacture if that sector makes the final contribution to its production even though the added value is small in relation to the value added at earlier stages by other sectors. It may be that no more than one half of the gross value of the manufactured imports of developing countries was added in the factories rather than in the farms, mines etc. of supplying countries. Although the relation of net value added to gross value varies not only by commodity but also by country, an import displacement which may directly save developing countries a sum of $ 1 million in foreign exchange may involve direct opportunities and incomes for production factors in their manufacturing sector of perhaps less than one half of that amount. Owing to limitations of data, the analysis below is necessarily in terms of gross value, rather than of value added.

Developed market economies exported some $ 101 billion of

publication, contains ten items of growing importance to Nigeria.[84] While the number of such items is more limited for most of the African countries listed, the present degree of diversification of exports of processed or manufactured products of half a dozen countries in the region is greater than that of Nigeria. The list includes almost fifty items for Algeria. Even if developing countries have only a few categories of such exports, these are better than no categories at all, since they reduce dependence purely on primary products for total export earnings. The introduction of manufactured products creates a potential for increased stability of export earnings since such exports are generally subject to different and sometimes offsetting influences of supply and demand. Minimizing the short-term instability of export earnings is an established goal of developed countries.

Influences for the future of export expansion

While it is customary to urge a dynamic approach in almost every area of economic development, such an approach is particularly important with regard to exports of manufactures of developing countries. The related policies of developing and developed countries and interested international organizations need to be shaped accordingly. It is increasingly realized that export of manufactures should rank as an explicit policy objective in the over-all development and industrial plans of developing countries and that the many responsibilities of governments in planning and implementation in this area should be fully met. One of the most important government responsibilities is to find patterns of comparative advantages in manufacturing, patterns which aim at future progress rather than reflect static situations. The duties of governments of developed countries regarding this aspect of industrialization of developing countries are also inescapable. Identification, reduction or removal of commercial barriers constitute only a part of these duties. While the inherent and substantial comparative advantages of developed countries should be recognized, attention should be focused on many marginal areas in which the substitution of manufactures imports from developing countries for goods produced in developed market economies would represent a reasonable economic step. The apparently onerous task of governments of developed countries in facilitating a shift of domestic labour and capital resources to industries of greater comparative advantage should be considered in the light of the fact that, within a given period of time, the value of the increment of their domestic manufacturing output alone is generally several times greater than the possible expansion of manufactures from developing countries if their supply limitations are considered. International organizations such as UNIDO, UNCTAD and the Contracting Parties to GATT have also decided

[84] GATT (1966) "Selected Exports of Processed Products from Some African Countries", *International Trade Forum*, 2 (3), 24–25.

on substantial complementary measures. There is need not only to search for future comparative advantages by a country by country and commodity by commodity approach, but to develop a consistent and comprehensive approach.

A partial checklist of matters for consideration by developing countries in expanding their manufactures exports might start with the categorical necessity for production at competitive prices, on the basis of international quality standards, and with a dependable flow of supplies. Considering the minuscule proportion of developing countries' exports in the world consumption of manufactures, the need to avoid radical changes in the shares of the world market is, in general, a less important consideration. Granted the validity of other policies in specific situations, it may be broadly stated that manufactured exports should be identified with the use of locally abundant factors of production. Even the present limited information indicates the possibility in many developing countries of substantial exploitable natural resources. The exploitation of such resources could result in a range of exports from textiles to forest and paper products, petrochemicals etc. by only one such country. However, there is danger of automatically equating the existence of natural resources in a developing country with the possibility of their economic exploitation; this equation often arises from underestimating the required infrastructure, particularly transportation links. Some of the international institutions interested in the finance of development are acutely aware of this problem. But high internal transportation costs, for instance, are less prohibitive when domestic value is added, prior to export, not only in the primary sector but also in manufacturing.

While industries manufacturing for export have long been urged to use abundant unskilled labour and pools of labour with special technical skills, only recently has attention been focused on the similar employment of unutilized capacity of manufacturing plants. Insufficient utilization, resulting from a lack of raw materials, from building a plant ahead of demand, from inadequate management etc., appears not to be uncommon in developing countries. Studies of the potential contribution to the export of manufactures of the use of under-utilized capacity in some Latin American countries have produced particularly encouraging results even though they are tentative. On various assumptions, including the comprehensive use of policy instruments to stimulate manufactures exports, one interpretation of the studies in three of the larger countries in the region is that their total export of manufactures could be increased above their recent maximum levels by no less than 15 to 20 per cent annually over the next five years. Another indication is that the increase could be greater for heavy than for light manufactures so that within five years the exports of heavy manufactures of these three countries could approach equality in value with light manufactures. There are, of course, individual country variations in specific industrial sectors

regarding the potential of capacity which is at present under-utilized. In one country, a greater potential exists in the various mineral products industries and in the complex of printing, publishing leather, and rubber products industries; in a second country, there is greater promise in industries producing paper and paper products, metal products and wood products and furniture; and in the third country, under-utilized capacity is greatest in textiles but also significant in metals and chemical and petroleum products.

Among other influences to be considered in identifying specific manufactures for export potentialities, the relation has already been cited between export-oriented industries and those geared to import substitution or otherwise directed mainly to domestic markets. Whatever the initial reasons for creating a specific industry in a developing country, there should be a continuing assessment of the conditions under which internal and external markets could be mutually served. There is no clear way by which an internally oriented industry can automatically expand into foreign markets; such an industry may be unable to compete on price, quality etc. This lack of a generally valid assumption also holds when considering the implications of the size of a developing country. For example, the initial difficulty of amassing the investment funds required for large plants and for operating at the most efficient scales of output is more likely to restrict the possible range of export-oriented industries in the small than in larger developing countries. When the different interests of individual countries are taken into consideration, exclusive attention to the expansion of manufactures exports on the basis of processed products incorporating substantial supplies of domestic natural resources can be injurious in particular situations. For instance, an important social aim may be served by the establishment of a local capital goods sector in which its economic viability may be assured by fostering a regional export market. On the other hand, it is generally valid to caution against attempts to diversify manufactured exports to a degree which exceeds the capability of developing countries at the present stage of industrialization.

In view of the above, it may be too early to generalize about changes in the commodity composition of manufactures export likely to emerge from developing countries as a whole in the near future. Various lists of products of export interest to developing countries have been compiled by international organizations in recent years, but a provisional attempt at analysis in terms of future trading patterns has yielded no clear conclusions. The most that can be suggested on the basis of these lists is that there is no strong evidence that the future commodity pattern of manufactures exports will be a simple projection of present export efforts. It may be that in the future developing countries themselves will find less interest in the two categories of export manufactures which now dominate, i.e. manufactured foodstuffs and chemicals and petro-

leum products, or that the developed countries will have less demand for such imports. The value of some lists of items of export interest would appear questionable when the response of developing countries to such inquiries is highly restricted and is not based on a careful assessment of the real interest in the export of a specific product.

In considering influences that will affect future exports of manufactures from developing countries, indentification of commodities to export is only one aspect. Another is the implementation of policies aimed at facilitating export expansion of manufactures. Success in this effort will depend substantially on the degree of stimulation provided by governments of developing countries to overcome many formidable difficulties. The governing motivation should be to maximize national economic benefit, and not to regard the expansion of manufactured exports as a fetish. The former motivation should be the basis on which individual developing countries should determine the nature of export-oriented industries and the extent to which they are to be granted the status of infant or pioneer industries. While general stimuli may produce a better response from the manufacturing sector in some countries, specific assistance may be a more productive approach in other countries. If the manufacturing production sectors are under public control, implementation of plans may be facilitated. In cases where industries are controlled by a limited number of private producers, governmental guidance may also be somewhat eased.

Measures to ensure an adequate flow of resources to export industries often include assistance in improving the needed manpower skills. This can be done by selective expansion of the existing network of vocational schools and similar institutions, as well as by adequate facilities for training managerial staff. In stimulating the flow of capital to export-oriented industries, it should be recognized that, in some cases, the providers of capital from developed countries may regard it as inappropriate or undesirable to allocate financial assistance specifically to export-oriented industries in developing countries. However, where an option for precise allocation of foreign finance exists, sympathetic consideration of such industries should be advocated. Governments of developing countries also have an opportunity to facilitate the flow of scarce domestic finance to export industries by establishing for them lower interest rates than otherwise prevail. Such funds at low interest may be applied to finance all stages of production and sale of manufactures exports. To facilitate matters further, governments may extend, and often have extended, priority in securing raw materials and fuel for manufacturers of export goods and, if the freight cost is high for transportation of goods to ports. Enforcement of quality standards has been attempted through the power of the government to prohibit or restrict exports of items not conforming to standards prescribed by manufacturers' associations, technical institutes or governmental bodies. Another responsibility of the government — often an essential task — is to facilitate the marketing of exports by

establishing a network of trade commissioners or by collecting information on foreign market opportunities through other means; by fostering trade missions to explore new markets or to expand existing markets; by participating with private manufacturers in trade fairs at home and abroad; or by encouraging publicity campaigns for manufactured export products.

Implementation of the expansion of the level of manufactures exports is unlikely to succeed without a system of fiscal and associated incentives, the precise nature of which will depend on the quality of the over-all fiscal system in a developing country. In addition to tax incentives provided to assist general industrialization, specific help to export industries may take the form of some degree of exemption from sales and income taxes on all or selected manufactures exports and reimbursement of taxes paid to local authorities. While the use of the drawback system of import duties on the import content of manufactures exports may significantly increase the opportunity for a more economical choice of all inputs into export products, an additional approach would permit duty-free entry of machinery and equipment destined for export-oriented manufacturing industries.[25] However, the specific value of such incentives depends on their ability to penetrate. Developing countries have an opportunity also to consider the measure of success which has accompanied an associated incentive, export credit insurance. The success of such systems hinges on the appropriate framing of clauses on the eligibility of products to be insured, the types of risk to be covered, the extent to which some risk is retained by the exporter, the credit period, use of premium rates etc. Finally, in this listing of possible ways and means of facilitating export expansion, it should be noted that some developing countries have made use of multiple foreign exchange rates and related exchange systems.

There appears to be little doubt that in the near future a real expansion of manufactures exports from developing countries will hardly be possible without substantial facilitating efforts by developed countries, both market and centrally planned economies, since an expansion of effective demand is no less essential than an increase in supply of manufactures exports. Thus far, however, reports on changes in conditions of access to developed countries' markets for the manufactures exports of developing countries do not indicate remarkable progress in that direction.[26] In developed market economies alone, the gross domestic product by the end of the present decade may well attain a level of 1,250 to 1,500 billion dollars, at 1960 prices. Even the most vigorous expansion of manufactures exports from developing countries would be equivalent in value to perhaps only one per cent of the total expenditure

[25] See *Survey of Export Promotion Techniques* (document ID/CONF.1/13).

[26] The following paragraphs rely, *inter alia*, on part two, "Trade Policy Developments" (document TD/B/82/Add.2), of *Review of the Implementation of the Recommendations of the Conference: Review of International Trade and Development, 1966*, Report by the Secretary-General of UNCTAD (TD/B/82/Add.1–4).

of all developed countries. The maintenance of barriers by developed countries against the manufactures of developing countries may be viewed in the light of this fact.

Although it had been recommended at the 1964 session of the United Nations Conference on Trade and Development (UNCTAD) that there should be a "standstill" on tariff barriers to manufactures exports from developing countries, the first report by the Secretary-General of UNCTAD on implementation of the Conference recommendations noted some deviating actions.[37] With respect to the UNCTAD recommendation on reduction and elimination of tariffs,[38] it was further noted that, up to the time of the implementation report (mid-1966), there had been no major reductions in the tariffs of developed countries in respect of the main manufactures and semi-manufactures of export interest to developing countries. Further, it was reported that, although a majority of developing and developed countries agree on the need for extension of tariff preferences in favour of developing countries, divergent views on implementation persisted. Also persisting in developed countries was a range of quantitative restrictions, licensing requirements and other non-tariff barriers. Despite a number of liberalizing actions with respect to quantitative restrictions, for instance, it was indicated that such restrictions continued to be applied by one or more of the developed market economies in connexion with sixty-three tariff items.

One aspect of the tariff problem regarding manufactured exports from developing countries continues to require special attention. This concerns the fact that tariff rates often increase progressively with the degree of fabrication of a product. Yet, as previously indicated, opportunities for increasing manufactures exports from developing countries rest largely in establishing processing and manufacturing operations based on the raw materials in these countries. The degree of tariff protection against the manufacturing sector of developing countries can be measured by the effective rate of protection of the value added in the manufacturing process. Using this measure, it can be inferred from the UNCTAD report that, in 1962, for a number of manufactured products which contain raw materials largely exported by developing countries, the over-all effective tariff rate in developed market economies was in the range of one third of the value added in processing and manufacturing. (There was a substantial variation from this simple average, by importing country and by commodity.) Undoubtedly, this has contributed to the substantially lower average degree of processing of manufactured exports from developing countries, compared with that of their manufactures imports. While tentative calculations by the UNIDO secretariat indicate that about two thirds of

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[37] *Ibid.*

[38] Recommendation A.III.4 in *Proceedings of the United Nations Conference on Trade and Development*, vol. I, *Final Act and Report* (Sales No: 64.II.B.11), pp. 37–39.

TABLE 52. EXPORTS OF MANUFACTURES AND OTHER PRODUCTS FROM ALL DEVELOPING REGIONS TO DEVELOPED MARKET ECONOMIES, BY MAJOR GROUPS AND STAGE OF PRODUCTION, 1963

	Total broad economic categories		*Stage of production*		
	Million dollars	*per cent*	*Primary per cent*	*Semi-finished per cent*	*Finished per cent*
Food, beverages and tobacco (ISIC 20–22)	3,889	100	57	16	26
Textiles (ISIC 23)	1,572	100	56	30	14
Clothing etc. (ISIC 24)	307	100	—	1	98
Wood products etc. (ISIC 25–26)	260	100	1	91	8
Paper etc. (ISIC 27)	14	100	1	87	12
Printing etc. (ISIC 28)	10	100	2	7	92
Leather products etc. (ISIC 29)	87	100	5	83	11
Rubber products etc. (ISIC 30)	29	100	—	5	95
Chemicals etc. (ISIC 31–32)	2,491	100	1	31	68
Non-metallic mineral products (ISIC 33)	48	100	59	35	6
Basic metals (ISIC 34)	1,248	100	3	97	—
Metal products (ISIC 35–38)	169	100	3	3	94
Other manufactures (ISIC 39)	212	100	43	2	55
Total manufactures (ISIC 2–3)	10,336	100	32	33	35
Light manufactures	6,366	100	50	22	27
Heavy manufactures	3,970	100	2	51	47
Total non-manufactures (ISIC 0–1, 4–9)	15,132	100	98	—	1
Total, above	25,468	100	71	14	15

Source: United Nations Industrial Development Organization.
See footnotes to tables 38, 41 and 48.

the manufactures imports of developing countries were at the finished stage of production (see table 41), about one third of their exports were at a similar stage of production (see table 52). This lower average level of processing was not essentially a reflection of differences in the commodity composition of exports and of imports. Apart from a number of manufacturing sectors, where the export and import degrees of processing were broadly similar, each of the majority of individual manufacturing sectors exhibited a significantly lower degree of processing of export products than that of import products. A broad estimate of the over-all potential gain to developing countries that would result from a higher level of processing of manufactures now lightly processed

might be in the range of $ 2—3 billion in annual additional export value. This is apart from the much greater gain in export earnings of developing countries that might result from processing products now exported without any processing.

At the conclusion of the Kennedy Round of trade negotiations in May 1967, it was too early to evaluate in detail the extent of the gains which developing countries would obtain. In a statement on 15 May 1967 the Director-General of GATT pointed out that the participants in the negotiations recognized that, for developing countries, the immediate implementation of tariff cuts on products of principal or potential export interest to developing countries would be of great value in maximizing the benefits to developing countries of the Kennedy Round of negotiations. It was also stated that in a number of cases, the action taken up to mid-May 1967 "falls short of the expectations of the developing countries". The Secretary-General of UNCTAD expressed the view that this agreement should be accompanied, at a later stage, by the adoption of a policy of free entry into the markets of developed countries for the manufactures and semi-manufactures of the developing countries. Other initial reactions included a suggestion that, although developing countries did not fare too well in the Kennedy Round negotiations, more was obtained by developing countries from this round of tariff talks than from previous efforts to liberalize trade.[39] With attention now strongly focused on the results of these recent tariff negotiations, it would be regrettable if consideration were diverted from the important task of removing non-tariff trade barriers facing the manufactures exports of developing countries.

C. Regional co-operation in manufacturing

The limited success of the effort made by developing countries during 1955—1964 to industrialize owed very little to achievements in regional co-operation. A variety of attempts at regional co-operation have been made, and few have reached the implementation stage. Clearly, attempts to forge areas of industrial co-operation among developing countries must persist, but it is obvious that, since the problems to be overcome are extremely difficult, substantial gains for industrialization from such endeavours are unlikely to emerge in the short run.

Recent growth of regional trade in manufactures

Exports of all commodities from developing countries to one another expanded in the ten-year period. However, as shown in table 44, the expansion of their volume by about 3 per cent a year was well below

[39] See *New York Times*, 16 and 18 May 1967.

the rate of expansion, more than 5 per cent, of their total exports to the developed market and centrally planned economies. While a major cause of this lag is attributable to the lack of dynamism in exports of primary products, the developing countries' exports of manufactured products to one another, whether defined conventionally or broadly, also increased at a slower rate than those to other markets. Thus, while the aggregate volume of exports of manufactures among developing countries in 1955 1964 rose at an average annual rate of 7 per cent, according to the narrower SITC measure, the exports of manufactures from the developing to the developed countries expanded at a rate of about 9 per cent a year.[80] Data in current values (already given in table 45) show that while expansion in trade of manufactures among all developing countries has been quite significant in the sections of "chemicals" and "machinery and equipment", the volume of trade in these sections has been much less than that of the more slowly expanding section of "other manufactured goods".

However, this aggregate view of considering the sum of all of the trade flows between each developing country and all other developing countries possibly conceals encouraging trends more directly to the real concept of regional co-operation among developing countries. A distinction might be made by separating the trade flow within Latin America, within Africa and within Asia from the trade flow between these regions. The latter comprises the import and export trade of Latin America with Africa, Latin America with Asia, and Africa with Asia (including some miscellaneous trade flows). The trade flows within individual developing regions come closer to the current concept of regional co-operation. The current value of trade in manufactures within these developing regions grew almost four times as rapidly (as shown in table 53) as the current value of trade in manufactures between the different developing regions between 1961 and 1965.

Of the three trade flows within regions, the current value of intra-Asian trade in manufactures was the largest, reaching nearly the $ 1 billion level in 1965. However, the modest growth of intra-Asian trade between 1961 and 1965, about 6 per cent a year, contrasted sharply with the growth of trade in manufactures within Africa and within Latin America, where annual growth rates were about 30 and 40 per cent respectively. Promotion of regional co-operation in the Asian region involves particular difficulties, but the value of trade in manufactures within Africa and within Latin America has also remained small. Between 1961 and 1965, intra-African trade in manufactures increased from some $ 50 to some $ 150 million. For the same products (measured throughout this section on the narrower definition of SITC divisions 5 to 8), the growth of intra-Latin American trade was even more rapid,

[80] As measured by ISIC divisions 2 to 3, the respective rates of growth are 4 and 6 per cent (see table 42).

TABLE 53. WORLD TRADE, BY COMMODITY CLASSES AND REGIONS, 1961 AND 1965

	Year	Trade flow	Developing countries					Developed market economies	Centrally planned economies	World
			Total	Latin America	Africa	Asia	Others			
			(million dollars f.o.b.)					(billion dollars f.o.b.)		
Total (SITC 0—9)	1961	Exports	27,680	8,710	5,330	11,930	1,720	90.3	15.7	133.7
		Imports	30,140	8,360	6,480	13,090	2,220	87.2	15.4	133.7
		Intra-trade	6,070	580	290	2,900	2,300	64.4	10.7	133.7
	1965	Exports	36,450	11,100	7,670	15,800	1,880	128.0	21.7	186.1
		Imports	37,480	9,340	8,080	17,280	2,780	126.5	21.1	186.1
		Intra-trade	7,560	1,100	475	3,385	2,600	95.5	13.8	186.1
Manufactures, total (SITC 5—8)	1961	Exports	3,970	828	895	2,185	62	61.1	9.0	74.1
		Imports	19,300	6,190	4,290	7,985	835	44.2	8.8	74.1
		Intra-trade	1,250	78	56	751	365	40.5	6.6	74.1
	1965	Exports	6,350	1,284	1,401	3,491	174	90.0	13.3	109.6
		Imports	24,720	6,820	5,800	10,910	1,190	71.5	12.8	109.6
		Intra-trade	1,850	327	152	955	416	65.4	9.3	109.6
Chemicals (SITC 5)	1961	Exports	325	110	64	130	21	6.9	0.7	8.0
		Imports	2,400	860	450	975	120	4.8	0.7	8.0
		Intra-trade	125	11	13	74	27	4.4	0.4	8.0
	1965	Exports	510	160	90	203	55	10.6	1.1	12.2
		Imports	3,210	1,110	610	1,330	160	7.7	1.3	12.2
		Intra-trade	245	57	23	111	54	7.2	0.7	12.2

TABLE 28. EXPORTS OF MANUFACTURES AND OTHER PRODUCTS TO DEVELOPING AND OTHER REGIONS BY ORIGIN FROM DEVELOPED MARKET ECONOMIES, 1963

(Billion dollars)

	Total	*United States*	*United Kingdom*	*European Economic Community*	*Other Western Europe*	*Japan*	*Australia, New Zealand and Canada*
Manufactures (ISIC 2—3)							
Developing regions . .	19.67	5.87	3.10	5.93	1.53	2.49	0.75
Africa	6.94	0.99	1.36	3.20	0.66	0.56	0.08
Asia	6.28	1.86	1.08	1.06	0.32	1.59	0.37
Latin America . . .	6.42	3.02	0.60	1.61	0.55	0.34	0.30
Other regions	66.29	12.19	7.51	27.96	10.55	2.69	5.39
Total	85.96	18.06	10.61	33.89	12.08	5.18	6.14
Non-manufactures (ISIC 0—1, 4—9)							
Developing regions . .	2.10	1.39	0.11	0.20	0.11	0.06	0.23
Africa	0.59	0.26	0.06	0.14	0.08	0.01	0.04
Asia	0.89	0.67	0.02	0.02	0.01	0.05	0.12

Machinery and transport equipment (SITC 7)	1961	Exports	225	28	21	175	4	26.2	3.8	30.2
		Imports	8,630	3,280	1,760	3,260	340	16.5	3.8	30.2
		Intra-trade	155	11	11	127	6	16.3	2.9	30.2
	1965	Exports	400	64	51	278	8	39.2	6.0	45.7
		Imports	11,440	3,410	2,770	4,820	455	27.7	6.0	45.7
		Intra-trade	275	50	31	177	17	27.3	4.7	45.7
Other manufactured goods (SITC 6 and 8)	1961	Exports	3,420	690	810	1,880	34	28.0	4.5	35.9
		Imports	8,270	2,050	2,080	3,750	400	22.8	4.3	35.9
		Intra-trade	970	56	32	550	332	19.8	3.2	35.9
	1965	Exports	5,440	1,060	1,260	3,010	105	40.1	6.2	51.7
		Imports	10,070	2,300	2,420	4,760	590	36.1	5.5	51.7
		Intra-trade	1,330	220	98	667	345	31.0	4.0	51.7
Mainly primary products, total (SITC 0—4)	1961	Exports	23,510	7,840	4,370	9,635	1,665	27.8	6.6	58.0
		Imports	9,740	1,940	2,005	4,540	1,255	41.0	6.5	58.0
		Intra-trade	4,740	490	224	2,129	1,897	22.0	4.0	58.0
	1965	Exports	29,940	9,780	6,230	12,185	1,715	35.7	8.1	73.6
		Imports	11,650	2,370	2,140	5,675	1,465	53.1	8.2	73.6
		Intra-trade	5,600	755	321	2,390	2,134	28.5	4.4	73.6

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations, *Monthly Bulletin of Statistics*.

Although at minor order it should be noted that the sum of each region in developing countries does not always add to total for all developing countries, nor does the sum of developing, developed and centrally planned economies add to the world totals.

• Items shown as exports and imports refer to total exports and total imports and, as such, both include intra-trade which is then shown separately.

from about $ 80 million to nearly $ 330 million. The combined results of these three intra-regional flows were an annual growth of intra-regional trade in manufactures of about 13 per cent, and a total intra-regional value of trade in manufactures of $ 1.4 billion in 1965. On the other hand, trade in such products between the different developing regions grew at only 3 per cent and by 1965 had attained a level of less than one third of total intra-regional trade. Attention is being given to the possibilities of increasing trade in manufactures between developing regions, for instance, between Africa and Latin America, in addition to the more frequently examined question of trade within each developing region. However, it should be recognized that different considerations are involved in these two types of trade flows. While the changes in the commodity pattern of trade in manufactures within each of the three regions varied substantially, total intra-regional trade increased most in the case of chemicals, less in machinery and transport equipment, and at a still lower rate in the largest group of "other manufactures".

Since an average annual growth rate of 13 per cent for trade in manufactures within the three developing regions appears large in relation to the percentages generally considered in the survey, a note of caution should be added. This rate of growth, while significantly larger than the 9 per cent rate in intra-trade in manufactures of the centrally planned economy region during the same period, was the same as the rate of growth of such trade within developed market economy region. However, the last two regions also contain important sub-regions of trade; trade in manufactures within the European Economic Community grew at the same rate as intra-trade of all developed market economies, but the growth of such intra-trade within eastern Europe and the Soviet Union was faster — about 11.5 per cent — than was reported for the entire group of centrally planned economies.

A further warning against an over-optimistic evaluation of the 13 per cent increase in intra-developing region trade in manufactures is introduced when the resulting levels of this expansion are considered in the light of the total export effort and of the total import requirements for manufactures by the developing regions. As a result of the sharp increase in intra-trade in manufactures of Latin America and Africa, exports of manufactures to countries within the respective regions accounted in 1965 for about one quarter of the total of Latin America's exports of manufactures and one tenth of the total of Africa's exports of manufactures. However, when considered in relation to the levels of the total import requirements for manufactures of the region, the contribution of intra-trade is much smaller, less than 5 per cent in Latin America and less than 3 per cent in Africa in 1965. While all of these shares were higher in 1965 than in 1961, the position was reversed in Asia, where intra-trade in manufactures increased at a somewhat lower rate than total imports and at a much slower rate than total exports. As

a result, Asia's intra-trade in 1965 accounted for one quarter of total exports of manufactures by the countries concerned, and about 9 per cent of Asia's total import requirements. While a change over a four-year period cannot be taken as a trend, it appears that there may have been some closing of the gap between Asia on the one hand, and Africa and Latin America on the other hand, in the role of intra-trade in manufactures.

Within each of the three major developing regions, the intra-trade in primary products (SITC 0–4) was between two and two and one half times as large as the intra-trade in manufactures in 1965. Since in each region the growth of intra-trade in primary products was less than one half the rate of growth of intra-trade in manufactures, the impact of the latter on the over-all increase in the value of intra-trade was relatively modest. Thus, although intra-developing region trade in manufactures grew at 13 per cent per year, the increase in the value of intra-trade in all commodities in the three developing regions was only about 4 per cent.

Current developments in regional co-operation

Among the better known efforts in the developing world to form regional groupings are the Central American Common Market, in which some progress has been made, and the Latin American Free Trade Association, in which a renewed momentum has recently been indicated. Several regional groupings have been under consideration in Africa: for North, East, West, Central and Equatorial Africa. In Asia, Regional Co-operation for Development (RCD), comprising Iran, Pakistan and Turkey, is an example of co-operation on a multi-national basis, and in the Middle East an effort has been made towards the creation of an Arab Common Market.

These attempts at regional co-operation have been made in the hope of achieving a more efficient pattern of economic development arising from greater specialization and division of labour. Indeed, with the emergence of numerous independent developing countries having small populations and incomes at a time when modern technology, particularly in heavy industries, tends to increase the size of the more efficient plants, industrialization may well face insuperable difficulties without regional co-operation. Regional groupings and other forms of co-operation could provide an outlet for industry of developing countries to supplement markets in developed countries and would also permit more efficient programmes of import substitution. Furthermore, successful regional co-operation "feeds upon itself" with resulting attraction of foreign capital, improved technology etc. The forms of co-operation sought by developing countries require varying degrees of involvement. These range from *ad hoc* co-operation in the case of specific projects to trade policy measures, non-conditional commitments, regarding har-

monization of other policies to the co-ordination of investment and/or production programmes, supplemented by measures relating to the exchange of goods concerned and the regional integration of national markets. Whatever the form, however, the history of attempts at regional co-operation among developing countries is full of instances of grave difficulties.

In many instances these difficulties have clearly demonstrated the importance of political and social prerequisites. While the indirect role of developed countries in helping in the formation of regional groupings of developing countries through aid, investment, trade and associated policies has been important on occasion, the success of efforts at regional co-operation depends primarily on the political will of individual developing countries to act. Thus, far, however, particularly in the newly independent countries, priority has often been given to achieving internal political and social stability. Development of harmonious political relations with neighbouring countries is eagerly and universally sought, but its realization cannot easily take precedence over internal political and social efforts. Both in newly independent and in long-established developing regions, political determination to forge regional groupings is not sufficient for their success; in every potential grouping, there are a host of different economic problems to identify and to overcome and, again, no single set of solutions will be universally applicable.

Every step of negotiation and implementation of a programme of regional co-operation requires a rethinking and restructuring of elements of the established order — social, political and economic — of each member country of the group. Therefore, the larger the number of countries engaged in an attempt at co-operation, the more difficult the process of mutual accommodation will probably be. Much will depend on the degree of homogeneity of the underlying economic orientation of member countries. For instance, adjustment might be facilitated if each participating country would undertake to guide its economic development in accordance with a national economic plan which could be amended to conform with the objectives of regional industrial development.

In every endeavour at regional co-operation in the developing areas, it has been necessary to grapple with the problems arising from the different levels of economic and industrial achievement of member countries. In the Latin American Free Trade Association (LAFTA), countries such as Ecuador and Paraguay have been identified as relatively less developed countries. Their *per capita* income level of about $ 200 is one half that of the relatively more developed countries of LAFTA. In the scheme for an East African Common Market, the United Republic of Tanzania and Uganda have levels of economic development below that of Kenya. Within the Central American Common Market, though the range of *per capita* income levels among member countries does not

appear particularly wide, the special industrial and infrastructure problems of Honduras have been identified. It has been suggested that within the region of the Economic Commission for Asia and the Far East (ECAFE), the difficulties of industrial integration are perhaps greater than in other areas because of the wide variation in stages of development between the different countries.[31] Faced with the difficulty of maximizing the economic gains of a region as a whole and, at the same time, with achieving an equitable distribution of the gains, there have sometimes been tendencies for the more developed member countries to consider the advantages of "going it alone" and for the less developed member countries to fear that the lion's share of benefits will go to their partners in co-operation.

This fear, arising from a natural tendency towards polarization of economic and industrial development, has a real basis, but measures to counteract it have not been easy to carry out.[32] As in other international negotiations, such as those relating to producer-consumer commodity agreements, an equitable distribution of gains is not easy to implement since, *inter alia*, its measure is not restricted to economic variables. Assistance to the least developed countries may take the form of giving them the right of first refusal on the choice of regional industries or giving them special help with their small-scale manufacturing industries, other processing industries, sub-contracting arrangements etc. Special aid to these countries may be undertaken by regional development banks, by other international finance institutions and by the more developed member countries. Such aid may extend beyond finance to include the granting of a temporary preferential fiscal status and many kinds of technical assistance. These forms of assistance should not sidetrack the industrial sector of the least developed countries in order to concentrate exclusively on their primary product sector.

Attempts at regional industrial co-operation in developing countries inevitably encounter the problem relating to the determination of regional or integrated industries to be licensed and developed by each member of the group. Several criteria for selection require consideration. On the demand side, it would appear that preference might be given to manufactures that have a relatively high income elasticity so that regional industrial development will be directed towards incremental output rather than towards the more disruptive substitution of present industrial production. Further, manufactures that might figure in export expansion to developed countries might also be encouraged for regional development.

[31] United Nations, Economic Commission for Asia and the Far East (1967) "Report of the Second Session of the Asian Industrial Development Council" (document E/CN. 11/769).

[32] United Nations, Economic Commission for Latin America (1967) "The Economically Relatively Less Developed Countries and Latin American Integration" (document E/CN. 12/774).

On the supply side, there is a real problem of meeting opposition — on the part of relatively inefficient manufacturers with substantial vested interests — to a change from national to regional production. It is likely that many of the industries established under significant national protection in developing countries can survive a breakdown of protection within the co-operating region if there is opportunity for improved organization and administration and if they receive economically justifiable financial assistance. However, it is to be expected that some of the present inefficient plants will be beyond salvage. The dislocations resulting from their demise may represent a potent factor. Where advisable, advantage might be taken of under-utilized productive capacity in certain sectors of manufacturing industry to incorporate these sectors into regional industrialization efforts. Regional groupings that have very little industry and that in effect start with an industrial *tabula rasa* are spared the problem of vested interests, but they face a situation in which few of their choices of regional industries have been subjected to the test of feasibility in the market.

The more important criterion for selection of industries for integration relates generally to economies of scale, which are steadily increasing in importance because of the trend of modern technology towards larger plants. Examples of industries which might benefit more from a wider regional market than from a national market include industries producing construction equipment, automobiles, heavy vehicles, railway equipment, selected chemicals, steel etc. It has been calculated, for instance, that if the demand in Latin America for steel in the next ten years were satisfied in the framework of a regionally integrated market, instead of by national production programmes, a total of $ 3.7 billion in investment capital could be saved and could be used for other investment purposes.[28] However, it should be recalled that large, low-cost plants are increasingly used also for selected manufactured food and textile products. Attempts have been made to find specific industries in which economies of scale are not necessarily of great importance, and these include industries in both the light and heavy sectors of manufacturing. Further, exploitation of advanced technology adapted to the conditions in developing countries can have an important bearing on the choice of integration industries based on the criterion of economies of scale. A further substantial influence in the choice of such industries relates to the opportunity an industry presents for the substantial development of local "backward" and "forward" industrial linkages.

While the selection of an integration industry suitable for a member country of a regional co-operating group should largely reflect comparative cost conditions, the problem of determining future costs will

[28] See "Trade Expansion and Economic Integration among Developing Countries", report by the secretariat of UNCTAD (document TD/B/85), 2 August 1966, p. 9.

seldom be met by simple reference to cost conditions prior to integration. Integration may considerably influence a number of cost elements, including taxes, tariffs and over-all costs resulting from associated revisions of over-valued or under-valued exchange rates. The relative abundance of human and natural resources may be expected to play a more significant role. However, political elements cannot be entirely excluded in the consideration of location.

The nature and extent of general economic conditions and supporting institutions will further affect the degree and character of industrial advance based on the developing countries' efforts at regional co-operation. The restructuring of industrial activity in a system of regional co-operation is likely to involve significant modification of infrastructure, which at present is often geared to national political boundaries, and of the trade channels to developed countries. Such changes constitute a vast undertaking in political and social terms, as well as in economic terms. National policy also must adapt itself to possibly substantial changes in government revenues as customs duties are reduced, and to the need for more or less uniform action among co-operating countries in regard to fiscal incentives to industry and monetary and exchange rate policies. However, repeated experience has shown that negotiation of regional co-operation arrangements that would permit integration will achieve little in the absence of a continuing regional institutional framework and a skilled and appropriately strong secretariat. Such a framework should include regional associations of manufacturers, for example, to publicise and press, where proper, the advantages of regional industrialization over purely national orientation. Generally, domestic and foreign interests concerned only with national orientation are already well represented. To supplement the activities of other agencies, there is often an important need to establish regional industrial research institutes to identify, evaluate and technically prepare those industrial projects that will satisfy the criterion of increasing regional economic welfare. Where possible, an assessment of alternative orientations for specific industrial projects must take account of the interests of private industry, which generally will be charged with the execution of the projects, but the supplementary consideration of increasing regional economic welfare will often require the services of independent research institutions etc. Regional industrial institutes have a role to play also in the provision of technical assistance to build up a qualified labour force.

A potent force in facilitating regional co-operation in industrialization is often the regional development bank. Such banks have been established in the major developing regions but so far, significant involvement in regional industrial expansion has been limited to the activities of the Inter-American Development Bank and the Central American Bank for Economic Integration. The African Development Bank and the Asian Development Bank are of much more recent creation. In

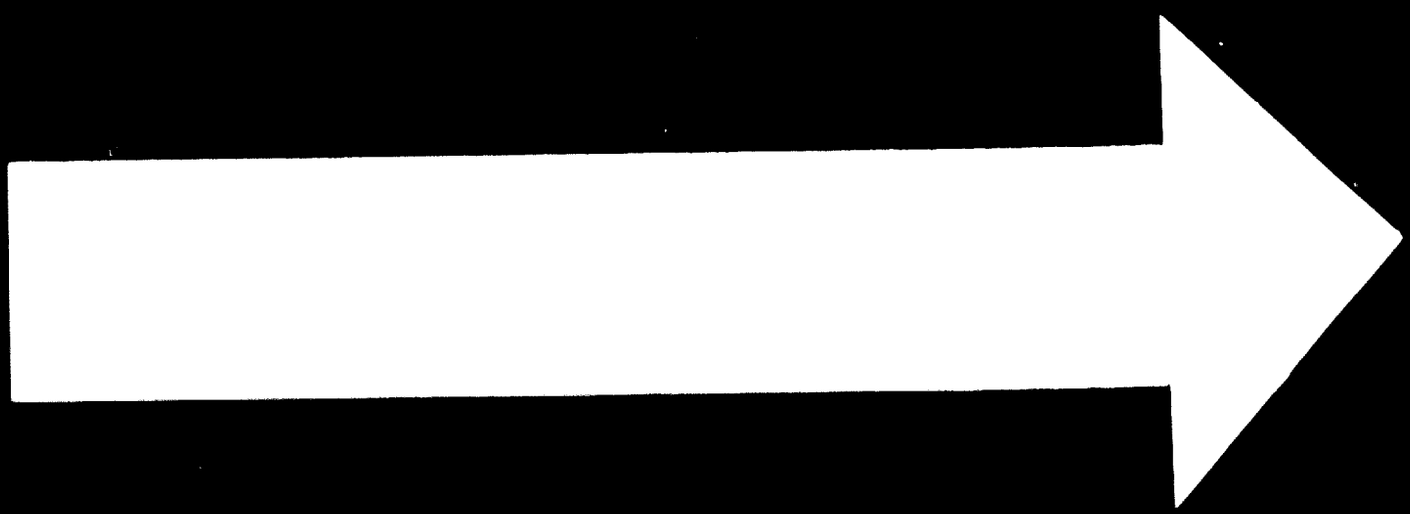
TABLE 54. INTER-AMERICAN DEVELOPMENT BANK, LOANS CLASSIFIED BY FIELDS OF ACTIVITY, UP TO THE END OF 1964

(Million dollars)

	Ordinary capital resources	*Fund for special operations*	*Social progress trust fund*	*Total*
Industry	248	51	—	299
Agriculture	163	66	82	312
Electric power and transport	94	25	—	119
Water supply and sanitation	40	29	141	210
Housing	—	—	197	197
Advanced education	—	—	29	29
Total	545	171	450	1,166

Source: Inter-American Development Bank: Activities, 1961 – 1964, Washington, D.C.

fostering regional co-operation, these banks can draw on the experience of many other institutions, for example, the European Investment Bank which is closely related to the European Economic Community. Among the principles governing the operations of the European Investment Bank are: to contribute to balanced development in the interests of the region; to follow sound financial principles with a public and not a commercial orientation; to avoid the financing of entire projects; to avoid widespread dispersal of its resources; and to facilitate the development of the less developed areas of the region. However, it is recognized that other policies of the European Investment Bank, particularly in permitting industrial projects to account for a very large part of its activities, may not be transferable to the regional banks of developing regions. The latter banks, which have a limited amount of available capital and which operate in a different economic context, cannot ignore the substantial claims of the agricultural and infrastructure sectors or the need to facilitate social progress. While these activities result in indirect gain also for the industrial sector, the need for a more substantial degree of direct participation in and sponsorship of regional industrialization remains highly desirable. As shown in table 54, the Inter-American Development Bank has allocated to manufacturing and mining sectors one quarter of all loans granted from the beginning of its operations (1960) until the end of 1964. Up to mid-1965, more than two thirds of the loans approved by the Central American Bank for Economic Integration since its inception in 1961 were used to finance specific industrial projects (see table 55). The marshalling of extra-regional contributions for industry, the encouragement of private investment in industry, the extension of technical assistance to industry and the financing of intra-regional exports of capital goods are only a few examples of activities by which regional development banks may further facilitate the movement towards regional industrial co-operation.



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Latin America . . .	0.61	0.46	0.02	0.03	0.02	—	0.07
Other regions.	13.24	3.47	0.56	3.27	1.98	0.21	3.74
Total	15.94	4.86	0.68	3.47	2.09	0.27	3.97
All above (ISIC 0—9)							
Developing regions . .	21.77	7.26	3.21	6.13	1.65	2.55	0.98
Africa	7.43	1.24	1.42	3.34	0.74	0.57	0.12
Asia	7.17	2.53	1.11	1.09	0.32	1.63	0.48
Latin America . . .	7.02	3.48	0.62	1.64	0.57	0.35	0.36
Other regions.	79.53	15.66	8.07	31.23	12.53	2.90	9.13
Total	101.31	22.92	11.28	37.36	14.18	5.45	10.11

Source: United Nations Industrial Development Organization.

The estimates by UNIDO Secretariat in this table should be regarded as tentative. With the purpose of effecting a comparison of trade data with production data, an attempt was made to reclassify SITC trade statistics of the developed market economies available at the most detailed level, into the ISIC categories of which ISIC 2–3 relates to manufactured products. This involved making numerous assumptions so that the broad reclassifications suggested in United Nations *Classification of Commodities by Industrial Origin* (Sales No. 66.XVII.7) could be made operational. It should be noted that the total for developing countries is greater than for the three regions shown due to the inclusion of trade flows which were not allocated to the regions shown. Otherwise, details do not always add to totals shown due to rounding. In this and subsequent similarly derived data, developed market economies is defined conventionally except that data for the Republic of South Africa were not available. Subsequent tables wholly or mainly derived by the above indicated reclassifications of the SITC trade data of the developed market economies are tables 39 to 41 and tables 48 to 52. Data in all these tables are partner country data. Thus, tables on imports into developing countries are from exports data of partner countries and tables on exports from developing countries are from import data of partner countries.

TABLE 39. EXPORTS OF SELECTED MAJOR GROUPS OF MANUFACTURES TO DEVELOPING AND OTHER REGIONS, BY ORIGIN, FROM DEVELOPED MARKET ECONOMIES, 1963

(Billion dollars)

	Total	*United States*	*United Kingdom*	*European Economic Community*	*Other Western Europe*	*Japan*	*Australia, New Zealand and Canada*
Food, beverages and tobacco (ISIC 20—22)							
Developing regions . .	1.92	0.74	0.22	0.54	0.14	0.03	0.25
Africa	0.78	0.22	0.10	0.35	0.07	—	0.04
Asia	0.59	0.26	0.06	0.09	0.02	0.03	0.13
Latin America . . .	0.52	0.25	0.04	0.10	0.05	—	0.08
Other regions.	6.92	1.14	0.41	2.08	1.79	0.06	1.44
Total	8.84	1.88	0.63	2.62	1.93	0.09	1.68
Textiles (ISIC 23)							
Developing regions . .	1.42	0.26	0.18	0.36	0.07	0.51	0.04
Africa	0.64	0.03	0.10	0.29	0.05	0.17	—
Asia	0.55	0.14	0.05	0.03	0.01	0.28	0.03
Latin America . . .	0.21	0.09	0.02	0.03	0.01	0.05	0.01
Other regions.	4.91	0.51	0.67	2.52	0.60	0.45	0.16
Total	6.33	0.77	0.85	2.87	0.67	0.96	0.20
Chemicals etc. (ISIC 31—32)							
Developing regions . .	2.89	0.97	0.41	0.98	0.21	0.25	0.07
Africa	0.92	0.13	0.17	0.51	0.09	0.01	0.01
Asia	0.92	0.29	0.15	0.17	0.05	0.22	0.04
Latin America . . .	1.04	0.54	0.08	0.29	0.07	0.02	0.03
Other regions.	8.92	1.82	1.01	4.51	1.04	0.18	0.35
Total	11.81	2.79	1.42	5.49	1.25	0.43	0.42

Basic metals (ISIC 34)							
Developing regions . .	1.68	0.40	0.21	0.55	0.06	0.35	0.12
Africa	0.48	0.03	0.08	0.30	0.02	0.04	0.01
Asia	0.71	0.24	0.07	0.08	0.02	0.25	0.06
Latin America . . .	0.49	0.14	0.05	0.17	0.02	0.06	0.05
Other regions.	6.96	0.56	0.72	3.39	0.95	0.40	0.93
Total	8.64	0.96	0.94	3.94	1.01	0.75	1.04
Metal products (ISIC 35—38)							
Developing regions . .	8.80	2.76	1.68	2.66	0.59	0.93	0.17
Africa	2.90	0.46	0.72	1.24	0.23	0.22	0.02
Asia	2.69	0.75	0.62	0.57	0.13	0.56	0.07
Latin America . . .	3.16	1.54	0.32	0.83	0.23	0.15	0.08
Other regions.	24.86	6.12	3.67	10.87	2.74	0.75	0.71
Total	33.66	8.88	5.36	13.53	3.34	1.68	0.88
All other manufactures							
Developing regions . .	2.96	0.74	0.40	0.85	0.45	0.42	0.10
Africa	1.11	0.10	0.19	0.51	0.19	0.11	0.01
Asia	0.83	0.19	0.13	0.13	0.10	0.25	0.04
Latin America . . .	0.99	0.45	0.07	0.19	0.16	0.06	0.06
Other regions.	13.72	2.03	1.01	4.59	3.43	0.85	1.81
Total	16.68	2.77	1.41	5.44	3.88	1.27	1.91

Source: United Nations Industrial Development Organization.
See notes to table 38.

commodities in 1963.[17] Although these developed market economies are the dominant source of supply to developing countries, the markets of developing countries absorbed only one fifth of the exports of the developed market economies (see table 38). Since the exports of developed market economies to eastern Europe and mainland China in 1963 were of much less relative importance, it is clear that the export industries of the developed market economies remained largely geared to the economies of other countries in that group. Exports from developed market economies to developing countries are concentrated — more than in the case of intra-trade of the former group — on manufactured goods, as defined by ISIC 2—3. Thus, while more than 90 per cent of their export flow to developing countries in 1963 was manufactures, the proportion of exports to other regions was closer to 83 per cent. The regional and commodity distribution of this 90 per cent flow, which represents a gross annual value of manufactures of about $ 20 billion, provides strong indications of the extent of import substitution of manufactures open to developing countries.

While the recent value of output of the domestic manufacturing industries of developing Asia was about two thirds that of Latin America and the relative importance of developing Africa was much less, the value of these regions' imports of manufactures from developed market economies was broadly similar. Each region spent in the range of $ 6 to 7 billion for such goods in 1963. Thus, at present, the less prosperous of the developing countries are much more dependent on the developed economies to supplement meagre domestic supplies of manufactures; from this point of view, they would appear to have the greater potential for import substitution. The similar absolute levels of their import expenditures, however, were made for very different types of manufactures and went to different groups of exporting countries among the developed market economies (see table 39).

Because the less prosperous of the developing regions remained more dependent on imports for total supplies of all manufactures, the pattern of relative reliance of individual industrial sectors on imports exhibited similar characteristics in all developing regions. Each of the developing regions depended for its total supply relatively less on imports in the case of light industry goods, and more on imports in the case of heavy goods (see table 40). The food and metal products industries can be considered as examples of this situation. There is little doubt

[17] Data refer to gross values, in 1963 prices, f.o.b. Further, the data refer to developed market economies, excluding South Africa. Data for that country were not available in a form permitting translation into ISIC categories. Its exports are therefore not included in the following paragraphs or in tables 40—43. This reservation should be borne in mind also for the relevant tables and discussion in the next section of this chapter. While the value of exports of developed market economies (excluding South Africa) given in the United Nations *Monthly Bulletin of Statistics*, March 1966, is $ 101.8 billion, the commodity flows that could be used in the UNIDO statistical exercise for translating SITC into ISIC were valued at $ 101.3 billion.

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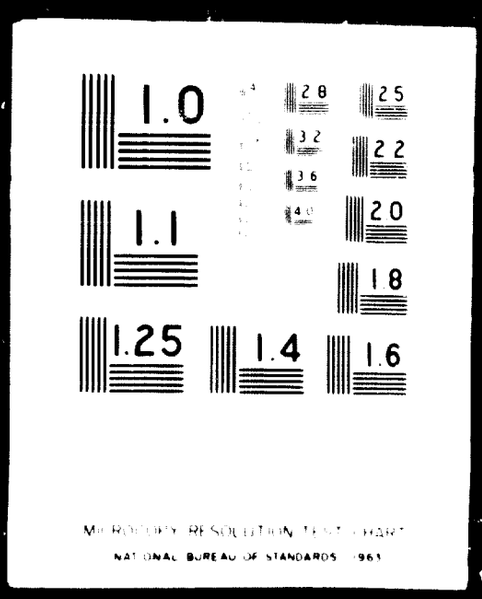
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allocated generally to textile plants, to selected food plants, especially those engaged in sugar processing, and to plants processing grain, edible oils and tobacco.

It is clear with regard to *(d)* that however significant the role of public investment in specific manufacturing plants may be, the public sector is generally the minor participant and the private sector is the major participant in investment in manufacturing as a whole. It is estimated that in previous and current development plans, public investment in manufacturing is in the central range of 10 to 50 per cent of total investment in manufacturing in developing countries. While Ceylon, the Republic of Korea and the United Arab Republic plan to participate to a greater extent, Colombia and Jordan expect their level of such investment to be below 10 per cent. An analysis of sample country data suggests that the relative importance of public investment to total investment in manufacturing tends to be independent of the degree of industrialization of a country. However, there is a slight possibility that the higher the anticipated share of the public sector in total investment in manufacturing, the higher is the expected rate of growth of total production of manufactures; the opposite would also be the case.

Since investment in manufacturing remains largely in private hands, both domestic and foreign, in most developing countries, the indirect role of governments in stimulating the growth of private investment in manufacturing is an especially challenging one. As the methods of government promotion are well known, these incentives are merely listed (see table 59) in order to make the vital point that what is lacking today is not so much the realization of what can be done, but rather the knowledge of how to succeed in stimulating the growth of investment in manufacturing in an efficient way. It is our opinion that, thus far, the results of incentives granted in this area have been generally disappointing in many developing countries.

In the effort to stimulate private investment in domestic manufacturing there has been widespread use in developing countries of incentives involving controls on imports and other means to reduce the cost or increase the profitability of domestic manufacturing. In view of the heavy reliance on imports of manufactures, especially in the less developed countries, tariff protection has been a natural instrument. However, the use of tariffs primarily for other purposes — for instance, to increase government revenue or to remedy balance-of-payments problems — and the promulgation of excessively high tariffs, as well as the failure to set up an appropriate tariff structure to help raise the level of domestic processing, have too often blunted the sharp edge of the tariff weapon as a means of accelerating industrialization.

The burden of direct taxes is still rather light in many developing countries, and in order to provide meaningful incentives, countries

TABLE 57. PUBLIC SECTOR IN MANUFACTURING: DISTRIBUTION OF GOVERNMENT INVESTMENT IN MANUFACTURING ENTERPRISES OWNED BY THE STATE OR DEVELOPED BY THE PUBLIC SECTOR, SELECTED DEVELOPING COUNTRIES, RECENT YEARS

(Percentages)[a]

	Food, beverages, and tobacco *ISIC 20–22*	*Textiles* *ISIC 23*	*Chemicals, petroleum and coal products* *ISIC 31–32*	*Non-metallic mineral products* *ISIC 33*	*Basic metals* *ISIC 34*	*Metal products* *ISIC 35–38*	*Other manufacturing* *ISIC 24–27, 28–30, 39*
Cambodia[b] . . .	Sugar refining (9)	Textiles (9)		Cement (35)			Paper (17); tyre making (13); plywood (8); miscellaneous (9)
Ecuador[c] . . .	Spirits; milk		Fertilizers	Cement			
India			Fertilizers (9); petroleum refining (2); organic chemicals		Steel-making (68)	Locomotives and railway equipment (5); machinery	Miscellaneous (16)
Iraq	Food processing (9); tobacco (2)	Textiles (7); textile products (4)	Petroleum (62)	Non-metallic minerals (13)			Miscellaneous (2)
Jordan	Edible oil (9)	Dyeing (5)	Potash refining (24); pharmaceuticals; petroleum refining (12)	Cement (48)		Automotive (2)	Paper (1)

Korea, Rep. of .			Fertilizers (37); petroleum refining (26)		Ore refining (4)	Metal products and heavy industry (21); shipbuilding (12)
Kuwait	Flour milling (8)		Petrochemicals (49); petroleum refining (35)	Brick making (6); asbestos (2)		
Pakistan[c] . . .		Textiles; jute products	Chemicals; fertilizers	Cement		Newsprint
Peru[c]	Tobacco products		Petroleum derivatives; fertilizers	Cement	Steel-making	
Saudi-Arabia . .			Petrochemicals (1); petroleum refining (23)		Steel-rolling (77)	

Source: Based on background paper presented by the Executive Director of the United Nations Industrial Development Organization. *Policies and Plans of Developing Countries Regarding the Public Sector in Manufacturing Industries*, ID/CONF.1/B.13, 11 May 1967.

[a] Figures in parenthesis are percentages of government investment; they may not add up to 100 due to rounding.

[b] Refers to investment in industries which are completely in the public sector.

[c] Quantitative data on distribution of investment not available.

TABLE 58. PUBLIC SECTOR IN MANUFACTURING: PRODUCTION OF ENTERPRISES OWNED BY THE STATE OR DEVELOPED BY THE PUBLIC SECTOR, SELECTED DEVELOPING COUNTRIES, RECENT YEARS

(Percentages of total production)

	Food, beverages, and tobacco *ISIC 20–22*	*Textiles* *ISIC 23*	*Chemicals, petroleum and coal products* *ISIC 31–32*	*Non-metallic mineral products* *ISIC 33*	*Basic metals* *ISIC 34*	*Metal products* *ISIC 35–38*	*Other manufacturing* *ISIC 24–27, 28–30, 39*
Argentina[a] . . .			Petrochemicals		Steelmaking (60 of ingots)	Metal products and machinery (5); motor vehicles (4)	
Brazil[b]			Petrochemicals; petroleum refining (85)		Steelmaking (45 of ingots)	Motor vehicles (1)	Rubber
Chile[c]	Beet sugar (20); fishing	Textiles	Chemicals; petroleum derivatives (almost 100)	Cement	Steelmaking (almost 100)	Metallurgical; metal transforming	Wood manufacture
China (Taiwan)[d]	Sugar	Textiles	Fertilizers; petroleum refining; chemicals		Aluminium	Machinery manufacture; shipbuilding	

Colombia . . .			Fertilizers (40); alkalis; salts; caustic soda (100); petroleum refining (60)		Steelmaking (100)		Tyres
Ghana[e]	Food processing; beverages; edible oil	Textiles	Matchmaking			Metal products and machinery; shipbuilding	Timber processing; furniture; tyre moulding
Iran	Food processing; sugar production (70)	Textiles; cotton goods production (35)	Chemicals and chemical products; caustic soda (10)	Portland cement (45); bricks; refractories			Wood processing
Mexico	Sugar production (20)		Fertilizers; petroleum derivatives (100)	Cement	Steelmaking (45 of ingots)	Metallurgical and metal transforming	
Venezuela . . .	Sugar production (40)				Steelmaking		

Source: See table 57.

[a] In Argentina, production in the public sector accounts for one percent of total industrial production.

[b] In Brazil, Federal government enterprises account for six percent of total industrial product.

[c] In Chile, public sector production accounts for almost one hundred percent of the total output of petroleum derivatives, excluding fuel oil.

[d] In China (Taiwan), the value added in the public sector is 34 percent of total value added in manufacturing in 1960.

[e] In Ghana, the share of value added by the public sector and jointly owned enterprises was 21 percent of total value added, 1962–64.

TABLE 59. TAX INCENTIVES FOR INDUSTRIAL DEVELOPMENT, SELECTED DEVELOPING COUNTRIES, END 1965

	Income tax on profits[a]	*Import duty on raw materials*[b]	*Import duty on machinery and equipment*[c]	*Income tax on dividends*	*Carry forward of losses*	*Depreciation allowance*[d]	*Income tax on interest*[e]	*Miscellaneous tax benefits*[f]
India	X	X		X	X	X	X	X
Pakistan	X	X	X	X		X	X	X
Barbados	X	X	X	X	X	X	X	
Israel	X	X	X	X	X	X	X	
Nigeria	X	X	X	X	X	X	X	
Guyana	X	X	X	X	X	X		
Jamaica	X	X	X	X	X	X		
Sudan	X	X	X	X	X			
Trinidad	X	X	X	X	X			
China (Taiwan)	X	X	X					X
Thailand	X	X	X					X
Brazil	X	X	X			X		
Peru	X	X	X			X		
Philippines		X	X					X

Puerto Rico	X			X	X
Iran	X	X	X		
Kuwait	X	X	X		
Ethiopia	X		X		
Nepal	X	X			
Zambia	X	X			

Source: United Nations Industrial Development Organization based on unpublished data prepared for document submitted to the International Symposium on Industrial Development, *Tax Incentives for Industrial Development* (ID/CONF. 1/22), 1 May 1967.

Note: This table is designed as only a rough guide to the prevalence of tax incentives. The source document indicated above provides detailed information. In this table both incentives and countries have been ranked by the frequency of use of incentive.

[a] In all countries listed, income tax exemptions on profits have been employed but for different periods, generally between 2 and 10 years and with different rates of exemption which vary between 5 and 100 per cent. Illustrative of the highly varied application of this incentive, it may be noted that in Iran tax exemption is given to industries established outside the radius of 60 km from Teheran, and that in Philippines profits of shipping industry was exempted between 1955 and 1960.

[b] Exemption of import duty on raw materials is sometimes limited to raw materials of which home supply is not sufficient such as in the case of Jamaica and Nigeria, or which are used for manufacturing export goods as in Barbados and China (Taiwan). Also, it is sometimes restricted to specific industries, the textile industry and the chemical industry.

[c] Exemption of import duty on machinery and equipment is sometimes limited to new and used machines and for specific industries such as in the case of Brazil, China (Taiwan), Iran, Jamaica, Philippines and Thailand. In Pakistan, import duty is reduced from the standard 25 per cent to 20 per cent for imports destined for the underdeveloped areas of the country.

[d] Accelerated or special depreciation allowance has been given in case of extra shifts or replacement of more efficient machinery in India and Peru.

[e] Tax exemption on interest is limited by India, Nigeria and Pakistan to non-resident lenders.

[f] Miscellaneous tax benefits generally include exemptions from excise tax, sales tax, and compensating tax and others for specified industries.

have frequently resorted to relief from import duties. Such relief has been total or partial and has been granted at the time of import or by subsequent refund. These variations are perhaps less important than, for instance, whether the relief has been extended to all strategic imports of raw materials, machinery, spare parts etc., or has been restricted to specific industries regarded as more vital in spurring a desired type of industrialization, such as basic industries, export-oriented industries etc. A similar comment can be made about the use of import controls and the granting of foreign exchange licenses. Tax holidays and mechanisms for accelerated depreciation have frequently been employed in developing countries as a standard incentive to private investment in manufacturing. Systems of tax exemption vary: they may be total or partial, and they may be applied to all profits or undistributed profits. As for the time limit, it has often been extended for five years, sometimes for ten years and occasionally up to 15 or 17 years. While this mechanism is essentially simple and facilitates investment by those who desire a quick return on capital, it may sometimes be significant that the mechanism involves, for the short run, a loss of revenue to governments; it may involve complex bureaucratic machinery; and it raises the possibility of demands for permanent rather than temporary relief. The use of accelerated depreciation, which is the more common form of special depreciation allowances, increases the liquidity of an enterprise, reduces the risk of investment and is relatively easy to apply. However, it should be recalled that this method, unlike income tax holidays, favours more capital-intensive forms of industrialization.

As indicated in table 59, it is possible to generalize to this effect: the more frequently a developing country has resorted to tax incentives for manufacturing, the more likely it is that it adopted the following methods, in the order listed: income tax exemption on profits; import duty exemption on raw materials; import duty exemption on machinery and equipment; income tax exemption on dividends; privilege to carry forward losses; depreciation allowance; and income tax exemption on interest. In table 59, countries are ranked according to the number of tax incentives employed at the end of 1965, and the incentives are ranked according to the frequency with which the countries have used them. If the pattern of indicators in the table had formed a triangle or trapezoid, the above generalization would have been fully valid but, as is evident from the table, there was some deviation from these shapes.

In addition to the commonly used incentives, a number of other measures are used to increase private investment in manufacturing. Aside from the vital incentive of provision of capital and credit, which will be considered in subsequent sections, a number of developing countries have established industrial estates which provide factory buildings, power, water, transport, training and repair facilities. This facilitates the process for the private investor. Efforts have also been made to provide

special assistance to small-scale manufacturers. A more general stimulus to investment has taken the form of governmental promotion of research, information and promotion institutes to facilitate production and marketing of manufactured products.

To a large extent, the above public incentives could undoubtedly be improved. While recommendations on how this might be achieved must await a programme of detailed country evaluations of the impact of present incentive programmes, some general observations can be made. First, in many instances there appears to be insufficient application of adequate criteria regarding the eligibility of an industry for government-granted incentives. For example, determination of eligibility purely on the basis of project by project evaluation may result in the choice of industries not bearing the necessary relation to the objectives of a country's broad industrialization programme. As these objectives change in the process of industrialization, new eligibility criteria may be required; this, in turn, requires the administration to have a flexible combination of discretionary and non-discretionary approaches to the granting of incentives to specific industries. Second, since the granting of fiscal incentives often involves foreign investment, co-ordination with fiscal operations of capital exporting countries is also desirable to prevent the tax incentives of the developing country from being nullified by tax burdens imposed in the capital exporting countries. Third, there is often insufficient clarity as to the precise nature of incentives and this situation calls for a remedial publicity programme. Finally, with regard to the choice of incentives, there can be no universally valid prescription. The extent and inter-relationship of the costs and gains of governmental incentive schemes to promote industrialization are unique to each country; thus the government has the responsibility of finding the set of incentives that will yield the highest elasticity of local response.

The above review has centred on various aspects of the proportion of total investment that the manufacturing sectors of developing countries have appropriated. If there were a fixed level of total investment funds, the increase in manufactured output attainable by the share used in manufacturing would be influenced by the magnitude of the incremental capital-output ratio, which is examined below.

Relation of investment and output

In 1955—1964, the generally greater emphasis on increasing investment at a more rapid rate in the manufacturing sector of developing countries than in the economy as a whole reflected the priority given to their industrialization programmes. For a more precise calculation of investment requirements to implement these programmes, it should be recalled that most data indicate that obtaining an increased unit

of manufacturing output often requires a smaller investment for capital formation than for an increased unit of output of other sectors combined. As a rough estimate, it may be said that for developing countries as a whole, two and a half to three dollars of fixed capital formation or incremental capital in the manufacturing sector has been needed to increase the annual output (value added) of manufactures by one dollar. On the other hand, for the economy as a whole, the central values of the incremental capital-output ratio appear to have been in the range of 3 to 4. It should be noted that these ratios measure only the direct output obtained within the same sector, associated with incremental capital invested in the same sector. As a guide to over-all investment allocation, the analysis should be broadened to include indirect as well as direct costs and benefits. These ratios must therefore be used with caution.

Leaving aside the more extreme experiences of some countries in investment and output, as indicated in their national accounts, the incremental capital-output ratio in manufacturing in 1955—1964 for the sample of developing countries shown in table 60 was below 2.5 for China (Taiwan), Israel, the Philippines and Venezuela; between 2.5 and 3.0 for Jamaica, the Republic of Korea and the Sudan; and above 3.0 for Southern Rhodesia, United Republic of Tanzania, Thai-

TABLE 60. INCREMENTAL CAPITAL OUTPUT RATIOS,[a] IN MANUFACTURING AND OTHER ECONOMIC SECTORS, SELECTED DEVELOPING COUNTRIES, 1955-1964[b]

	Manufacturing ISIC 2–3	*Primary products* ISIC 0–1	*Infrastructure* ISIC 4, 5, 7	*Other* ISIC 6, 8, 9	*Total* ISIC 0–9
Malawi	7.8	3.0	10.0	5.0	5.7
Thailand	5.4	2.0	3.8	1.2	2.5
Tunisia	4.2	4.9	2.1	5.7	4.2
Southern Rhodesia	3.3	4.5	13.4	3.9	5.5
Tanzania	3.3	5.0	20.1	4.1	5.6
Jamaica[c]	2.9	3.5	3.3	6.2	4.1
Korea, Rep. of	2.8	0.7	4.5	3.1	2.2
Sudan	2.6	0.8	2.3	4.9	1.8
Philippines	2.3	1.7	9.7	2.1	2.5
China (Taiwan)	2.2	2.7	6.4	1.7	2.6
Venezuela	2.2	3.4	10.6	2.9	3.5
Israel[d]	2.0	6.4	4.8	3.5	3.3
Zambia	1.5	3.2	12.4	3.0	3.8

Source: United Nations Industrial Organization; derived from basic data on investment and output in constant prices appearing in the relevant issues of the United Nations *Yearbook of National Account Statistics.*

[a] The incremental capital-output ratios shown in this table were calculated as the ratio of the total of investment between 1955 and 1963 inclusive to the increase in output between 1955 and 1964.

[b] Periods refer to 1955–1961 for Sudan; 1955–1963 for China (Taiwan) and Thailand; 1956–1964 for Philippines; 1959–1964 for Jamaica; 1960–1963 for Tanzania; and 1960–1964 for Tunesia.

[c] Transportation and construction are included in other.

[d] Mining, quarrying, construction and utilities are included in manufacturing.

TABLE 55. CENTRAL AMERICAN BANK FOR ECONOMIC INTEGRATION, LOANS APPROVED BY FIELD OF ACTIVITY, UP TO MID-1965

(Million dollars)

	Studies	*Investments*	*Total*
Industry	0.9	25.7	26.6
Infra-structure	1.8	5.9	7.7
Housing	—	3.7	3.7
Total	2.7	35.4	38.1

Source: Central American Bank for Economic Integration (1965) *Fourth Report of Activities, Fiscal Year 1964–1965*, Tegucigalpa, D.C., Honduras.

The will to act on the range of issues of regional industrial development, rather than to retreat into escape clauses, requires a sustained and strong desire for regional co-operation. Of the many benefits from such arrangements, an especially important advantage may be a double diversification — of products traded and markets served, a process likely in the long run to result in a substantial lessening of export instability of developing countries. In addition, regional industrialization will certainly facilitate the over-all commercial bargaining power of member countries vis-à-vis the growing power of trading blocs in developed countries. For developing countries in their present situation, this facet of industrialization undoubtedly represents, on balance, a contribution to the efficient allocation of world resources.

Thus far in this survey, three aspects of recent industrialization in developing countries have been considered: the emerging patterns of domestic demand in developing countries for industrial and other goods and services; the changing developments affecting the foreign demand for and supply of industrial and other products of interest to developing countries; and the increasing magnitudes of industrial and over-all economic growth in developing countries. For such industrial growth to have been possible, effort has been required to marshal and appropriately allocate financial, natural and human resources. The financial resources required for industrialization in developing countries and the extent to which foreign and domestic sources have contributed to meeting these financial requirements will be considered in the next chapter.

land and Tunisia. On the other hand, for the economy as a whole, three ranges of incremental capital-output may be distinguished: China (Taiwan), Republic of Korea, the Philippines, the Sudan and Thailand had ratios below 3.0; Israel, Venezuela and Zambia, ratios between 3.0 and 4.0; and Jamaica, Malawi, Southern Rhodesia, Tanzania and Tunisia had incremental capital-output ratios of more than 4.0.

Thus, not only were the capital requirements for increased output substantially different from country to country, both for manufacturing and for the economy as a whole, but there was not a single country which had both a manufacturing ratio of 2.5 to 3 and an over-all ratio of 3 to 4. Even when the spread of the central values, indicated above for these two incremental capital-output ratios, is extended to, say, 1.5 to 4 for manufacturing and 2.5 to 5.0 for the total economy, only one half of the countries shown in table 62 were within these limits. It should also be noted — always bearing in mind the possibility of statistical error — that in four of the thirteen countries considered, the incremental capital-output ratio for manufacturing was higher than the ratio for the economy as a whole.

It may be observed that the wide range of capital requirements per unit growth in the non-manufacturing sector of the economy was influenced in part by structural differences of the various economies, i.e. the relative importance of the primary products sector, the infrastructure and the commerce and services sector, and also by country differences in the incremental capital-output ratio within each of these sectors. It is clear that the capital requirements for increased unit of output of infrastructure were higher than for other sectors and were subject to the greatest variation from country to country. There are more limited grounds, however, for generalizing that the incremental capital-output ratio was lower for the commerce and services sector than for the agriculture and mining sectors.

In a recent study[36] of development plans of developing countries, it was found that while the planned incremental capital-output ratios for manufacturing for twelve developing countries averaged 2 to 3, the planned ratio for some countries was twice that of others. Three countries, Chile, Venezuela and the United Arab Republic, incorporated a planned ratio of below 2 for manufacturing. Four countries, Bolivia, Colombia, the Sudan and the United Republic of Tanzania, planned their investment requirements for manufacturing with a ratio of between 2 and 3. Five countries — Ceylon, China (Taiwan), Ethiopia, Republic of Korea and Trinidad and Tobago — used a planned incremental capital-output ratio for manufacturing of between 3 and 4.

The same study of development plans suggested that the central

[36] United Nations (1965) *World Economic Survey, 1964 — Part I*, (Sales No.: 65.II.C.1).

values of the incremental capital-output ratio foreseen for the economy as a whole were 3 to 4, i.e. to obtain an additional dollar of annual production from the over-all economy, the planned investment requirement was between three and four dollars, on the average. The distribution of the ratios of total investment to increase in gross domestic product for twenty-eight developing countries considered was: less than 2, one country; between 2 and 3, eleven countries; between 3 and 4, nine countries; and above 4, seven countries. While these planned ratios of over-all incremental capital-output do not differ very much from the actual ratios recorded over the last decade or more,[37] the detectable differences may be due to the fact that planned ratios were slightly lower than actual ratios, if account is taken of significant differences from country to country.

The great differences in the sectoral structure of manufacturing among developing countries contributed to the above variations in their capital-output ratios for total manufacturing due to the strongly dissimilar capital requirements per unit of output of individual manufacturing industries. The general experience was that the light industry sectors required less capital per unit of output than the heavy industry sectors (see table 61). Data supporting this statement were generally derived from censuses and similar surveys and relate to average, as distinct from incremental, capital-output ratios. In view of numerous statistical and conceptual problems in measurement, these data should be regarded with caution in regard to comparisons within a country and comparisons between countries. To avoid confusion, these differences in capital-output ratios within manufacturing are considered below in terms of the relation of the capital-output ratio of a specific manufacturing industry to the similar ratio for total manufacturing.

To illustrate the average order of magnitude for selected countries of Latin America, light industries as a whole required only four fifths as much capital per unit of output as manufacturing industries as a whole. Consequently, even though the light industry sector as a whole in Latin American countries, for which data are shown in table 61, accounted for almost two thirds of the total manufacturing output, these industries probably accounted for little more than one half of the capital investment in total manufacturing. However, all countries have not recorded a lower capital requirement per unit of output for light industries as a whole, compared with the similar ratio for all manufacturing, and it is certain that all individual light industries have not possessed a similar characteristic of relatively low capital requirements per unit of output. In the majority of Latin American countries for which data are presented, the capital-output ratio for textile production was broadly similar to, or well above, the average

[37] *Ibid;* see also *World Economic Survey 1965 — Part I* (Sales No.: 66.II.C.1).

for all manufacturing. This was also true in the food, beverage and tobacco sector in two of the seven countries. However, in other light industry sectors, capital-output ratios were generally lower in relation to the over-all manufacturing ratio; this was particularly the case in the clothing and foot-wear sector.

Differences in past capital requirements per unit of output between heavy industries for the Latin American countries considered in table 61 were perhaps more pronounced than between light industries. It should be noted that, in a number of the countries shown, capital-output ratios for chemicals and petroleum products were often below the average for those of all manufacturing. Further, the recent product mix and choice of technique in these countries were such that the capital-output ratio for the manufacture of metal products was generally well below the ratio for all manufacturing. On the other hand, it is quite clear that there were relatively high capital requirements per unit of output for the earlier stage of production, i.e. for output of basic metals. In non-metallic mineral products, ratios were generally higher than over-all capital-output. In these developing countries, it appears that while the heavy sectors as a whole probably accounted for little more than one third of total manufacturing output — since such output per unit required about one third more capital than for average manufacturing output — the capital that had to be invested in the heavy sector was probably about one half of all capital invested in manufacturing.

It may be significant that, by and large, the relations of capital-output ratios between the various sectors of manufacturing in some of these Latin American countries also held, though to a limited extent, in a number of countries in developing Asia (see table 61). The essentially comparable relationships were the relatively high capital requirements per unit of output in some countries of Asia for textiles and non-metallic mineral products, and the relatively low capital-output ratios for clothing, wood products and furniture, and metal products, i.e. machinery and transport. However, the experience of the Asian countries tended to differ from that of Latin American countries at the general level, inasmuch as the average capital-output ratio for their group of light industries was not materially different from that of their heavy industries. As suggested elsewhere in the survey, this may reflect the use of less capital-intensive technologies in less developed countries of Asia, particularly in the heavy sector, or differences in product mix.

In using the incremental capital-output ratios in manufacturing as a rough guide to future investment requirements of developing countries, some of the influences involved are of a statistical nature but many are economic. New industrial capacities have unique gestation periods, with time profiles of output not necessarily related to the general experience of the past. Where a new plant is larger and more complex than the previous one, a longer time span may separate the average

TABLE 61. RELATIVE CAPITAL OUTPUT RATIOS AND DISTRIBUTION OF FIXED CAPITAL[a] AND OF OUTPUT[b], BY SECTORS OF MANUFACTURING,[c] SELECTED DEVELOPING COUNTRIES, RECENT YEARS

(Capital output ratio of individual sector expressed in relation to capital output ratio for total manufacturing[d]; and percentage distributions of capital employed and of output)

	Manufacturing			Food, beverages and tobacco	Textiles	Clothing, footwear	Wood products and furniture	Paper and paper products	Printing, leather rubber	Chemicals, petroleum products	Non-metallic mineral products	Basic metals	Metal products	Miscellaneous[e]
	Total	Light	Heavy											
	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC
	2–3	20–26 28–30 39	27 31–38	20–22	23	24	25–26	27	28–30	31–32	33	34	35–38	39
Latin America														
Argentina (1955)														
Capital-output ratio	1.0	1.0	1.0	0.8	1.7	0.5	1.1	1.0	0.7	1.1	1.1	——1.0——		0.8
Capital distribution	100	49	51	17	21	3	4	6	3	15	6	——25——		2
Output distribution	100	50	50	22	12	5	4	6	4	13	5	——26——		2
Colombia (1958)														
Capital-output ratio	1.0	1.0	1.1	0.8	1.6	0.8	0.9	1.2	1.0	0.6	1.1	4.9	1.0	1.0
Capital distribution	100	69	31	30	24	4	2	1	8	9	6	8	6	2
Output distribution	100	71	29	39	15	6	2	1	8	14	5	2	6	2

Chile[a] (1957)														
Capital-output ratio	1.0	0.6	1.7	0.5	1.0	0.3	0.5	2.9	0.6	0.9	2.1	2.9	0.7	0.6
Capital distribution	100	36	64	14	13	2	2	6	3	10	11	32	7	1
Output distribution	100	61	39	28	13	8	5	2	6	11	5	11	10	1
Chile[b] (1957)														
Capital-output ratio	1.0	0.5	1.8	0.4	1.1	0.3	0.6	1.8	0.6	0.9	2.4	3.4	0.8	0.7
Capital distribution	100	36	64	14	13	2	2	6	3	10	11	32	7	1
Output distribution	100	64	36	33	12	8	4	3	6	11	5	9	1	8
Ecuador (1961)														
Capital-output ratio	1.0	1.1	0.8	1.2	1.1	0.8	0.5	0.9	1.1	0.7	1.3	——0.8——		0.6
Capital distribution	100	76	24	52	16	1	1	—	5	16	6	——2——		1
Output distribution	100	69	31	46	14	1	1	1	5	24	5	——2——		1
Peru (1960)														
Capital-output ratio	1.0	0.9	1.2	1.1	0.9	0.4	0.6	0.5	0.6	1.2	2.0	1.3	0.6	0.6
Capital distribution	100	62	38	41	14	1	1	1	3	11	7	15	3	2
Output distribution	100	68	32	38	15	4	2	2	6	10	3	12	5	3

TABLE 61. RELATIVE CAPITAL OUTPUT RATIOS AND DISTRIBUTION OF FIXED CAPITAL[a] AND OF OUTPUT[b], BY SECTORS OF MANUFACTURING.[c] SELECTED DEVELOPING COUNTRIES, RECENT YEARS *(Continued)*

(Capital output ratio of individual sector expressed in relation to capital output ratio for total manufacturing[d]; and percentage distributions of capital employed and of output)

	Manufacturing			Food, beverages and tobacco	Textiles	Clothing, footwear	Wood products and furniture	Paper and paper products	Printing, leather rubber	Chemicals, petroleum products	Non-metallic mineral products	Basic metals	Metal products	Miscellaneous[e]
	Total	Light	Heavy											
	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC	ISIC
	2—3	20—26 29—39	27 31—38	20—22	23	24	25—26	27	28—30	31—32	33	34	35—38	39
Venezuela (1961)														
Capital-output ratio	1.0	0.5	1.8	0.5	0.7	0.2	0.5	0.7	0.4	2.1	0.9	21.1	0.4	0.5
Capital distribution	100	29	71	18	4	1	2	2	3	43	5	17	4	1
Output distribution	100	61	39	35	6	7	4	3	7	20	6	1	10	1
Asia														
China (Taiwan) (1961)														
Capital-output ratio	1.0	1.0	1.0	1.0	1.4	0.6	0.9	1.3	0.9	1.3	0.8	0.6	0.8	1.1
Capital distribution	100	61	39	36	15	1	5	4	3	16	7	3	9	2
Output distribution	100	60	40	37	10	2	5	3	3	12	9	4	12	2

Korea, Rep. of (1962)														
Capital-output ratio	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	1.0	0.8	1.4	1.2	1.1	0.9
Capital distribution	100	57	43	18	25	1	5	3	6	11	8	6	15	2
Output distribution	100	59	41	18	27	1	5	4	6	14	6	5	13	2
Pakistan (1960)														
Capital-output ratio	1.0	1.0	1.0	0.9	1.0	0.4	0.7	2.5	1.0	1.0	1.1	0.9	0.6	1.3
Capital distribution	100	71	29	13	44	1	—	6	3	9	6	2	7	9
Output distribution	100	70	30	14	43	2	—	2	3	9	5	3	11	7
Philippines (1960)														
Capital-output ratio	1.0	0.9	1.2	0.7	2.3	0.8	1.5	1.9	0.9	0.8	1.8	1.6	1.2	0.7
Capital distribution	100	64	36	28	13	3	7	5	7	7	7	2	15	6
Output distribution	100	70	30	41	6	4	5	3	7	10	4	1	12	8

Source: United Nations Industrial Development Organization, based on national censuses and surveys of manufacturing and on data in United Nations *The Process of Industrial Development in Latin America, Statistical Annex*, E/CN.12/716/Add. 2, and United Nations, Table 1—4 of *Economic Survey of Asia and the Far East, 1965* (Sales No.: 66.II.F.1).

[a] Data refer to fixed assets which have been variously valued. For Chile the value of sites has been excluded.

[b] Whereas for Colombia, Venezuela and all Asian countries basic data on output referred to value added; for Argentina, Ecuador and Peru data referred to the value of gross output. For Chile estimates are shown based on both concepts of output.

[c] Where data in basic sources were not identified by ISIC categories, a classification was estimated.

[d] Estimates refer to average capital-output ratios.

[e] For Philippines petroleum is included in miscellaneous.

[f] Output measure was value added.

[g] Output measure was gross value of output.

investment from the average output period. This may occur also when investment is made in an inter-related industrial complex which is not efficiently phased so that a part or even the entire plant may stand totally idle over a period of time. Further, the future incremental capital-output ratio in manufacturing, as derived from aggregate national accounts, may show an increase to the extent that new installations differ in composition from the present capital stock. Thus, in many developing countries the role of artisan or small-scale production relative to larger scale factory production is still substantial, with the respective sectors having significantly different capital-output ratios. Data for Ecuador and Venezuela in the early part of this decade may be cited. In Ecuador the factory sector, which accounts for the major part of manufacturing, had an estimated capital-output ratio about 15 to 20 times as high as that of the artisan sector of manufacturing. As to the size variable, the capital-output ratio of large industry (excluding petroleum) in Venezuela was estimated as more than three times as large as that of small industry[38]. The extent to which the age structure of the industrial capital stock is changed by new investment will also influence incremental capital-output ratios. In the expansion of output, when faced with a choice of technologies, developing countries may decide on policy grounds to use technologies that are more capital intensive in relation to output. The incremental capital-output ratio for manufacturing will also be influenced by the extent and location of infrastructure in the country. In many instances the absence of adequate roads, ports, power installations etc. for use by manufacturing establishments will compel the manufacturing sector to make such investment itself. The influence of complementary factors within the manufacturing sector is of a different nature. Improvement in the quality and flow of raw materials to the manufacturing sector, enhancement of the labour skills involved and introduction of more efficient administration can also secure increased output per unit of capital investment.

The effect of some of the above influences in the past has been that some of the investment undertaken in the manufacturing sector of developing countries has undoubtedly been wasted, at least in the short run. To the extent that the degree of unutilized capacity can be reduced, the incremental capital-output ratio will fall beneficially. But the achievement of better utilization of present manufacturing capacity is not to be regarded as a simple endeavour. It is an easy matter to recognize that improvement can be obtained by better over-all planning; by the co-existence of capital installations with an appropriately skilled labour force; by introduction of multiple work shifts; by availability of an adequate supply of imported and domestic raw materials of appropriate quality; by better estimation of demand etc. However, it must be con-

[38] Derived from United Nations, *The Process of Industrial Development in Latin America* (document ST/ECLA/Conf.23/L.2 and addenda). In the present section, generous use has been made of the statistical data in that document.

sidered whether slow progress in achieving better utilization of plant capacities is to a large extent a manifestation of the whole developmental process. In their industrialization efforts, developing countries are faced with a constant procession of challenges to bring together, often for the first time, unique combinations of production factors from diverse underdeveloped sectors of their economies in order to manufacture goods for emerging demands, the precise characteristics of which are difficult to judge. Under such circumstances, it is not to be expected that rates of operation would approach those of developed countries. It is to be questioned, therefore, whether the existence of under-utilized capacity provides any reasonable argument for a slower infusion of investment assistance from developed countries. On the other hand, there is a clear need to stimulate efforts at discerning in all developing countries the immensity of the problem of under-utilization of capacity, since too little measurement of its degree has been undertaken thus far.

Allowing for many statistical difficulties, it appears that in some countries the rates of capacity utilization have been low indeed in comparison to those of many developed countries; this applies more to some manufacturing sectors than to others. Estimates for the manufacturing sector in India indicate that in the period 1955—1964 plant utilization rates on the basis of current work schedules ranged from two thirds to 90 per cent in the machinery and transportation industries, but from 50 to 80 per cent for the groups of industries producing leather and leather products, chemical and chemical products, non-metallic mineral products and metal products.[59] The above industry groups were those where under-utilization was quite significant. It has been suggested that poorer utilization of existing industrial capacity had to bear a considerable responsibility for the less satisfactory price situation in India during the period of the Second and Third Plans, compared with the First Five-Year Plan period. During the period of the First Plan, it should be added, agricultural production was satisfactory. Although one should be cautious about inter-country comparisons, it is observed from readily available data for three Latin American countries[60] that rates of utilization of total manufacturing capacity for individual years in 1955—1964 ranged from about 60 to 75 per cent. In each of the three countries, utilization rates were relatively low for the metal products industries and for the wood products and furniture industries.

This brief review of the investment requirements per unit of industrial growth cannot indicate a conclusion as to which way the balance of influencing forces will change future capital-output ratios for manufacturing.

[59] See National Council of Applied Economic Research, *Under-utilization of Industrial Capacity*, New Delhi, October 1966. Utilization rates indicated above would have been lower in all cases when measured on "desirable multiple shift working".

[60] *Op. cit.*, *The Process of Industrial Development in Latin America* (document ST/ECLA/Conf.23/L.2 and addenda).

B. External financial resources for manufacturing

The mobilization of financial resources to meet the investment needs of developing countries in manufacturing can only be indicated in a partial way, since comprehensive data relating specifically to manufacturing are lacking. Prior consideration is therefore given to the flow of financial resources to all sectors.

The flow of external financial resources to all sectors in developing countries

In recent years the accumulation of resources to finance the total of gross capital formation in developing countries has generally depended primarily on domestic savers, be they governments, corporations and/or households. On the basis of the experience of a group of countries with readily available data (see table 62), however, it appears that in the first half of the Development Decade the majority of developing countries relied on foreign savings for at least one eighth of their total savings for domestic investment requirements. A few developing countries had a surplus of domestic savings over domestic investment needs and therefore were not dependent on foreign savings. At the other extreme some developing countries depended on foreign sources of savings for the major part of their domestic investment. Aggregate information indicates that foreign savings contributed between one fifth and one third of the total gross investment in developing countries as a whole in 1960—1964.

Although this general view of the role of foreign savings in over-all economic development in 1960—1964, as compared with that of domestic savings, indicated little substantial change from that of the second half of the 1950's, there were many significant changes in the relative reliance on foreign savings by individual developing countries. Generally, with savings considered in relation to gross domestic product, these changes in individual countries took the form of substitution of dependence as between domestic and foreign savings rather than of complementary changes in the two sources of savings. Thus, in eleven countries listed in table 62, a decrease in dependence on either domestic or foreign savings was accompanied by an increase in the reliance on the other, whereas in five countries a change in the availability of foreign savings was accompanied by a complementary change in the availability of domestic savings.

These developments in component savings occurred against the important background of limited increase in the total accumulation of savings in developing countries as a whole, when considered in relation to the levels of gross domestic product, between 1955—1959 and 1960—1964. Although in these relative terms total savings by developing countries as a whole may have increased by less than 1 per cent during

Chapter III

FINANCIAL RESOURCES FOR INDUSTRIALIZATION

A. Investment requirements for manufacturing

Perhaps the most challenging task facing developing countries in their efforts to accelerate industrialization and over-all economic development is the search for sufficient funds to finance required investment. Providing the capital for these purposes, i.e. the gross domestic capital formation necessary for growth, has imposed a heavy domestic burden on developing countries themselves, and has placed a serious responsibility on developed countries for assistance.

To achieve even the modest level of recent over-all economic advance, developing countries as a whole had to allocate in the first half of the 1960's an estimated 16 per cent of gross domestic product for total gross domestic capital formation. Since, for developing countries as a whole, average annual gross domestic product *per capita* in 1960—1964 was only about $ 135 to $ 140, in 1960 prices, the provision of about $ 22 *per capita* for total capital formation left only about $ 115 for private and public consumption as there was a virtual balance in net foreign trade and services. By comparison, even though the developed market economies as a whole allocated an average of 20 to 21 per cent of their gross domestic product for their total gross domestic capital formation in the same period, public and private consumption in the developed market economies was close to $ 1,200 *per capita*, ten times the level achieved in developing countries.

Comparable information regarding investment in the manufacturing sector is not readily available for many developing countries. Consequently, the investment requirements of all developing countries for their industrialization can only be conjectured. If, on the basis of very limited data which are considered below, it is assumed that an average of 18 per cent of total capital formation in developing countries was assigned to manufacturing in the first half of the 1960's, then the average

TABLE 62. FOREIGN[a] AND DOMESTIC[b] FINANCING OF GROSS DOMESTIC CAPITAL FORMATION, DEVELOPING COUNTRIES,[c] 1955 - 1964

(Percentage of gross domestic product)

	Foreign		*Domestic*		*Total*		
	1955–1959	*1960–1964*	*1955–1959*	*1960–1964*	*1955*	*1959*	*1960–1964*
Barbados[d]	13	15	16	7	29	23	
Puerto Rico	11	14	11	11	22	25	
Trinidad and Tobago	8	9	18	19	26	27	
Jordan[e]	7	6	7	9	14	14	
Bolivia[f]	7	5	8	9	14	15	
Panama	8	5	5	13	13	18	
Costa Rica	5	5	14	11	19	16	
Chile	1	3	9	10	10	13	
Guatemala	3	3	11	8	14	11	
Ceylon	1	2	13	12	14	14	
Jamaica	7	2	16	18	24	20	
Ecuador	1	2	14	14	15	16	
Korea, Rep. of[d]	2	2	11	13	13	15	
Viet-Nam, Rep. of[f]	1	2	9	8	11	9	
Mauritius[g]	—3	3	18	15	15	18	
Morocco	—4	—	15	11	11	11	
Honduras	2	1	12	13	14	14	
Burma	2	1	18	17	20	18	
China (Taiwan)	2	1	16	20	17	20	
Iran[h]	2	—	16	14	18	14	
Malaysia	—5	—	16	17	11	17	
Philippines	1	—1	8	14	9	13	
Venezuela	—6	—4	23	23	17	18	

Source. United Nations Industrial Development Organization, based on United Nations, *Yearbook of National Accounts Statistics, 1965.*

[a] Deficit of the nation on current account.

[b] Domestic saving including provision for the consumption of fixed capital.

[c] Countries ranked in order of size of foreign saving in relation to gross domestic product in 1960 - 1964.

[d] Data not fully comparable between periods shown.

[e] Including finance for some non-capital development expenditure of central government.

[f] Includes finance for increase of selected stocks only.

[g] Excluding finance for abnormal investment expenditures.

[h] Excluding finance for stock changes.

1955—1964, given the magnitude of over-all growth in output and income in these countries, the absolute or dollar level of total savings used for investment rose by about 5 per cent *per annum*. As shown below, the growth in the dollar level of foreign financial resources extended to developing countries was broadly similar.

Although the absolute level of the foreign or external contribution to the investment and growth efforts of developing countries as a whole can be indicated in a number of ways,[41] perhaps the most useful measure

[41] See, for example, United Nations (1966) *Financing of Economic Development: The Measurement of the Flow of Resources from Development Market Economies to the Developing Countries: Interim Report of a Group of Experts Appointed by the Secretary-General* (document E/4171).

TABLE 63. THE FLOW OF LONG TERM FINANCIAL RESOURCES TO DEVELOPING COUNTRIES[a] AND MULTILATERAL AGENCIES[b] FROM MEMBER COUNTRIES OF THE ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT,[c] 1956 - 1965

(Disbursements in million dollars, annual average)

	1956 - 1959	*1960 - 1964*	*1965*
Total official and private, net	7,096	8,765	10,337
Total official, net	3,996	5,788	6,210
Total private, net	3,100	2,977	4,128
Official bilateral, total net	3,654	5,251	5,768
Grant and grant-like contributions	3,010	3,962	3,785
Lending, net	644	1,290	1,983
Official multilateral, total net	342	536	442
International Bank for Reconstruction and Development and International Development Association	209	222	254
United Nations	80	192	187
Other	52	122	—
Private investment and lending, total net	2,721	2,272	3,303
Direct	2,052	1,697	2,420
New investment	1,506	1,040	1,553
Reinvested earnings	546	657	868
Portfolio	670	575	882
Private export credits, total net	379	706	825
Guaranteed	328	623	713
Non-guaranteed	50	83	112

Source: United Nations Industrial Development Organization, based on OECD *Development Assistance Efforts and Policies, 1966 Review* and subsequent estimates. See basic source for detailed definitions.

[a] Including developing countries of southern Europe.

[b] Including IBRD, IDA, EEC, UN Agencies etc.

[c] Members countries of OECD/DAC.

of the flow of financial resources from developed market economies to developing countries has been calculated by the Organization for Economic Co-operation and Development (OECD) and its Development Assistance Committee (DAC). According to this measure, the flow of financial resources from developed market economies to countries of Latin America, Africa and Asia involved about $ 10 billion (net) for 1965.[48] It has been estimated that in 1966 there was a slight decline from this level. As indicated in table 63, this flow comprises four major components: two from official or public sources and two from private sources. Of the former group, official bilateral flows accounted for more

[48] See footnote 43.

than one half of the $ 10 billion in 1965 and predominantly took the form of official grants and grant-like contributions rather than official loans. The other component of the official flow was multilateral in form, i.e. grants, capital subscriptions, purchase of bonds, loans and participation by the developed market economies in such international organizations as the United Nations and the World Bank Group, as well as the Inter-American Development Bank. These multilateral official flows (net) in 1965 remained relatively unimportant in quantitative terms in relation to bilateral official flows since the former accounted for less than 5 per cent of the total flow of financial resources to developing countries. Of the two sources of foreign private finance, the major component, private investment and lending (net), accounted for about one third of the $ 10 billion total flow. The predominant element of total private investment and lending consisted of direct investment rather than of portfolio investment. The minor component of all private investment, accounting for 8 per cent of the total flow, consisted of the net of private export credits, some of which had government guarantees, to developing countries. Much of the following discussion of the flow of financial resources to developing countries from developed market economies is related to the above classification and measurement because of the availability of supporting data.[48]

In seeking a perspective for the future, it may be noted that the total flow of financial resources from the majority of developed market economies, i.e. country members of DAC, to the developing countries (including the less developed countries of Europe) increased at an average annual rate of about 5 per cent between 1956–1959 and 1960–1964. Between these two periods, the growth was wholly attributable to the increase in official flows, but recently the growth rate of these flows has moderated and the growth of private funds has been renewed. The increasing flows of bilateral official assistance resulted from increases both in grants etc. and in loans, but over the period 1956–1965 there was greater

[48] The United Nations publication *International Flow of Long-Term Capital and Official Donations* differs in its measure of assistance from that of DAC in two respects. In conforming to the geographic definitions of developed market economies and of developing countries used in this survey, the United Nations document includes flows from Finland, Iceland, Ireland, Luxembourg, New Zealand and the Republic of South Africa and excludes flows to less developed countries of Europe: Cyprus, Gibraltar, Greece, Malta, Spain, Turkey and Yugoslavia. This difference reduces the initial 1965 DAC estimate of total flows of $ 10,150 million by $ 413 million and is the basis of the indication in the text above of a flow from developed market economies to developing countries of "about $ 10 billion". Second, unlike the DAC, the United Nations measure excludes net private export credits from DAC members and IBRD disbursements in DAC countries net of repayments. This reduces the DAC total flow estimate by a further $715 million. For more details, see UNCTAD, *Consideration of the Adequacy of the Rates of Growth Achieved by the Developing Countries: Growth and External Development Finance — Study by the UNCTAD Secretariat* (TD/B/C.3/34) and United Nations (1967) *Measurement of the Flow of Resources to Developing Countries* (Sales No.: 67.II.D.17). The percentage composition of component flows given in the text refers to geographic and conceptual definitions adopted by DAC. This is also the case for discussion in the following paragraphs, unless otherwise indicated.

emphasis on loans whose share in the total of official bilateral flows grew from 18 per cent in 1956—1959 to 34 per cent in 1965. Official flows to multilateral agencies increased at a faster rate between 1956—1959 and 1960—1964 than bilateral official flows. This was a result of the vigorous development of assistance efforts, partly by United Nations agencies and partly by regional finance institutions. As in the case of official bilateral assistance, the immediate past has witnessed a slowing of the rates of advance achieved between the late 1950's and the first half of the Development Decade. The stagnation in the total private flows during 1956—1964 resulted from diverse influences — a substantial growth in the extension of private export credits which was more than offset by a decline in private investment and lending. This decline, however, was restricted to the flows of portfolio investment and of new funds for direct investment, since there was a rising level of resources derived from the re-invested earnings of private corporations operating in developing countries. The resurgence in 1965 in the flow of total private resources to these countries was attributable to increased flows from developed market economies in all the above elements of private finance.

Despite the increased dollar level of the total flow of official and private financial resources to developing countries, the developed countries in 1963—1965 failed to meet the development assistance target of supplying 1 per cent of their combined national incomes to developing countries, the target set by the United Nations General Assembly in 1960.[44] Not even if the concept of national income is interpreted narrowly to refer to the national accounting aggregate of national product net of an amount required to keep the capital stock intact (depreciation) and at prices before the addition of net indirect taxes can the developed countries be said to have met this target. The total of official and private flows from DAC member countries, a total which in 1960—1962 represented about 1.1 per cent of their national income as defined above, fell to about 0.97 of their significantly increased national incomes in 1963—1965. However, the concept of gross national product at market prices is used in most cases as a denominator by the United Nations. In developed market economies, this aggregate is often about 20 to 25 per cent greater than net national product at factor cost. Accordingly, the development assistance effort of the developed market economies declined from about 0.84 per cent of their GNP at market prices in 1961—1962 to 0.72 per cent in 1963—1965, with marked variations in the level of performance of individual developed countries. Considering this contribution to the investment effort of developing countries in terms of a possible alternative allocation of such resources as, for instance, to increasing gross domestic capital formation within the developed market economies themselves, the percentage decline in assistance effort between 1961—1962 and 1963—1965 was from 2.9 to 2.5 per cent of capital

[44] General Assembly resolution 1522 (XV) of 15 December 1960.

formation in donor countries.[45] This relative decline in the flow of financial resources reflected a number of constraining influences in both the developed and developing countries. Boom conditions existed in a number of developed countries, together with budgetary restraints and adverse balances of payments. Domestic investment booms in developed countries seemingly reduced the relative attractiveness of foreign private investment. Budgetary competition between defence expenditures and foreign assistance also appears to have been a negative factor in these countries for foreign assistance. This would hold true of any form of budgetary competition in a policy framework where the rate of growth of government expenditures is firmly restricted. Even though the net drain on the balance of payments of foreign assistance may have been only a small part, say 20 to 50 per cent in some cases, of the total volume of aid extended — and this drain is virtually non-existent in the developed countries as a whole — the existence of general balance of payments problems in some major developed countries may have acted as a constraining influence. Some constraints have also existed occasionally in developing countries, not as a result of their lack of need of assistance but, rather, of their inability to absorb foreign assistance effectively at a given time. Assistance is seldom extended without prior consideration of feasibility studies, proper project preparation etc. The same requirements for absorption of aid are present where assistance is on a programme or non-project basis.

The distribution among developing regions of the financial resources from the majority of developed market economies has not been equal; the extent of inequality among recipient regions depended on the type of financial flow from developed countries (see table 64). Noting a margin of error of estimate, as well as some modification in the measurement of financial flow from that employed above, the flow of financial resources in 1960—1964 represented average annual receipts in the developing regions as a whole of about $ 6 *per capita*.[46] However, while this involved about $ 10 *per capita* in Latin America and Africa, the corresponding figure was much lower, less than $ 4, in developing Asia, the region with the lowest *per capita* income. A large part of this pattern results from the greater allocation of funds on a *per capita* basis by private investors to regions with greater *per capita* income, i.e. to Latin America, Africa and Asia, in this order. The population of developing Asia is more than three times that of Africa and therefore, despite a lower level of aggregate output in Africa, it has a higher *per capita* output and income than Asia. Further, a similar distribution pattern, although not as unequal, was involved in the *per capita* allocations of both official

[45] See United Nations, *International Flow of Long-Term Capital and Official Donations, 1961—1966* (document E/4371 and Corr. 1).

[46] *Per capita* estimates were obtained by using data in table 64. Flows which were not allocated in the original source were arbitrarily distributed among the three developing regions, and the new regional totals were reduced to *per capita* terms.

TABLE 64. THE FLOW OF SELECTED ELEMENTS OF FINANCIAL RESOURCES TO DEVELOPING REGIONS FROM MEMBER COUNTRIES OF THE ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT AND FROM MULTILATERAL AGENCIES, 1960–1964

(Disbursements in million dollars, annual average)

	Developing regions					*Other regions*[a]	*All regions*
	Total	*Latin America*	*Africa*	*Asia*	*Unallocated*		
Official bilateral, total net	4,790	673	1,523	2,315	219	437	5,167
Grants etc., total . . .	3,567	375	1,213	1,787	191	313	3,880
United States . . .	2,309	284	393	1,526	106	275	2,584
Other countries. . .	1,258	91	820	262	85	38	1,296
Lending, total	1,162	299	310	527	26	124	1,285
United States . . .	550	212	46	293	—1	64	614
Other countries. . .	612	87	264	234	27	60	672

Official multilateral, total net	458	126	145	168	19	8	466
International Bank for Reconstruction and Development and International Development Association	252	106	51	94	—	1	253
United Nations . .	163	23	50	71	18	5	168
Other	44	—3	43	2	2	2	46
Private direct investment . .	...	...	...	...	...	...	...
United States . . .	879	538	140	167	34	45	924
Selected other countries[b]	737	126	367	69	175	30	767
Private export credits, guaranteed	465	212	141	112	1	103	568

Source: United Nations Industrial Development Organization based on OECD *Geographical Distribution of Financial Flows to Less Developed Countries, Disbursements, 1960—1964.* See basic source for detailed definitions. Except for data on multilateral flows, the contributions of Switzerland are excluded. It is to be noted that these data differ somewhat from those in the previous table.

[a] Developing countries of Europe.

[b] Private direct investment of Belgium, France, Federal Republic of Germany, Italy, Japan and Sweden.

bilateral loans and official multilateral disbursements. Official bilateral grants, however, were differently distributed in 1960–1964, being highest in Africa and lowest in Latin America.

Additional foreign assistance to developing countries, estimated at an annual average of some $ 550 million in 1960–1964, came from three other sources: the centrally planned economies, developed market economies other than DAC member countries, and from developing countries themselves. In the case of the major flow from the centrally planned economies (including mainland China), a sharp distinction

TABLE 65. COMMITMENTS OF BILATERAL ECONOMIC ASSISTANCE TO DEVELOPING COUNTRIES BY CENTRALLY PLANNED ECONOMIES, UP TO THE END OF 1966

(Million dollars)[a]

	Before 1963	*1963–1966*	
	Total	*Total*	*Annual average*
Sources:			
Centrally planned economies	4,454	3,329	832
Union of Soviet Socialist Republics	2,898	1,969	492
China (Mainland)	365	476	119
Other	1,191	884	221
Recipients:			
Developing countries	4,454	3,329	832
Latin America	381	100	25
Africa	1,302	1,326	331
Asia	2,771	1,903	476

Source: United Nations, *International Flow of Long-Term Capital and Official Donations, 1961–1966*, document E/4371 and Corr. 1.

[a] National currencies converted into dollars at official rates of exchange.

must be drawn between commitments and disbursements since in the period 1955–1964, the value of the disbursements, which is the concept used in the above discussion, was estimated at about 35 per cent of the commitments made during the period. It may be suggested, mainly on the basis of United Nations estimates, that the value of disbursements from the centrally planned economies, consisting of official bilateral transactions, increased from an annual level of $ 100–120 million in the latter half of the 1950's to some $ 340–360 million in the first half of the Development Decade. Commitment to such assistance, overwhelmingly in the form of loans rather than grants, had started in 1954, with the first substantial disbursements made in 1956 by the Union

of Soviet Socialist Republics, but other centrally planned economies have since established their own assistance programmes. Estimates of assistance from the centrally planned economies in recent years are in terms of commitments; these data indicate that, while there has been a marked irregularity in annual commitments, the average annual level of some $ 800–850 million in the years 1963–1966 was substantially in excess of the average annual level before 1963 when it had been closer to $ 500 million (see table 65). Of the more recent commitments, i.e. in 1963–1966, about three quarters of the total were made by the Union of Soviet Socialist Republics and mainland China. Further, about three quarters of the total commitments of the centrally planned economies were to five recipient countries in Africa and Asia, in the following order: India, United Arab Republic, Iran, Algeria and Syria. Before 1963, the five major recipients of commitments were India, Indonesia, the United Arab Republic, Afghanistan and Brazil.[47]

The impact on individual developing countries of the inflow and selected components of external financial resources from all areas of origin can be viewed in various ways, including the relationship of such foreign receipts to the major element of foreign expenditures by developing countries, namely, their imports. Regionally, while receipts of foreign financial resources in Latin America were equivalent to about 15 to 20 per cent of the value of their total import payments in 1960–1964, the percentage was greater in Africa, about 20 to 25 per cent, and still greater in Asia where the over-all percentage was about 25 to 30 per cent. However, within each region there were widely different country experiences, with the extreme cases generally the result of clearly identifiable special influences. Within each region the countries with the greatest offset against import payments from net foreign capital inflows (defined here as central government transfer receipts and central government and private sector receipts of non-monetary sectors' capital) were Bolivia and Paraguay; Ghana and Tunisia; and the Republic of Viet-Nam and the Republic of Korea (see table 66). In the case of these last two countries, net foreign capital inflow in 1960–1964 was sufficient to cover about five sixths and three fifths, respectively, of their import expenses. The impact of foreign capital flows for the other four countries indicated above was markedly less, accounting for between one third and one half of their respective import bills. At the other extreme, however, were countries which experienced either an average annual net outflow of financial resources or an inflow of relatively minor proportions. Countries at this end of the scale included the Dominican Republic and Venezuela; Morocco and the former Federation of Rhodesia and Nyasaland; and Saudi Arabia and Iraq.

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[47] This paragraph is based primarily on data in *International Flow of Long-Term Capital and Official Donations, 1961–1966* (document E/4371 and Corr. 1), and also on estimates by OECD and DAC.

TABLE 66. RELATION OF NET INFLOWS FROM PUBLIC AND PRIVATE RESOURCES TO IMPORTS, DEVELOPING COUNTRIES,[a] 1956–1964

(Value of inflows as percentage of value of imports, annual average)

	Central government transfers and non-monetary capital		*Private non-monetary capital*	
	1956–1959	*1960–1964*	*1956–1959*	*1960–1964*
Vietnam, Rep. of	76	63	5	20
Korea, Rep. of	91	58	—	4
Jordan	68	58	1	3
Pakistan	31	46	2	5
Bolivia	36	34	17	16
Israel	42	23	6	20
Tunisia	15	29	—	9
India	19	34	−1	−2
China (Taiwan)	35	21	8	11
Ethiopia	17	23	8	9
Nigeria	10	8	14	22
Paraguay	8	15	8	16
Ghana	10	24	−1	5
Mexico	−1	—	18	23
Panama	14	10	12	13
Guatemala	16	7	13	15
Chile	2	13	11	9
Libya	35	13	1	7
Brazil	−1	9	23	11
Argentina	1	4	11	16
Sudan	4	16	8	3
Costa Rica	7	6	4	13
United Arab Republic	10	18	−6	1
Iran	13	6	6	12
Nicaragua	5	3	9	14
Thailand	8	7	4	10
Morocco	13	17	3	—
Ecuador	6	11	9	5
Haiti	17	13	−12	3
El Salvador	3	2	−1	12
Uruguay	1	4	8	9
Colombia	1	2	5	10
Peru	4	7	26	4
Honduras	6	9	−4	2
Rhodesia and Nyasaland, Fed. of	6	3	23	8
Burma	20	11	—	−2
Dominican Republic	−2	10	5	−2
Ceylon	5	6	−1	—
Syria	6	5	−1	—
Philippines	8	6	9	−2
Saudi Arabia	11	−1	−9	3
Iraq	3	8	5	−7
Venezuela	3	−4	25	−21

Source: United Nations Industrial Development Organization based on summary statements in International Monetary Fund, *Balance of Payments Yearbook*, Volumes 16 and 17. See basic source for detailed notes.

[a] Countries ranked by size of total inflow of two components shown in relation to imports in 1960–1964.

annual dollar investment in this sector in 1960–1964 was only $ 4 *per capita* or some $ 5–6 billion for the developing world as a whole. As developing countries now grapple with the problems of the latter half of the 1960's, it may be estimated that the average annual requirements for the expanding manufacturing sector may be closer to $ 9 billion. The growth of investment in manufacturing since the middle of the 1950's is considered briefly below, and the role of various sources of supply of such funds will be examined in subsequent sections.

Recent growth of investment in manufacturing

During the ten-year period 1955–1964, the growth of total investment in manufacturing in developing countries, together with the growth of manufacturing output, varied substantially from country to country. Moreover, while it was rare for a developing country to suffer an actual decline in output of manufactured products in the span of the decade, it was probably not so uncommon for gross capital formation in the manufacturing sector of a developing country to decline during that period (see table 56). For such a relatively short period, it is possible to increase output with existing capacity and without maintaining the prior level of investment activity, but this can hardly be continued over the long term. Nevertheless, the more general experience of developing countries in the ten-year period was to make significantly higher allocations of investment funds to their manufacturing sector than in earlier years. The limited data in table 56 suggest two types of experience. On the one hand, in the group of countries where the rate of growth of manufacturing investment was relatively high, the greatest increases in manufacturing investment were in those countries where initial investment in manufacturing was only a very small part of total investment activity. On the other hand, developing countries in which the rate of change in manufacturing investment was only moderately positive or exhibited decline included not only those with high initial involvement of the manufacturing sector in total investment but some with a low initial involvement. The extremes shown in the table are of average annual increases in investment expenditures in the manufacturing sector of 50 per cent per year, or more, and annual rates of decline of about 10 per cent. One of the averages that can be calculated from the very limited country experiences shown in the table indicates a recent average annual increase of investment in manufacturing of about 10 per cent. However, since these countries probably accounted for less than one sixth of the total investment activity of developing countries, it is hazardous to project their average experience to developing countries as a whole.

It is likely that many developing countries, in view of their recognition of the central role of industrialization, have increased invest-

This brief characterization of the influence of foreign financial capital inflows in 1960—1964 requires relatively little modification in the case of the Asian experience in the previous five-year period, 1955—1959, since many Asian countries tended to experience a rise in inflow of financial resources *pari passu* with a rise in imports. For Latin America, excluding the special case of Venezuela, the order of individual country dependence on external financial resources was broadly similar in 1955—1959 and in 1960—1964. However there was tendency for those Latin American countries, which in the earlier period showed relatively little dependence, to increase their degree of reliance, while countries which had been more dependent in relation to import payments tended subsequently to reduce their degree of dependence. The lack of any general relationship for African countries between the degree of offset of import payments by financial resource receipts in the late 1950's and in the early 1960's can clearly be attributed to substantial political developments occurring in that continent in the 1960's.

The respective roles of the public and the private components of the inflow of financial resources into developing countries in 1956—1964 were markedly different in the various developing regions. In Latin America, for example, the broad tendency in 1960—1964 was for countries to rely somewhat more on private than on public receipts of financial resources despite some shifts from the late 1950's towards public funds. In 1960—1964, private sector receipts from abroad were equivalent to from 2 to 16 per cent of imports in most Latin American countries, while the public sector receipts were equivalent to about 2 to 13 per cent of imports. Country experience in the Asian region was still less homogeneous than in Latin America. While the flows of private financial resources of most Asian countries ranged from an outflow in a number of cases to an inflow equivalent to about 20 per cent of import value, the corresponding range for foreign public resources extended from inflows equivalent to 5 to 65 per cent of imports, the greater dependence occurred in Jordan, India, Pakistan, the Republic of Korea and the Republic of Viet-Nam. One development between the late 1950's and the early 1960's in Asia was an increase in country diversity in attracting private capital, while the extremely wide variation among Asian countries in dependence on foreign public financial resources persisted throughout 1956—1964.

The segment of external financial resources directed to manufacturing

There is no readily available means at present of determining exactly what part of the $ 10—11 billion net flow in 1965 of financial resources from developed market and centrally planned economies was directed into the manufacturing sector of developing countries, or of indicating the proportion thus allocated in the previous ten-year period. However, it may be estimated that the minimum allocation to manufacturing of

the total flow of external financial resources to developing countries in the first half of the Development Decade was about 15 to 25 per cent. It had been previously estimated that, on the average, perhaps 18 per cent of the total of gross domestic capital formation in developing countries, financed from both domestic and external sources, was directed to the manufacturing sector. The minimum estimate regarding the sectoral distribution of external financial resources thus suggests that foreign financial resources may have been more prone to be involved in manufacturing than the domestic financial resources of developing countries. Because of the nature of some of the components of the flow of foreign financial resources, it is not possible at present to suggest a maximum allocation to manufacturing. The contribution of component foreign flows to manufacturing in developing countries is discussed below in the following order: official bilateral, official multilateral, private direct investment and private export credits.

The bulk of commitments to developing countries of official bilateral financial resources by governments of developed market economies has not been directly geared to the financing of specific projects, whether they are in the manufacturing or other sectors (see table 67). Due to the inability of determining what part of non-project foreign finance finds its way, directly or indirectly, to the manufacturing sector in developing countries, no clear evaluation can be made of the impact of external official bilateral flows on the industrialization effort of developing

TABLE 67. OFFICIAL BILATERAL COMMITMENTS FOR INDUSTRY AND OTHER PURPOSES IN DEVELOPING COUNTRIES, BY INDIVIDUAL OECD MEMBER COUNTRIES,[a] 1962–1965

(Million dollars, annual average)

	Capital project financing			*Financing for other purposes*	*All Commitments*
	Industry sector	*Other sectors*	*All sectors*		
United States	281	831	1,112	3,289	4,401
Germany, Fed. Rep. of	109	172	282	271	553
France	65	375	440	543	983
Japan	62	32	94	142	236
United Kingdom	39	134	173	325	498
Italy	30	56	86	105	191
Canada	12	90	102	37	139
Others[b]	2	21	23	196	219
Total[c]	601	1,711	2,311	4,908	7,219

Source: United Nations Industrial Development Organization based on OECD (1964) *The Flow of Financial Resources to Less Developed Countries 1956–1963* and forthcoming issue of similar publication for 1961–1965. See sources for details. It is to be noted that this table deals with commitments whereas tables 3.11.2. and 3.11.3. deal with disbursements.

[a] Countries ranked by size of financing of capital projects in the industry (including mining) sector.

[b] Data refer to Austria, Belgium, Denmark, Netherlands, Norway, Portugal, Sweden and Switzerland.

[c] Due to rounding, totals are not always equal to sum of components.

countries. In 1962—1965 more than two thirds of the official bilateral commitments of the DAC member countries were directed to activities other than capital project financing. Such activities included contributions for clearly specified current expenditures in recipient countries, technical co-operation, consolidation and refinancing of loans, and other non-project assistance related to financing of current imports or to cash transfers. While the category of contributions for clearly specified current expenditures included resources for current operating costs of agricultural extension services, hospitals or training facilities and some administrative personnel, the much more important category of technical co-operation assistance included grants and salaries for students, trainees and experts, as well as supporting equipment. The commitment of non-project foreign assistance that was not directly linked with imports to developing countries was of intermediate significance between the two categories indicated above. While such resources could be used for general development purposes without restriction on the specific use of funds, they could also be utilized as balance-of-payment stabilization loans or as support for current administrative budgets. Non-project assistance to finance current imports, by far the most important category of this type of assistance, included funds unrelated to specific capital projects, including shipments of agricultural surplus commodities.

It is quite clear that, directly or indirectly, some of the non-project assistance mentioned above, which accounted for about two thirds of all official bilateral commitments from developed market economies, or $ 4.9 billion out of $ 7.2 billion annually in 1962—1965, found its way into activities closely related to the industrialization effort of developing countries. Of the remaining one third of official bilateral assistance from developed market economies which was identified with financing of specific capital projects, a little over one quarter went for industrialization (mining and manufacturing) in developing countries. This represented an average annual commitment in 1962—1965 of some $ 600 million. Smaller proportions were devoted to the two economic elements of infrastructure, transport and energy, and to social infrastructure. While specific capital projects in the agricultural sector represented a much more limited involvement of official bilateral funds, that sector probably benefitted indirectly more than in proportion to its direct receipts from investment in the field of energy and other social and economic infrastructure.[48]

Although developed market economies as a whole (DAC member countries) committed only one twelfth of their total official bilateral flow to specific industrial projects in developing countries, i.e. $ 600 million, the practice of individual donor countries varied sharply. The Federal Republic of Germany, Italy and Japan committed two to three

[48] OECD (1964), *The Flow of Financial Resources to Less Developed Countries, 1956—1963*, p. 49.

times that proportion to specific industrial projects. The loans of the Federal Republic of Germany have been issued both to governments and to the importers of capital equipment in developing countries. Most of these loans were granted for large industrial projects, but assistance to small and medium size enterprises was also extended through development banks. The manufacturing industries of India and Pakistan, in particular, have been beneficiaries of loans from the Federal Republic of Germany.[49] The loan programmes of Japan have concentrated on projects which were revenue producing and consistent with Japan's financial and technical capabilities. At the other end of the scale is a group of developed market economies, including Austria, Belgium, Denmark, Netherlands, Norway, Portugal, Sweden and Switzerland, which have preferred to concentrate official bilateral assistance on activities other than specific industrial projects although many of them have engaged in such projects. Generally, the efforts of these smaller countries have concentrated on technical co-operation and on non-project assistance that has not been directly linked with imports.

The extent to which Canada, France, the United Kingdom and the United States have allocated funds from their official bilateral commitments specifically to the financing of industrial projects in developing countries has conformed more closely to the above general average for developed market economies — one twelfth. Official bilateral loans granted by Canada for the manufacturing industry of developing countries averaged $ 12 million annually in 1962—1965 and were used to purchase equipment for pulp and paper industries and for ferrous and non-ferrous metal industries. The average annual commitment of the United Kingdom of some $ 39 million during this period for specific industrial projects was derived from the use of public funds by its Export Credit Guarantee Department (ECGD) and from the Commonwealth Development Corporation (CDC). Commonwealth countries have been the principal beneficiaries, especially India from ECGD Section 3 funds and mainly African countries from CDC funds. The CDC has provided technical assistance for enterprises in which it has participated; it has encouraged or participated in joint ventures and it has stimulated investment of local capital in the manufacturing sector of developing countries. Much of the estimated average annual specific involvement of France in 1962—1965 in the industrial sector of developing countries — some $ 65 million — was directed to countries of Africa with which France has had special political affiliations in the past. In the longer period of 1946—1963, one half of the total of eighteen loans granted by one of the French public agencies, Caisse Centrale de Coopération Economique, to the manufacturing industry of those African countries south of the

[49] *Ibid.* Also see *Official Bilateral Financial Assistance for the Manufacturing Industry of Developing Countries*, a paper prepared for the International Symposium on Industrial Development (document ID/CONF.1/1).

Sahara (which were formerly under French administration) was directed to metal transforming industries and metallurgy, and about one quarter to agricultural and foodstuffs industries.[50]

Of the total of some $ 600 million a year of official bilateral commitments for industrial projects in developing countries by developed market economies in 1962—1965, nearly one half, or some $ 280 million, emanated from the United States. However, the latter figure represented little more than 6 per cent of the total of the United States official bilateral commitments for all purposes in 1962—1965. This indicated the use of such funds primarily for non-project assistance contributions to finance current imports of developing countries, as well as the heavy involvement of the United States in technical co-operation programmes and in the financing of specific projects relating to energy, transport and communications in developing countries. The commitments of the "soft-loan" Agency for International Development (AID) were spread among the manufacturing industries of more than thirty countries of Asia, Africa and Latin America in 1960—1964. The principal recipients of loans to industry included Brazil, Chile, Ghana, India, Israel and Pakistan. With regard to the recipient industries, there was a strong concentration on selected areas of heavy industry, particularly transport equipment, basic metals and chemicals, and fertilizers. Relatively little was committed directly to food and textile industries, but these and other light industry sectors may have obtained sub-loans from institutions benefitting from the sizable contributions of the United States to industrial development financing agencies. The manufacturing sectors of developing countries also received United States assistance in the form of "harder" loans from the Export-Import Bank, but its activities in 1960—1964 were not as widespread as those of AID. The six main recipients of the Export-Import Bank loans were, in order of magnitude, the Philippines, Ghana, India, Mexico, Argentina and Indonesia.

The developed market economies committed official bilateral financial resources to developing countries for a broad range of purposes, with only relatively minor sums accruing directly to the manufacturing sector, as the donor countries often considered the growth of this sector to be a function of private capital. However, in the much more limited official bilateral assistance of the centrally planned economies, there was a considerably stronger concentration on manufacturing. It has been estimated that manufacturing received more than one half of the total of official bilateral commitments by centrally planned economies to developing countries in the early 1960's with associated technical assistance included under each project. The Soviet Union, in its commitments to countries of Asia and Africa, has provided for industrial projects rather than for programmes, with the projects selected for commitment of assistance extending throughout almost the whole in-

[50] *Op. cit.*, document ID/CONF.3/1, p. 35.

dustrial spectrum but with emphasis, in terms of number of projects, on heavy industries. But light industry was not neglected: the food industries of fourteen countries and the textile industries of six countries were involved in USSR assistance. In the heavy industry sector, the broadest participation was in industries producing building materials, basic metals and metal and mechanical products. Some of the industrial plants involved in this assistance were designed to be within the framework of the recipient country's development plan.

During the past five years, Yugoslavia has granted a total of $ 320 million in financial assistance, including some $ 34 million specifically for manufacturing, to the developing countries of Africa and Asia. In dollar terms, about one half of such credits was directed to light industries, mainly food and textiles. Of the remainder, which was directed to the heavy industry sector, the order of priority was: non-metallic minerals, transport equipment and paper and paper products.

Turning to official multilateral contributions, it should be noted that the pattern of commitments of financial resources by multilateral agencies to developing countries contrasted with that of the official bilateral flows of the developed market economies, but was similar to that of the centrally planned economies. Generally, the bulk of multilateral agency commitments have been tied to the financing of specific capital projects. While this has not been the case for all such agencies — United Nations agencies have concentrated on technical assistance and welfare programmes — it has been true with regard to the quantitatively more significant activities of the World Bank Group.

The three agencies comprising the World Bank Group have adopted different attitudes towards the financing of manufacturing in developing countries. The International Finance Corporation has been almost wholly dedicated to furtherance of industrial development, while the terms of reference of the International Bank for Reconstruction and Development (IBRD) and of the "softer-loan" International Development Association (IDA) have been broader. Nevertheless, it is estimated that between 1950 and 1966, the IBRD and IDA together channelled some $ 900 million into manufacturing in developing countries, mainly through loans to development banks and finance companies in developing countries. As for the remainder of the loans and credits of IBRD and IDA, the iron and steel sector was the principal identified manufacturing beneficiary. Considerably smaller sums were identified, in order of magnitude, with the fertilizer and chemical, wood pulp and paper, and food processing sectors. Further, a considerable commitment was made in aid to industry generally. This pattern of sectoral involvement was markedly different for the more developed countries in earlier years. In these countries, IBRD investment in development finance companies was less significant, and investment in iron and steel, and wood pulp and paper were relatively more significant.

It might appear that thus far the IBRD and IDA have not accorded a particularly high priority to direct loans to manufacturing in developing countries. Only about 12 per cent of these agencies' total loans and credits for all purposes and all destinations was directed to this sector in 1965 and 1966. This sum amounted to about $ 150 million *per annum* (see table 68). The fact that this allocation represented an increase in the share of total loans and credits, from 5 per cent in the early 1950's, 6 per cent in the late 1950's and 9 per cent in the early 1960's, was in part a reflection of the general shift of their total investment activities from developed to developing countries. In the 1950's, investment in manufacturing in developing countries remained close to 10 per cent of the total investment made by IBRD and IDA in developing countries; this percentage rose to 12 per cent in 1960–1964 and to 16 per cent in 1965–1966. The major investments in this region were directed to the establishment of electric power and transportation facilities. Undoubtedly, many of the latter investments gave support to the manufacturing sector in developing countries. In addition, this relatively modest allocation to manufacturing by IBRD and IDA was highly concentrated in terms of the number of recipient countries. India alone accounted for more than 50 per cent of the total loans for manufacturing in developing countries over the period 1950–1966, while between 1960 and 1966 loans and credits for manufacturing in eight countries — Algeria, Colombia, India, Iran, Israel, Morocco, Pakistan and the Philippines — absorbed about 90 per cent of the total IBRD and IDA loans to manufacturing sectors of developing countries. Thus the benefits of the average annual commitments to manufacturing in developing countries in the 1960's, amounting to nearly $ 100 million, were restricted in terms of the number of qualifying countries. This suggests that the potential activities of these increasingly favoured multilateral lending agencies might be considerably enlarged if they were to engage in geographically more extensive operations in the manufacturing sector of developing countries. In addition to the direct provision of funds for industry in developing countries, the IBRD has been active in many other directions, including the encouragement of the international flow of private capital through the formulation of a convention on the settlement of investment disputes; attention to a multilateral scheme for insuring foreign investments against other than normal business risks; and bolstering the activities of the other agency of the Bank Group, the International Finance Corporation.[51]

The International Finance Corporation started its second decade of activities in 1966 with potential resources of more than $ 500 million.[52] In furthering its prime purpose of encouraging economic development

[51] See *Annual Report, World Bank and IDA, 1965–1966.*

[52] This paragraph is based in part on *Annual Report, 1965–1966, International Finance Corporation*, Washington, D.C.

TABLE 68. WORLD BANK LOANS AND IDA CREDITS GRANTED FOR MANUFACTURING AND FOR OTHER PURPOSES, BY RECIPIENT DEVELOPING COUNTRY,[a] 1950–1966

(Million dollar, annual average)

	1950–1954			1955–1959			1960–1964			1965–1966		
	Manufacturing	*Other purposes*	*Total*	*Manufacturing*	*Other purposes*	*Total*	*Manufacturing*	*Other purposes*	*Total*	*Manufacturing*	*Other purposes*	*Total*
Developing countries	13	122	135	30	305	335	78	574	652	149	762	911
India	6	16	23	28	60	87	34	109	143	75	135	210
Pakistan	—	9	9	2	15	16	16	67	83	28	62	89
Colombia	—	14	14	—	12	12	6	50	56	12	8	21
Israel	—	—	—	—	—	—	5	10	15	10	—	10
Algeria	—	—	—	—	2	2	4	10	14	—	—	—
Morocco	—	—	—	—	—	—	3	—	3	9	19	28
Philippines	—	—	—	—	4	4	3	9	12	—	16	16
Malaya	—	—	—	—	7	7	2	10	12	—	26	26
Iran	—	—	—	—	29	29	1	12	13	5	20	25
Chile	4	—	4	—	7	7	1	15	16	—	4	4
Costa Rica	—	—	—	1	1	1	1	8	9	—	—	—
Thailand	—	5	5	—	16	16	—	15	15	—	32	32
Ethiopia	—	1	2	—	3	3	—	8	8	—	6	6
Others	2	76	78	1	148	149	1	251	252	10	435	445
Developed countries	13	105	118	64	122	186	22	164	186	64	253	317
Total	26	227	253	94	427	522	100	738	838	213	1,015	1,228

Source: United Nations Industrial Development Organization, based on the *Annual Reports of the International Bank for Reconstruction and Development and International Development Association*, various issues. It is to be noted that the classification of loans and credits between manufacturing and other purposes used in the construction of this table is tentative. Although the tabulations in the basic sources classify projects under "industry" including mining, the attempt was made, using qualitative material, to separate out projects which were primarily related to the manufacturing sector. Generally, loans etc. for development finance companies were included under manufacturing. See basic sources for details.

[a] Countries ranked by size of receipts for their manufacturing sector in 1960–1964.

by helping to promote the growth of the private sector of the economies of member countries, particularly in the less developed areas, the IFC undertook commitments in its first decade, through equity as well as long-term loans, of $ 173 million to 100 enterprises related to manufacturing in thirty-four countries. Four fifths of the investment in identifiable manufacturing sectors was directed to heavy industries in this order of magnitude: iron and steel, pulp and paper, construction materials and chemicals. The major part of the investment in the light industry sector was allocated to textiles, with the remainder going to food industries. These activities reflect an attempt to focus on situations where some economic priority can be identified, where the IFC — through its participation — can expect to help in the development of local capital markets and where the prospect of profitability is sufficiently attractive to bring in private investors. It is estimated by the IFC that, up to mid-1966, other investors had provided nearly $ 4 for every $ 1 invested by IFC. Many of the enterprises that IFC has helped to finance are joint ventures by local and foreign investors, ventures which are particularly valuable in countries where local entrepreneurial skills are still embryonic. The IFC has also provided support for private development finance companies. By mid-1966 the IFC had invested some $ 14 million in a number of development finance companies. With this base of share capital and with substantial loan funds, these companies were able to undertake operations amounting to a cumulative total of more than 100 times the IFC investment, chiefly in a wide range of manufacturing industries.

The fact that the total flow of private capital to developing countries from developed countries has increased in recent years at a much more modest rate than the total flow of official financial resources is regrettable from the standpoint of the industrialization efforts of developing countries, for there is a greater propensity on the part of foreign investors to seek opportunities in manufacturing rather than in other sectors. In varying degrees, depending on the policies of the donor countries, foreign official capital has assumed significant responsibilities for non-project assistance, for extension of technical assistance and for development of the economic and social infrastructure of developing countries. The options open to foreign private capital, whose deployment is necessarily governed by criteria of profit and risk, have been somewhat different. The changing over-all magnitudes of flows to all destinations have been related to the relative profitability of domestic opportunities. Further, the external flows to developing countries have been influenced by alternative possibilities in other developed countries. Finally, the orientation of private capital towards the manufacturing sector of developing countries has been connected with the attraction of capital to other sectors of developing economies, especially the extractive sectors. Given the level of the total flow of foreign private capital to developing countries, there is no doubt that its option for the manufacturing sector as against other activities in

TABLE 69. FOREIGN PRIVATE DIRECT INVESTMENT (NET) IN DEVELOPING COUNTRIES,* FROM ALL SOURCES, 1956–1964

(Million dollars, annual average)

	1956–1959	1960–1964
Puerto Rico	72	157
Brazil	191	118
Israel	18	99
Argentina	124	98
Mexico	108	97
Malaysia	...	86
Nigeria	51	84
Iran	22	75
Rhodesia and Nyasaland, Fed. of	47	47
Trinidad and Tobago	...	41
Chile	45	31
Surinam	6	18
Tunisia	1	17
Panama	12	15
Pakistan	4	15
Sierra Leone	...	15
Jamaica	...	14
China (Taiwan)	6	12
Libya	—	11
Thailand	3	11
Colombia	4	11
Costa Rica	4	10
Bolivia	11	9
Ethiopia	4	9
Guatemala	15	8
Malta	7	7
Ecuador	7	7
Indonesia	3	7
El Salvador	−1	6
Nicaragua	2	5
Saudi Arabia	−16	5
Ghana	−10	4
Cyprus	—	4
Paraguay	2	3
Somalia	...	3
Dominican Republic	6	3
Uruguay	5	2
Peru	73	2
Ivory Coast	...	1
Korea, Rep. of	—	1
Viet-Nam, Rep. of	−1	1
Haiti	—	1
Ceylon	−2	—
United Arab Republic	−41	...
Sudan	−1	−1
Morocco	8	−1

TABLE 56. GROWTH AND STRUCTURE OF INVESTMENT BY ECONOMIC SECTORS, IN SELECTED DEVELOPING COUNTRIES*

(A = percentage share of sector in investment, B = average annual compound rate of growth)

		Period	Manufacturing ISIC 2–3	Primary products ISIC 0–1	Infrastructure ISIC 4, 5, 7	Other ISIC 6, 8, 9	Total ISIC 0–9
Sudan	A	1955–1959	5	24	29	42	100
		1960–1961	19	23	25	33	100
	B		67	14	11	7	15
Tunisia	A	1960–1961	10	19	19	52	100
		1962–1964	20	23	14	43	100
	B		50	21	--	5	13
China (Taiwan)	A	1955–1959	24	22	29	24	100
		1960–1963	23	20	30	27	100
	B		15	14	18	19	16
Philippines	A	1956–1959	24	8	15	52	100
		1960–1964	25	8	29	38	100
	B		11	7	26	2	10
Israel	A	1955–1959	22	19	13	47	100
		1960–1964	22	13	17	49	100
	B		10	2	17	11	10
Thailand	A	1955–1959	27	25	34	14	100
		1960–1963	24	22	32	22	100
	B		10	9	11	23	12

	1956–1959	*1960–1964*
Honduras	−1	−2
Burma	2	−5
Philippines	40	−8
Iraq	20	−25
Venezuela	426	−103

Source: United Nations Industrial Development Organization based on individual country statements in International Monetary Fund, *Balance of Payments Yearbook*, various volumes. In some cases data do not refer to all years stated in heading. See basic sources for detailed notes.

[a] Countries ranked in order of size of receipt of net private direct investment, in million dollars, in 1960–1964.

developing countries has been proportionately greater than that of official financial resources. Even though the total of private capital flows has been considerably smaller than the total of all official flows to developing countries, the dollar level of allocations directly and specifically to manufacturing in these countries from these two sources have been of the same broad magnitude. However, since this magnitude represents only a small part of the total investment requirements for manufacturing in developing countries, consideration of incentives to promote further private foreign investment in the manufacturing sector of developing countries is therefore an important matter. Examination of recent trends in foreign private capital directed to manufacturing is limited below to two of its major components, direct investment and private export credits.

Foreign private direct investment from the developed market economy countries, members of DAC, that is directed to all sectors in developing countries declined from an annual average flow of $ 2.05 billion in 1956–1959 to $ 1.70 billion in 1960–1964 but, as shown in table 63, subsequently expanded to $ 2.42 billion in 1965. These flows accounted for 29, 19 and 23 per cent of the total flow of foreign financial resources to developing countries in the respective periods. This development reflected the irregular flow of new funds from developed countries. Reinvested earnings, which by 1965 accounted for more than one third of direct investment, displayed more regular pattern of expansion. For individual countries, detailed data on the distribution of this private direct investment allocated specifically to the manufacturing sector in developing countries are not available, but it will be recalled from table 64 that the different developing regions have fared very differently as recipients of private direct investment for all sectors. In this connexion, Latin America has been the most favoured, and Asia the least favoured region. Considered at the country level, this uneven distribution of receipts of such resources for all sectors can be shown by the fact that in 1960–1964 only eight out of forty-four developing countries which

had some inflow of private direct investment (net) for all sectors of their economies absorbed as much as two thirds of the total receipts of these forty-four countries (see table 69). While the average annual net inflow of total private direct investment of the top eight countries into all economic sectors was about $ 100 million, the average annual inflow for the remaining countries was closer to $ 12 million. An additional eight countries experienced some degree of outflow of private direct investment during this period. A further aspect of the impact of such investment by developed market economies on individual developing countries relates to the high degree of instability of these receipts in the course of time. Between 1956—1959 and 1960—1964, in the case of about one half of the developing countries considered, the average annual rate of net inflow of the total of all private direct investment into all their economic sectors either increased by more than 25 per cent or declined by more than 10 per cent. The following review of recent tendencies in private direct investment specifically in the manufacturing sector of developing countries by four important capital-exporting countries might be considered against this general background. A review of investment decisions by foreign private investors in the Federal Republic of Germany, Japan, United Kingdom and the United States, which together accounted for two thirds of the total private direct investment by developed market economies in developing countries in the early 1960's, suggests that between one quarter and one third of the total of foreign private direct investment in developing countries has been directed to the manufacturing sector.

United States private direct investment in the manufacturing sector of developing countries increased at an average annual rate of 12 per cent between the latter half of the 1950's and the first half of the 1960's, with the average annual dollar flow rising from $ 148 million to $ 263 million (see table 70). The more dynamic source of finance for this expansion was an increase in net capital outflow from the United States, although the rate of growth of undistributed subsidiary earnings, which were the largest source of direct investment finance for this sector in 1955—1959, was also as high as 9 per cent *per annum*. The beneficiaries of these injections of private capital into manufacturing were overwhelmingly the countries of Latin America; United States investment in manufacturing in Africa remained negligible, and investment in developing countries of Asia rose to only $ 30 million *per annum* in 1960—1964. To obtain a perspective on the apparently encouraging annual rate of growth of 12 per cent in the private direct investment by the United States in manufacturing in developing countries, it may be noted that similar United States investment flows to manufacturing in other developed countries, which in the late 1950's was four times as large as flows to developing countries, expanded at a still faster pace of about 14 per cent annually. In other words, out of every $ 6 of increased United States investment in foreign manufacturing, approximately $ 1 was directed

to the manufacturing sector in developing countries. The attraction of the United States to manufacturing investment in other developed countries was probably more a reflection of a desire to participate in markets which were rapidly expanding in conditions of political stability than of a desire for necessarily higher rates of return on capital.

Considering the United States investment in developing countries from another point of view, the fact that the allocation from the total of all United States private direct investment in developing countries to the manufacturing sector in these countries increased from 16 per cent in 1955--1959 to 39 per cent in 1960—1964 should not be misinterpreted. United States private direct investment in the non-manufacturing sectors of developing countries declined by almost one half between these periods but investment in these sectors in the second half of the 1950's was particnlarly high, reflecting boom conditions and the aftermath of the Suez crisis. The subsequent cyclical decline, as large investments in extractive industries were completed, occurred while the trend to investment in manufacturing continued upward. However, the United States remains dependent on imports for many raw materials; continuing investment in overseas petroleum and metal mining, which has often yielded relatively high rates of return on capital, is to be expected. On the other hand, a continuing increase in investment in manufacturing in developing countries will depend on increasing profitability which is sometimes affected at present by small internal markets and a lack of adequate supply of local skilled and semi-skilled labour and by periods of financial uncertainty in developing countries. It should be noted that, as in the case of manufacturing, reinvestments of undistributed earnings in other sectors were also more stable than those from new sources of capital outflow. Consequently, as shown in table 70, the share of all investment from new United States capital to developing countries that was directed to manufacturing rose from 12 per cent in 1955—1959 to 41 per cent in 1960—1964.

Private direct investment by the United Kingdom in manufacturing of developing countries has stagnated in recent years. This has resulted in part from general balance-of-payments problems of the United Kingdom, from political changes in parts of the Commonwealth and from vigorous growth in other developed market economies. Despite a traditional interest in overseas investment, especially in the sterling area, the United Kingdom has been compelled to restrain, through direct and indirect measures, capital outflow subsequent to periods of current account balance of payments deficits. The United Kingdom balance on goods and services was adverse in 1960 and 1964 to the extent of some $ 500 million and $ 600 million, respectively. In addition, there has been less desire on the part of some private investors to establish or enlarge plants in some of the areas of the Commonwealth in which political status has changed. This influence was evident in the early

TABLE 70. UNITED STATES DIRECT INVESTMENTS ABROAD, IN MANUFACTURING AND IN OTHER SECTORS, IN DEVELOPING AND IN DEVELOPED COUNTRIES, 1955–1965

(Million dollars, annual average)

	Capital outflows from United States, net			*Undistributed earnings of United States subsidiaries*			*Total*		
	1955–1959	*1960–1964*	*1965*	*1955–1959*	*1960–1964*	*1965*	*1955–1959*	*1960–1964*	*1965*
Developing countries . . .	617	353	807	317	314	377	933	667	1184
Manufacturing . . .	70	145	302	77	118	202	147	263	504
Latin America . .	64	122	248	65	106	178	130	229	426
Africa	1	4	19	1	—	3	2	4	22
Asia	5	18	35	10	11	21	15	30	56
Other sectors . . .	546	208	505	240	195	175	786	403	680
Developed countries . . .	808	1,444	2,564	622	983	1,148	1,430	2,427	3,712
Manufacturing . . .	217	586	1,191	375	552	689	592	1,138	1,880
Other sectors . . .	591	857	1,372	248	431	459	839	1,289	1,831
Total	1,424	1,796	3,371	939	1,297	1,525	2,363	3,093	4,896
Manufacturing . . .	287	731	1,494	452	670	892	738	1,401	2,386
Other sectors . . .	1,138	1,065	1,877	487	627	633	1,625	1,692	2,510

Source: United Nations Industrial Development Organization, based on data in the relevant issues of the United States Department of Commerce, *Survey of Current Business*.

1960's, for example, in the sharp decline in outflow of private direct investment from the United Kingdom which was sometimes replaced by a net inflow, to the former Federation of Rhodesia and Nyasaland, to Malaysia and to Ghana. A further development promoting a shift away from developing countries was the aim of United Kingdom investors to participate profitably in the recent vigorous economic growth of western Europe, including investment in industries within the boundaries of the European Common Market. Private direct investment by the United Kingdom to all economic sectors in western Europe attained an average annual level of some $ 143 million in 1962–1964 as against some $ 57 million in 1958–1960.

TABLE 71. UNITED KINGDOM: PRIVATE DIRECT INVESTMENT[a] IN MANUFACTURING[b] AND IN OTHER SECTORS, IN DEVELOPING AND DEVELOPED REGIONS, 1958–1964

(Million dollars, annual average)

	1958	*1959*	*1960*	*1961*	*1962*	*1963*	*1964*
Developing countries	124	209	253	255	185	145	148
Manufacturing	54	96	124	109	98	66	88
Other sectors	70	113	129	146	87	79	60
Developed countries	278	324	447	378	400	555	587
Manufacturing	174	185	229	175	236	258	370
Other sectors	104	140	217	202	163	297	217
Total	402	533	700	633	585	700	734
Manufacturing	228	281	354	284	335	324	458
Other sectors	174	253	346	349	250	377	277

Source: United Nations Industrial Development Organization based on data in United Kingdom *Board of Trade Journal*, 6 October 1961, 7 August 1964, 2 April 1965 and 10 June 1966.

[a] It is important to note that these data exclude investments in oil companies and, before 1963, in insurance companies.

[b] Data given in the basic sources do not permit a complete breakdown of total manufacturing investment into the two regions shown in this table. The tentative estimates shown in the table are based on an arbitrary breakdown of the published data on investment in manufacturing in the overseas sterling area into the developed and the developing regions of this area.

Although there is no official published estimate of the recent trend, it may be estimated that between 1958 and 1964 there was a lack of increase in United Kingdom private direct investment in manufacturing in developing countries (see table 71). From an estimated annual level of some $ 90 million in 1958–1960, there was a possible decline in the flow of United Kingdom private direct investment in manufacturing in developing countries to about $ 84 million in 1962–1964. Since there were swings between balance-of-payments surpluses and deficits in these years, this development cannot be assumed to reflect a trend. The lack of an increase in United Kingdom private direct investment in manufacturing may have been partly attributable to changes in

investments in the developing countries of the overseas sterling area, on the assumption that such changes roughly paralleled those in the developed countries of the area.[53] Between these periods there was a definite decline in United Kingdom private direct investment in manufacturing in Latin America and also in other countries not in the sterling area. The developing countries of the overseas sterling area probably remained the United Kingdom's favoured geographic location of investment in manufacturing in developing countries. Of the estimated total of these flows to manufacturing in developing countries in 1958 to 1964, possibly up to three quaters was directed to such countries, with most of the remainder allocated to Latin America.

In strong contrast to the lack of expansion in British private direct investment in the manufacturing sectors of developing countries, similar investments in developed market economies probably increased at a rate of some 10 per cent a year between 1958—1960 and 1962—1964. This showed an even stronger geographical re-orientation of total manufacturing investment away from developing countries than that of the United States. It appears that as a result of these developments, less than one quarter of the recent flow of United Kingdom private direct investment in manufacturing was allocated to developing countries. Recent changes in the proportion of the total United Kingdom private direct investment to all sectors in the developing countries were somewhat favourable to manufacturing. The decline in such investment in non-manufacturing sectors other than petroleum and (before 1963) insurance was quite marked, falling from an annual average level of some $ 104 million in 1958—1960 to some $ 76 million. United Kingdom investment in oil and insurance has been important; it has been estimated that nearly half of the United Kingdom investment in developing countries was probably in these two categories. It should also be noted that, as in the case of the United States, about two fifths of all of the recorded direct investment abroad by the United Kingdom were financed from the undistributed profits of subsidiaries.

The role of some other developed market economies in private direct investment in manufacturing in developing countries was considerably more important than might be suggested by their relatively smaller (than the United States and United Kingdom) total of private direct investment in all sectors of all foreign countries. Over the post-war years, only about 7 per cent of total United States foreign private investment was directed to the manufacturing sector of developing countries, and the allocation by the United Kingdom was probably closer to 14 per cent. In the cases of the Federal Republic of Germany and Japan, whose total overseas flow during the post-war period was inhibited by heavy investment requirements for domestic reconstruction and develop-

[53] See table 71, footnote b.

ment, the relative emphasis on investing in manufacturing in developing countries was closer to 28 per cent. In Japan, this higher concentration reflected a general tendency to concentrate investments in developing countries in order to help secure raw materials for import, as well as to manufacture in these countries. The total of all overseas private investment by Japan in all forms -- defined in this case as including portfolio investment, loans, direct overseas enterprise operations and branches -- increased by about 27 per cent *per annum* from 1955 to 1964. By 1965 the rate of total investment flow was some $ 155 million to $ 160 million.

TABLE 72. JAPAN: OVERSEAS INVESTMENT[a] IN MANUFACTURING AND IN OTHER SECTORS, IN DEVELOPING AND IN DEVELOPED REGIONS, CUMULATIVE POSITION FROM APRIL 1951 TO END MARCH 1965

(Million dollars)

	Developing countries				*Developed countries*	*Total*
	Total	*Latin America*	*Africa*	*Asia and Middle East*		
Manufacturing	280	179	10	91	80	360
Food	25	3	1	20	4	29
Textiles	60	34	7	20	1	61
Chemicals	7	1	—	6	6	13
Iron and steel	62	50	1	11	0	62
Machinery	76	69	—	8	4	81
Electrical engineering	9	4	—	6	1	10
Other[b]	40	18	1	22	64	104
Other sectors[c]	388	89	1	298	169	557
Total	668	268	11	389	249	917[d]

Source: Based on data from the relevant issues of the Japanese Ministry of International Trade and Industry, *Current Status and Problems of Economic Co-operation.*

[a] Excluding branch investment.

[b] "Other productive investment" which has been arbitrarily included under "manufacturing".

[c] Refers to agriculture, forestry and fisheries; mining and commercial investment.

[d] The data in the table refer to the cumulative position at the end of fiscal 1965. Data on flows, shown in same source, but including branch investment, are as follows (million dollars, annual averages for fiscal years ending in March of year shown): — 1952 to 1954: 4.4; 1955 to 1959: 25.6; 1960 to 1964: 118.2; 1965: 155.0.

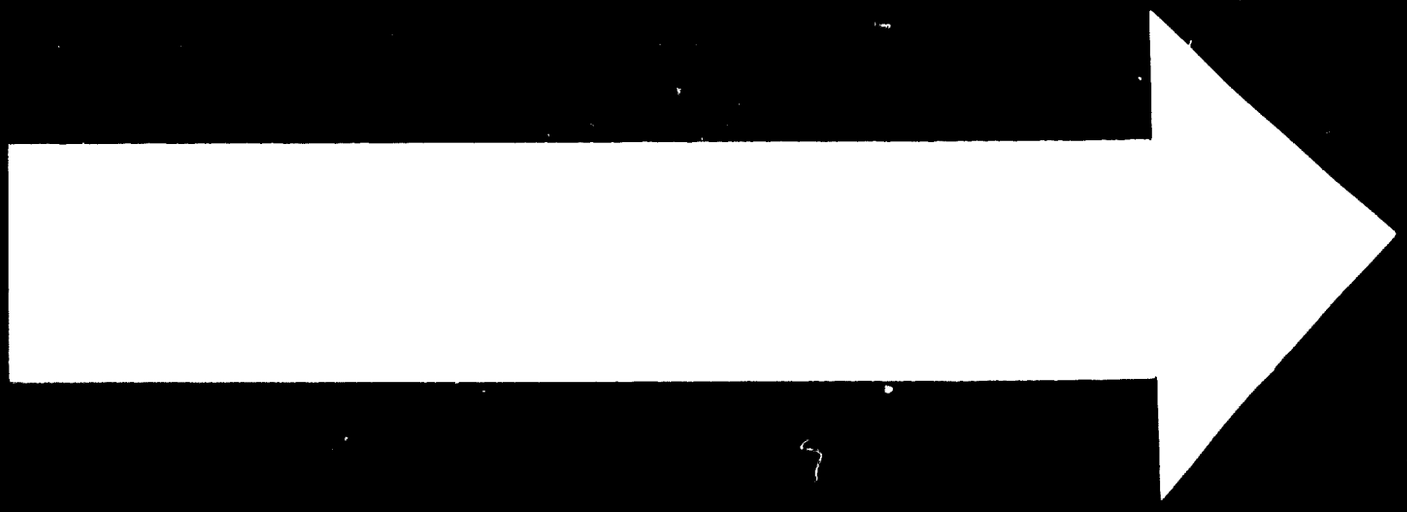
Of the cumulative total of all private direct overseas investment by Japan, amounting to between $ 900 million and $ 1 billion in 1951–1965, close to 31 per cent was directed to the manufacturing sector in the developing countries (see table 72). Most of this investment was mainly in the form of portfolio holdings, rather than loans. It centred on Latin America (especially Brazil), which has a sizable Japanese community, and on South-East Asia. Japan invested almost two dollars in the former region for every dollar in the latter region. Investments in South-East Asia faced various political problems as well as less attractive rates of return. The principal element in the comparatively

small investment effort made in India was related to the promotion of imports from Japan. The bulk of manufacturing investment in developing countries was concentrated fairly evenly in three sectors of manufacturing: textiles, iron and steel, and machinery. Investment in the manufactured food sector was smaller, and was still smaller in the chemical and electrical machinery sectors.

In contrast with the United States and the United Kingdom, investment by Japan in manufacturing in developing countries was three to four times as large as its manufacturing investment in developed countries, of which the bulk was allocated to North America. More in harmony with the experience of the United States and the United Kingdom, the cumulative total of private direct investment by Japan in developing countries was concentrated to a greater extent in non-manufacturing sectors than in manufacturing. In fact, a larger amount was invested in mining alone than in manufacturing as a whole in this region. Investment in raw material industries abroad was designed to secure a flow of raw materials imports at attractive prices into Japan.

The private direct investment effort of the Federal Republic of Germany also started in the early 1950's. It has expanded rapidly, as gauged by the fact that the book value of all direct investments abroad at the end of 1965 was three to four times as large as at the beginning of the Development Decade. The pattern of investment of the Federal Republic of Germany was unique. Although it has been concerned primarily with activity in other developed countries, almost seven eighths of the investment in developing countries was directed to manufacturing. It first became possible to resume German private direct investment abroad in 1952, but the limited degree of initial progress was related to the strong attraction for domestic savings of opportunities for home investment in domestic and export industries. Private direct foreign investment expanded when favourable conditions regarding balance of payments and foreign exchange reserves permitted, with the stimulus of tax privileges, official guarantees etc., and when other difficulties of a political and psychological nature abated. However, even when allowance is made for the conservative nature of the estimated recent book value of direct investments abroad, which *inter alia* excludes reinvestment of undistributed earnings, the size of Germany's overseas investment has been relatively modest. It is several times smaller than the book value of United Kingdom overseas investment and more than twenty times smaller than that of the United States.

The book value of direct investment abroad by the Federal Republic of Germany at the end of 1964 indicated that, of a total investment of $ 1.81 billion, about one quarter or $ 0.46 billion represented investment in the manufacturing sector of developing countries, chiefly in heavy industry (see table 73). About one half of the total manufacturing investment in developing countries was directed to such metal products



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Korea, Rep. of . . .	A	1955–1959	22	14	30	34	100
		1960–1964	19	13	34	34	100
	B		4	5	10	7	7
Venezuela[b]	A	1955–1959	9	36	20	35	100
		1960–1964	14	28	23	35	100
	B		3	−10	−2	−5	−5
Southern Rhodesia . .	A	1955–1959	12	14	43	31	100
		1960–1964	16	22	36	26	100
	B		−2	—	−12	−12	−8
Zambia	A	1955–1959	4	39	31	26	100
		1960–1964	4	42	23	31	100
	B		−4	−6	−13	−5	−7
Malawi	A	1955–1959	9	15	33	43	100
		1960–1963	7	12	29	52	100
	B		−4	−4	−1	6	−1
Jamaica[c]	A	1959–1961	17	15	21	47	100
		1962–1964	14	24	19	43	100
	B		−8	16	−4[b]	−5[b]	−2
Tanzania	A	1960–1961	11	22	30	38	100
		1962	10	21	36	34	100
	B		−10	−7	/	−11	−4

Source: United Nations Industrial Development Organization based on data on investment in constant prices appearing in the relevant issues of the United Nations, *Yearbook of National Account Statistics*.

[a] Countries ranked by compound annual rate of growth of investment in manufacturing between the periods shown.

[b] Refining of crude petroleum is included under primary products.

[c] Transportation and construction are included under "other".

ment in their manufacturing sector at a faster rate than in other sectors. Thus, while the growth rate of investment in manufacturing may have been of the order indicated above, the average annual rate of growth of total investment in developing countries as a whole was little more than 5 per cent in 1955—1964. But it would appear from the table that there was little uniformity in the pattern of investment growth among the major sectors of the economy (manufacturing, primary products, infrastructure etc.) of different developing countries. There was perhaps a greater association between the rates of investment growth in manufacturing and in primary products than between the corresponding rates in manufacturing and the remainder of the economy, i.e. infrastructure, commerce and services. This might suggest that the interdependence of different economic sectors was perhaps greater in the commodity production sectors than the interdependence of other sectors and the infrastructure and other sectors. This contrast was observed also, to a limited extent, in sectoral growth rates of output, shown in chapter I. However, where the primary product sector was heavily engaged in production for direct export — rather than for export after processing — the degree of relation in investment and output between the manufacturing and primary product sectors was less noticeable. Apart from this, the growth of investment in manufacturing did not appear to require a unique strategy of specific sectoral investment in all developing countries. To the extent that there was a meaningful tendency for the rate of investment growth in manufacturing to be associated with the rate of investment growth in all other sectors combined, it may be inferred that, although detailed development problems are specific to each developing country, investment growth in manufacturing has fared better where the over-all economy has been receptive to higher growth rates of investment.

As a result of relative changes in investment growth in manufacturing and in the rest of the economy, the investment claims of the manufacturing sector have undoubtedly increased in the past decade. While recent investment in the manufacturing sector has accounted for only about one tenth of total investment expenditures in a few of the countries shown in table 56, and somewhat more than that in other countries, the investment in the manufacturing sector ranged, in most cases, between about one fifth and one quarter. Taking into account the relative importance of the total investment allocations of these individual countries, it may be estimated that in this group of countries, the average share of total investment absorbed by manufacturing industries was close to 18 per cent. It is to be expected that the increase in ready available comparable country data, from national accounts, on current capital formation by major economic sectors will, in the future, provide a better basis for consideration of international policy. The respective contributions by the public and private sectors to manufacturing investment are indicated below.

Although governments of most developing countries have long recognized their responsibility for facilitating productive investment in the manufacturing sector, heavy direct investments have generally not been made. Indeed, public investment in manufacturing, in relation to total public investment throughout the economy, has generally been much more modest than the relative contribution of all investors, as indicated above. This measure is only one of the four aspects of the direct role of the public sector in manufacturing that are reviewed below for the purpose of establishing a fuller perspective. These aspects are: *(a)* total public investment in all sectors in relation to total investment in all sectors; *(b)* public investment in the manufacturing sector in relation to total public investment in all economic sectors; *(c)* the relative emphasis of public investment within the manufacturing sector, e.g. investment in food, metals and other industries; and *(d)* the relation of public investment in manufacturing to total investment in manufacturing.

With regard to *(a)*, a striking aspect of the growth of total investment in developing countries in recent decades has been the vigour with which the public sector has increasingly participated in relation to the private sector. However, while this process has been widespread, it has by no means been universal. This is because the practical problems facing individual developing countries, as well as their economic philosophies, have been extremely diverse. Further, available evidence does not permit a generalization to the effect that public investment in all developing countries has acted either as a substitute for or as a complement to private investment. As illustration of the generally increasing role of the public sector in total investment, it should be noted that in some countries this sector accounted for about 20 to 50 per cent of total investment in all economic sectors in the early 1950's, while by the late 1960's the contribution of the public sector was expected to be more than 60 per cent, as indicated by their national economic plans. In other developing countries, the corresponding participation of the public sector in total investment was in the range of 20 to 40 per cent in the early 1950's, and was anticipated to be more than 40 per cent by the late 1960's. It appears that the rate of growth and the level of direct participation of the public sector was generally greater in the less developed countries of Asia and Africa than in Latin America.[34] Subject to the differences noted above, it may be speculated that, for developing countries as a whole, the extent of participation of their public sector in total investment has expanded from about 25—35 per cent in the early 1950's to 45—55 per cent in the late 1960's.

With regard to *(b)* above, while the indicated direct participation of public authorities in total investment may often be considered as

[34] The estimates in this paragraph and following paragraphs are based partly on data given in the United Nations *World Economic Survey* for the years 1959 and 1964.

substantial, the share of public investment currently directed to manufacturing is often less than one fifth of the total and in many countries is less than one twentieth. As exceptions, the allocation to manufacturing in Ceylon, India (including mining) and the United Arab Republic was expected to be in the range of 20 to 30 per cent from the mid-1960's to the end of the decade. The extreme diversity of country experience in this aspect of public investment, i.e. in the share allocated to manufacturing, has been governed both by expediency and by principle. While on grounds of principle a few developing countries have variously emphasized the role of the public sector in manufacturing, including the nationalization process, some other developing countries have not indicated a preference for either public or private involvement. Further, it is suggested that the vast majority of developing countries prefer to rely in principle on the private sector for development of manufacturing industries.[35] Otherwise, the degree of the public sector's direct involvement in manufacturing has often been influenced by the inadequacies of private enterprises in manufacturing in many developing countries. These may relate to inadequacies in general entrepreneurship, in the availability of investment funds, in the ability to generate and re-invest sufficient profits, in the ability to marshal appropriate production factors and technology etc. Despite this consideration, the public sector in developing countries has generally been impelled to allocate its investment funds to the vital sectors of agriculture, basic facilities of power, transportation and communication, and services. While the last two sectors have generally absorbed more public investment than agriculture, the obvious claims of the agricultural sector have often led to larger allocations of public investment to that sector than to manufacturing.

With regard to *(c)*, with limited resources, the pattern of public investment in manufacturing has clearly favoured heavy rather than light industries, i.e. industries which are sometimes considered as strategic in facilitating the industrialization process and general economic development. Thus, as suggested by tables 57 and 58, the industries manufacturing chemicals, chemical products and petroleum products have been most prevalent in attracting public investment; among these, many fertilizer plants have been promoted by the public sector, and in addition, there has been widespread participation in investment in manufacturing two basic products, cement and steel, as well as in the production of machinery and other metal products. From the meagre statistical data in tables 57 and 58, it appears that developing countries have tended to allocate to light industries only a small part of their funds for manufacturing. Where investment in light industry was undertaken, it was

[35] See *Policies and Plans of Developing Countries Regarding the Public Sector in Manufacturing Industries*, a paper prepared for the International Symposium on Industrial Development (document ID/CONF.1/B.13), 11 May 1967.

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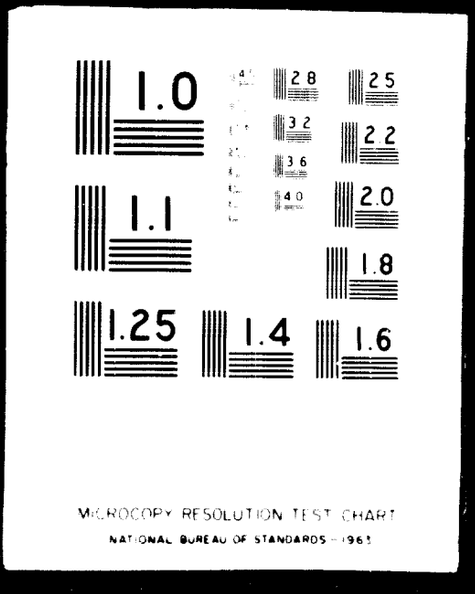
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domestic savings the better its possibility for growth will be, given the inflow of savings from external sources and given its specific relation between investment and growth. To this statement must be added a qualification that increases in certain types of consumption are vital for economic growth, and some categories of investment are not as essential as others. Developing countries did not achieve a general growth in the level of domestic savings in relation to the growth of their gross domestic product in 1955—1964. Although on an optimistic appraisal of data it may be possible to characterize the general tendency of domestic savings over the decade as a slow inching forward, a more sober view suggests a general lack of progress in mobilization of such savings. As shown in table 62 in the previous section, the proportion of gross domestic product allocated to domestic savings in almost one half of the twenty-three developing countries listed in the table remained virtually unchanged between the second half of the 1950's and the first half of the Development Decade. Between these periods, there were increases in domestic savings equivalent to about 2 per cent of gross domestic product in four other countries, but there was a decline in savings of a broadly comparable magnitude in seven other developing countries. On the other hand, while only one country in the restricted sample experienced a much larger decline in domestic savings accumulation in relation to gross domestic product, an increase in their level of savings equivalent to about 5 to 6 per cent of gross domestic product was achieved in the three remaining countries listed.

As a consequence of these developments, the level of domestic savings alone attained in most developing countries in the first half of the 1960's remained below the level deemed necessary for achievement of the minimum target of an annual rate of growth of 5 per cent in national income which the General Assembly established for the Development Decade.[56] Thus, in only seven of the twenty-three developing countries listed in table 62 was the resulting level of domestic savings in 1960—1964 above 15 per cent of gross domestic product. Further, in almost half of the sixteen countries with a lower savings achievement, the level was not more than 10 per cent, or two thirds, of the 15 per cent level. The level of 15 per cent of gross domestic product is used as a dividing line since, assuming an incremental capital-output ratio of 3, such a level of savings would be required for the achievement of a 5 per cent annual growth of gross domestic product. For most developing countries, an annual growth of 5 per cent in *per capita* GDP would in fact demand a higher level of savings. Although the actual situation was somewhat less dismal in a number of countries because of the strategic addition of foreign savings, no simple equation should be made between domestic and foreign savings *inter alia* because of the generally greater instability of receipts of foreign savings.

[56] General Assembly resolution 1710 (XVI), para. 1.

The difficulty that developing countries face in expanding their accumulation of domestic savings is well known. These countries, for the most part, have a low *per capita* income, and expenditures on consumption necessarily absorb the greater part of this income. However, as income rises, the possibility of savings increases. It has been suggested, for instance, on the basis of a cross-country statistical regression calculation, that as *per capita* income in developing countries has risen from, say, $ 100 to $ 300 to $ 500, the diversion of total income to savings on a *per capita* basis has increased from $ 15 to $ 28 to $ 60, respectively.[57] The specific domestic savings of a developing country, however, have been influenced by many other variables, and the role of foreign trade in a developing country has been one of the most vital. Improvement in the position of export earnings has tended to have a closely related and positive influence on changes in domestic savings of a developing country owing to the influences of export earnings on both private income and government revenue.[58] In addition, the greater the degree of inequality of income distribution — other things being equal — the greater the possibility of a higher domestic savings performance. However, it is a matter of some importance whether the savings of some higher income groups are expatriated or whether, staying within the developing country, they are allocated to non-productive investment. The distribution of lower income groups between the subsistence sector and the urban sector is another factor affecting the general accumulation of savings, since the propensity to save in these two sectors undoubtedly differs. Still further influences are the degree of efficiency of financial institutions, and the relative importance and policies of the corporate, household and governmental sectors. The savings pattern of these income sectors, in terms of depreciation, corporate net savings, household savings and government savings, will now be reviewed.

Of the sectors contributing to domestic savings in developing countries, the most important sources have generally been the depreciation and net savings of private enterprises and corporations. As suggested by table 75, in 1960—1964 these two sources generally contributed between one third and two thirds of the total domestic savings in developing countries. Only in Chile, Panama and the Republic of Viet-Nam was the relative contribution higher than two thirds, and only in Malaysia was it lower than one third. Although in aggregate terms there has

[57] See *The Mobilization of Internal Resources by the Developing Countries*, (UNCTAD document TD/B/C.3/28). The relationship for 31 developing countries in 1960 between *per capita* gross domestic savings (S) and *per capita* gross domestic product (Y), with units in thousand dollars, given in the sources is:

$$S = 0.0144 - 0.0207\,Y + 0.2233\,Y^2.$$

The R^2 of this relation was 0.813, i.e. over 80 per cent of the savings variations among the developing countries are explained statistically by the rise in *per capita* gross domestic product.

[58] This point emerges clearly from a study on the mobilization of domestic savings, in United Nations *World Economic Survey 1965, Part I* (Sales No.: 66.II.C.1).

not been a systematic relation among developing countries between these two elements of savings of the enterprise sector, it is possible that at the disaggregated level, i.e. for individual corporations, there may have been legal and economic influences which variously produced either a complementary or substitute relation between depreciation and net savings of private enterprises and corporations. Almost without exception, depreciation has been the more important of these two elements. It accounted for between one quarter and one half of the total of domestic savings in the majority of countries considered. Consequently, domestic savings for net investment were often relatively modest. The relative contribution of corporate net savings was much more diverse in developing countries, ranging in most instances from 5 to 25 per cent of total domestic savings. While there was no general movement in either direction in the relative contribution of depreciation to total domestic savings between 1955—1959 and 1960—1964, the role of corporate net savings has grown in the majority of cases.

In addition to being a major contribution to the total of all domestic savings within the economy, depreciation and net corporate savings have also constituted the dominant element in the accumulation of total savings by industrial and other corporations for use as fixed and other investment purposes. Such self-financing is important because it is the most direct means of capital formation by industry and other corporations and because it facilitates their maturing into more economic units and at the same time puts them in a position to assume greater risks. It is also especially important in enabling smaller firms to expand on the basis of tested viability. The experience of developed countries with self-financing is not very different. In Canada, the Federal Republic of Germany, the United Kingdom and the United States, for example, it accounted for close to 70 per cent of the total capital required by corporations.[59] Although incomparability of definitions introduces some error, it appears from table 76 that self-financing from retained profits and depreciation accounted for between two fifths and two thirds of the capital needs of corporations in the eleven developing countries examined. The country sample is too small, however, to permit broad generalization regarding the changing role of self-financing by enterprises over time.

Where corporations in developing countries find it difficult to tap external sources for their capital needs, governments clearly have the responsibility of facilitating the self-financing process of industry. In addition to the general task of encouraging a good business climate, much can be achieved through detailed fiscal measures, including provision for accelerated depreciation and total or partial tax holidays,

[59] See *Domestic Financing of Industrial Development*, a paper prepared for the International Symposium on Industrial Development (document ID/CONF.1/7). This paper was used extensively in preparation of the present section.

which are believed to be particularly effective with regard to undistributed profits of corporations capable of using them for plant expansion. Where inflationary tendencies have been significant, the special need arises for depreciation allowances to cover the replacement cost rather than original costs of capital. Such tax incentives have been more meaningful in situations of reformed rather than "relaxed" tax administrations and have been recognized as having the potential of contributing to over-all growth even though temporary sacrifices in government revenue and savings may be involved.

Another major source of domestic savings, although at present generally less important and somewhat more remote than corporate savings from the industrial sector, is the household sector which includes

TABLE 75. DOMESTIC FINANCING OF GROSS DOMESTIC CAPITAL FORMATION,[a] DEVELOPING COUNTRIES, 1955–1964

(Percentages of gross domestic capital formation)

	Period	Provision for the consumption of fixed capital	Saving			Total domestic financing
			General government	Corporations, public and private	Households etc.	
Barbados[b]	1955–1959	13	15	25	3	56
	1960–1964	16	5	19	−7	33
Bolivia	1958–1959	69	−1	−12	−3	53
	1960–1964	48	8	—	6	62
British Guiana	1955–1959	18	9	8	33	68
	1960–1963	27	14	7	34	82
Burma[c]	1955–1959	31	12	−3	50	90
	1960–1963	35	16	4	39	94
Chile	1955–1959	91	15	60	−62	89
	1960–1964	72	24	23	−46	77
China (Taiwan)[c]	1955–1959	35	30	6	21	91
	1960–1963	32	15	7	40	93
Colombia	1955–1959	49	25	10	18	102
	1960–1963	48	14	14	7	83
Costa Rica	1955–1959	28	21	6	17	73
	1960–1963	32	12	8	18	71
Ecuador[d]	1955–1959	30	30	13	17	91
	1960–1964	32	32	15	10	88
Guatemala	1955–1959	34	27	——17——		78
	1960–1962	44	18	——14——		76
Honduras[e]	1955–1959	39	6	9	31	85
	1960–1963	38	—	16	41	94
Jamaica[f]	1955–1959	29	14	14	10	67
	1960–1964	36	10	24	20	90
Korea, Rep. of[b]	1955–1959	44	27	5	11	86
	1960–1964	40	34	17	−1	90
Malaysia[c]	1955–1959	40	...	...	...	145
	1960–1963	28	40	1	34	104
Panama[b]	1955–1959	45	10	22	−35	41
	1960–1964	47	22	42	−40	72

	Period	Provision for the consumption of fixed capital	Saving			Total domestic financing
			General government	Corporations, public and private	Households etc.	
Philippines[d,g]	1955–1959	52	22	29	−16	87
	1960–1964	42	16	20	28	106
Puerto Rico[h]	1955–1959	31[h]	...	...	...	52
	1960–1964	29[h]	...	...	...	46
Trinidad and Tobago	1955–1959	34	13	6	17	70
	1960–1962	36	8	3	21	68
Uruguay[d]	1955–1959	31	13	13	30	87
	1960–1963	25	−1	9	50	83
Venezuela	1960–1964	53	43	7	24	127
Viet-Nam, Rep. of	1960–1964	48	−6	23	20	84

Source: United Nations Industrial Development Organization based on data from the relevant issues of the United Nations *Yearbook of National Accounts Statistics.*

[a] The total finance of gross domestic capital formation is obtained from the domestic sources as shown in the table and from foreign sources which latter is defined as equivalent to the deficit of the nation on current account. The percentage of the total obtained from foreign sources is equivalent to one hundred less the figure shown in the last column of the table. Component data in the table do not always add to total shown due to rounding and statistical discrepancies.

[b] Estimates from 1960 are not strictly comparable with those of previous years.

[c] Corporate savings refer to public corporations only: private corporation savings are included in the household account.

[d] Corporate savings refer to private corporations only: savings of public corporations are included in government account.

[e] Data on public corporate savings are not available and figures shown refer to savings of private corporations only.

[f] No depreciation has been charged with respect to general government buildings.

[g] See source for note on measurement of depreciation.

[h] No estimates are made for depreciation of assets of government enterprises or general government.

unincorporated enterprises — an important feature in developing countries. Using the flow of savings in the form of corporate depreciation as a yardstick, household savings have tended to play a minor role in the accumulation of domestic savings, particularly in some of the countries subject to substantial inflation. In nearly half of the countries considered in table 75, household savings contributed less than 50 per cent of the volume of savings supplied by depreciation funds. On the other hand, in British Guiana, Burma, China (Taiwan), Honduras, Malaysia and Uruguay, the contribution of household savings in 1960—1964 was greater than depreciation. The present cross-country consideration of sectoral shares of domestic savings provided by households in 1960—1964 yields no correlation with income. However, between 1955–1959 and 1960—1964, it was more generally the case that the relative contribution of households to total domestic savings increased. Apart from an improved provision and use of financial institutions, such expansion of household savings demand an extensive exercise in education, particularly in rural areas. There still prevails in some developing countries a tendency for many households to save in the form of jewellery, cattle, real estate or cash hoards, rather than in the form of financial assets related to productive investment in industry or other sectors. But perhaps more important is the creation of conditions in which savers

TABLE 76. SOURCES OF FUNDS FOR FINANCING INDUSTRIAL ENTERPRISES IN SELECTED DEVELOPING COUNTRIES,[a] RECENT YEARS

(Percentages of total of internal and external sources of funds)[b]

	Period	Internal sources			External sources		
		Total	Undistributed profits	Depreciation	Total	Capital	Other
Latin America							
Argentina	1952–1955	60	48	12	40	9	31
	1960–1961	40	14	26	60	9	51
Brazil	1959–1962	43	36	7	57	8	49
Colombia	1953–1958	61	23	37	39	14	26
	1958–1962	50	39	11	50	12	38
Chile	1949–1961	52	42	10	48	5	43
Ecuador	1953–1957	57	23	34	44	13	31
Uruguay	1960	42	...	...	58	16	42
Venezuela	1961	50	21	29	50	11	39
Asia							
China (Taiwan)	1959	42	...	...	58	39	19
	1964	49	...	...	51	26	26
India	1955	55	43	12	45	23	22
	1963–1964	58	44	14	42	24	18
Israel	1964	66	42	24	34	9	25
Pakistan	1959	69	48	21	31	17	14
	1963	67	46	20	34	21	13

Source: Based on data from ECLA, *The Process of Industrial Development in Latin America*, document ST/ECLA/CONF. 23/L. 2; ECAFE, *Economic Survey of Asia and the Far East, 1965, Part I;* and Bank of Israel, *Financial Changes in Israel's Industrial Companies in 1964 65.*

[a] Comparability of data between countries is limited because of varying definitions and bookkeeping practices.

[b] The terms "internal" and "external" refer to sources inside and outside of the enterprise. Data do not always add to totals shown due to rounding.

have confidence in the real return on their savings being positive and accompanied by minimum risk.

There has been considerable diversity among developing countries as to the role of the central government as a contributor to the supply of domestic savings. In 1960—1964, for example, this role varied from one of dissaving, as in Uruguay and the Republic of Viet-Nam, to one of accounting for more than one third of the total accumulation of domestic savings, as in the Republic of Korea, Malaysia and Venezuela. However, in contrast to savings in the household sector, the relative contributory role of government savings in developing countries usually diminished in the course of the 1955—1964 period.

This inability of fiscal regimes in a number of developing countries to increase revenues above the increasingly pressing current expenditure needs that face the government has proved difficult to remedy. While in some countries rising current expenditures of the government undoubtedly involve lack of control over spending or excessive allocations for defence activities, it should also be recognized that current expenditures for health and education often represent a form of human investment which is as necessary for long-term over-all economic and industrial development reasons as for reasons of social policy, and as necessary as conventionally defined "investment" of savings. The combination of these influences in recent years has resulted in an elasticity of current government expenditures in relation to gross domestic product of greater than unity, i.e. a rising share of government current expenditures in GDP, in three out of every four developing countries with the actual value of the elasticity measure having been as large as 1.5 to 2.0 in one out of every four of these countries.[60]

While elasticities of current revenue of governments in developing countries in relation to gross domestic product have tended in the same direction as those of current expenditure of government, i.e. they have also constituted rising shares, their values generally have not exceeded those of current expenditures. In terms of a broad general average, the share of gross domestic product absorbed into tax revenues in developing countries remains at about one half of the level now attained in developed countries. But an increase in government revenue in developing countries cannot be achieved by a simple prescription of better tax administration and collection, necessary as this is. In addition, there is a continuing requirement to increase taxable capacity in developing countries, a requirement which often involves recasting the whole tax structure with further shifts from indirect to direct taxes. There has been a relative narrowing of the base for many indirect taxes, for example, as the relative importance of foreign trade in some commodities has somewhat diminished, and as it has been found useful to stimulate

[60] *Op. cit., The Mobilization of Internal Resources by the Developing Countries.*

domestic development by exemption from customs duties etc. of imports which support growth. However, in many countries there also exists a possibility of widening the indirect tax base on domestic trade, well beyond the classic purchase or sales taxes on salt, matches, rice, kerosene, electricity etc. But the substantial opportunity for progress lies in effecting continuous improvements and developments of the direct tax structure as soon as conditions in the developing economy permit, since these give greater potential for introducing a more progressive tax system.

It should also be recognized that attempts to maximize government revenues and savings may run counter to the general development objective of maximizing the total of domestic savings in the economy. An increase in government savings may simply offset, or even fail to offset, a related decline in savings in the taxed sectors. However, governments which are unable or unwilling to resort to borrowing on the capital market need to achieve a level of revenue and savings commensurate with their political responsibilities for indirectly or directly spurring industrial and general economic development. It has been suggested that in many instances today, this requirement could be reduced by greater insistence, for example, on seeing that public-sector enterprises that are now heavily dependent on infusions of government savings should, alternatively, improve their level of self-financing through increased efficiency or through raising the level of their gross revenues. On the other hand, there have been clear and important instances where an increase in government savings has been at the expense of high consumption levels of the taxed sector. It may be recalled that in the early industrialization stages of some of the present developed countries, government revenue and savings were enhanced when government, in effect, successfully achieved a significant income transfer away from high income-low savings classes and channelled such transfers into investments for industrial and over-all economic growth.

The role of financial institutions

Financial institutions in developing countries can, and indeed must, play a constantly increasing part in facilitating the flow of domestic as well as of foreign savings for investment in the industrial sectors of their countries. The two elements involved in this role are to stimulate mobilization of savings from whatever source and to channel such resources particularly into industrial development. Financial institutions exist to attract domestic savings surplus to internal investment requirements from all sectors, including business and government, but a special responsibility attaches to them to attract household savings. Although it would be lacking in perspective to expect a maximum diversion of all of these mobilized savings specifically to investment use in the industrial sector, general development strategy might suggest that these financial institutions adopt policies geared to providing the

financial resources needed to make possible the implementation of realistic national industrial investment and growth programmes. The contribution that may be made towards these objectives by such financial institutions as commercial banks, development institutions, savings banks, contractual units, stock exchanges and government agencies is considered below.

In sharp contrast to the institutional structure of most developed countries, a major responsibility for provision of investment funds for the industrial sector in developing countries lies at present with commercial banks.[61] Ability to attract savings has depended to an important degree on the relatively well-established branch network of such banks, which allows access to all classes of savers, both in rural and urban areas. The power of commercial banks to attract savings can undoubtedly develop more in conditions of political and monetary stability. Commercial banks can provide substantial further stimuli through increased publicity or, directly, by more extensive application of deposit guarantee provisions and by establishment of economic interest rates. Commercial banks in some developing countries have succeeded, by experience, in finding and utilizing the kinks in the supply schedule of savings, i.e. the levels of interest rates beyond which the availability of savings increases more rapidly with a given upward adjustment in interest rates.

The natural major competitor of industry in seeking commercial bank loans is the commerce sector. Provided that there is a constantly updated and effective legal and administrative structure, there is much that commercial banks can do, and very often have done in some developing countries, to increase allocations to the industrial sector. Five avenues of approach may be mentioned.[62] First, loans to industry by commercial banks have been facilitated by central bank action in permitting preferential discount rates, longer maturity periods and larger volume quotas for the industrial paper of commercial banks than in the case of paper for commercial or other purposes. Second, government agencies have assisted in connexion with the same objective by more extensive provision of guarantees for loans to industry by commercial banks, including, for example, loans to export industries of developing countries. An improved government guarantee system has enabled the banks to liberalize the required credit standards for industrial borrowers, increase the types of risks involved, extend terms of loans, widen the range of industries served and include smaller-sized industrial clients. A third incentive to industrial loans by commercial banks has taken the form of lower reserve requirements for such loans or, alternatively, the

[61] A detailed paper on *Measures to Increase Commercial Bank Financing of Industry in Developing Countries* by David Fritz was submitted to the International Symposium on Industrial Development (document number ID/CONF.1/B.9). The following paragraphs draw on this paper.

[62] *Ibid.*

imposition of higher reserve requirements as a penalty for an inadequate industrial portfolio. Fourth, despite the liquidity problems involved, since many of their liabilities are payable at short notice, a number of commercial banks in both developed and developing countries have helped industrial borrowers by seeking to extend the duration of loans. This has been achieved, within limits, by extending a number of long-term industrial loans and, with repayment, by creating a revolving portfolio; extending longer-term loans through subsidiaries not subject to the strict regulations applicable to the commercial banks themselves; and automatic renewal or "roll over" over shorter-term industrial loans. The fifth approach, involving co-operation with industrial development banks, has a considerable potential even at the simple level of exchanging credit information regarding industrial borrowers. A more important service, however, is that, since commercial banks are more specialized in attracting local savings and industrial development banks may be considered as more specialized in assessing the use of savings for industrial projects, commercial banks can channel funds to industry through low-interest loans to the industrial development banks. Or, both types of financial institutions can jointly participate in industrial loans, with the commercial bank concentrating on the medium-term *tranche*, and the industrial development bank on the longer-term *tranche*.

Some indication of the degree of success thus far attained by commercial banks in directing their loan portfolios towards industry is provided in table 77. It shows that, while in a recent year, generally

TABLE 77. SHARE OF TOTAL COMMERCIAL BANK LOANS EXTENDED TO THE INDUSTRIAL SECTOR, IN SELECTED DEVELOPING COUNTRIES,[a] 1960 AND 1964

(Percentage of total loans)

	1960[b]	1964[c]		1960[b]	1964[c]
India[d]	51	59	Guatemala	11	17
Argentina	46	43	Malaysia[f]	13	17
Brazil	36	42	Thailand	11	14
Pakistan	34	36	East Africa	18	13
Mexico	33	35	Lebanon	...	13
Colombia	24	30	Philippines	11	12
Chile[e]	...	29	Jordan	...	11
Syria	19	25	Ecuador	11	10
Peru	27	24			

Source: Paper prepared for the International Symposium on Industrial Development, *Domestic Financing of Industrial Development*, ID/CONF.1/7, dated 27 April 1967.

[a] Countries ranked by the size of the percentage of the total of commercial bank loans which were extended to the industrial sector.

[b] The data refer to annual 1960 or for one month therein except as follows: Ecuador, 1961; Argentina, 1962; and Philippines, 1963.

[c] The data refer to annual 1964 or for one month therein except as follows: East Africa and Guatemala, 1963; Chile, Colombia, Mexico and Peru, 1965.

[d] Figures include mining and utilities.

[e] Figures refer to loans for longer than 3 months.

[f] Figures include rubber products.

industries as electrical and mechanical engineering, transport equipment, precision instruments etc. and one quarter was allocated to chemical plants. A large part of the remainder was concerned with metal production. While this breakdown actually refers to the sectoral identity of the German investor, in most cases the sectoral identity of recipient enterprises is almost identical. Manufacturing investment by Germany in developing countries was highly concentrated also in a geographical sense, even though a large number of countries received some German investment. About 70 per cent of such investment went to only five countries: in order of magnitude, Brazil, Argentina, India, Mexico and Colombia. Brazil alone accounted for 43 per cent of the total book value.

The extent of recent growth of such manufacturing investment by Germany can be inferred from the fact that the book value of its investment for all economic activities in developing countries increased from $ 196 million at the end of 1959 to $ 582 million at the end of 1965. As indicated above, about seven eighths of such investment in 1964 were related to manufacturing. Although the majority of Germany's investment continues to be in Latin America, the greater rate of increase in book value during the 1960's occurred in developing Asia and Africa. While the book value of total German investment in developed countries in the same six-year period increased fourfold as against the threefold increase in developing countries, a less certain conclusion can be suggested regarding the increase in manufacturing investment in developed countries; in that group, manufacturing accounted for a smaller proportion of total investment, some three quarters. In dollar terms, the extent of Germany's manufacturing investment in developed countries was twice as large as in developing countries.

More effective and sophisticated government incentives can undoubtedly do much to remedy the present condition of an insufficiently expanding and highly concentrated flow of foreign private direct investment into the manufacturing sector of developing countries. The need for such action is very pressing in the less developed among the developing countries where normal influences of direct and indirect supply and demand have been prone to deter foreign private direct investment, particularly in manufacturing. The type of action to stimulate investment in manufacturing must be recognized as being different from that related to investment for exploitation of agricultural and mineral resources. Although the precise nature and extent of incentives to attract foreign private capital to manufacturing and to provide reasonable returns discounting the risks involved are necessarily matters for analysis and action by individual countries, some general elements are indicated by way of illustration.

Better availability of feasible manufacturing projects that are fully formulated and ready for implementation would remove an important restraint on expanded flow of foreign investment in developing coun-

1964, commercial banks in the less developed of the developing countries allocated between one tenth and one quarter of their total loans to the industrial sector, industrial loans in the developing countries with a generally stronger manufacturing sector accounted for between 30 and 60 per cent of all loans. Further, between 1960 and 1964, commercial banks increased the share of their total loans to the industrial sector in ten out of fourteen countries, and the average degree of increase was greater than the average decline in the share going to industry in the other four countries.

An increasingly important means of promoting industrial development in developing countries has been through the establishment of industrial development finance companies, banks etc. However, the value of such institutions might be considerably enhanced if their ability to mobilize private domestic savings within developing countries were increased. Private development finance companies or banks in developing countries, for instance, have been helped by external assistance, particularly through the vigorous efforts of the International Finance Corporation and, to some extent, by various forms of support from the national government.[63] By fostering a spirit of public responsibility and by building upon an expectation of indirect benefits, it has sometimes been possible to induce private institutions such as commercial banks, industrial firms, trade associations etc. to take up share capital in those development companies. However, less success has accompanied attempts to draw personal savers, who are more prone to adopt a wait-and-see attitude. Towards this end, it has been suggested that development banks might attempt to obtain time and savings deposits by offering attractive rates of interest. Less gain might result if this were simply a means of drawing savings from one type of institution to another. Government-controlled industrial development finance institutions have also been subject to the difficulty of inadequate financing. The normal supply of domestic finance from government funds and from the sale of bonds to official institutions has sometimes proved insufficient for efficient operation and has created the need on the part of government-controlled industrial development finance institutions to mobilize savings from the domestic private sector. Some of these institutions have also obtained official external assistance or lines of credit to augment their resources.

Loans to the industrial sector through the investment activity of industrial development finance institutions are necessarily selective. Because of greater risk and higher costs of administration, small-scale industry investment is avoided, as a rule, by private development institutions even though such investment may be of great social and

[63] See *The Role of National Development Finance Companies in Industrial Development*, a paper presented by the World Bank Group to the International Symposium on Industrial Development (document no. ID/CONF. 1/B.8).

economic importance. On the other hand, the need for prudent diversification of the portfolio of development finance institutions imposes an upper limit on the amount of an individual investment. With regard to the choice of the type rather than the size of projects, development finance institutions again have a unique position since, in addition to profit considerations, they are bound in their selection to consider the total impact of an industrial project on the economy. Reflecting particular difficulties in raising capital for new industries and new enterprises in other sectors, industrial development finance institutions have been prone to specialize their investments on these pioneer ventures rather than on well-established concerns. For government-controlled development finance institutions, a big problem in many instances has been the need to avoid selection of projects primarily on the basis of political criteria. It has been suggested that there are a number of examples of publicly-controlled development banks that have had difficulties as a result of inability to meet this challenge.[64]

Financial institutions which are better adapted to mobilize personal savings in developing countries have included such non-contractual channels as savings banks, postal savings systems etc. and such contractual channels as life insurance, social security funds etc. The advantage of greater stability of inflow would seem to indicate that in developing countries special emphasis should be given to fostering contractual savings. A common requisite for improved mobilization by all these institutions is financial stability within the country; the adverse effect of strong inflationary conditions cannot be overstated.

Developing countries as a whole have not generally exploited the opportunities presented by the establishment of a system of savings banks. To some extent, this may be due to the limited size and recent emergence of a middle class. However, in former overseas United Kingdom areas, postal savings systems have been developed and have been effective in mobilizing savings, especially in rural areas where commercial banks operate less frequently. It may be useful for developing countries to study this system and its performance, with particular reference to India where deposits increased by more than 80 per cent between 1958 and 1964.[65] A somewhat related form of mobilization of savings from the general public has been the small-savings drives involving the sale of interest-bearing government certificates of small denominations. However, the direct importance of such accumulations for industrial investment is not great, since these funds tend to be invested either in housing or in government securities. They may have an indirect effect, however, in releasing funds which will ultimately find their way into industrial investment.

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[64] *Ibid.*

[65] *Op. cit.* (document ID/CONF.1/B.9).

The potential of savings by contractual institutions is possibly greater for industry. Through improved publicity and, for example, partial income tax exemption of premiums, life insurance operations have spread to and expanded in a number of developing areas, at least in those not subject to major inflationary pressures. The examples of India, Israel, Mexico, the Philippines and Puerto Rico may be noted in this context.[66] Provident funds have shown marked expansion in a number of Asian countries, and social security systems have been introduced in most countries of Latin America. Apart from the adverse influence of inflation, the further progress of provident funds and social security systems has sometimes been hampered by very high administrative expenses. Thus far, however, these savings accumulations have directly benefitted industry in only a few developing countries. The Life Insurance Corporation of India, for example, was allowed to invest up to 16 per cent of its assets in industrial securities. In Mexico, about 9 per cent of the technical reserves of life insurance companies were invested in industrial securities. As an indication of the potential availability of investment funds for industry from this source, it should be noted that in the United States nearly $ 40 billion of the assets of life insurance companies, an amount equivalent to 27 per cent of their total assets, were invested in industrial bonds and shares in 1964. It has been fairly general practice for governments to capture the savings of social security funds and to apply them to the public investment sector, with the bulk being allocated to economic and social infrastructure projects with relatively little entering directly into industrial investment. It should be considered whether these past patterns of channelling could be modified in the future in order to make better provision for the investment requirements of industrialization in developing countries.

Finally, while progress of industrialization in developed countries is substantially facilitated by the existence of smoothly operating stock exchanges, such institutions among developing countries are still comparatively rare and of limited usefulness, under present conditions, even in the more economically advanced region of Latin America. Effective mobilization of savings through stock exchanges requires that these institutions be run efficiently, with a sound legal and administrative framework and a highly professional corps of underwriters, stockbrokers etc. Those savers who enter the stock market, generally from the middle class, need to be well informed through a developed financial press and through meaningful corporate disclosure laws. Whether the industrial sector benefits from the existence of stock exchanges depends largely on the readiness of the industrial sector to make use of such exchanges. There is a compelling need in many countries to stimulate the transformation of family-held or other closely-controlled firms to public corporations. To this end, some developing countries have enacted legislation to

[66] *Op. cit.* (document ID/CONF.1/7).

induce or compel corporations to offer their new issues on the open market. Some countries have also relaxed regulations in order to permit various deposit-collecting institutions to invest in industrial securities. But even in Latin America, apart from the indicated obstacles to the proper functioning of stock exchanges at the over-all level, involvement with specifically industrial shares remains limited. Thus, in 1962, while the share of transactions in industrial shares to total transactions ranged from 15 to 40 per cent in four countries of Latin America, the corresponding share was 10 per cent or less in four other countries of the region.

International discussion of the problems of financing industrialization in developing countries naturally tends to focus more on ways and means of stimulating the flow of financial resources from developed countries, but it would be self-defeating to lose sight of the central fact that the advance of industrialization has depended and will continue to depend primarily on the mobilization and appropriate channelling of domestic savings. Success in meeting the challenges in this particular area of economic endeavour is a *sine qua non* of sustained industrial progress.

Chapter IV

MANPOWER AND NATURAL RESOURCES FOR INDUSTRIALIZATION

A. MANPOWER FOR MANUFACTURING

The recent advance in industrialization in developing countries, in which the output of manufactures increased at an annual rate of about 7 per cent, could have been achieved only by sustained efforts to mobilize both financial resources for capital formation and non-financial inputs of manpower, natural resources and energy. The following brief review of the dimensions of the direct use of the latter group of inputs in the manufacturing sector of developing countries starts with a consideration of the role of manpower.

Industrialization at the 7 per cent annual rate of growth of output of manufactures has often created a number of problems relating to the quality of manpower and has directly solved few of the difficulties arising from the abundant quantity of manpower in developing countries. While these countries have been typically characterized by rapidly rising populations, the modern sector of manufacturing, which is still small in terms of employment absorption, has increased its direct demand for manpower by only about 4 per cent *per annum* in 1955—1964. It should be stressed, however, that the total increase in demand for manpower arising from advances in industrialization was greater than the direct annual addition of 4 per cent to the relatively small modern or factory manufacturing employment base. The total increase results from widespread expenditures for labour-absorbing products through additional demand made possible by the rising incomes generated by the industrialization effort. The fundamental purpose of industrialization in developing countries is generally considered to be the achievement of a more rapid and sustained increase in aggregate national income and expenditure and also in diversification of industry, rather than immediate maximum direct employment of manpower specifically within the industrial sector. Although from the viewpoint of long-run national

welfare, any conflict between these two goals might suggest action in favour of a rapid rise in national income, it should be recognized that a prime responsibility of employment policy is to find means to narrow the areas of conflict between these objectives and to discover areas in which the prime objective can be fully satisfied and, at the same time, can be reconciled with recourse to higher labour-capital ratios specifically within the industrial sector. Adoption to multiple work shifts in industry or more intensive staffing of existing machines within a given work shift are among the more obvious ways of harmonizing these sometimes conflicting purposes of industrialization. A too rigorous effort to maximize longer-run aggregate national income, which involves heavy social cost in terms of a severe short-term and medium-term unemployment and under-employment of available manpower, may well be self-defeating.

Recent growth and structure of employment in the modern manufacturing sector

As with most other aspects of industrialization, the recent growth of employment in manufacturing has not been steady. Further, it has not been uniform in the various regions and countries of the developing world, nor similar in the individual industries of the manufacturing sector. Data on the growth of employment generally refer only to the more modern or factory sector of manufacturing and undoubtedly must be regarded as approximate rather than definitive. It appears that in developing countries as a whole the annual rate of growth of employment in manufacturing, which averaged about 4 per cent in 1955—1964, became somewhat steadier and greater in the 1960's than in the late 1950's and that this development was a continuation of a broad tendency observed in the developing countries since the earlier years of the post-war period (see table 78). By the 1960's, annual growth of employment within the manufacturing sector ranged rather narrowly within the limits of about 4 to 6 per cent. Although data limitations exclude precision, it appears that in recent years, while the more modern manufacturing sector has increased the direct demand for manpower in both Latin America and Asia, the more substantial rate of growth of demand for such manpower was clearly in Asia. As shown in chapter I, Asia was also the region in which the more dynamic growth of output of manufactures occurred in recent years.

The characteristics of growth of employment in manufacturing in the developing countries as a whole were markedly different from those of the developed market economy countries. In the latter group of countries, the well-established manufacturing sector absorbed, on the average, a lower annual rate of increase of manpower in 1955—1964, about 2 per cent. The extent of this increased claim on their labour market was little different from that which they had experienced in the immediately preceding decades. The proportionate difference in growth rates of employment in manufacturing between the developing

TABLE 78. GROWTH OF EMPLOYMENT IN MANUFACTURING, BY MAJOR REGIONS, 1938–1964

(Average annual change in index numbers between the dates indicated)

	Developing countries	*Developed market economies*	*World (excluding centrally planned economies)*	*Centrally planned economies*	*World*
1938 and 1948	4	2	3	...	...
1948 and 1953	2	2	2	...	...
1953 and 1955	6	2	3	...	...
1955 and 1956	8	3	5	3	4
1956 and 1957	3	2	2	4	3
1957 and 1958	—	−1	−1	3	—
1958 and 1959	5	3	4	2	3
1959 and 1960	5	4	4	6	5
1960 and 1961	4	2	3	5	3
1961 and 1962	4	2	3	4	3
1962 and 1963	6	2	3	3	3
1963 and 1964	5	2	3	3	3
1964 and 1965	...	2	...	4	...
1938 and 1960–1964 . . .	4.1	2.2	2.7	...	...
1948 and 1960–1964 . . .	3.9	2.2	2.7	...	...
1953 and 1960–1964 . . .	5.3	2.2	3.2	...	...
1955–1959 and 1960–1964	4.2	2.1	2.8	4.1	3.1

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Statistical Yearbook*.

countries and the developed market economies was broadly similar to that of the growth rates of population in these two groups. On the other hand, the recent growth of employment in manufacturing in the developing countries as a whole was quite similar to that of the group of centrally planned economies in recent years. The growth of population in the latter group of countries was significantly smaller than that in developing countries.

The wide variation in employment policy problems which face individual developing countries in the manufacturing sector is suggested by the fact that while a number of these countries experienced average annual rates of growth of employment in manufacturing of 10 per cent or more in 1955–1964, the data regarding many other countries indicate either stagnation or a significant decline in employment in manufacturing, even though this sector is generally the most vigorous of the economic activities, in terms of rate of expansion of output. In fact, almost one quarter of the developing countries on which data are given in table 79 experienced a stagnation or decline in manufacturing employment in the ten-year period. Average experiences of individual developing countries, over the period 1955–1964 as a whole, often involved year to

TABLE 79. GROWTH OF EMPLOYMENT IN MANUFACTURING, DEVELOPING COUNTRIES, 1955–1964[a]

(Average annual change in index numbers between 1955–1959 and 1960–1964)

Latin America		Kenya	−3
Argentina	−5	Malawi	−2
British Honduras	3	Nigeria	10
Chile	—[b]	Southern Rhodesia	1
Colombia	2	Tanzania	—
Ecuador	2	Uganda	1
El Salvador	2[b]	United Arab Republic	3
Guatemala	1	Zambia	1
Honduras	14		
Panama	6		
Peru	6	*Asia*	
Puerto Rico	5	Ceylon	−3
Trinidad and Tobago	4	China (Taiwan)	10[b]
Venezuela	3	Hong Kong	12
		India	3
Africa		Malaysia: Malaya	6
Gabon	10	Philippines	3
Ghana	10	Singapore	−4

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Statistical Yearbook*.

[a] In cases where data for the entire period of 1955–1959 and 1960–1964 are not available in the *Statistical Yearbook*, shorter periods are used to obtain growth rates. Growth rates of employment in the manufacturing sector for individual developing countries shown here may differ from those shown in table 84 due to difference in time periods used.

[b] Averages for 1955–1959 and 1960–1964 are not strictly comparable due to changes in statistical average between two periods.

year changes of a very substantial order in manufacturing employment, often in excess of 20 per cent. Apart from this, and considering only the average experience over the whole ten-year period of the individual countries, a comparison of these diverse experiences in manufacturing employment with those related to output and investment, as noted earlier, tends to suggest that while growth of employment and output may not have been closely correlated in this sector, there may have been a positive connexion between investment allocations and growth of employment in manufacturing. Thus, China (Taiwan) may be cited as a country with both high investment and a high rate of employment growth in manufacturing in 1955–1964, while the United Republic of Tanzania may be considered as an example of low investment and low growth of employment. Behind these broadly parallel movements of investment and employment in many countries was an apparent influence of the extent of general stability and continuity that could be achieved by their development policies. The lack of a clear correlation between growth of manufacturing employment and growth of manufacturing output over the ten-year period shows the importance of factors which relate to changes in technology, productivity and structure

of manufacturing industries within developing countries. On the other hand, the substitution of capital for labour — resulting from the effects of wage-cost inflationary pressures — was also an influence in some countries. A further apparent influence on the degree of growth of manufacturing employment in individual developing countries was the relative importance of the manufacturing sector in the total absorption of employment by all sectors of economy. To a limited degree, the rate of growth of employment in manufacturing has exhibited an inverse relation to the share of total employment in the country absorbed by manufacturing activities.

The recent influence of government entrepreneurship, as reflected in its direct employment of manpower in manufacturing activities, has undoubtedly been significant in some developing countries, particularly in cases where the domestic private sector has been unsuccessful for technical, organizational, financial or social reasons. This development has perhaps been more common in countries of Asia and Africa and has contributed to growth of manufacturing employment through plants owned or controlled by the public authorities. Although comprehensive data are lacking, it may have been that although the public sector was of negligible importance as a direct employer of manpower for manufacturing in many countries, it may have accounted more recently for one fifth or more of the labour force in manufacturing in some other countries. In some cases, the extent of public sector involvement in individual industries, particularly in the heavy category, was relatively larger. The conditions of employment set by the public sector have at times had a significant impact on the patterns of employment growth in the private sector.

Among the different industrial sectors, a greater contribution to the growth of manufacturing employment in developing countries in recent years was made by heavy industry. This sector, which probably accounted for about one quarter of the employment in modern manufacturing in developing countries as a whole in the latter part of the 1950's, increased its requirements for manpower at almost twice the rate of the light industry sector between that period and the early 1960's. Thus employment in the light industry sector of manufacturing increased on the average by more than 3 per cent *per annum* between 1955—1959 and 1960—1963, but the corresponding increase for the heavy industry sector was slightly above 6 per cent (see table 80). Although a greater rate of increase in employment absorption by heavy industries than by light industries was characteristic for developing countries as a whole, as well as for Latin America and Asia considered separately, throughout the post-war period, the situation was different between 1938 and 1948. During that period, which included war and reconstruction in Asia, the greater rate of growth of employment in that region occurred in the light industry sector. In Latin America also,

TABLE 80. GROWTH OF EMPLOYMENT IN MANUFACTURING BY SELECTED INDUSTRIES, 1938–1964

(Average annual change in index numbers between the dates indicated)

	Manufacturing			*Food, beverages and tobacco*	*Textiles*	*Clothing, footwear and made-up textiles*	*Wood products and furniture*	*Paper and paper products*	*Chemicals, petroleum and coal products*	*Non-metallic mineral products*	*Basic metals*	*Metal products*
	Total	*Light*	*Heavy*									
	ISIC	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*
	2–3	*20–26 28–30, 39*	*27 31–38*	*20–22*	*23*	*24*	*25–26*	*27*	*31–32*	*33*	*34*	*35–38*
Developing countries												
1938 to 1948	4.3	4.4	4.0	6.5	3.5	1.8	7.0	6.2	5.4	2.1	2.0	4.9
1948 to 1953	1.7	1.3	3.0	2.3	0.2	0.2	1.9	6.7	5.3	3.2	2.8	2.3
1953 to 1955–1959	6.2	5.7	8.4	3.9	4.6	5.2	11.2	15.4	6.0	3.3	5.7	11.0
1955-1959 to 1960-1964	4.2	3.4	6.1	3.2	2.3	6.4	4.7	5.1	4.8	5.1	7.8	6.8
Latin America												
1938 to 1948	5.0	4.7	5.3	4.1	5.8	4.6	...	6.5	5.5	8.0	0.7	5.5
1948 to 1953	1.9	1.3	3.5	3.0	0.2	−0.2	...	6.2	6.7	2.9	3.1	2.2
1953 to 1955–1959	2.0	1.3[a]	4.7	1.5[a]	0.2	2.0	...	6.1	5.1	3.2	2.9	5.3
1955-1959 to 1960-1961	2.4	1.3[a]	3.8	3.9[a]	−1.6	1.0	...	3.1	2.8	2.5	6.9	4.0
Asia												
1938 to 1948	3.8	4.1	2.6	8.3	2.5	0.3	8.0	5.0	4.7	−0.5	3.0	4.3
1948 to 1953	1.4	1.3	2.0	1.8	0.5	−0.3	1.9	7.6	1.9	2.3	1.6	1.5
1953 to 1955–1959	8.3	7.4	12.3	5.6	5.9	6.9	16.1	43.6	10.0	4.6	9.8	15.9
1955-1959 to 1960-1964	4.6	3.6	7.9	2.8	2.2	8.6	6.0	6.7	5.6	6.5	9.9	8.8

TABLE 73. FEDERAL REPUBLIC OF GERMANY: APPROXIMATE BOOK VALUE[a] OF DIRECT INVESTMENT IN MANUFACTURING AND IN OTHER SECTORS[b] IN DEVELOPING AND DEVELOPED REGIONS; CUMULATIVE POSITION FROM FEBRUARY 1, 1952 THROUGH END 1964

(Million dollars)

	Developing countries					*Developed countries*	*Total*
	Total	*Latin America*	*Africa*	*Asia*	*Other countries*[c]		
Manufacturing[d]	463	316	30	25	91	945	1,408
Food etc.	8	4	—	—	4	46	54
Textile, clothing etc. .	7	5	—	—	2	39	46
Wood, paper, printing	5	1	—	—	4	13	18
Chemicals etc.	103	74	—	9	20	174	277
Petroleum	42	1	30	—	12	74	116
Non-metallic minerals .	9	4	—	3	2	40	49
Basic metals	59	46	—	1	12	163	222
Mechanical engineering	110	93	—	8	8	210	320
Other metal products .	117	85	—	4	27	179	296
Other	3	3	—	—	—	7	10
Other sectors	82	28	23	1	30	322	404
Total[e]	545	345	52	26	121	1,267	1,812[f]

Source: United Nations Industrial Development Organization, based on *Monthly Report of the Deutsche Bundesbank*, December 1965. These data differ slightly from those shown below in footnote[a].

[a] Excluding undistributed re-invested profits of subsidiaries.

[b] The classification in this table between manufacturing (totals and sub-totals) and non-manufacturing is according to the economic activity of the investor. However, in most cases this accords with the economic activity of the recipient enterprise.

[c] Includes 63 developing and 5 developed countries, unspecified.

Developed market economies												
1938 to 1948	2.2	1.2	3.2	0.8	—0.1	1.1	2.5	3.3	3.3	1.5	2.4	3.7
1948 to 1953	2.2	1.8	3.2	2.4	1.6	1.0	0.6	3.3	3.0	2.9	2.9	3.7
1953 to 1955–1959	2.2	1.5	3.1	2.4	—0.1	0.4	1.9	3.9	3.0	2.9	1.2	3.0
1955-1959 to 1960-1964	2.1	1.4	2.7	1.7	—0.9	1.6	1.1	2.7	2.4	2.0	1.6	3.4
1964 to 1965	2.1	1.4	2.7	1.4	—1.5	4.4	2.4	1.6	1.6	2.0	2.7	2.9
World, excluding centrally planned economies												
1938 to 1948	2.8	2.3	3.4	2.9	1.3	1.3	3.6	1.9	3.9	1.7	2.4	4.1
1948 to 1953	2.4	1.6	3.3	2.5	1.1	0.7	1.0	3.5	3.1	2.9	2.8	3.3
1953 to 1955–1959	3.3	2.9	3.8	3.2	1.5	2.0	5.0	4.9	4.1	3.0	2.1	4.1
1955-1959 to 1960-1964	2.8	1.9	3.4	2.4	1.1	3.1	2.6	2.9	3.0	3.1	2.6	3.7
Centrally planned economies												
1955-1959 to 1960-1964	4.1	3.1	4.8	2.5	1.3	3.4	3.2	2.2	4.6	4.6	3.4	5.1
1964 to 1965	4.0	3.8	4.1	5.3	5.1	3.1	2.7	5.2	5.0	1.8	5.0	4.3

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Statistical Yearbook*

[a] Data for the period 1957–1959 are used to obtain the average index for the period 1955–1959.

the growth rate differential in favour of the heavy sector was much less evident in 1938–1948 than in the subsequent post-war years. The more extreme influences contributing to the greater increases in growth rates of employment in the heavy industries since the mid-1950's, were growth rates of 7 to 8 per cent in the basic metals and metal products industries of the heavy sector and only of 2 to 3 per cent in the food and textile industries of the light industry sector. Other industry groups in the light and heavy sectors of manufacturing had less divergent rates of employment growth. These rates recently averaged about 5 per cent in the heavy industries of paper and paper products, chemicals, petroleum and coal products, and non-metallic mineral products, and about 5 to 6 per cent in the light industries of clothing, made-up textiles and footwear, and wood products, furniture etc. This recent pattern, which might have been anticipated, was not encountered in the period prior to the mid-1950's, perhaps as a reflection of conditions at a significantly lower level of development and development planning.

The pattern of rates of employment growth since 1955 among the various manufacturing industries of developing countries as a whole differed from, rather than resembled, the pattern in the developed market economies as a whole. Similarity between the regions was limited to the fact that in the developed market economies also, the rate of employment growth in the total heavy sector of manufacturing in 1955—1964 was about twice that in their light industry sector. Not only was this a continuation of post-war experience but the same situation prevailed between 1938 and 1948. On the other hand, since the mid-1950's the patterns in individual industries were quite dissimilar in the two regions: in the developed market economies there was a broad tendency for each of the heavy industry groups to have a larger increase in their employment volume, in percentage terms, than any of the light industry groups. In other words, there is evidence of less homogeneity of employment growth rates within each of these two sectors in developing countries. There was not apparent in the pattern of employment growth rates of the developed market economies the same strong emphasis on basic metals and metal products industries and the lack of emphasis on the food and textile industries. Thus, for example, annual growth rates of employment in 1955—1964 in the developed market economies were highest, above 3 per cent, in the metal products industry and were lowest, essentially at stagnation level, in the textile industry. Nevertheless, the employment growth rate was broadly similar in the food and basic metals industries. The second difference, probably arising from the higher economic development of the developed market economies, was that the pattern of employment growth rates of individual industries within the manufacturing sector in 1955—1964 was not substantially different from the pattern in the preceding decades.

Despite the greater emphasis on growth of employment in heavy

industries, apparent in developing countries for a considerable period, it was the exception in developing countries around the turn of the 1960's for the heavy industry sector to achieve dominance in its claims on manpower over the light industry sector. In only three of the fifty-eight developing countries for which data on the industrial structure of employment in manufacturing are shown in table 81 was employment absorption greater in the heavy than in the light industry sector. In fact, in the majority of developing countries, during the most recent year around the turn of the 1960's for which such data exists, employment in the heavy sector industries accounted for less than 30 per cent of total manufacturing employment. To elaborate, in more than one quarter of the developing countries shown in the tables the heavy industry sector accounted for less than 20 per cent of total manufacturing employment. At the same time, the data indicate that, in some of the less industrialized of these countries, employment in the heavy sector was relatively high. This may be attributable in part to a different specific content of the heavy industry sector in the less industrialized of the developing countries or to a heavy industry sector which has required greater manpower per unit output. If this is the case, then the further development of their heavy sector would probably not automatically involve a greater share of manufacturing employment in that sector.

Considering the recent structural pattern of employment for nine individual industry groups, a tentative hypothesis would suggest that while a fairly systematic pattern of manpower claims by the various industries tends to emerge in the more industrialized countries of the developing world, the pattern of manpower use in the less industrialized countries reflects more the processing of the particular natural resources exploited in the country. The fairly systematic pattern of manufacturing employment of the more industrialized countries of the developing world, as defined by the level of their *per capita* manufacturing output, i.e. the top one third of the countries shown in table 81 shows employment as being the largest in the following manufacturing industries (listed in descending order): foodstuffs etc., metal products, clothing, footwear etc. and textiles. Thereafter, there is a middle group of manpower-absorbing industries which, without being ranked, consists of wood products, furniture etc.; chemicals, petroleum and coal products; and non-metallic mineral products. Finally, the least significant absorbers of employment tend to be (in descending order) the basic metals and paper and paper products industries. It appears that broadly speaking, in this group of more industrialized developing countries, the manufactured food industry has accounted for about one third of total modern manufacturing employment; metal products, for about one sixth; textiles and clothing together, for about one fifth. The other industry groups combined have absorbed the remaining three tenths of employment

TABLE 81. EMPLOYMENT STRUCTURE IN MANUFACTURING, BY INDUSTRIES, IN DEVELOPING COUNTRIES,[a] RECENT YEARS

(Percentage distribution of persons engaged in manufacturing)[b,c]

	Year	Manufacturing: Total[d] ISIC 2–3	Manufacturing: Light[e] ISIC 20–26 28–30 39	Manufacturing: Heavy[f] ISIC 27 31–38	Food, beverages and tobacco[g] ISIC 20–22	Textiles[h] ISIC 23	Clothing, footwear and made-up textiles[i] ISIC 24	Wood products and furniture[j] ISIC 25–26	Paper and paper products[k] ISIC 27	Chemicals, petroleum and coal products[l] ISIC 31–32	Non-metallic mineral products[m] ISIC 33	Basic metals[n] ISIC 34	Metal products[o] ISIC 35–38
Latin America													
Argentina	1957	100	54	46	19	17	5	5	2	7	5	5	26
Brazil	1963	100	55	45	17	18	5	7	3	8	7	13	15
Chile	1963	100	60	40	20	17	9	6	2	7	5	4	22
Mexico	1960	100	63	37	26	16	7	5	2	10	5	4	16
Paraguay	1963	100	63	37	35	5	7	9	—	13	13	—	10
Colombia	1963	100	64	36	22	16	11	4	2	7	9	1	16
Uruguay	1960	100	67	33	27	13	11	6	2	7	5	1	19
Peru	1963	100	68	32	31	16	8	5	2	6	5	5	14
Barbados	1958	100	72	28	34	—	9	3	...	...	3	...	25
Panama	1961	100	77	23	38	—	16	12	2	3	8	—	10
Trinidad and Tobago	1957	100	78	22	42	4	6	9	...	...	6	...	16
Puerto Rico	1963	100	79	21	28	5	30	5	1	4	5	1	10
Guatemala	1958	100	79	21	30	13	14	12	—	5	8	—	7
Ecuador	1963	100	80	20	35	26	4	4	1	11	4	—	4
Jamaica	1960	100	83	17	31	10	29	6	1	4	4	—	9
Honduras	1963	100	84	16	42	2	12	21	—	6	4	—	6
Venezuela	1953	100	85	15	56	6	10	6	1	3	5	—	6
El Salvador	1961	100	90	10	61	10	13	3	—	2	3	—	4
Surinam	1961	100	90	10	34	—	15	32	—	2	1	—	7
Nicaragua	1953	100	92	8	60	4	12	8	...	3	3	...	2
Dominican Republic	1962	100	94	6	83	3	3	2	1	2	2	1	1

Africa													
Libya	1964	100	48	52	20	5	1	5	...	15	17	—	20
Tunisia	1958	100	54	46	44	...	...	3	2	21	15	...	8
Zambia	1963	100	54	46	27	5	...	13	—	...	14	...	32
Sudan	1959	100	56	44	40	9	...	3	...	32	3	...	9
Kenya	1963	100	59	41	25	8	4	14	1	7	4	—	29
Southern Rhodesia	1963	100	61	39	26	9	12	8	2	5	4	6	22
Ivory Coast	1963	100	64	36	17	10	4	33	...	14	—	...	22
Algeria	1957	100	66	34	26	20	...	6	1	3	9	—	20
Gabon	1963	100	73	27	12	...	...	61	...	...	...	...	27
United Arab Republic	1962	100	74	26	23	42	3	2	2	6	6	3	8
Ghana	1963	100	78	22	12	2	5	49	1	8	3	1	10
Mauritius	1964	100	80	20	67	3	2	3	—	2	5	—	14
Uganda	1963	100	82	18	28	42	...	8	...	4	5	...	9
Madagascar	1950	100	87	13	66	4	1	5	—	2	4	—	8
Malawi	1962	100	88	12	60	9	...	3	...	...	...	...	12
Mozambique	1958	100	89	11	38	32	1	16	—	2	4	...	4
Ethiopia	1962	100	90	10	36	37	...	7	—	4	5	—	...
Tanganyika	1958	100	92	8	58	7	—	22	...	—	1	...	7
Asia													
Kuwait	1963	100	40	60	14	—	9	8	...	—	9	—	51
Iraq	1963	100	45	55	20	14	5	2	4	7	27	—	17
Israel	1963/64	100	57	43	15	13	6	8	2	5	6	2	28
China (Taiwan)	1963	100	59	41	23	16	5	9	3	10	9	2	17
India	1962	100	61	39	16	39	—	1	2	4	5	9	19
Singapore	1963	100	62	38	19	...	4	10	1	5	7	1	24
Korea, Rep. of	1963	100	63	37	15	27	4	4	3	10	6	3	15
Ceylon	1963	100	63	37	26	13	11	4	2	17	7	—	11
Cyprus	1962	100	67	33	28	2	19	10	—	1	9	—	23
Jordan	1963	100	70	30	29	5	17	12	—	6	6	—	19
Philippines	1962	100	71	29	31	13	7	11	2	6	4	2	15

TABLE 81. EMPLOYMENT STRUCTURE IN MANUFACTURING, BY INDUSTRIES, IN DEVELOPING COUNTRIES,[a] RECENT YEARS *(Continued)*

(Percentage distribution of persons engaged in manufacturing)[b,c]

Year	Manufacturing: Total[d] ISIC 2–3	Manufacturing: Light[e] ISIC 20–26 28–30 39	Manufacturing: Heavy[f] ISIC 27 31–38	Food, beverages and tobacco[g] ISIC 20–22	Textiles[h] ISIC 23	Clothing, footwear and made-up textiles[i] ISIC 24	Wood products and furniture[j] ISIC 25–26	Paper and paper products[k] ISIC 27	Chemicals, petroleum and coal products[l] ISIC 31–32	Non-metallic mineral products[m] ISIC 33	Basic metals[n] ISIC 34	Metal products[o] ISIC 35–38
Asia (Continued)												
Malaysia, East . . 1962	100	72	28	17	—	4	46	—	18	3	—	7
Malaysia, West 1963	100	73	27	26	2	2	17	1	6	6	1	15
Pakistan 1962/63	100	73	27	11	53	1	—	1	6	3	4	13
Viet-Nam, Rep. of 1960	100	76	24	38	20	3	7	—	7	11	1	4
Lebanon 1955	100	77	23	27	18	10	10	1	2	. . .	. . .	21
Indonesia 1958	100	78	22	34	16	9	4	1	7	4	. . .	10
Thailand 1954	100	79	21	48	4	3	14	1	4	5	1	10
Burma 1960/61	100	84	16	41	19	5	11	—	7	2	1	6

Source: United Nations Industrial Development Organization, based on United Nations, *The Growth of World Industry 1938–1961, National Tables*, New York 1963, and *The Growth of World Industry 1953–1965, National Tables*, New York 1967. For details other than these indicated below, see notes in the above source.

[a] Countries are listed in the descending order of the percentage of persons engaged (employed) in heavy manufacturing.

[b] Except for Barbados, Chile, Dominican Republic, Uruguay, Algeria, Ehtiopia, Gabon, Ivory Coast, Malawi, Southern Rhodesia, Sudan, Zambia, Indonesia and Israel, where data refer to the number of persons employed.

[c] *All establishments irrespective of size:* Costa Rica; Dominican Republic (all registered); Jamaica (including home workers); Panama, Paraguay (except cottage industry); Mexico (all establishments in the private sector and establishments with six or more persons engaged in the petroleum industry in which the government participates); Uruguay (all registered) and Venezuela; Gabon (all "modern" enterprises); Ivory Coast (all units where main activity is industrial one); Malawi (all registered establishments); Sudan (units which use modern capital equipment except handicraft); Southern Rhodesia, Tunisia and Zambia (all registered and private establishments; establishments without paid employees or power equipment, dress-makers and African cottage industries, both in urban and rural areas where not registered and thus not included in the census); China (Taiwan); Israel (employing at least one paid person); Jordan; Kuwait (except those operated by oil companies); Malaysia East (except co-operative rice mills, rubber smoking houses and small operations without fixed location); Malaysia West (except tin smelting industries, tailors and dress makers, repair of motor vehicles, bicycle repair shops, goldsmith and the processing of agricultural products on estates comprising tea factories, rubber processing, copra kilns, and palm oil mills); Thailand; Republic of Viet-Nam (all licensed including homeworkers). *Establishments employing at least one person:* Puerto Rico, Algeria. *Establishments with 3 or more manual workers:* Guatemala. *Establishments with 5 or more persons:* Barbados (employees); Brazil (including some relatively small units in Food and Beverage Industries); Peru and Trinidad and Tobago (employees); Columbia (and/or a gross value of production of 29,000 pesos or more); Honduras; Kenya; Libya; Tanganyika and Mozambique (where some industrial units were probably excluded); Madagascar (employees); Ceylon (using power equipment); Cyprus; Korea; Lebanon (except those specializing

in assembling and repair work). *Establishments with 7 or more persons* or with a gross value of production of 180,000 sucres or more, or with fixed assets of 50,000 sucres or more: Ecuador. *Establishments with 10 or more persons:* Chile (employees); Mauritius; Uganda; Ethiopia (excluding parts of printing industry); and U.A.R. (excluding government-managed operations). Burma (employees in urban areas); Indonesia (using power equipment); Iraq. *Establishments with 11 or more persons:* Argentina (excluding home workers). *Establishments with 20 or more persons:* Pakistan (using power, excluding those operated by government); Philippines. *Establishments with 30 or more persons:* Ghana. *Establishments with 50 or more persons using power or 100 or more persons not using power:* India. *Establishments with a certain limit of gross value of sales or production:* 1,000 colons or more, except for sugar refining and coffee peeling where minimum value was set at 500 colons: El Salvador; 12,000 cordobas: Nicaragua. *No information available:* Surinam.

[d] Barbados — excluding sugar milling; Trinidad and Tobago — excluding petroleum refining; Brazil — including ISIC 84; Chile — excluding parts of ISIC 342 and 382; Venezuela — excluding ISIC 321; Algeria — including ISIC 14; Ethiopia — including parts of ISIC 191 and 011 all of ISIC 022 but excluding government printing press and part of ISIC 209; Tunisia — excluding 23, 24 and 26; Uganda including part of ISIC012; Ceylon — excluding ISIC 209 and part of ISIC 30; Cyprus — excluding ISIC 201. part of 29, 319 and all household industries; Indonesia — excluding sugar mills on estates, batik mills and petroleum refineries irrespective of size; Malaysia East — including ISIC 13 and ISIC 511; Malaysia West — excluding parts of ISIC 24, 342, 384, 385, 394, 209, 30, 312.

[e] Trinidad and Tobago — including ISIC 27 and 31; Gabon — relates only to ISIC 20, 24, 25, 26, 28, 29, 31; Sudan — excluding ISIC 28, 30, 39; Uganda — includes ISIC 27

[f] Gabon — relates only to ISIC 35—38; Sudan — including ISIC 28, 30, 39.

[g] Guatemala — excluding coffee beneficiaries; Barbados — excluding sugar milling; Brazil — excluding part of ISIC 20; Jamaica — excluding ISIC 209; Algeria — including matches; Ethiopia — including parts of ISIC 191 and 011 but excluding part of ISIC 209; Libya — small establishments are included in ISIC 39; Gabon — including ISIC 28 and 31; China (Taiwan) — excluding manufacture of edible oils; Malaysia East — including ISIC 312; Malaysia West — excluding ISIC 213; Israel — includes part of ISIC 312.

[h] Jamaica — including ISIC 244 and part of ISIC 26; Trinidad and Tobago — including part of ISIC 24; Algeria, Malawi, Sudan and Uganda, Zambia — including ISIC 24; Iraq — excluding part of ISIC 231.

[i] Barbados — including ISIC 29; Jamaica — excluding ISIC 244; Mexico — in government sector excludes manufacture of wearing apparel; Algeria and Ethiopia — ISIC 241 is included in ISIC 29; Malawi — excluding ISIC 241—242; Indonesia — excluding part of ISIC 24; Iraq — including part of ISIC 30; Singapore — including ISIC 23.

[j] Jamaica — excluding ISIC 252 and part of ISIC 26; Mexico — in government sector excluding part of ISIC 25; Ethiopia — includes ISIC 022; Gabon — includes ISIC 23 and 29; Libya — small establishments includes ISIC 39; Tunisia — wood and cork only; Uganda — includes part of ISIC 383. Sudan — ISIC 26 only.

[k] Libya — included in ISIC 39; Kuwait — excluding part of ISIC 272.

[l] Southern Rhodesia — ISIC 329 included in ISIC 39; Ethiopia and Mauritius — relates only to ISIC 31; Ivory Coast — includes ISIC 30; Ceylon — excluding part of ISIC 311; Cyprus — excluding part of ISIC 319; Iraq — excluding parts of ISIC 30 and 31; including parts of ISIC 350 and 370; Malaysia East — including parts of ISIC 209, 211, 22, 241, 26, 339, 35 and 399 as well as ISIC 13 and 511; Malaysia West — excluding parts of ISIC 32; Lebanon — ISIC 31 only; China (Taiwan) — including part of ISIC 209.

[m] Zambia — including ISIC 14—19; Algeria — including ISIC 14; Kuwait — excluding part of ISIC 339; Iraq — excluding part of ISIC 339.

[n] Brazil — includes ISIC 35; Tunisia, Uganda and Zambia — ISIC 34 is included in ISIC 35—38.

[o] Mexico — in government sector excluding parts of ISIC 37, 382 and 383; Jamaica — includes part of ISIC 26; Ethiopia — ISIC 35 and part of 36 is included in ISIC 39; Libya — small establishments of ISIC 36 are included in ISIC 39; Zambia — excludes firms mainly engaged in distribution, which were formerly classified in manufacturing, and includes ISIC 31 and ISIC 333; Lebanon — ISIC 32—38.

in the modern manufacturing sector. It should be recognized, of course, that such a structural pattern of manpower use in the manufacturing sector is not likely to remain unchanged as industrialization proceeds to higher levels.

Employment in manufacturing and in other economic sectors

Turning from the impact on employment of the recent growth in the more modern or factory sector of manufacturing to the relation of the total of all manufacturing employment to the total allocation of manpower in all sectors in the economy, two preliminary comments are necessary. The first relates to the definition of all manufacturing employment and the second concerns the influence of urbanization.

The total of manufacturing employment encompasses not only the people involved in the more modern or factory sector alone, as considered above, but also the very substantial handicrafts and homecrafts or artisan sector. That sector and the distinction between the two sectors are of considerable significance for discussion of employment policy in developing countries in view of the likelihood that, as manufacturing employment has risen in the more productive factory sector, some degree of displacement of manufacturing employment in the less productive artisan sector may have occurred. To the extent that such displacement has in fact taken place, the industrialization process of recent years must have resulted, other things being equal, in a growth rate of all types of manufacturing employment less than the 4 per cent rate which was estimated for the more modern of factory sector of manufacturing activity.

Other influences have also affected the relative roles of artisan and factory employment, and in a pattern changing over time. In very broad terms, what has apparently occurred in Latin America may have some relevance for all developing regions. Manufacturing factory employment in Latin America as a whole accounted for one half of the total of manufacturing factory and artisan employment in the mid-1950's. It has been estimated by the Economic Commission for Latin America (ECLA) that manufacturing factory employment in the region increased at an annual rate of 3.1 per cent between 1955 and 1965. Since the average annual rate of growth of employment in the artisan sector of manufacturing in the same period was restricted to about 1.5 per cent, the resulting growth rate for all manufacturing employment was, therefore, only about 2.4 per cent.[67]

Caution against the general or too precise use of these specific differential rates of growth is suggested in view of corresponding data

[67] United Nations, Economic Commission for Latin America, *Economic Bulletin for Latin America*, 10 (2) (Sales No.: 66.II.G.3), October 1965. Further information used in the above calculations was obtained directly from ECLA.

for Latin America for a period of three decades up to 1955. These indicate that while there was an annual growth rate in factory employment of about 4.5 per cent, artisan employment in the same period increased by only 0.9 per cent, and the resulting growth rate of employment in both sectors combined was about 2.2 per cent. What occurred in Latin America, then, was that in the four decades up to 1965, while the growth rate of factory employment persisted well above that of artisan employment, the gap between these rates diminished over time. Since artisan employment has increased, although at a slower rate than employment in modern manufacturing, "displacement" of the former has been relative rather than absolute. A number of influences of a general nature may have been involved. Growth of over-all factory employment was substantially affected by changing conditions of aggregate demand for industrial products, progress in import substitution, availability of financial resources for industrial investment, productivity etc. A part of the employment requirements for factory output was undoubtedly for substitution of artisan employment. However, all artisan labour was not transferable. Further, in many instances, for equivalent value of output, an increasingly smaller number of factory workers was required over time to substitute for a given volume of artisan labour. Therefore, it is possible that the substitution element in growth of factory employment may have become relatively minor. Moreover, there may have been influences that worked in the opposite direction, i.e. creating complementary relations between growth of factory employment and growth of artisan employment. These may have included increased requirements for service, maintenance and repair facilities for factory-manufactured consumer and producer goods. On the other hand, the apparently accelerating growth of the volume of artisan employment, even in conditions of a strong industrialization effort, must be viewed within the context of the generally increasing growth of population.

It was indicated above that, for Latin America as a whole, a decade ago artisan employment and factory employment were of a broadly similar magnitude and that the relative role of factory employment since then has further increased. However, employment policy in developing countries is primarily a national concern and it is therefore worthwhile for individual developing countries to consider how great are the particular employment challenges and opportunities to their factory sector that arise from the relative importance of their artisan sector. Among twenty developing countries in Latin America at the beginning of the 1960's, factory employment in nine countries accounted for between 50 and 70 per cent of the total employment opportunities in factory and artisan manufacturing. In descending order, these countries were Uruguay, Mexico, Venezuela, Cuba, Panama, Argentina, Brazil, Chile and the Dominican Republic. The share of total manufacturing employment in factories was between one quarter and one half in six countries, listed in descending order of the relative importance of the factory sector:

Costa Rica, El Salvador, Peru, Guatemala, Colombia and Honduras. The final group of Latin American countries, in which the factory sector accounted for only between one tenth and one quarter of total manufacturing employment included, in descending order, Nicaragua, Paraguay, Ecuador, Haiti and Bolivia.[68]

The ranking of the relative importance of factory employment in total manufacturing employment in Latin America appears to be associated to some extent with two indicators of industrial development. One association for which the positive relation is quite good, the correlation co-efficient being above 0.9 for a sample of the above countries, is between the share of total manufacturing employment absorbed by factories in a country and the value added by the total manufacturing sector of the country expressed per head of population, as estimated from the national accounts of the country. Another positive relation also exists in these countries between the share of factory in total manufacturing employment and a variable which is connected with *per capita* manufacturing output, i.e. the employment status composition of those engaged in the total manufacturing sectors. However, when the employment status of those engaged in the total manufacturing sector is approximated by a ratio (obtained from census of population data) of employees to those who work on their own account or who perform unpaid family work of a manufacturing nature, the relation with the share of total manufacturing employment absorbed by factories appears less close than the first relation indicated.

In the absence of readily available and comprehensive information on the relative employment roles of the artisan and factory sectors in most developing countries in Africa and Asia, a rough approximation may be suggested by using the relations indicated above. It should not be necessary to stress that a host of other influences also intrudes in the determination of the relative roles of artisan and factory employment in countries in different developing regions. Using the first of the above associated variables, i.e. *per capita* manufacturing production (value added), it appears that while the artisan sector is probably dominant in a bare majority of developing countries in Latin America, it probably dominates over the factory sector in virtually all developing countries in Africa and Asia. Within Africa, the degree of dominance is probably greater in East Africa than in North Africa, while in Asia the importance of the artisan sector is perhaps greater in the southeast than elsewhere in the region. These conclusions receive only limited support from the use of the other variable, composition by employment status. The use of the latter variable does not indicate as clear a distinction between Latin America and Asia in the relative role of the artisan sector.

[68] For detailed estimates, see United Nations, Economic Commission for Latin America (1966), *El Proceso de Industrializacion en America Latina* (Sales No.: 66.II.G.4).

[2] The detailed definitions of the sectors below are as follows: food etc. includes beverages and tobacco; textile, clothing etc. includes manufactures of leather; chemicals, etc. includes the manufactures of plastics, rubber and asbestos; petroleum includes processing of mineral oil and production of coal derivatives; non-metallic minerals includes extraction and processing of stones and earths, pottery, glass, building and civil engineering; basic metals includes iron and non-ferrous metal production, foundry, steel moulding; mechanical engineering includes steel construction, vehicles and shipbuilding; other metal products includes electrical engineering, precision instruments, optical goods, musical instruments, sports goods, toys, jewellery, and hardware production; and other includes unclassifiable amounts.

[3] Data on the geographic distribution of German direct investment, end 1959 to end 1965, but without classification by economic sectors are available from U.S. Embassy, Economic Affairs Section, *Handbook of Economic Statistics, Federal Republic of Germany and Western Sectors of Berlin*, various issues, as follows:

	Position at the end of:						
	1959	*1960*	*1961*	*1962*	*1963*	*1964*	*1965*
Developing Countries	196	263	352	449	502	536	582
Latin America	161	214	276	341	371	381	397
Africa and Asia	35	49	76	108	131	155	185
Developed Countries	370	473	614	797	1,024	1,276	1,509
Total	566	736	966	1,246	1,526	1,812	2,091

[4] Limited information on the classification of German direct investments abroad to all countries (developed and developing countries combined) is available for end 1961 to end 1964 from source indicated above as follows:

	Position at the end of:			
	1961	*1962*	*1963*	*1964*
Manufacturing	753	945	1,177	1,408
Steel construction, mechanical engineering, vehicle and ship building	137	181	247	320
Electrical engineering and precision, sports, toys, jewellery products etc.	155	199	227	296
Chemicals, plastics, rubber and asbestos processing	180	210	242	277
Iron and non-ferrous metal production, foundry, steel moulding	158	192	220	221
Mineral oil processing and production of coal derivatives	94	60	95	116
Other Sectors	212	300	348	404

The growth of manufacturing employment beyond the average rate of about 4 per cent *per annum* in the factory sector of developing countries as a whole undoubtedly has been limited generally by lack of opportunities for further productive employment in this sector, rather than by lack of potentially available manpower. Manpower for the factory sector has been recruited mainly in urban centres which, because of generally high natural rates of increase in population and a virtually universal movement away from rural areas, have become ever more crowded. There has not been an absorption of manpower into the factory sector of a magnitude comparable to the increase in population in urban centres. Devising ways and means to close or reduce this gap constitutes a major challenge in the area of manpower policy.

By the beginning of the 1960's, it appeared that between one fifth and one quarter of the population of the developing world as a whole was located in urban areas (see table 82). The degree of concentration of population in such areas, which provides a highly tentative indicator of potential manpower available for the factory sector, was clearly greatest in Latin America where close to one half of the population was in urban areas. While the definition or urbanization varies widely from country to country, it appears from table 82 and from supplementary information[69] that many of the larger countries of Latin America, such as Argentina, Chile, Mexico and Venezuela, have acquired a higher degree of urbanization than the smaller countries. While the percentage of population now residing in urban areas in these countries has gone beyond the halfway mark, urban populations account for less than one third of the population in many of the smaller countries of the region, including several in Central America. Uruguay, as a small country, is an exception with a substantial degree of urbanization. Broadly speaking, urbanization has not progressed as far in Asia and Africa as in Latin America, but a regional generalization should be limited, in view of the variety of individual country experiences within each regions. Thus, although for Asia as a whole perhaps one fifth of the population resided in urban areas at the beginning of the 1960's, the proportion was much greater in several countries of west Asia than in south and south-east Asia. In the censuses of population for 1961, only about 18 per cent of the population of India was identified with urban areas, while in Pakistan the degree of urbanization measured by the percentage of total population in urban areas was still smaller, about 14 per cent. The country pattern of development of urban centres in Africa conforms more to that of Latin America to the extent that the higher degrees of urbanization are often in larger countries such as the United Arab Republic, Morocco and Ghana and the Democratic Republic of the Congo, where urban areas apparently constituted 38, 29, 23 and 22 per cent, respectively, of the

[69] See United Nations, Economic Commission for Latin America (1964), *The Economic Development of Latin America in the Post-war Period* (Sales No.: 64.II.G.6).

total population. At the other end of the scale, there are a number of African countries where less than 10 per cent of the population lived in urban areas. However, in terms of over-all weighted average, as suggested by country experiences shown in the table, the degree of urbanization in Africa was higher than in Asia, accounting for more than one quarter of the total population.

There is little doubt that in many developing countries — though by no means all — the degrees of urbanization continues to increase beyond the percentages indicated. Latin America may be cited as an example. Between 1950 and 1962, while the total population of Latin America grew at an annual rate of 2.8 per cent, the comparable growth

TABLE 82. URBAN AND NON-AGRICULTURAL POPULATION,[a] BY DEVELOPING COUNTRIES,[b] RECENT CENSUS YEARS[c]

(Numbers and percentage composition)

	Urban population		*Non-agricultural population as percentage of total economically active population*
	Thousand persons	*Percentage of total population*	
Latin America			
Uruguay	2,132	82	82
Chile	5,028	68	72
British Honduras	49	54	60
Mexico	17,705	51	46
Peru	4,698	47	50
Puerto Rico	1,037	44	77
Panama	446	41	54
Nicaragua	627	41	41
El Salvador	967	39	40
Ecuador	1,617	36	43
Costa Rica	461	34	51
Jamaica	476	30	61
Honduras	438	23	33
British Guiana	87	16	66
Barbados	11	5	76
Africa			
United Arab Republic	9,864	38	43
Morocco	3,412	29	43
Ghana	1,551	23	42
Senegal	706	23	...
Congo, Dem. Rep. of	2,795	22	14
Zambia	668	20	...
Southern Rhodesia	653	18	...
Togo	139	10	...
Gambia	28	9	...
Guinea	213	8	...
Kenya	670	8	...
Uganda	316	5	...

	Urban population		Non-agricultural population as percentage of total economically active population
	Thousand persons	Percentage of total population	
Asia			
Israel	1,698	78	88
Hong Kong	2,293	73	93
Jordan	748	44	65
Iraq	2,486	39	52
Syria	1,685	39	47
Cyprus	206	36	61
Iran	5,954	31	45
Philippines	8,102	30	40
Korea, Rep. of	6,997	28	38
Thailand	4,779	18	18
India	78,930	18	31
Ceylon	1,586	15	...
Indonesia	14,358	15	32
Pakistan	12,255	14	...
Nepal	264	3	...

Source: United Nations Industrial Development Organization based on United Nations *Demographic Yearbook* 1963 and 1964. See sources for notes additional to those shown below.

[a] In the Democratic Republic of Congo, Southern Rhodesia and Guinea the urban population refer to African population only. Indian jungle population in Ecuador, Bedouin population in Syria, population of small agglomerations in the frontier district in United Arab Republic and considerable number of nomads in Pakistan are excluded.

[b] Within each region, countries are ranked by percentage of urban population.

[c] Data refer to 1960 except for the following: Guinea – 1955; Congo – estimates for 1955–1957; Iran – 1956; Iraq – 1957; Togo – estimates for 1958–1960; Uganda – 1959; Peru, El Salvador, Honduras, Israel, Hong Kong, Jordan, India, Indonesia, Pakistan and Nepal – 1961; Senegal estimates – 1960–1961; Ecuador and Southern Rhodesia and Kenya – 1962; Uruguay, Nicaragua, Costa Rica, Zambia, Gambia and Ceylon – 1963.

in urban areas was 4.4 per cent.[70] It may be noted that this rate of growth of population in the urban areas of Latin America was twice as large as the rate of growth of employment in the more modern factory sector of this region during the same period. There is no reason to expect that this pattern has changed essentially since 1962. Further, the experience of many developing countries in other regions has been, broadly, in the same direction.[71] Whatever the reasons behind these mass movements in developing countries today, it has not been the case, generally, that specific opportunities for industrial employment in urban areas have provided the major magnetic force, as may have been the situation in the nineteenth century in countries which today are regarded as economically developed. Rather, a generalization has been suggested that the Asian experience has been due to the push of population away from a low level of rural living. Many of those who have come to the towns have come up against unemployment or under-employment and have not been assimilated into modern urban economic activities. In some parts of Africa, on the other hand, rural conditions may not have

[70] *Op. cit.*, *Economic Bulletin for Latin America*, 10 (2).

[71] See United Nations, *Compendium of Social Statistics: 1963* (Sales No.: 63.XVII.3).

directly impelled a comparable exodus from rural areas; the movement to urban areas may have reflected the general attractions of town life. At the present stage of economic development, many who have found employment in the manufacturing sector have been employed in the artisan rather than in the modern factory sector. Although a more vigorous effort towards modern industrialization cannot be expected to provide a complete solution, directly or indirectly, to employment problems created by rapid urbanization, the potential contribution to be thus achieved may be greater than what has been accomplished in the past. However, this requires more investment in other economic sectors and a larger investment in housing, health services and education (both formal and vocational) to increase the stability of the urban population and assist in its acquisition of modest industrial disciplines. The present cost as well as the long-run benefit from such social expenditures surely belongs primarily to the country as a whole rather than to the city or town alone. An increase in industrial employment beyond the over-all average of 4 per cent achieved to date would be only one of the gains to a developing society.

In further considering recent trends in employment, it may now be suggested that the effort to increase output of manufactures in many developing countries has not generally resulted in a radical change during the post-war years in the share of total employment allocated to manufacturing (see table 83). On the one hand, the extent to which a greater increase in production of manufactured goods involved a corresponding increase in total employment in manufacturing was influenced to varying degrees by increased productivity in the more modern factory sector, substitution of employment by this sector for employment in the manufacturing artisan sector, the growth of the artisan sector as a broad reflection of general demographic trends and the existence of under-employed manpower in both artisan and factory sectors. On the other hand, employment in other economic sectors has resulted, *inter alia*, from the pattern of direct demand for their output, productivity tendencies in these sectors, complementary relations with the manufacturing sector and the extent of population growth. With regard to the latter, censuses allocate all economically active population, including the unemployed, to a particular branch of economic activity. The unemployed are likely to be registered particularly in the sectors of agriculture, petty trades and services.

Evidence of the changing share of the total economically active population which is employed in manufacturing is based on a comparison of censuses of population data at two points of time. These data in table 83, relating to twenty-three developing countries in the post-war period up to the beginning of the 1960's, do not indicate any general significant shift towards an increasing allocation of manpower to the manufacturing sector. Of the twenty-three countries listed, only ten showed an increased

allocation, seven a decline, and six no change. At the beginning of the 1960's, in the large majority (sixteen of the twenty-three) of the developing countries, the manufacturing sector absorbed between one tenth and two tenths of the total economically active population, and this represented no substantial change from the position in these countries ten to fifteen years earlier. Both in the early post-war years and at the beginning of the 1960's, the share of economically active population in manufacturing was apparently greater than two tenths in Argentina and Israel and less than one tenth in Honduras, Morocco, Malaya, Panama and the United Arab Republic. This structural distribution of employment may not adequately portray the situation in all developing countries. Shifts over this time span in the share taken by manufacturing, which generally resulted from differential rates of increase in total and in manufacturing employment rather than from any actual declines, seldom exceeded 2 to 3 percentage points.

The many specific influences that have operated to produce the above shares of total employment in manufacturing at the beginning of the present decade might be approximated by one variable — the size of the *per capita* income of the country. One illustrative cross-country correlation which is statistically significant indicates, for example, that as *per capita* income rises from $ 100 to $ 300 to $ 500, the share of total economically active population in manufacturing increases from 6 to 17 to 20 per cent, respectively.[72] It should not be concluded that this picture of the present relationship between various countries at the same point of time will also be reflected within individual countries as time passes and *per capita* incomes rise. On balance, it may be that as the influences previously mentioned continue to work, there will be downward shifts in this functional relationship and a future given increase in *per capita* income will not produce as large an increase as indicated above in the share of manufacturing employment. Such a possibility would be in accord with the earlier indication of the absence of any general major shift in the relative share of manufacturing employment within many developing countries between the early post-war period and the beginning of the 1960's. Many of the developed countries have also had this latter experience but with significantly higher shares of manufacturing in total employment.

The lack of a significant and general pattern of change among many developing countries in the share of total employment absorbed

[72] With y = share of manufacturing in total economically active population and x = *per capita* gross domestic product, and for a sample of 31 developing and 13 developed countries, the following equation was established for the period around the beginning of the 1960's: $y = 22.9 - \frac{1674}{x}$. The standard error of x is 271 and of y is 7. Since this equation gives an upper limit to y of 22.9 per cent, and since many developed countries experience a higher value, it would appear that this formulation insufficiently portrays the actual position.

TABLE 83. SHARES OF ECONOMICALLY ACTIVE POPULATION IN MANUFACTURING AND OTHER BRANCHES OF ECONOMIC ACTIVITY, DEVELOPING COUNTRIES,[a] EARLY POSTWAR AND RECENT YEARS

(Percentage of total economically active population in census year)[b]

	Census years	*Manufacturing ISIC 2 and 3*		*Agriculture ISIC 0*		*Other branches*[c] *ISIC 1, 4—9*	
		Early postwar year	*Recent year*	*Early postwar year*	*Recent year*	*Early postwar year*	*Recent year*
Argentina	1947:1960	22	25	25	19	53	56
Israel	1948:1961	25	24	12	12	63	64
Chile	1952:1960	19	18	30	28	52	54
Puerto Rico	1950:1960	17	17	37	23	46	60
British Guiana	1946:1960	15	15	46	34	38	51
Trinidad and Tobago	1946:1960	17	15	27	20	56	65
British Honduras	1946:1960	12	15	41	40	47	45
Mauritius	1952:1962	14	15	44	38	42	48
Ecuador	1950:1962	24	14	49	57	27	29
Barbados	1946:1960	19	14	29	24	52	62
Singapore	1947:1957	17	14	8	8	75	78

Mexico	1950:1960	12	14	58	54	31	32
El Salvador	1950:1961	11	13	63	60	25	27
Venezuela	1950:1960	10	12	41	32	49	56
Nicaragua	1950:1963	11	12	68	59	21	29
Costa Rica.	1950:1963	11	11	55	49	34	40
India	1951:1961	9	11	71	70	20	20
Philippines.	1948:1960	6	10	66	60	28	30
United Arab Republic. .	1947:1960	9	9	60	57	31	34
Morocco	1952:1960	8	8	70	57	22	35
Honduras	1950:1961	6	8	83	67	11	26
Panama	1950:1960	8	8	50	46	42	46
Malaya	1947:1957	7	6	65	58	28	36

Source: United Nations Industrial Development Organization, based on data from the relevant issues of United Nations *Demographic Yearbook* for 1956 and 1964.

[a] Countries are ranked by the percentage size of economically active population engaged in manufacturing (ISIC 2—3) in a recent year for which a census of population is available.

[b] See basic sources for detailed country notes. It should be stressed that there are often significant changes in definitions and coverage from one census year to the next so that, in addition to different accounting procedures in different countries, procedures often vary with a country over time. For example, censuses may account differently for certain ethnic or tribal groups; persons in certain geographic areas of the country; unemployed persons or those seeking work for the first time; housewives presumed to be taking active part in agriculture, etc. Further, specific industries may be variously classified under major branches of economic activity. Consequently, there should be cautious interpretation of the data shown in the table.

[c] All sectors other than manufacturing and agriculture.

by manufacturing, coupled with the fairly general movement of labour away from rural areas and agricultural employment, has often resulted in a net shift of economically active population into the service sectors. The latter comprises both the infrastructure sector and commerce and other services. The extent of this shift by labour in developing countries into the service sectors may be indicated in broad terms. In the course of 10 to 15 years up to the beginning of the 1960's, the share of agriculture in total employment often fell by some 5 to 10 per cent, but the share of manufacturing often increased or declined by up to 2 to 3 per cent. Undoubtedly, in many instances the shift in registration of the active population from one category to another often contained an element of transfer of unemployed or under-employed. Censuses of population, from which these generalizations are derived, often list unemployed persons in a category of activity in which they had previously worked. To the extent that such shifts of unemployed from one class of activity to another between successive censuses of population were registered more frequently from the agricultural to the services sectors than to the manufacturing sector, the shifts in actual employment to the services sector would tend to be overstated in relation to those to the manufacturing sector. Instead, an entirely different body of information than that examined hitherto, and that generally relates only to wage earners and salaried employees who are actually employed, suggests that relative increases in actual employment in manufacturing in developing countries were larger than similar employment increases in all other non-agricultural sectors in two out of every three instances (see table 84). It should be borne in mind, however, that the data in table 84 were generally obtained from sample surveys of labour force, social insurance statistics and statistics of establishments; that they cover a different time period, 1956 to 1964; and that they refer to an almost wholly different sample of countries than that previously considered. When these latter trends are compared with those of developed countries in 1956—1964, they indicate quite strongly that, whether the manufacturing sector or the other non-agricultural sectors in developing countries gained more in employment in recent years, developing countries experienced a relatively less balanced (in the sense of more divergent) expansion of employment opportunities as between manufacturing and the other non-agricultural sectors.

Coming back to the consideration of present cross-country differences in the structure of employment resulting from past developments, it should be noted that while there is a clear tendency for the share of infrastructure in total employment to be positively related to the corresponding share of manufacturing, there is no such general relation among developing countries in regard to employment between the primary (agriculture and mining) and manufacturing sectors. In recent years, as indicated in table 85 censuses of population indicated that the manufacturing sector has most often absorbed between 5 and 20 per cent of the economically active population. This is a somewhat wider range

TABLE 84. RATE OF GROWTH OF EMPLOYMENT IN MANUFACTURING AND IN ALL SECTORS OTHER THAN AGRICULTURE, DEVELOPING AND DEVELOPED COUNTRIES,[a] 1956–1964

(Average annual change in index numbers between 1956–1959 and 1960–1964)

	Employment in manufacturing sector	*Employment in all sectors other than agriculture*
Developing countries		
Gabon	10	3
Nigeria[b]	10	1
Sierra Leone	10	4
Ghana[b]	10	6
Israel[c]	9	7
Fiji Islands	6	1
Peru	5	6
Puerto Rico	5	4
Philippines	3	3
British Honduras	1	10
Uganda	1	−1
Zambia	1	−2
Southern Rhodesia[d]	−1	−1
Malawi	−2	−2
Kenya	−3	−1
Singapore	−4	−3
Cameroon	−12	−3
Developed countries		
Yugoslavia	6	6
Japan	6	5
Turkey	5	4
New Zealand	3	3
Spain[e]	3	4
Australia	2	2
Luxembourg	2	1
South Africa	1	1
Austria	1	2
Norway	1	2
United Kingdom	1	1
France	1	1
Canada	—	—

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations, *Statistical Yearbook*. Growth rates of employment in the manufacturing sector for individual developing countries shown here may differ from those shown in table 79 due to difference in time periods used.

[a] Countries are ranked according to the rate of growth of employment in manufacturing.

[b] The average of 1960–1963 is used for the period 1960–1964.

[c] A new index, with base year of 1961, has been linked to an earlier index, with base year of 1958.

[d] The average of 1960–1962 is used for the period 1960–1964.

[e] The average of 1957–1959 is used for the period 1955–1959.

than indicated earlier for a more limited sample of developing countries. The general limits for most developing countries of the share of total employment going into the infrastructure sectors (construction; electricity, water, gas etc.; and transport, storage and communication) have been about 3 and 17 per cent. In examining the cross-country relation between these shares of total employment in the two sectors, the assumption might be made that it is an increase in manufacturing employment which calls forth additional employment in infrastructure

TABLE 85. STRUCTURE OF ECONOMICALLY ACTIVE POPULATION,[a] BY MAJOR ECONOMIC SECTORS, IN DEVELOPING COUNTRIES,[b] RECENT CENSUS YEAR[c]

(Numbers and percentage composition; total economically active population equals 100)[d]

	Manufacturing ISIC 2 and 3		*Primary ISIC 0 and 1*	*Infrastructure ISIC 4, 5, 7*
	Thousand	*per cent*	*per cent*	*per cent*
Latin America				
Argentina	1,916	25	20	13
Uruguay	211	21	18	13
Chile	429	18	32	11
Puerto Rico	102	17	23	16
British Guiana	26	15	38	12
Jamaica	90	15	40	12
Trinidad and Tobago	41	15	25	18
British Honduras	4	15	41	13
Ecuador	209	14	57	6
Barbados	13	14	25	15
Mexico	1,556	14	55	7
Peru	411	13	52	7
El Salvador	101	13	60	6
Venezuela	295	12	34	11
Nicaragua	56	12	60	6
Costa Rica	45	11	49	10
Honduras	44	8	67	4
Panama	26	8	46	8
Africa				
Mauritius	27	15	38	18
United Arab Republic	704	9	57	6
Ghana	235	9	60	6
Morocco	263	8	58	5
Tunisia	82	6	69	4
Congo	192	3	88	4
Sudan	101	3	87	3
Asia				
Hong Kong	476	39	8	17
Israel	158	24	12	17
Singapore	67	14	9	17
Iran	816	13	55	9

tries.[64] Governments of capital-exporting countries could help to satisfy this pre-investment requirement, for example, by dispatching group missions of investors to developing countries and by providing financial assistance for feasibility studies. In addition, governments of capital-recipient countries might stimulate a more aggressive stand by their industrial promotion centres with regard to identification of suitable investment projects and foreign enterprises which might be interested in them. In this context, there is always room for more co-ordination among the relevant governmental agencies in developing countries, especially industrial development finance institutions whose generally limited resources limit them with the role of catalyst, a role similar to that of the International Finance Corporation. Some other United Nations activities, such as the United Nations Development Programme, are also directed towards such pre-investment activities.

There is a consensus that in moving from the identification of a worth-while project suitable for foreign investment to its implementation, the fiscal policies of developing countries can be of decisive importance. Apart from the appropriate structuring and administration of such policies, it is especially important that, in addition to temporary cost-reducing or profit-increasing incentives of the type previously described, developing countries should attempt to build a tax structure which harmonizes with the special long-run objectives of their over-all economic and industrial planning. In addition to unilateral fiscal measures by capital-exporting countries to provide relief to their foreign private investors, whether through tax exemptions, credits or other incentives, considerable progress could be made in the area of bilateral tax agreements to provide that income from investment in developing countries is taxed only, or primarily, in the country in which the income is produced.

Together with such incentives that bear more directly on the rate of return, foreign private direct investment in manufacturing can be further stimulated by effective action to reduce non-business or political risks, even though this type of risk is less substantial for manufacturing than for large-scale, foreign-owned extractive enterprises. It has been suggested that the more effective efforts in this area may be those of capital-exporting countries. Such efforts include outright guarantees against all forms of risk or, more frequently, government investment, insurance against major non-business risks in developing countries such as expropriation, war, foreign exchange restrictions etc. There is increasing resort also to bilateral investment guarantee agreements adapted to particular situations. While there has been success in establishing an international facility for settling specific investment disputes —

[64] The following paragraphs are based, in part, on United Nations (1967) *Financing of Economic Development: Promotion of Private Foreign Investment in Developing Countries: Summary and Conclusions* (document E/4293).

	Manufacturing ISIC 2 and 3		*Primary ISIC 0 and 1*	*Infrastructure ISIC 4, 5, 7*
	Thousand	*per cent*	*per cent*	*per cent*
Cyprus	32	13	41	12
Syria	117	12	54	10
China (Taiwan)	326	11	52	6
India	20,006	11	72	3
Philippines	838	10	61	5
Iraq	170	9	48	10
Jordan	33	8	38	14
Kuwait	8	7	3	3
Korea, Rep. of	487	6	63	4
Malaya	135	6	60	7
Indonesia	1,856	5	68	4
Thailand	471	3	82	2

Source: United Nations Industrial Development Organization, based on United Nations *Demographic Yearbook, 1964*. See source for notes further to those shown below.

[a] Data for India and Israel exclude unemployed persons; for Jamaica, British Honduras exclude persons seeking work for first time; Indian jungle population in Ecuador, Peru and Venezuela, tribal Indians in Panama, rural population in a part of Morocco, Algerian refugees temporarily in Tunisia and dedouin population in Syria are excluded also. In Singapore, persons employed in processing, packing and grading rubber, the production of palm oil, copra, coconut oil and toddy and the manufacture of tea are included in ISIC 0 rather than with ISIC 2+3. In Cyprus, manufacturing includes persons employed in electricity, gas, water and sanitary services (ISIC 5). In India and Kuwait infrastructure (ISIC 4+5+7) excludes persons employed in electricity, gas, water and sanitary services.

[b] Within each region, countries are listed in a descending order of the percentage of economically active population engaged in manufacturing.

[c] Data refer to 1960, except for the following: Democratic Republic of Congo — estimates for 1955–1957; Tunisia, Sudan, Iran and China (Taiwan) — 1956; Singapore, Iraq and Malaya — 1957; Peru, El Salvador, Venezuela, Honduras, Hong Kong, Israel, India, Jordan, Kuwait and Indonesia — 1961, Ecuador and Mauritius — 1962; Uruguay, Nicaragua and Costa Rica — 1963.

[d] The percentage of the economically active population in ISIC 6, 8 and 9 equals one hundred less the sum of the percentages shown for the three other sectors.

activity. On this basis, regressions analysis suggests that with an increase in the share of total employment in manufacturing from, say, 10 to 15 per cent, there would be a corresponding approximate increase in the employment share involved in infrastructure from 8 to 10.5 per cent. These results were obtained from data in table 85.

Many of the magnitudes on employment, both in regard to changes over time within individual developing countries and differences between various developing countries, have been shown to vary from corresponding magnitudes on output, as discussed in the first chapter. These variations, which relate to differences in output per man, are considered in the following section.

B. PRODUCTIVITY AND SKILLS

Manpower employed in manufacturing in developing countries has become more productive in the past decade, in the sense that the volume of output per worker engaged has increased, but the rate of im-

TABLE 86. INDEX NUMBERS OF OUTPUT PER MAN IN MANUFACTURING, BY REGIONS, 1955–1964

	Manufacturing activities (ISIC 2–3)			*Industrial activities (ISIC 1–3 and 511–512)*		
	Less industrialized countries[a]	*Industrialized countries*[a]	*World (excluding centrally planned economies)*	*World (excluding centrally planned economies)*	*Centrally planned economies*	*World*
1955	93	95	94	94	82	91
1956	95	96	96	96	87	94
1959	97	99	99	99	93	97
1958	100	100	100	100	100	100
1959	102	107	106	106	109	106
1960	107	112	111	111	116	112
1961	110	116	114	115	121	117
1962	114	121	119	120	129	122
1963	117	125	123	124	135	127
1964	121	133	129	131	139	133
1965	...	138	...	...	145	...

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Statistical Yearbook*.

[a] Countries are classified by degree of industrialization according to *per capita* value added in manufacturing during 1958 expressed in dollars. The distinction between the industrialized and the less industrialized is made at 125 dollars. While the classification in this table of countries outside the centrally planned economies differs from that normally employed in the Survey, it can be assumed that the "less industrialized" fairly closely reflects the "developing countries" and that the "industrialized" fairly closely reflects the "developed market economies".

provement has been modest and the level remains considerably below that in other regions. One of the particularly important influences which determined the productivity of manpower, or output per worker, was the degree to which skills were acquired by the labour force. This section briefly reviews the limited general information which is available on output per worker, and then considers some of the problems of labour skills for manufacturing in developing countries.

Trends in productivity

Output per worker in manufacturing in developing countries seems to have increased at an average annual rate of 3 per cent in 1955–1964 (see table 86). This estimated increase in over-all productivity in manufacturing for the decade implies that increasing output per worker was the minor contributing factor, while increasing employment was the major contributor to the average annual increase of 7 per cent in output of manufactures in developing countries. However, the margin of difference in the importance of the two factors was small. These trends differed markedly from those in the more labour-scarce developed regions where the rate of improvement in productivity was higher and where this improvement was the more important element in the expansion of their manufacturing sector. During the period 1955–1964, output

per worker increased by about 4 per cent per year in the developed market economies and 6 per cent in the centrally planned economies.

While recognizing the substantial margins of error of measurement, it may be further suggested that the rate of increased output per worker in manufacturing in developing countries was somewhat higher than 3 per cent in the first half of the Development Decade (1960's) and somewhat lower in 1955—1959. This suggestion of an increasing rate of productivity can be made also for the manufacturing sector of the developed market economies. However, somewhat different influences affect productivity over the short term and such changes, therefore, may not be too relevant in considering longer-term trends. In initial periods of recession, output per worker may fall where there is a reluctance to dismiss workers. On the other hand, in the early stages of increased demand, productivity may increase significantly as under-utilized resources of manpower are more effectively deployed. The increase may moderate subsequently if it is necessary to recruit workers with lower levels of skill, or to bring into operation less efficient equipment etc. Over a longer period of years, such cyclical factors, as well as random factors, play a lesser role.

A comprehensive survey of industrialization would require an attempt at rigorous explanation of improvements in output per man. While some subsequent survey may be expected to undertake such a study, only a listing of explanatory factors is given at present. There is little doubt that there has been continuing improvement in the skill of the manufacturing labour force in developing countries as a result of the entry into the labour market of better educated young people, and of a longer experience on the job by the labour force as a whole, as manufacturing activities have expanded. Other manpower influences have included changes in the quality of domestic and foreign organization, management and administration of enterprises in developing countries and the development of policies regarding the introduction into factories of the disguised unemployed. Rising output per worker has also reflected efforts to increase substantially the amount of capital invested in manufacturing, particularly the heavy sector; its rate of increase in recent years generally appears to have been well in excess of the rate of increase in employment. Associated with this has been the increasing use of various forms of energy and the adoption of improved technologies. These often have gone together with increasing size of plant, which generally results in economies of scale. The change in the output per worker in manufacturing has been influenced, in addition, by improvements in the quality and flow of raw materials and the widening and deepening of the over-all infrastructure. Individual industries have not expanded evenly; rather, greater emphasis has been placed on those with higher output per worker, thus raising the over-all average. Policies related to wages, inflation, import substitution, balance of payments

etc. have all had marked effects on productivity. It is generally considered that in some countries, some of the above factors have operated in the direction of lowering productivity in the manufacturing process and that, therefore, many possibilities exist for achieving increases in the productivity of the labour force, through some improvement in these policies.

All of these influences, taken together, appear to have resulted in a higher rate of increase of output per worker in the Latin American region than in Asia. But as shown in table 87, within the limited sample of eleven

TABLE 87. GROWTH OF OUTPUT PER MAN IN MANUFACTURING, DEVELOPING COUNTRIES,[a] 1955–1964[b]

(Average annual change in index numbers)[c]

	Output per man	*Production*	*Employment*
Ceylon	10	7	−3
Kenya	10	6	−3
Panama	10	18	6
Pakistan	8	15	7
Argentina	6	1	−5
Israel	5	13	8
Colombia	4	6	2
India	4	8	4
Philippines	4	7	3
Guatemala	3	4	1
Mexico	3	7	4

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Statistical Yearbook*.

[a] Countries are ranked in descending order of the growth rate of output per man.

[b] Periods other than 1955–1964 which were used to obtain average annual rates of growth above were as follows: 1955–1962 for Mexico; 1956–1964 for Colombia, India and Kenya; 1957–1962 for Ceylon; 1957–1964 for Pakistan and 1958–1964 for Panama.

[c] Growth rates are annual compound and are rounded to nearest whole number.

developing countries, there has been a very wide range of experience, with an annual rate of increase in output per worker in manufacturing from 3 to 10 per cent per year. While the sample is restricted in size and is clearly not representative in regard to the over-all rates of increase in productivity,[78] this experience, together with increases in output and employment in manufacturing, suggest a pattern of growth different from that indicated in many developed countries. In the latter countries there is a good correlation between increases in productivity and increases in total output, in the sense that productivity improves faster in conditions

[78] As compared with an estimated 3 per cent annual increase in productivity for developing countries as a whole, the median rate of increase for the eleven countries shown in table 87 is 5 per cent.

of a more rapid expansion of the manufacturing sector. No such clear-cut conclusion appears for developing countries. In part, this may be due to a generally more abundant availability of manpower in developing countries; to a lower correlation between rising production and productive research activities; to a varying but generally lower level of organization, including inefficient use of labour; and to a sharply varying incidence of productivity gains from the establishment of modern manufacturing enclaves within developing countries.

At the same time as productivity in manufacturing was generally rising in developing countries during 1955—1964, there was no general movement towards either increase or decrease in hours of work by workers in manufacturing. As indicated in table 88, there was some lengthening of the work week in seven out of the thirteen countries in the list for which such a comparison was possible and a reduction of the work week in the other six countries. Between 1955—1959 and 1960—1964, the

TABLE 88. ACTUAL HOURS OF WORK PER WORKER IN MANUFACTURING, BY DEVELOPING COUNTRIES, 1955–1964

	D – per day *W – per week* *M – per month*	*Hours of work*		*Average annual percentage change in hours of work*
		1955–1959 average	*1960–1964 average*	
Latin America				
Argentina	M	...	...	—0.1[a]
Brazil	M	196.6	202.0	0.9
Colombia[b]	W	54.0	50.4[c]	...
Ecuador	W	46.7	45.2	—0.8
El Salvador (San Salvador)[b]	W	46.3	45.1[c]	...
Guatemala (Guatemala City)	W	46.0	45.5	—0.2
Haiti	W	45.4	45.2	—0.2
Mexico	W	46.9	46.3	—0.2
Peru (Lima and Callao)	W	44.7	46.1	0.8
Puerto Rico	W	35.9	36.8	0.5
Asia				
Ceylon	D	8.6	8.8	0.5
China (Taiwan)	D	9.4	9.3	—0.2
Cyprus	W	43.8	45.0	0.7
Israel[d]	W	44.9	42.1[c]	...
Philippines	W	42.5	44.1	0.8
Singapore	W	46.5	47.2	0.3

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Statistical Yearbook*. The series of hours of work represents the average hours actually worked by wage-earners. In a few cases, the data relates to hours paid for rather than actual hours worked. In cases where data for the entire period of 1955–1959 and 1960–1964 are not available, shorter periods are used to obtain averages.

[a] Computed from index numbers.

[b] Hours paid for.

[c] Revised method of estimation of hours worked. Data for two periods are not comparable.

[d] Including mining and quarrying, and including salaried employees.

average annual change was generally limited to about a quarter of an hour in the work week. The number of working hours per week was, typically, about forty-five hours.

Turning to the structure or comparative levels of productivity at a given point of time, two aspects deserve consideration despite the severe limitations surrounding their statistical measurements: the comparative levels of productivity in manufacturing among various countries and the relation between productivity in manufacturing and in other sectors of the economy. With regard to the first point, it appears that in aggregate terms the value added per person engaged in manufacturing in the early 1960's was five to six times higher in the developed market economies than in the developing countries.[74] However, when the United States with its exceptionally high level of productivity is excluded from the comparison, the gap in productivity in manufacturing between the two categories of countries is closer to four times. For the developing countries, this measure of value added in 1958 US dollars per person engaged, includes the experience of several dozen countries. As shown in table 89, in slightly more than two fifths of the developing countries value added per person engaged in manufacturing was below $ 1,000 in 1958. In a little less than two fifths of the developing countries, value added ranged between $ 1,000 and $ 2,000, and in the top fifth exceeded $ 2,000. A number of countries in the last group were highly productive in processing minerals for export. In the same year, about one quarter of developed market economies experienced a level of value added per worker below $ 2,000 in manufacturing. Also, in one quarter of these countries, the levels ranged between $ 2,000 and $ 3,000. In the top half of this group, the value added per person engaged in manufacturing was in excess of $ 3,000; in the United States, it was $ 9,000. The table indicates the extent of further improvement achieved in developed market economies between 1958 and 1961. While this comparison may be considered from various viewpoints, a possibly optimistic note is that in several developing countries, productivity in manufacturing was well in excess of the level in several of the developed market economies.

Despite the generally lower level of productivity of the manufacturing sector in developing countries, compared with that in developed countries, this sector had a higher level of productivity in a substantial majority of developing countries than the average of all other sectors combined within the same country. Where this was not the case, however, it resulted more often from high output per worker in the "mainly services" sectors of the economy (ISIC 4 to 9) than from high output per worker in the primary commodity sectors, i.e. agriculture and mining. The former sectors include construction; utilities; commerce; trans-

[74] See United Nations, *The Growth of World Industry, 1938–1961: International Analyses and Tables* (Sales No.: 64.XVII.8).

port, storage and communications; and government, business and recreation services. In some of these sectors, a relatively high product per worker may have reflected pockets of skilled professional services; of relatively high profits; and of other distortions in the cost and price structure. It is noteworthy that within the developing world there are countries, although a relatively small proportion of the total, where productivity or output per worker was highest in the primary sector. Generally, this reflects the exploitation of their rich natural resources, mainly petroleum and other minerals, but also, on occasion, selected agricultural products.

A conjectural perspective on the productivity or output per worker in the manufacturing sector in relation to that in the primary sector might be established from the use of data on output (value added) from national accounts statistics and data on employment from census of population statistics for the same period. When developing countries are ranked in descending order of the ratio of productivity in manufacturing to productivity in the primary sector, the results broadly suggest that in the top one third of the developing countries, productivity in manufacturing was more than two and one half times larger than in the primary sector; in the middle one third of developing countries, the range of the same ratio was between 1.5 and 2.5; and in the bottom one-third, it was between 0.5 and 1.5.

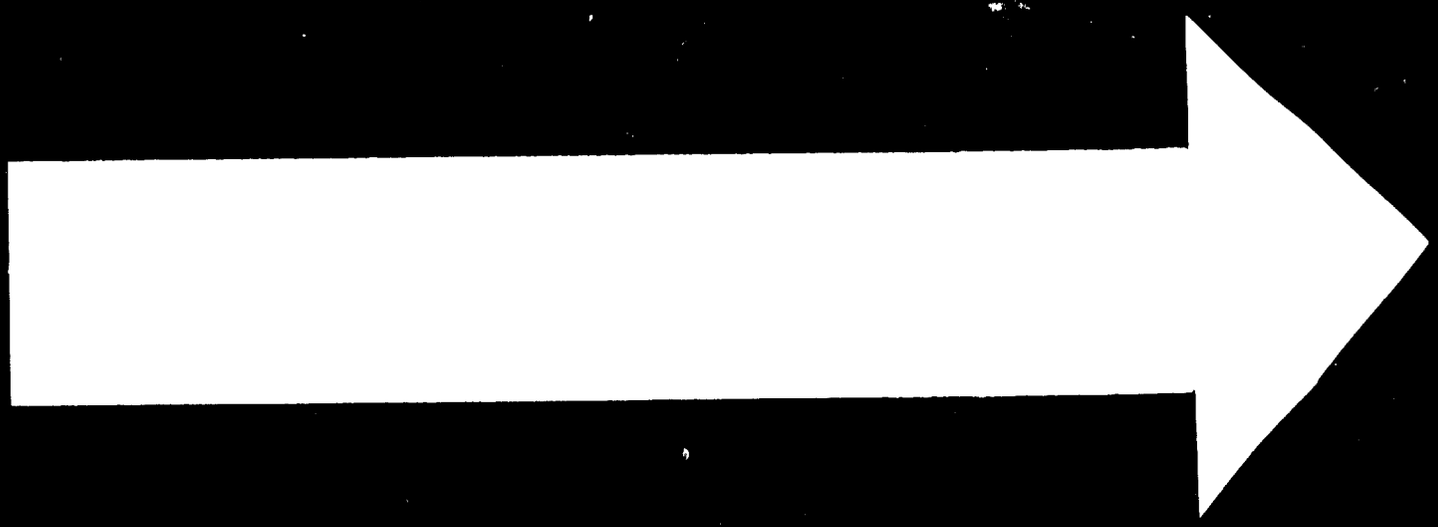
However, a more important conclusion can be indicated from the above calculations, to the effect that countries with a relatively high standard of productivity in manufacturing tended also to achieve relatively high productivity in their primary sector. It was found, on the basis of an inter-country comparison of data for thirty-one developing countries for 1960, or a year close to 1960, that the correlation co-efficient between percentage differences in output per person in the primary sector was 0.7, which is statistically significant. Apart from the suggestion that the factors making for higher productivity tend to be nation-wide rather than specific to particular sectors, a further explanation of this tendency might be that in the case where a country had made a strong effort to improve productivity in one sector, there was in operation a "productivity demonstration effect". Such an explanation would correspond to the general suggestion of growing sectoral interdependence in the economies of developing countries. It should be indicated that while this correlation is not inconsistent with the results given in the previous paragraphs, both are based on data subject to reservations.

The tendencies in output per worker for manufacturing as a whole were strongly influenced by differences in sectoral productivity within manufacturing. With regard to recent growth in developing countries, it is clear that output per worker has grown almost twice as rapidly in heavy industry as in light industry, i.e. somewhat more than 4 per cent *per annum* compared with a little over 2 per cent (see table 90). While

TABLE 89. VALUE ADDED PER PERSON ENGAGED IN MANUFACTURING, DEVELOPING AND DEVELOPED COUNTRIES, 1958 AND 1961

(1958 dollars)

	500 and below	*501 – 1,000*	*1,001 – 1,500*	*1,501 – 2,000*	*2,001 – 2,500*	*2,501 – 3,000*	*3,001 – 3,500*	*3,501 – 4,000*	*4,001 and above*
Developing countries, 1958:	Bolivia Burma Ceylon India Pakistan Tanganyika	China (Taiwan) Ecuador El Salvador Honduras Indonesia Malaya Mozambique Nicaragua Paraguay Philippines Syria Thailand Tunisia Uganda United Arab Republic	Guatemala Iran Iraq Jamaica Jordan Kenya Korea, Rep. of Lebanon	Argentina Brazil Colombia Costa Rica Libya Mexico Morocco Panama Trinidad Uruguay	Algeria Chile Congo Ghana Rhodesia			Israel Peru Puerto Rico	Venezuela



20.9.7

the International Centre for Settlement of Investment Disputes — the formulation of multilateral investment charters has not proved feasible thus far.

The view has been expressed that governments of developing countries by themselves have only limited ability to give foreign investors advance assurance against non-business risks. However, much can be done by developing countries to improve the investment climate through and effective and suitable legal framework relating to many aspects of business activity. Foreign direct investors, for example, are often suppliers of technology and, as such, are concerned with the availability in developing countries of adequate safeguarding arrangements, particularly patent laws and treaties. There is need to increase the effectiveness of patent laws in many developing countries through improved administration. Diminution of both political and business risks may, alternatively, be achieved by stimulation of joint ventures between foreign and domestic investors. Local participation reduces the fear of foreign domination and introduces benefits to foreign investors arising from the local executives' familiarity with manpower, resources and market conditions within the developing country. This listing constitutes only a brief and general illustration of the types of action capable of stimulating an increased flow of foreign private direct investment to manufacturing in developing countries.

Each of the remaining sources of external private financial resources flowing to developing countries — private portfolio investment and private export credits — provided at least 8 per cent of the total of official and private flows in 1965. Reference to recent developments in the use of private export credits is warranted because of their rapidly increasing importance in the past decade. A further reason is that such credits, which comprise both suppliers and finance or buyers' credits, have been used largely for modernization and expansion of existing plants or construction of new manufacturing plants. The use of export credits for capital goods purchases destined for infrastructural elements, such as power, transport and communications, has also been significant. As shown in table 74, which contains examples of manufacturing projects made possible in developing countries through the use of export credit facilities granted by some developed countries, the heavy sector of manufacturing has been the major beneficiary, particularly chemical, fertilizer, cement, basic metal and metal products plants. However, a number of countries in Asia, by their use of export credits, also emphasized food processing plants, particularly sugar mills and textile plants.

The significant role of export credits is of comparatively recent origin; these credits appeared in appreciable volume only in the early 1950's. Developed countries have often used suppliers' credits as a competitive factor, in addition to price, quality and delivery, to spur

exports of their capital goods, particularly at times when idle capacity existed in their heavy industries. In developing countries, increasing recourse to export credits reflected their hunger for capital to finance industrialization programmes when the availability of other forms of finance from developed countries was increasing only to a modest degree. Moreover, credits could be obtained for projects of a quality which could not be financed by well-established forms. It has been suggested that industrialization efforts financed heavily by private export credits can be a mixed blessing. Such credits have often been misused because of the insufficient attention given by the central authorities of some developing countries to the economic soundness or the quality of the projects thus financed, and a minority of countries have clearly made excessive use of export credits. The consequences in some cases have been costly. The World Bank has calculated that in a sample of thirty-six countries, mainly developing, the ratio of outstanding suppliers' credits to total outstanding debt was about 16 per cent as of the end of 1965, and the high cost of suppliers' credits was reflected by the fact that the total service payments on account of such credits during 1965 represented about 32 per cent of their service payments on total indebtedness.[55] The use made of suppliers' credit debt has been very uneven; in Brazil, China (Taiwan), the Republic of Korea, Liberia, Nigeria and Peru, service payments in respect of suppliers' credits accounted for between 50 and 90 per cent of payments on all outstanding debt. The excessive burden of servicing export credits has compelled, in some instances, consideration of international action to reschedule service payments. As a result of the limiting clauses in respective agreements with creditor countries, the flow of suppliers' credits has been affected recently by rescheduling operations for Argentina, Brazil, Chile and Liberia.

The particular reliance on export credits for industrialization programmes of developing countries has generated a search for arrangements to increase the net gain from this even more important form of

TABLE 74. EXPORT CREDITS GRANTED BY SELECTED DEVELOPED COUNTRIES[a] FOR MANUFACTURING PROJECTS IN DEVELOPING COUNTRIES, BY SECTORS

	Light industry sectors ISIC 20–26, 28–30, 39	*Heavy industry sectors ISIC 27, 31–38*
Afghanistan		Cement plant
Argentina	Shoe factory	Cement plant: coal preparation plant
Bolivia	Sugar refinery	
Brazil		Chemical plants (2); oil refinery; cement plant

[55] See International Bank for Reconstruction and Development (1967) *Suppliers' Credits From Industrialized to Developing Countries*, Washington, D.C.

	Light industry sectors ISIC 20–26, 28–30, 39	*Heavy industry sectors ISIC 27, 31–38*
Burma	Shoe factory	Pharmaceutical plant
Cambodia	Tyre factory	
Ceylon	Textile mill; shoe factory	
Chile		Pulp and paper mill; copper refinery
China (Taiwan)	Furniture, lumber, plywood complex	
Ghana		Glass factory
Guinea		Machinery for processing diamond bearing gravel
India	Sugar mill; tyre factory	Cement plant; ceramic plant; glass factory; coal preparation plant; foil mill and smelter equipment; ore dressing plant; zinc smelter; steel mill furnace; tubing plant; nuclear reactor; wind tunnel
Indonesia	Tyre factory	Bamboo paper plant; cement plant
Iran	Sugar factory equipment; textile mill	Cement plant
Iraq	Shoe factory	
Israel		Construction of car ferry
Mexico		Paper mill expansion; chemical plant; ammonia plant; zinc plant; machine tools
Nigeria	Brewery	Paper factory
Pakistan	Sugar cane refineries (2); textile machinery	Paper mill equipment; enlargement of nitrate fertilizer plant; chemical plant; fertilizer plant; cement plant; nuclear reactor
Panama		Construction of 22,000 ton bulk carrier
Peru		Smelting plant; steel mill
Philippines		Oil extraction plants (2)
Sudan	Shoe factory	
Syria	Sugar mill; shoe factory	Oil refinery
Thailand		Nitrogenous fertilizer plant
Tunisia	Textile mill	
United Arab Republic	Sugar mills (2); shoe factory	Oil refinery; cement plant; ceramic plant
Venezuela		Fertilizer plant; steel plant

Source: United Nations Industrial Development Organization, based on data in United Nations (1966) *Export Credits and Development Financing: Part One: Current Practices and Problems*, New York E/4274, pp. 33–34.

[a] Data refer to a list of export credits shown in source which appear to have been granted to developing countries by Belgium, Canada, Czechoslovakia, France, Federal Republic of Germany, Hungary, Italy, Japan, Poland, and the United Kingdom. The classification of projects shown in the basic source did not permit of a definitive distinction between manufacturing and non-manufacturing and the listing shown above, for manufacturing only, should therefore be regarded as tentative.

finance to developing countries. A pre-condition for progress in this field is collection of adequate information on indebtedness in all forms in both the public and the private sector and of the term structure of the debts involved. Data should extend to the area of suppliers' credits in which no government guarantees are involved at either end of the transaction. A further recommendation made in this study by the staff of the World Bank calls for improved administration of external debt by individual developing countries, such as, for example, restraint in approval of credits for projects only profitable under abnormal circumstances, and for general restraint when the limits of a country's debt servicing capacity are being approached. Creditor countries also have a responsibility to prevent the further spread of excessive use of private export credits by harmonizing technical practices, formulating appropriate policies in a co-ordinated way and, where necessary, providing or improving channels for international management of suppliers' credits in order to reduce the need for rescheduling.

C. Mobilization of domestic savings

Foreign savings for investment in the manufacturing and other economic sectors of developing countries have seldom accounted for more than a relatively small part of total supply of savings of these countries, and this situation is unlikely to change even under ideal political and economic conditions, national or international. It therefore remains an inescapable fact for developing countries that successful industrialization and over-all economic development must depend pre-eminently on unceasing endeavours of self-help in marshalling and channelling domestic savings and in effectively using them. The provision of domestic savings for investment in the manufacturing sectors of developing countries cannot be reviewed usefully outside the context of the generation of total domestic savings for all investment purposes. Further, it is not possible at present to make a detailed identification of the domestic savings that are used specifically for investment in manufacturing in developing countries. Therefore, the aspects of the domestic savings problem of developing countries that might be considered briefly in the survey are the level and the pattern of sources of all domestic savings, and the means by which an improvement might be achieved in the general mobilization of savings and channeling of these savings into manufacturing.

Domestic savings and their sources

Since savings serve to release resources from consumption for the purposes of investment, the more successful a country is in mobilizing

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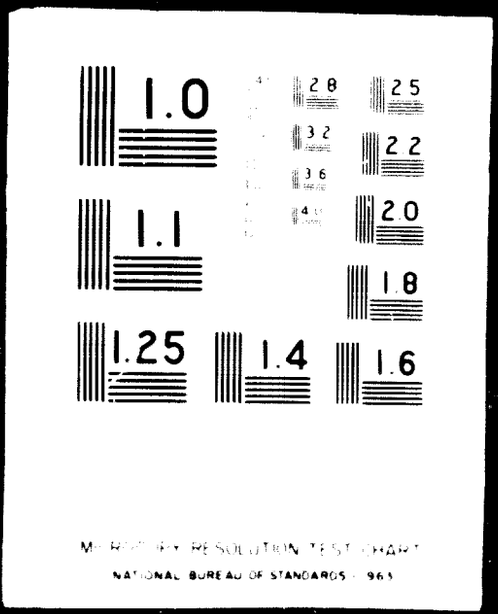
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NATIONAL BUREAU OF STANDARDS

	Professional, technical, and related workers	*Administrative, executive and managerial workers*[c]	*Craftsman, production process workers etc.*[d]	*Total*	*Population engaged in manufacturing*
	ISCO 0	*ISCO 1*	*ISCO 7, 8*	*ISCO 0, 1, 7, 8*	*ISIC 2, 3*
United Arab Republic	3	5	16	24	9
El Salvador	3	4	17	23	13
Costa Rica	5	1	16	23	11
Panama	5	2	15	23	8
Peru	3	1	17	22	13
Ecuador	3	—	19	22	14
Iran	2	—	19	21	13
Nicaragua	2	—	16	19	12
China (Taiwan)	3	2	14	19	11
Malaya	3	1	15	19	6
Ghana	2	—	15	17	9
Morocco	3	—	12	16	8
Philippines	3	1	12	16	10
Honduras	3	1	10	13	8
Korea, Rep. of	2	1	9	12	6
Sudan	1	1	5	7	3
Thailand	1	—	6	7	3

Source: United Nations Industrial Development Organization, based on United Nations *Demographic Yearbook, 1964*. See basic source for details other than given below.

[a] Countries are ranked in descending order of percentage of economically active population engaged in ISCO groups 0, 1, 7 and 8. For Chile, Ecuador, Peru, Nicaragua and Panama, the distribution was adapted to ISCO from COTA — 1960 (Programme of the 1960 Census of America) classification of occupations. For Puerto Rico, workers in communication occupations were included with group 1—2 rather than with group 6. For Jamaica, the distribution was adapted to ISCO from a national classification of occupations; data exclude persons seeking work for first time, number unknown. For Ecuador, the Indian jungle population was excluded. For Mexico, officers in armed forces were included in group 1—2. For El Salvador, Costa Rica and Honduras no information is available, regarding the classification of members of the armed forces. Data for United Arab Republic exclude population of small agglomerations on the frontier districts. Morocco excludes rural population in one province. Syria excludes the Bedouin population.

[b] For countries of Latin America, data refer to 1960 except for the following: Peru, El Salvador, Venezuela and Honduras — 1961; Ecuador — 1962; Uruguay, Costa Rica and Nicaragua — 1963. For other countries data refer to 1960, except for the following: Sudan, Iran and China (Taiwan) — 1956; Singapore, Iraq and Malaya — 1957; Israel and Jordan — 1961; Mauritius — 1962.

[c] For El Salvador, workers in communication occupations are presumably included with groups 1—2. Data for Puerto Rico, Mexico, El Salvador, United Arab Republic, Sudan, Hong Kong, and Israel include clerical workers in group 2.

[d] For Mexico workers in transport and communication are included.

country relation between their relative importance and the importance of manufacturing, as gauged by its share of employment in the total labour force, is least evident for the category of administrative, executive and managerial workers. This may reflect, in part, the importance of such workers in the government sector, the size of which may not be closely related to the size of manufacturing employment. On the average, in the thirty-five countries listed, close to 3 per cent of the labour force was in this occupation. The extent to which the structure of the rest of the more skilled occupations tends to shift as the importance of manufacturing in total employment increases may be suggested by the following rough calculation based on data in table 93. As the proportion of the total labour force engaged in manufacturing doubles from 8.5 to 17 per cent, there is less than a twofold increase in the proportion of the labour

force in these two occupational groups. The importance of the professional technical and related categories increases from about 3 to 5 per cent, while that of craftsmen and production process workers rises from about 15 to 25 per cent. The significance of considering this relation between the share of total labour force in manufacturing and the share of the labour force in more skill-intensive occupation — regardless of whether these workers are in manufacturing or in other sectors of economic activity — rests on the assumption that, to some degree, all sectors of the economy move forward together as a result of sectoral interdependence. On a practical level, there is a general lack of readily available information for more than a few developing countries on the employment of various occupational groups specifically in manufacturing and its individual industries. However, such information is readily available for three developing and fourteen developed countries and is briefly considered below.

The occupational structure in individual manufacturing industries in three of the more industrialized of the developing countries, as given in table 94, indicates that in these countries the relative importance of professional and technical workers is greatest in the chemical and petroleum products industries and, next, in the manufacture of tobacco products. Thus, while in Argentina and Chile this occupational group accounted for only 1 per cent of the engaged labour force in 1960 for manufacturing as a whole, it accounted for 5 to 8 per cent of those engaged in the chemical and petroleum products industries and for 3 to 5 per cent in the tobacco products industry. Among the various manufacturing industries, this occupational group tended to be least important, in relation to other occupational groups, in the clothing, leather, and lumber products industries. In these industries, professional and technical workers constituted well below 1 per cent of the employed labour force. Although the over-all dependence of industry on such skilled workers among the developed countries is considerably greater — often two or three times greater — the pattern of differences among various industries was broadly similar in both groups of countries. However, the major point is that apparently there is a high degree of distinctiveness in the occupational requirements in each industry of each of the three developing countries. This not only applies to the importance of a particular occupational group but also to the numerical relationship between such occupational groups as the professional and technical; administrative and managerial; clerical and sales; manual; and service.

Analysis of these data for seventeen (mainly developed) countries on occupational distribution in specific manufacturing industries and on the value added per person engaged in the respective industries indicates a significant positive correlation between the percentage of all workers who are skilled, and value added. Further, in almost every one of the 2 and 3-digit ISIC industries considered, the major factor

TABLE 94. OCCUPATIONAL DISTRIBUTION IN THE MANUFACTURING INDUSTRIES IN ARGENTINA, CHILE AND ISRAEL IN 1960

(Per thousand persons engaged)

	Total manufacturing ISIC 2–3	*Food and beverages* ISIC 20–21	*Tobacco and tobacco products* ISIC 22	*Textile mill products* ISIC 23	*Clothing and other fabricated textiles* ISIC 243 and 244	*Leather and leather products including footwear* ISIC 241 and 29	*Lumber, wood products, furniture and fixtures* ISIC 25–26	*Paper and paper products* ISIC 27	*Chemicals and chemical products* ISIC 31	*Petroleum and coal products* ISIC 32	*Glass stone and clay products* ISIC 33	*Primary metals* ISIC 34	*Transportation equipment* ISIC 38
Professional and technical													
Argentina	12	10	28	8	0.1	3	2	14	71	51	10	23	10
Chile	10	12	45	10	2	...	2	25	63	82	15	22	4
Israel	29	17	...	22	6	4	7	...	107	...	26	16	35
Administrative and managerial													
Argentina	35	43	34	36	12	44	26	43	56	29	48	39	21
Chile	31	58	22	35	22	...	34	42	47	20	33	...	7
Israel	63	69	...	75	44	46	44	...	103	...	81	...	44
Clerical and sales workers													
Argentina	76	113	131	81	16	47	19	107	259	277	36	75	47
Chile	57	89	233	67	19	...	26	106	212	176	70	8[a]	21[a]
Israel	89	153	...	85	48	26	31	...	165	...	77	73[a]	77
Manual workers													
Argentina	846	794	779	853	961	895	938	795	563	530	892	831	902
Chile	870	782	652	845	945	...	926	799	625	633	839	767	943
Israel	776	712	...	783	862	915	896	...	570	...	788	737	805
Service workers													
Argentina	15	15	17	12	3	6	5	12	23	46	6	12	7
Chile	14	33	52	22	7	...	9	22	28	46	16	37	5
Israel	22	26	...	27	27	5	8	...	44	...	29	35	19
University graduates													
Argentina	8	9	10	13	3	3	2	9	41	24	12	11	6

Source: Derived from data in *Productivity, Skills and Education in Manufacturing Industries*, Appendix I, paper by M. Zymelman for the *Ad Hoc* Meeting of Experts on the Role of Advanced Skills and Technologies in Industrial Development, New York, May 1967 (document ID/WG. 3/DP. 10).

[a] Clerical workers only.

"explaining" increases in productivity was an increase in the proportion of professional and technical workers in the total labour force of that industry. It further appears that an increase in the number of administrators and managers as a proportion of the labour force was the second most important determinant. It is too simple, however, to suggest that changes in the occupational structure, including closely associated changes, alone produce changes in productivity. Specific technologies, the extent of capital intensity, the size of plants and the product-mix of the industry are obvious examples of other influences. Further, any given change in the structure of occupations that produces a particular improvement in productivity in the developed countries may have a different impact in developing countries. There is little doubt that in this field the availability of considerably more data, including data at a disaggregate level, would be desirable in order to produce more meaningful results.

Meeting future skill requirements

There is a broad consensus that governments in developing countries must assume general responsibility for achieving balance between the skill requirements of growing industry and the availability of skilled manpower, whether domestic or imported; and that the balance should be at a level which does not impede more rapid industrialization.[76] While the basis for meeting this responsibility can be simply stated, the implementation presents very difficult problems. Where over-all plans for industrial development exist, the targets for skilled manpower should be integrally related and explicitly stated. Industrial skill requirements should be in harmony with the projected size and pattern of industrial investment and the specific technologies envisaged, whether local or imported. For each element of industrial expansion, there should be an attempt to identify the appropriate quantitative relation or "mix" of various categories of skills required. The use of partial indicators of probable industrial development could be substituted when over-all plans are lacking. In the absence of specific engineering information, use might be made of rules of thumb concerning the skill requirements for planned changes in related variables. Moreover, interdependence within and between various economic sectors requires that estimates of industrial skill requirements should be compatible with those for the economy as a whole, including, for example, skills needed to pursue research and development or to ensure adequate output of energy and raw materials for industry. Because of the different problems involved, a distinction might be made between shorter-term and longer-

[76] For detailed consideration of matters discussed in the rest of this section, see the following papers prepared for the International Symposium on Industrial Development: *Issues and Problems in Manpower Development for Industrialization; Skill Requirements of Industrialization; The Effective Utilization of Manpower for Industrialization;* and *Education and Training Programmes for Industrialization* (documents ID/CONF.1/30–33).

term budgets of skill requirements. To help meet the planned targets, it is essential that a sound classification of skills be generally employed. This problem might be met either from revisions, now under consideration, of the generally used international classification of occupations of the census of population or from *ad hoc* sample enquiries. Identification of the specific educational and vocational qualifications for each skill category would facilitate efforts to increase the supply of skills.

It is not possible at present to state comprehensively the magnitudes of future skill requirements of developing countries as a whole. Many past attempts to measure them must be regarded as highly experimental. However, consideration of some of the results has led to a tentative suggestion that the probable skill requirements for industry in the developing countries during the next decade may not be forbiddingly high in terms of the ability to secure those skills. Over that time span, the industrial sector will remain relatively small in many developing countries. But even this loose conclusion may be too optimistic, considering the extent of the problems involved in building an adequate training system. Such a system requires considerable effort on the part of the educational authorities, government, industry and the sources of foreign skills, and it involves substantial time lags.

Provision of formal education is a necessary prerequisite for subsequent acquisition of appropriate industrial skills. A rough indication of the educational situation in 1960, given in table 95, suggests that in the majority of developing countries, thirty-six out of fifty-nine countries, less than one-half of the children between the ages of five and fourteen were obtaining a primary education. In the same year, this position prevailed in less than one tenth of the developed countries. The basic data used for the table indicate the extent to which developing countries were attempting to catch up in providing primary education. Thus, between 1950 and 1960, the average proportion of children of primary school age who were attending primary school in developing countries increased by one half, from 31 to 45 per cent. These figures represent the unweighted average of the situations in each of the fifty-nine developing countries. For comparison, the corresponding change in developed countries was from 68 to 71 per cent. As might be expected, the highest rates of growth at this level of education were achieved by the developing countries with the least participation in primary education in 1950.

With regard to the secondary level of education, in about three quarters of the developing countries (forty-five out of fifty-nine), less than one quarter of the population between 15 and 19 years of age was receiving such education in 1960. In only one tenth of the developed countries was the participation in secondary education so limited in 1960. Advances in the extension of secondary education between 1950 and 1960 may be summarized as follows: while the average share of the population between 15 and 19 years of age who were receiving

TABLE 95. ENROLLMENT IN EDUCATION AT PRIMARY, SECONDARY AND THIRD LEVELS, DEVELOPING AND DEVELOPED COUNTRIES,[a] 1950 AND 1960

	Developing countries position in 1960					*Developed countries position in 1960*				
	Number of countries where those enrolled in primary education, expressed as per cent of population between 5 and 14 years of age, is:									
	25.0 per cent and below	*Between 25.1 and 50.0 per cent*	*Between 50.1 and 75.0 per cent*	*75.1 per cent and above*	*Total*	*25.0 per cent and below*	*Between 25.1 and 50.0 per cent*	*Between 50.1 and 75.0 per cent*	*75.1 per cent and above*	*Total*
Primary education										
Position in 1950										
25.0 per cent and below	9	17	3	—	29	—	—	1	—	1
Between 25.1 and 50.0 per cent . .	—	10	6	1	17	—	1	1	1	3
Between 50.1 and 75.0 per cent . .	—	—	10	1	11	—	1	12	5	18
75.1 per cent and above	—	—	—	2	2	—	—	2	9	11
Total[b]	9	27	19	4	59	—	2	16	15	33

	Number of countries where those enrolled in secondary education, expressed as per cent of population between 15 and 19 years of age, is:									
	12.5 per cent and below	*Between 12.6 and 25.0 per cent*	*Between 25.1 and 50.0 per cent*	*50.1 per cent and above*	*Total*	*12.5 per cent and below*	*Between 12.6 and 25.0 per cent*	*Between 25.1 and 50.0 per cent*	*50.1 per cent and above*	*Total*
Secondary education										
Position in 1950										
12.5 per cent and below	27	15	5	—	47	1	1	1	—	3
Between 12.6 and 25.0 per cent . .	—	3	8	—	11	—	1	5	—	6

Between 25.1 and 50.0 per cent . .	—	—	1	—	1	—	—	4	8	12
50.1 per cent and above	—	—	—	—	—	—	1	—	9	10
Total[c]	27	18	14	—	59	1	3	10	17	31

	Number of countries where those enrolled in third (or higher) level of education, expressed as per cent of total population of country, is:									
	0.125 per cent and below	*Between 0.126 and 0.250 per cent*	*Between 0.251 and 0.500 per cent*	*0.501 per cent and above*	*Total*	*0.125 per cent and below*	*Between 0.126 and 0.250 per cent*	*Between 0.251 and 0.500 per cent*	*0.501 per cent and above*	*Total*
Third level of education										
Position in 1950										
0.125 per cent and below	20	8	3	—	31	1	1	—	—	2
Between 0.126 and 0.250 per cent . .	—	1	8	—	9	—	1	4	1	6
Between 0.251 and 0.500 per cent . .	—	—	—	3	3	—	—	8	10	18
0.501 per cent and above	—	—	—	1	1	—	—	1	5	6
Total[d]	20	9	11	4	44	1	2	13	16	32

Source: United Nations Industrial Development Organization, based on United Nations, *Compendium of Social Statistics:* 1963 (Sales No. 63.XVII.3), pp. 323–331. See basic source for details.

[a] Not all countries and territories shown in the basic source were included in the matrices above.

[b] The following figures, calculated from the basic data but not shown in the table, refer, in order, to the unweighted average of the country enrollment, percentages for those countries in each of the ten columns shown in the table. Thus, the first of the following figures indicates, as regards the nine countries where the percentage of those enrolled in primary education in 1960 was 25 per cent and below, that the average of their country enrollment percentages was 13 per cent. The percentages for the ten columns, in order, are: 13, 39, 61, 81 and 46: 0, 48, 64, 82 and 71.

[c] See footnote [a] above. The percentages for the ten columns, in order, are: 5, 17, 35, 0 and 16: 10, 20, 35, 74 and 54.

[d] See footnote [a] above. The percentages for the ten columns, in order, are: .05, .18, .33, .76 and .21: .04, .19, .38, .78 and .56.

secondary education in developing countries doubled, from about 8 to 16 per cent, the corresponding increase in developed countries was from 40 to 54 per cent. The gap between the two regions in 1960 thus remained substantially greater at the secondary level than at the primary level. There was evidence also of increased participation in developing countries at the third or higher level of education. However, this was still limited in 1960 to about one person in 500 of the total population; the corresponding ratio in developed countries was two to three times as large.

There is little need to indicate that while the increasing provision of formal education fulfills an important social objective, it is a necessary but hardly sufficient means of providing the complex of skills for modern industry. Failure to realize the distinction between these two vital objectives can be harmful. A costly but desirable social revolution to provide opportunities for formal education may not produce a wholly satisfactory bonus in meeting the needs for specific skills of a small but growing industrial sector. The value of formal education for the acquisition of industrial skills can be enhanced, however, by fostering respect for the value of manual and other practical work; by increasing awareness of the scientific and technological basis of modern industrial society; and by giving instruction in the fundamentals of technical education At the secondary level, the courses in technical subjects can be geared to the conditions of technology applicable in the country itself, including anticipation of near term change in technology. This, together with vocational guidance, can help to produce trainable people for industry.

Greater recognition of the subsequent industrial training which must be provided by industry and government is needed. This might be facilitated by the creation of a national co-ordinating agency for industrial training, to be concerned with all forms of industrial skills, i.e. managerial, professional, semi-skilled etc. Its purpose would be to assess requirements for specific industrial skills and channel the various types of resources required — standards, instructors, training materials, finance etc. — in such a way as to effect the transition from a trainable to a trained person. Much can be done by industry itself, directly or indirectly, with firms acting singly or together. Especially in developing countries, where time is short and resources are scare, short-cuts in training are essential and the role of on-the-job training must be substantial. A recent survey of qualifications required of new employees, as carried out in Nigeria, concluded that one half of the jobs at the senior level (engineers and other professionals) required training in employment and that the proportion was closer to three quarters for other jobs above the unskilled level. For manufacturing enterprises, the required period of such training in employment was often as long as two or three years. Since on-the-job training in developing countries is

generally regarded as a realistic and efficient method of providing skills, incentives to increase the attractiveness to industry of providing such training should be considered.

A number of countries in Latin America have well-established national organizations concerned with training and their practice might well be studied generally. The effort to increase skills will be more rewarding where follow-up measures are taken to ensure effective utilization of skilled manpower. Directing qualified workers to essential jobs and improving the performance of industrial manpower can be facilitated, for example, by providing appropriate vocational counselling and guidance, inter-occupational wage and salary differentials, and other incentive systems.

For many developing countries, the requirement of skill acquisition for small manufacturing enterprises represents a special set of problems.[77] While the entrepreneur of a small firm is charged with the functions of producing, selling and managing, his background experience is generally limited to only one of these areas. The task of training institutes is to provide the entrepreneur of a small enterprise with sufficient skills in all relevant fields. Such training is often of a different type and intensity than that required for larger-scale operations. While the technologies employed by small-scale enterprise are generally at a simpler level, opportunity should be given in training to stimulate a higher level of skill. Contributions to the special effort to improve the productivity of small-scale enterprises might be made not only by appropriate governmental agencies but by co-operative institutes of small-scale entrepreneurs and by larger-sized firms whose business needs involve relations with small-sized enterprises.

The closing of the gap between the availability of industrial skill and the needs in many developing countries will continue to require significant assistance in the form of foreign skills from developed countries. This is no less vital, even though of a dissimilar nature, than assistance in the area of financial resources for physical investment.[78] The estimated annual provision in recent years by developed countries to developing countries as a whole, for all purposes, has involved about 250,000 skilled persons. While this figure represents only about 2 to 3 per cent of the skilled personnel in the latter areas as a whole, the country distribution of transferred foreign skills tended to compensate for the lack of domestic skills so that it was a particularly important

[77] See *Training for Small Manufacturing Enterprises in Developing Countries*, a paper for the International Symposium on Industrial Development presented by the International Labour Office (ID/CONF.1/B.19).

[78] See *Technical Assistance by OECD Members for Industrial Development in Developing Countries*, presented by the secretariat of the Organization for Economic Co-operation and Development to the Symposium (ID/CONF.1/45); *The Supply of Skills to the Industrial Sector in Developing Countries*, prepared for the Symposium by Mr. A. Maddison (ID/CONF.1/B.1); and reference in footnote 75 above.

factor in the most needy countries. Generally, the lack of domestic skills was greater in countries of Africa than in countries of Asia, and greater in Asia than in Latin America. The lack of domestic skills in many countries of Africa was related to policies pursued prior to their independence. Foreign skill resources in individual developing countries have performed such tasks as training local manpower and operating directly in production.

Among the largest of the multilateral sources of technical assistance to developing countries have been the United Nations and its specialized agencies. The advantages of this means of assistance have been that recruitment can be made from a wide range of experts and that assistance can be extended in an "untied" form. Such operations require continuing co-ordination. Other multilateral assistance has been provided by a number of regional organizations. Bilateral official technical assistance has been related either to specific investment projects or to general programmes. A relatively large proportion of the technical assistance experts provided in connexion with financial aid to particular projects is involved specifically in industry. The centrally planned economies, whose over-all economic assistance has been geared primarily to specific projects, have concentrated their technical assistance in a similar fashion; the aim has been to ensure that aid projects are properly supplied with the skills needed for their execution and operation. Countries in Africa have been particular beneficiaries of such assistance from the centrally planned economies. There has been much less emphasis on transfer of skills for specific capital projects in official assistance by the developed market economies, and more on general programmes. However, the focus has also been Africa. With regard to industry in 1965, as shown in table 96, 39 per cent of the students and trainees, 41 per cent of the expert operational personnel and advisers and 90 per cent of the educational personnel in technical and vocational training who were financed through official bilateral technical assistance of country members of OECD/DAC were associated with countries of Africa. Countries in Asia benefitted to an intermediate extent from this official assistance, while countries of Latin America, some of which do not find lack of skills an impeding factor in economic growth, received the smallest amount. Of the total official bilateral assistance from OECD/DAC countries, the share of industry was 16 per cent of the total of students and trainees and 7 per cent of experts and volunteers. Within the latter group, however, 11 per cent of advisers and only 2 per cent of the operational personnel were allocated to the industrial field.

In terms of cost and numbers, an even larger flow of foreign skills has been transferred through private channels to all sectors in developing countries. Further, most of these transfers were directed specifically to the industrial sector. Know-how transferred through private investment may range from plant construction and equipment installation

Developed market economies, 1958:	Greece	Portugal	Finland Japan Yugoslavia	Austria Belgium Ireland Italy Netherland South Africa	France Germany Sweden	Australia Norway United Kingdom	Canada Luxem-bourg New Zealand Saar United States
Developed market economies, 1961:		Greece Portugal	Finland Japan Yugoslavia		Austria Belgium Ireland Italy Netherlands South Africa Sweden	Australia France Germany, Fed. Rep. of	Canada Luxem-bourg New Zealand Norway Saar United Kingdom United States

Source: United Nations Industrial Development Organization, based on United Nations, *The Growth of World Industry, 1938—1961, International Analyses and Tables* (Sales No. 64.XVII.8).

to the provision of entrepreneurship and management, and maintenance and sales. The ultimate success of this method of transfer of skills depends greatly on the extent to which local manpower is trained for replacement. While other criteria apply to the efforts of voluntary organizations, foundations and consulting firms, all efforts of the private sector might be more productive with more intensive co-operation between this sector and official aid agencies in donor countries and with better support for appropriate organizations in developing countries. At present, there

TABLE 96. REGIONAL DISTRIBUTION OF OFFICIAL BILATERAL TECHNICAL ASSISTANCE[a] IN ALL FIELDS AND IN INDUSTRY BY OECD/DAC MEMBERS COMBINED, TO DEVELOPING COUNTRIES, 1965

(Percentages)

	Expert personnel[b]		*Educational personnel in technical and vocational training*[c]	*Students and trainees*[d]	
	All fields	*Industry*	*Mainly industry*	*All fields*	*Industry*
Latin America	9	16	3	19	15
Africa	69	41	90	38	39
North	16	11	41	9	15
South of Sahara	53	30	49	29	24
Asia	17	39	6	31	38
Other	5	4	1	12	8
Total	100	100	100	100	100

Source: See *Technical Assistance by OECD Members for Industrial Development in Developing Countries*, paper presented by the Secretariat of the Organization for Economic Co-operation and Development to the International Symposium on Industrial Development, ID/CONF. 1/45, dated 3 July 1967.

[a] Excluding volunteers.

[b] Refers to operational personnel and advisers. The total number was 36,049 in all fields of which 1,802 were in industry (mining and manufacturing).

[c] The total number was 3,712.

[d] The total number was 61,551 in all fields of which 9,997 were in industry.

appears to be some wastage in transfer of foreign skills to developing countries. Consideration of the cost of the outward flow of local skilled manpower from developing countries is also required. This problem of "brain drain" was before the forty-third session of the United Nations Economic and Social Council.[79]

Summarizing the above, the first step in tackling the skills problem in developing countries might be a careful assessment of specific skill requirements based on over-all industrial plans with special regard to the needs of the more skill-intensive heavy industries. Formal education needs to be more widespread to reduce illiteracy and drop-outs, but to conform more to the requirements of industrial growth, its curricula

[79] See resolution 1274 (XLIII) on the "Development and Utilization of Human Resources", adopted by the Economic and Social Council at its 1507th plenary meeting, 4 August 1967.

might give emphasis to technical and vocational training including an appreciation of their contribution to national well-being. This might be supplemented substantially by training in employment by industry through the co-operative endeavours of industry, government, trade unions etc. Industry might provide an appropriately attractive wage and salary structure for those with scarce industrial skills. Where the benefits exceed the cost of imported foreign skills, they should be efficiently utilized but efforts at substituting national skills as early and as widely as possible might be facilitated by all concerned.

C. PROCESSING OF DOMESTIC PRIMARY PRODUCTS

Turning to the consideration of another important input for industrialization — primary products — it should be recognized that a good deal of the recent expansion of manufacturing in developing countries was concerned with "adding value" at the first stages of processing or manufacturing of primary products, particularly those from domestic sources. Few countries have identical endowments of primary resources, whether they are of the renewable or non-renewable category. While some developing countries produce a broad range of primary commodities, others derive income from primary products by concentrating on a limited number of such products. Whatever the pattern, a comparative survey of primary and manufacturing production in developing countries suggests that despite past progress further opportunity remains for substantial economic gains in manufacturing on the basis of initial as well as of subsequent processing of locally produced foodstuffs and agricultural and mineral raw materials. Considerable effort is required, however, to recognize and remove various obstacles if this potential is to be realized.

The need exists, for instance, for greater information on the extent of exploitable primary products in many developing countries. Previous patterns of mineral exploration and exploitation have been based on criteria no longer valid from the point of view of developing countries; and agricultural production has been developed by methods and with factor proportions increasingly regarded as outmoded. The potential for increase in manufacturing on the basis of expanded primary production can be augmented further by more technological know-how relating to the secondary processing of primary products, the individual working characteristics of which may deviate from the norm. A paper industry might become feasible, for example, where a distinctive local primary product can be used as material input. Again, greater exploitation of local primary products by domestic manufacturing might ensue as a result of the steadily changing local availabilities of complementary

production factors, such as improved labour skills, cheaper power, more abundant water etc. Increased recognition of the indirect as well as of the direct gains from domestic processing, or of social as well as of private benefits, may also stimulate this type of activity. The undertaking of domestic manufacturing of mainly local primary products not only generates income for a particular sector but also stimulates related industries, both on the supply and the demand side. In addition, it may involve gains for many ancillary services in other sectors, such as energy and construction, and more efficiency in primary production. Another series of problems related to increased local manufacturing of primary products concerns inadequate markets; some of these problems can be overcome. By and large, small internal markets in developing countries can grow only as fast as *per capita* incomes and populations rise. However, there is a continuing promise of larger regional markets in developing areas. There is also a continuing possibility that commercial and private business barriers which result in favouring processing activities in developed countries may be lowered or removed. Thus, there are sufficient opportunities for further and fully economic industrialization on the basis of primary product processing, without suggesting expansion on a non-economic or autarkic basis. There will always remain a multitude of circumstances, such as size of market, availability of capital or labour skills etc., which require the export of primary products for processing in developed countries. Similarly, situations in which developing countries find it more economic to import raw materials for processing will continue to abound.

It is important to appreciate that, whatever further economic advantage is to be obtained from initial processing of a wide variety of primary products, developing countries must be committed also to an unending search for ways and means of moving from the simple to the more elaborate forms of processing their primary products. A worthwhile industrial advance, for many of the developing countries, will flow only from investment in the more complex economic transformations of primary products as early as possible. The relationship existing between manufacturing and primary products will first be considered in this section, to be followed by examination of such relations at the level of the individual commodity.

Relation of manufacturing to primary production

World production of primary products increased in the last decade at a rate of about half of that of world manufacturing (see table 97). The slower rate of primary production is not to be regarded as evidence of a world-wide shortage of primary products. Rather, it reflects, *inter alia*, shifts in the structure of manufacturing to products requiring smaller input of material, technological advances resulting in economy in the use of primary products for a given manufacturing product and the

TABLE 97. RELATION OF ALL MANUFACTURING TO ALL PRIMARY PRODUCTION, BY REGIONS, 1955–1963

(Average annual growth rates, percentage distribution and index numbers)

	Developing countries	*Developed market economies*	*World (excluding centrally planned economies)*
Average annual rate of growth between 1955–1959 and 1960–1963:			
Manufacturing	6	4	5
Primary Products[a]	3	2	3
Raw Materials	4	2	3
Non-food agriculture	3	2	2
Mining	6	2	3
Food	3	2	2
Structure in 1960–1963 (for each sector, world excluding CPE = 100:)			
Manufacturing	9	91	100
Primary Products[a]	42	58	100
Raw Materials	39	61	100
Non-food agriculture	57	43	100
Mining	31	69	100
Food	44	56	100
Index numbers of per capita production in 1960-1963 (for each sector, world excluding CPE = 100):			
Manufacturing	13	276	100
Primary Products[a]	63	175	100
Raw Materials	58	184	100
Non-food agriculture	85	131	100
Mining	46	208	100
Food	65	170	100

Source: United Nations Industrial Development Organization based on unpublished estimates of industrial origin of gross domestic product of individual countries. It should be noted that measures of average annual growth rates based on national accounts data differ from those shown elsewhere in the Survey which are based on industrial or agricultural production time series.

[a] National accounts data on industrial origin conventionally include estimates for the agricultural and for the mining sectors. Primary products are here defined to include value added in these two sectors. On the basis of unpublished estimates, the agricultural sector was approximately subdivided into food and non-food subsectors. Raw materials are here defined to include estimated agricultural non-food and mining. The estimates should be regarded as provisional.

generally lower income elasticity of demand for the primary products, mainly foodstuffs, that go directly to final consumption without passing through the manufacturing sector. The rate of expansion of primary production in developing countries was higher than in the developed market economies in 1955–1963. This higher rate of expansion by developing countries was most evident in mining activity which increased three times faster than in the developed market economies. A relatively greater increase, but not to the same degree, also occurred in production of agricultural raw materials and food products in developing countries. Thus, their growth effort was focused more on mineral raw materials

than on agriculture. As a result of these recent and previous production efforts, developing countries in the early 1960's accounted for about two fifths of the output of primary products in the world, excluding the centrally planned economies. This is in sharp contrast to their role in manufacturing, where they accounted for only about one tenth of world production. Within the primary products sector, the relative production of developing countries was much greater than two fifths in the case of agricultural raw materials but, despite recent growth rates, was less than two fifths for minerals. However, taking account of the much larger population of developing countries, their *per capita* production of primary commodities was little more than one third of that of the developed market economies. This large availability of primary products in developing countries relative to their manufacturing sector was of a sharply different nature in the various geographic areas. Asia's food production was probably more than twice that of Latin America, but as a result of Asia's lack of mineral development thus far, the volume of raw material production was probably less than in Latin America. Because of the large population of Asia, however, the region's *per capita* production of primary commodities, particularly in the case of raw materials, was smaller than that of Latin America.

The degree of importance attached to the primary products sector when individual developing countries are considering expansion of their manufacturing activities varies considerably. A buoyant domestic primary sector is required to provide materials for the manufacturing sector and to provide food for the industrial labour force. In addition, it is often essential to export primary products in order to obtain foreign exchange for importation of a well-mixed basket of raw materials and semi-manufactures. Because of the variety of combinations of such end uses of primary products, a close relationship between the primary and the secondary (manufacturing) sectoral development relevant for all developing countries is hardly to be expected, especially when viewed at the aggregate level. Nevertheless, when estimates of *per capita* dollar values of recent aggregate output of these two sectors are compared as, for instance, in a sample of sixteen developing countries, a positive relation is apparent (see table 98). Developing countries tend to produce considerably more primary than secondary products. The cross-section data for these countries for 1962—1963 suggest that for the typical developing country with a *per capita* manufacturing output of about $ 50, a further increase of $ 10 by this sector tends to be associated with an increase of more than three times this amount in primary production.

Examination of a larger group of countries suggests a qualification to the above generalization, in that it may be useful to distinguish different groups of industrialization performance in relation to primary products (see table 99). On the one hand, some developing countries

TABLE 98. RELATION OF MANUFACTURING TO PRODUCTION AND CONSUMPTION OF PRIMARY PRODUCTS, SELECTED DEVELOPING COUNTRIES,[a] 1955–1956 AND 1962–1963[b]

(1960 dollars per capita, annual average, and percentages)

	Manufacturing, total production		*Primary products*							
			Total				*Food production*		*Raw materials production*	
			Production		*Consumption*					
	1955–1956	*1962–1963*	*1955–1956*	*1962–1963*	*1955–1956*	*1962–1963*	*1955–1956*	*1962–1963*	*1955–1956*	*1962–1963*
	(dollars per capita)				*(percentages of total primary production)*					
Argentina	148	161	95	91	83	66	85	80	15	20
Venezuela	97	122	363	402	51	54	16	16	84	84
Uruguay	99	89	107	91	73	75	73	71	27	29
Chile	86	88	79	81	99	97	71	57	29	43
Mexico	67	88	83	88	94	90	61	66	39	34
Panama	37	69	90	90	102	97	96	95	4	5
Colombia	36	44	90	92	84	84	67	62	33	38
Peru	32	43	52	64	81	73	62	61	38	39
Philippines	25	32	71	64	88	84	90	88	10	12
China (Taiwan)	18	28	35	40	96	99	90	88	10	12
Honduras	20	24	79	81	85	83	83	80	17	20
Korea, Rep. of	11	14	46	44	100	100	88	86	12	14
India[c]	12	12	34	32	99	99	87	87	13	13
Burma	5	11	20	23	74	78	92	93	8	7
Pakistan[c]	7	8	43	43	97	98	85	85	15	15
Ceylon	6	7	66	64	77	75	41	42	59	58

Source: United Nations Industrial Development Organization.

[a] Countries ranked in descending order of *per capita* manufacturing production in 1962–1963.

[b] Estimates of *per capita* production of manufacturing and primary products were obtained from unpublished estimates of value added by industrial origin of gross domestic product. Primary products refer to all agricultural and mineral products and have been divided into food and raw materials categories. The latter include agricultural non-food and minerals production. The division of primary production into these two categories was estimated on the basis of an examination of various production indices. Estimates of *per capita* consumption of primary products, which are to be treated as provisional, were made by adding estimates of net trade to those of production. Trade data of individual countries were classified to accord as far as possible with the coverage used for production. An attempt was also made to adjust net export values to a value added basis to permit addition to production data.

[c] Data for initial period refer to 1957–1958.

TABLE 99. RELATION OF MANUFACTURING TO PRIMARY PRODUCTION, SELECTED DEVELOPING COUNTRIES,[a] 1962–1963[b]

(1960 dollars per capita, *annual average, and percentages)*

	Manufacturing, total production	*Primary products*		
		Total	*Food*	*Raw materials*
	(*Dollars* per capita)		(*Percentages of total primary production*)	
Argentina	161	91	80	20
Venezuela	122	402	16	84
Uruguay	89	91	71	29
Chile	88	81	57	43
Mexico	88	88	66	34
Trinidad and Tobago	81	242	...	...
Panama	69	90	95	5
Jamaica	59	84	...	...
Colombia	44	92	62	38
Mauritius	43	71	...	...
Peru	43	64	61	39
Guatemala	38	86	54	46
Nicaragua	35	103	...	...
British Guiana	33	107	...	...
Barbados	32	90	...	...
Philippines	32	64	88	12
China (Taiwan)	28	40	88	12
Paraguay	28	58	...	...
Ecuador	26	65	...	...
Iraq	26	148	32	68
Honduras	24	81	80	20
Malaya, Fed. of	24	111	32	68
Tunisia	22	44	89	11
Morocco	20	55	80	20
Bolivia	18	43	...	...
Rhodesia and Nyasaland, Fed. of	16	55	...	...
Korea, Rep. of	14	44	86	14
India	12	32	87	13
Burma	11	23	93	7
Thailand	11	42	83	17
Cambodia	9	45	...	...
Pakistan	8	43	85	15
Ceylon	7	64	42	58
Kenya	7	31	...	...
Uganda	4	39	...	...
Tanzania	2	34	...	...

Source: United Nations Industrial Development Organization.

[a] See table 103, footnote [a].

[b] See table 103, footnote [b].

in Latin America have now succeeded in achieving a relatively large manufacturing sector despite a relatively low level of primary production. These are countries with a more mature manufacturing sector, which was originally dependent on a larger use of primary resources per unit of manufactured output. In the course of time, the structure of manufacturing in these countries has deepened, a development often facilitated by protective policies and, to some extent, by substantial inflows of external capital. These countries now tend to have a manufacturing sector of about the same size as their current sector of primary products. On the other hand, there are countries with relatively large exports of raw materials, and their foreign exchange earnings have been used largely for import of manufactures. In these countries, the primary sector may be at least three times as large as their manufacturing sector.

Considering the relation of the components of primary production with manufacturing, it appears that the volume of food production in developing countries has been more closely related than the volume of raw materials production to the volume of manufacturing production. This reflects the apparent need of developing countries, for various reasons, to assume a large responsibility for feeding their own industrial labour force. However, the relationship also reflects the requirements of the important food manufacturing sector to obtain, primarily from local sources, unmanufactured foodstuffs. The lack of a significant cross-country relation, applicable to all developing countries, between the aggregate domestic production of raw materials and domestic manufacturing may be due in part to the greater allocation of these materials, though in varying degrees and specialty, to the export market. Further, such exports do not result in an identical volume of imports of raw materials as inputs into their domestic manufacturing sectors. Almost all countries are net exporters of primary products and their ratio of domestic consumption to manufacturing production is therefore smaller than the ratio of primary production to manufacturing production. On the basis of data in table 98, the average developing country may consume, from imports and domestic production, a volume of primary products only four-fifths the volume of its domestic production.

Countries seeking to break away from low levels of industrialization will not succeed in such an effort in only a few years. In the interim, they will be likely to reap the benefits of changes in economic structure resulting from technological developments occurring throughout the world. Examination of the estimated magnitudes of consumption of primary products and of manufacturing production in a number of developing countries during two periods, 1955–1956 and 1962–1963, suggests a smaller increase in consumption of primary products per unit increase in manufacturing output than appeared from a cross-country consideration of the 1962–1963 data alone. This may be due partly to the tendency for increased economy over time in use of primary products in manufacturing as well as to changes in the income

elasticity of food consumption of the industrial labour force. It is important to recognize the implications of the fact that technological change has tended to reduce demand for primary products, both by the developed and the developing countries. There is a possibility, however, that this impact of technological change may not be as important for the less industrialized as for the more industrialized of the developing countries. The phenomenon of an increasing technological gap may apply equally to developing and developed countries. In most instances, the increase in the consumption of primary products, required by the generally rising output of manufactures between the mid-1950's and early 1960's, was achieved more by changes in domestic production than by changes in trade in primary products of developing countries.

While this aggregate view of the relation between primary products and manufacturing may facilitate consideration of the supplies required for industrial development, a disaggregate analysis, at the individual industry and commodity level, is useful in considering resources for specific patterns of industrial development in developing countries. This is attempted below, with attention given to some of the influences affecting industries that are major users of primary products in the developing countries. As suggested earlier, such factors as the market location, size and growth, capital and labour requirements, technological considerations, finance and infrastructure availabilities, transport costs, plans and policies of developing countries, trade policies of developed countries, and the structure, organization and control of an industry have influenced both the range of primary products processed in their region of origin and the degree of such processing. Following is a review of a sample of manufacturing industries whose combined performance was fairly representative of the total secondary activity in developing countries. The general average rate of growth in this sample was not very different from the magnitude of the 7 per cent annual growth rate for total manufacturing in 1955—1964. Attention is directed first to primary products used in the more dynamic group of industries, heavy manufacturing.

Raw materials for heavy industry

The heavy sector of manufacturing, which expanded in developing countries at an annual rate of 9 per cent in the ten-year period, relies significantly for its material inputs on minerals. The rate of growth of mineral production in developing countries has been indicated as having been much greater than that of agricultural products. Although the rate of growth of mineral production was greater in developing countries than in developed market economies, by the early 1960's the mineral output of the former was only about one third of world output outside the centrally planned economies. Petroleum, iron ore, and the major non-ferrous metals are among the main internationally traded com-

TABLE 100. RELATION OF PRIMARY PRODUCTION OF SELECTED MINERALS TO ASSOCIATED MANUFACTURES PRODUCTION,[a] BY REGIONS, 1955–1964

(Percentages)

	I = Primary II = Processed	Production in developing countries as percentage of production in:				Average annual percentage increase in production between 1955–1959 and 1960–1964		
		World excluding centrally planned economies		World including centrally planned economies		Developing countries	Developed market economies	World excluding centrally planned economies
		1955–1959	1960–1964	1955–1959	1960–1964			
Aluminium								
Bauxite[b]	I	69	73	57	59	11	6	9
Metal[c]	II	1	2	1	1	35	8	8
Copper								
Ore	I	51	49	45	42	4	6	5
Smelter[d]	II	42	44	36	38	7	5	6
Refined[e]	II	20	21	17	18	7	5	5
Lead								
Ore	I	37	35	31	28	–1	–	–
Metal[f]	II	18	17	15	14	–	1	1
Tin								
Ore	I	95	95	87	82	–1	–	–1
Metal	II	46	63	42	55	7	–7	–
Zinc								
Ore	I	29	28	24	23	1	2	2
Metal	II	7	8	6	6	5	3	3

TABLE 90. GROWTH OF OUTPUT PER MAN, BY SELECTED MANUFACTURING INDUSTRIES, BY MAJOR REGIONS, 1955–1964

(Average annual change in index numbers between 1955–1959 and 1960–1964)

	Manufacturing			*Food, beverages, tobacco*	*Textiles*	*Clothing, footwear and made-up textiles*	*Wood products furniture*	*Paper and paper products*	*Chemicals, petroleum products and coal products*	*Non-metallic mineral products*	*Basic metals*	*Metal products*
	Total	*Light*	*Heavy*									
	ISIC	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*
	2–3	*20–26, 28–30, 39*	*27 31–38*	*20–22*	*23*	*24*	*25–26*	*27*	*31–32*	*33*	*34*	*35–38*
Developing countries[a] . . .	3	2	4	2	3	3	. . .	5	4	3	4	5
Latin America[b]	4	3[c]	6	—[c]	5	. . .	. . .	4	4	2	2	10
Asia	3	2	4	3	3	. . .	. . .	5	4	4	4	4
Developed market economies[a]	4	3	5	3	4	3	3[d]	4	7	5	3	4
World, excluding centrally planned economies . . .	4	3	5	2	4	3	3	4	6	4	3	5
Centrally planned economies[e]	6	4	8	4	4	3	7	5	7	8	6	8
World[a]	4	3	5	2	4	3	4	4	7	6	4	5

Source: United Nations Industrial Development Organization, based on data from the relevant issues of the United Nations *Statistical Yearbook*.

[a] Average annual change between 1955–1959 and 1960–1963.

[b] Average annual change between 1955–1959 and 1960–1961.

[c] Average annual change between 1957–1959 and 1960–1961.

[d] Average annual change between 1955–1959 and 1960–1964.

[e] In this case the base period was approximated by the average of only two years, i.e. 1955 and 1959.

Steel								
Iron ore[g]	I	22	31	16	21	15	2	5
Crude steel[h]	II	2	4	2	3	24	5	5
Petroleum[i]								
Crude	I	50	59	44	49	11	2	7
Petroleum products, total[j]	II	22	24	...	...	9	5	6
Motor spirit	II	14	16	...	...	8	4	4
Kerosene	II	34	33	...	...	10	10	10
Distillate fuel oils . .	II	21	24	...	...	11	6	7
Residual fuel oils . .	II	43	43	...	...	10	10	10
Lubricating oils . .	II	10	12	...	...	11	4	5

Source: United Nations Industrial Development Organization, based on Metallgesellschaft Aktiengesellschaft, *Metal Statistics, 1955–1964* for the non-ferrous minerals and the relevant issues of the United Nations *Statistical Yearbook* for steel and petroleum.

[a] Estimates are based on production in physical (weight) terms.

[b] Bauxite refers to the gross weight of ores as published in official sources, not taking into account variations in composition and moisture content.

[c] Aluminium refers only to metal produced directly from alumina.

[d] Smelter production of copper includes blister and black copper and copper obtained directly from ores by leaching and excludes as far as possible production from old metal and scrap.

[e] Refined copper refers to the total production of electrolytic and fire-refined copper produced from primary crude metal and secondary materials. The output of "ingot makers" is excluded.

[f] Lead metal includes antimonial lead produced by primary refineries.

[g] Iron ore refers to the iron content of marketable ores mined but excluding pyrites.

[h] Steel refers to total production of crude steel, both ingots and castings, whether obtained from pig iron or scrap. As a rule wrought iron is excluded.

[i] Crude petroleum includes shale oil but excludes natural gas. Motor spirit refers to various spirits, including aviation spirit, used almost entirely as motor fuel. Kerosene refers chiefly to illuminating oil and power kerosene. White spirit, tractor blends, jet fuels, and other products of similar density are included. Distillatefuel oils refer to gas oil, diesel oil and other distillate fuel oils. Residual fuel oils exclude road oil. Lubricating oils refer to lubricating oils made at refineries or in the lubricating oil industry. Solid lubricants are excluded.

[j] Estimated on basis of relative values of individual products below.

modities in which the degree of exploitation by the manufacturing sector of developing countries warrants examination (see table 100). Of these, there was a substantial expansion in production of crude petroleum, iron ore and bauxite.

The growth of crude petroleum production in developing countries, at an average annual rate of about 11 per cent between 1955–1959 and 1960–1964, was considerably greater than that in the developed market economies, but the same relative and absolute degree of expansion was not evident in manufactured petroleum products as a whole, which increased at an average of 9 per cent a year in developing countries. While annual growth rates of output of motor spirit, distilled fuel oils and lubricating oils in developing countries tended to be twice as large as those of the developed countries, production of kerosene and residual fuel oils in developing countries increased at rates not much different from those of the world as a whole[80]. The resulting structure or pattern of production for manufactured petroleum products was such that in 1960–1964, developing countries did not account for anywhere near three fifths of world output, which was the measure of their role in the production of the crude product. In fact, for only one of these petroleum products did the share of developing countries in world output exceed two-fifths, while for two of the other products the share was below one-fifth. The degree to which individual developing countries attempted to increase the rate of processing above the rate of growth of crude output reflected primarily the influence of private and public industry organizations of a national or international character, but availability of finance for building refineries and the growing size of local markets were also influential factors. In Venezuela and Mexico and in two of the Middle Eastern oil-producing countries, Iraq and Kuwait, the rate of processing advanced more than that of crude output. The opposite occurred in Indonesia, Iran and Saudi Arabia (see table 101). In countries where crude production has only recently started there are few, if any, processing facilities. On the other hand, some developing countries have established small refineries on the basis of imported crude petroleum.

Production of iron ore has also been growing rapidly in developing countries. While world production has increased by 5 per cent a year in the period up to 1964, the rate of growth was closer to 15 per cent for developing countries as a whole. Therefore, between 1955–1959 and 1960–1964, the share of world output of iron ore produced by developing countries rose from 22 to 31 per cent. The rate of growth of output of steel, the associated manufactured product, was still greater in developing countries. However, most of the iron ore from these

[80] In this section, unless otherwise indicated, reference to world production excludes production of centrally planned economies. Data on production in the centrally planned economies, where available, are shown in tables 100, 102 and 104.

TABLE 101. GROWTH OF PRIMARY PRODUCTION OF SELECTED MINERALS AND ASSOCIATED MANUFACTURES PRODUCTION,[a] BY MAJOR PRODUCING COUNTRIES, 1955–1964

(Average annual change in production between 1955–1959 and 1960–1964)[b]

	I – Primary II – Processed	Less than –3 per cent[c]		–3 to 3 per cent		3 to 9 per cent		9 per cent and more	
		Number	Name	Number	Name	Number	Name	Number	Name
Aluminium									
Bauxite	I	0		2	British Guiana, Surinam	0		4	Dominican Republic, Guinea, India, Jamaica
Metal[d]	II	0		5	British Guiana, Dominican Republic, Guinea, Jamaica, Surinam	0		1	India
Copper									
Ore	I	0		0		3	Chile, Dem. Rep. of Congo, Zambia	1	Peru
Smelter	II	0		0		3	Chile, Dem. Rep. of Congo, Zambia	1	Peru
Refined	II	0		2	Chile, Dem. Rep. of Congo	1	Peru	1	Zambia
Lead									
Ore	I	0		5	Argentina, Bolivia, Mexico, Peru, South West Africa	0		1	Morocco
Metal[e]	II	1	Morocco	3	Argentina, Bolivia, Mexico	1	Peru	1	South West Africa

TABLE 101. GROWTH OF PRIMARY PRODUCTION OF SELECTED MINERALS AND ASSOCIATED MANUFACTURES PRODUCTION,[a] BY MAJOR PRODUCING COUNTRIES, 1955—1964 *(Continued)*

(Average annual change in production between 1955—1959 and 1960—1964)[b]

	I = Primary II = Processed	Less than −3 per cent[c]		−3 to 3 per cent		3 to 9 per cent		9 per cent and more	
		Number	Name	Number	Name	Number	Name	Number	Name
Tin									
Ore	I	2	Congo, Indonesia	3	Bolivia, Malaya, Nigeria	1	Thailand	0	
Metal[d]	II	1	Congo	1	Thailand	1	Malaya	3	Bolivia, Indonesia, Nigeria
Zinc									
Ore	I	1	Morocco	3	Dem. Rep. of Congo, Mexico, Zambia	1	Peru	0	
Metal[d]	II	0		2	Mexico, Morocco	2	Dem. Rep. of Congo, Zambia	1	Peru
Steel									
Iron ore	I	0		1	Algeria	2	Sierra Leone, Venezuela	7	Brazil, Chile, India, Liberia, Malaya, Mexico, Peru
Crude steel[b]	II	0		4	Algeria, Liberia, Malaya, Sierra Leone	1	Chile	5	Brazil, India, Malaya, Peru, Venezuela

Petroleum									
Crude	I	0		0		2	Mexico, Venezuela	6	Algeria, Indonesia, Iran, Iraq, Kuwait, Saudi Arabia
Motor spirit[d] . . .	II	1	Indonesia	2	Algeria, Saudi Arabia	2	Iran, Venezuela	3	Iraq, Kuwait, Mexico
Kerosene[f]	II	0		2	Algeria, Indonesia	3	Iran, Mexico, Saudi Arabia	3	Iraq, Kuwait, Venezuela
Distillate fuel oils[h] .	II	0		3	Algeria, Indonesia, Saudi Arabia	1	Iran	4	Iraq, Kuwait, Mexico, Venezuela
Residual fuel oils[i] .	II	0		3	Algeria, Indonesia, Mexico	1	Iran	4	Iraq, Kuwait, Venezuela, Saudi Arabia
Lubricating oils[m] . .	II	1	Saudi Arabia	3	Algeria, Indonesia, Kuwait	1	Mexico	3	Iran, Iraq, Venezuela

Source: United Nations Industrial Development Organization, based on data in Metallgesellschaft Aktiengesellschaft, *Metal Statistics 1955—1964* for the non-ferrous metals and in United Nations, *Statistical Yearbook* for iron ore, petroleum and their manufactures.

[a] For definition of series, see table 105. The countries included in the table are the major producers of the primary commodity and together they generally represent at least 80 per cent of the annual average production of all developing countries of the commodity for the period 1960—1964. Growth rates shown sometimes include a degree of estimation.

[b] Simple arithmetic rate of change.

[c] Included in this column are countries which had no associated manufactures production throughout the period 1955—1964 (see below). Because of this, care should be taken in attempting to surmise the developing countries aggregate average annual increase in production. Data on the latter are given in table 105.

[d] Production of aluminium from 1955 to 1964 was nil for British Guiana, Dominican Republic, Guinea, Jamaica and Surinam.

[e] Production of lead metal was nil for Bolivia from 1955 to 1964 and for South West Africa from 1955 to 1959.

[f] Production of tin metal was nil for Thailand from 1955 to 1964 and for Nigeria from 1955 to 1959.

[g] Production of zinc metal from 1955 to 1964 was nil for Morocco.

[h] Production of crude steel from 1955 to 1964 was nil for Algeria, Liberia, Malaya and Sierra Leone.

[i] Production of motor spirit from 1955 to 1964 was nil for Algeria.

[j] Production of kerosene from 1955 to 1964 was nil for Algeria.

[k] Production of distillate fuel oils from 1955 to 1964 was nil for Algeria.

[l] Production of residual fuel oils from 1955 to 1964 was nil for Algeria.

[m] Production of lubricating oils from 1955 to 1964 was nil for Algeria, Kuwait and Indonesia.

countries at present continues to be processed in developed countries. Thus, as compared with the 31 per cent share of world output of iron ore now produced by developing countries, only 4 per cent of world steel outputs is located in the developing world. In many of these countries, exploitation of iron ore resources by foreign companies has been conceived essentially for the purpose of providing raw materials for their associated steel mills in developed countries. In other cases, the limited size of the local market and the present absence of functioning regional markets has prevented the establishment of domestic steel mills in developing countries. Although steel production in developing countries more than doubled between the late 1950's and the early 1960's, the aggregate level of their output in the latter period was, for instance, only about one half of the output by the United Kingdom in the same period. Further, about four fifths of this volume of developing countries was accounted for by only three countries: Brazil, India and Mexico. A much smaller volume was produced in Chile, Peru and Venezuela. In other major iron ore producing countries, such as Algeria, Liberia, Malaysia and Sierra Leone, all of the primary output was exported in this period.

The third of the more rapidly expanding of the mineral industries in developing countries has been bauxite. Even though a determined effort is under way in many developing countries to process bauxite into aluminium locally, achievement to this end has been limited thus far. In developing countries, production of bauxite increased annually by 11 per cent in 1955—1964 and production of aluminium by 35 per cent. However, while these countries now account for about three quarters of world production of the primary product, they account for less than 2 per cent of world metal production based on bauxite. The greatest potential for domestic expansion of aluminium production apparently exists in countries of Latin America where the bulk of bauxite production occurs. The main bottleneck to a much higher level of local processing of bauxite lies in the present lack of hydro-electric power for reduction. Realization of the potential for hydro-electric power existing in many developing countries requires considerable capital. Thus far, many of the foreign bauxite companies operating in developing countries have found it appropriate to import bauxite for processing by reduction plants in developed countries. Looking to the future, the rewards to developing countries of increasing aluminium production in their own region appear very great. Until recently, the little aluminium production existing in developing countries was concentrated mainly in Brazil, Cameroon, China (Taiwan), India and Mexico. A few countries had some production of alumina, an intermediate product between bauxite and aluminium.

Several developing countries have a good opportunity to expand their basic metal industries and possibly their metal products industries

by instituting further processing of the other major non-ferrous minerals (copper, lead, zinc and tin). The growth rate of production of copper metal in developing countries in 1955—1964 averaged 7 per cent *per annum*, well above the annual increase in production of copper ore. More important, the increase in the latter production, about 4 per cent, was below the rate in developed countries. At the first stage of metal processing of copper ore into smelter copper, developing countries are coming within sight of achieving virtually complete domestic processing of their own ores. Thus, while the share of developing countries in world production of copper ore fell, between the late 1950's and the early 1960's, from slightly above 50 per cent to below that figure, their share of world smelter production rose from 42 to 44 per cent. However, there is often a significant value to be added by manufacturing at the stage of refining. This value may be enhanced when local production of refined copper opens the way to some local production, at the next stage, of semi-manufactures of copper. But the recent growth rate of copper refining in developing countries has not been much different from growth rates of smelter production. Consequently, the share of developing countries in the world production of refined copper metal production rose only from 20 to 21 per cent between 1955—1959 and 1960—1964. This still leaves a considerable volume of smelter metal (estimated at three quarters of a million tons *per annum* in the early 1960's) which is exported for refining in developed countries. The ability of developing countries to close this gap further hinges to a large extent on the inter-related factors of their ability to find finance for refineries and to achieve conditions of political stability, as well as on the policies of a few large corporations which own copper mines. In copper, as other minerals, there may develop in the near future a significant geographical deconcentration of ore production. Three quarters of copper ore production in developing countries are now located in Chile, the Democratic Republic of the Congo, and Zambia. If and when new centres of copper ore production are opened up, the challenge will be presented in developing countries to attempt to develop local refining capacity more rapidly than was the case in those countries.

World income elasticities of demand for lead and zinc are considerably lower than for aluminium and copper, and developing countries as a whole have made no substantial gains recently in increased processing of their lead and zinc ore production. Developing countries fared worse at both stages of production of lead than developed countries in 1955—1964, and in the early 1960's their share of world output at the lead metal stage, about 17 per cent, was still only one half of their share of world production at the lead ore stage. For some time Argentina and Mexico have smelted virtually all of their lead ore production, but in Bolivia no smelting of locally produced ore was carried on in that period. Between these extremes, there was a variety of experiences. South West Africa made a start on metal processing. The rate

of growth of metal production was greater than that of ore production in Peru, although there still was a significant export of ore. In Morocco, between the late 1950's and early 1960's, ore production climbed rapidly, but metal production fell away. Lead, together with zinc, has been subject to substantial price variation, and instability has been accentuated in developing countries by the existence of commerical barriers and by changes in stockpile policies in developed countries. Existence of unutilized smelting capacities in developed countries has also acted as an impediment. The possibility of discussing problems of this nature in an inter-governmental study group, however, has undoubtedly been of value to developing countries. The major difference in tendencies between lead and zinc in developing countries over the ten-year period was that, although their rate of smelting zinc increased more than that of mining zinc ore, their share of world metal output relative to ore output remained much smaller than in lead. Thus, while developing countries accounted for more than one quarter of the world output of zinc ore, these countries produced less than one tenth of the processed product. As with lead, individual country progress in smelting varied. Both Zambia and Peru made significant advances in zinc smelting, but production levels in Mexico between the late 1950's and early 1960's remained virtually unchanged. No zinc smelting was carried on in Morocco, where there was an annual ore production of more than 40,000 tons. It should be recognized that although lead and zinc ores are often joint products smelting processes differ and the process for zinc is sometimes complicated and costly, especially for complex ores. While zinc smelting was carried forward in a handful of ore-producing developing countries, there are no metal processing plants today in more than a dozen other ore-producing countries in the developing region. In most of these latter countries, however, the volume of mined output is considerably smaller than in the former group of countries and in some cases it is insufficient to sustain local smelting facilities.

Progress in the processing of tin ore in developing countries must be considered against the background of a decline in the level of world ore production between the late 1950's and the early 1960's. Production of tin ore, more than other minerals considered thus far, is confined mainly to developing countries. As a result of a high rate of growth of tin metal production in these countries, about 7 per cent *per annum*, at a time when the output of tin metal dropped in developed countries, the share of developing countries in total world output of this metal rose between one five-year period and the next from less than one half to close to two-thirds. While the major part of metal output and of the recent absolute growth in this region occurred in Malaysia, significant developments in smelting also took place in Bolivia and Nigeria. In 1965, Thailand began tin smelting operations. The provision of finance for smelting plants in developing countries was partly influenced by political circumstances, including nationalization measures.

Raw materials for light industry

The light industry branches of manufacturing rely mainly on agriculture and forestry for input of their primary products. The output of food, as well as of non-food products of these sectors, increased in developing countries at a rate of between 2 and 3 per cent *per annum* during the ten years up to 1964. In the same region, the rate of growth of light manufacturing output was close to 5 per cent a year. Attention is given below to recent developments in some non-food products.

Apart from synthetics, textile manufacturing is based mainly on cotton and wool. With regard to raw cotton and manufactures of cotton, production expanded faster in 1955—1964 in developing countries than elsewhere (see table 102). In recent years cotton manufacture has spread to a large number of developing countries and utilizes an abundant labour force. The consequential change in structure was that by 1960—1964, while the developing countries' share of the world output of raw cotton rose to 54 per cent, their share of cotton manufactures increased to about one third. Developments in wool production were sharply different inasmuch as there was a significant growth of wool manufactures in developing countries at a time when production of raw wool in the region was virtually stagnant. Despite this trend to increase in wool manufacturing, the share of world production of wool yarn and fabrics reported for developing countries rose to only 4 per cent in the early 1960's as compared with one quarter for raw wool. Owing to the lack of data, these shares understate the actual role of developing countries. Within the various developing regions, country experience in processing varied widely. With regard to cotton, for instance, the major part of domestic raw cotton was locally processed in India and Pakistan, and a smaller degree of processing took place in Brazil, Mexico, Peru, Syria and the United Arab Republic. Virtually no processing occurred in a number of the countries producing raw cotton, particularly countries in Africa (see table 103). Other developing countries have established a substantial sector in textile manufacturing on the basis of imported raw material. There is a variety of ways in which the textile processing sector of developing countries may be a source of increased value added to their economies. The example of a few developing countries which have succeeded in establishing a significant export market for their textiles might well be emulated. In other countries, for instance in Africa, domestic expansion might be geared to a greater degree to local markets which still rely heavily on imports. In many countries, a number of problems face the textile industry, particularly where an import substitution policy through heavy governmental protection has resulted in high-cost domestic textilie manufactures. These problems revolve around rationalization of the industry, removal of obsolete machinery, more efficient use of other machinery, utilization of higher quality fibres, less wastage of raw materials etc. As

TABLE 102. RELATION OF PRIMARY PRODUCTION OF SELECTED NON-FOOD AGRICULTURAL COMMODITIES TO ASSOCIATED MANUFACTURES PRODUCTION,[a] BY REGIONS, 1955–1964

(Percentages)

	I – Primary II – Processed	Production in developing countries as percentage of production in:				Average annual percentage increase in production between 1955–1959 and 1960–1964		
		World excluding centrally planned economies		World including centrally planned economies		Developing countries	Developed market economies	World excluding centrally planned economies
		1955–1959	1960–1964	1955–1959	1964–1964			
Cotton								
Cotton lint	I	52	54	43	45	5	3	4
Cotton yarn[b]	II	28	31	22	24	5	2	3
Woven cotton fabrics[c]	II	33	35	25	26	2	—	1
Wool								
Raw wool[d]	I	26	24	21	20	—	2	2
Wool yarn[e]	II	3	4	3	3	10	3	3
Woven woollen fabrics[f]	II	3	4	2	3	6	1	1
Artificial fibres								
Rayon and acetate filaments[g]	II	6	8	5	6	9	3	3
Rayon and acetate fabrics[h]	II	18	23	15	18	7	1	2
Non-cellulosic fibres[i]	II	1	2	1	2	160	36	37
Wood products								
Sawlogs[j]	I	16	16	11	11	2	1	1
Sawnwood[k]	II	10	10	7	7	1	1	1
Plywood[l]	II	6	8	5	7	17	10	11
Pulp and paper								
Pulpwood[m]	I	1	3	1	2	20	2	2
Wood-pulp[n]	II	1	2	1	1	25	6	6

this differential occurred also in the centrally planned economies and in the developed market economies, the extent of the gap was not so great in the latter group of countries. The relatively slow growth of productivity in light industry in developing countries undoubtedly reflected, in part, the persistence of many small establishments which have not yet turned to more modern technology. The more rapid growth of productivity in light industry in the developed market economies, about 3 per cent *per annum*, was perhaps partly attributable to the relative scarcity of labour in all industries, whether light or heavy. On the other hand, the greater similarity of techniques in individual sectors of heavy industry may partly explain the fact that in both groups of countries, the productivity gains were similar, about 4 to 5 per cent *per annum*. Although the slowest growth of productivity in both groups occurred in the food industry, the metal products industry had the highest growth of productivity in developing countries, and chemicals and petroleum products in the developed market economies.

Bearing in mind the variety of conditions in manufacturing in various developing countries and the limitations in statistical measurement, there appears to exist a remarkably uniform sectoral pattern of relative productivity among developing countries. As shown for twenty-nine countries in table 91, the clothing industry, when compared with other industries considered at the 2-digit ISIC level, is lowest or nearly so in value added per worker. The wood products industry is generally slightly more productive per worker and the textile industry still more productive. Moving up the scale of relative productivity, the next industry is in the heavy category of metal products. In the middle range, however, there is a less clear picture of uniformity, but it may be conjectured that the continuing order of relatively rising productivity is: paper and paper products, non-metallic mineral products, and basic metals. Finally, the next to highest industry in terms of recent output per worker is the food, beverages and tobacco sector -- i.e. in those establishments covered by censuses of manufacturing -- and the relatively most productive is the chemicals and petroleum products sector. In this comparison of productivity and value added among various industries, relative prices are used and the system of relative prices is subject to diverse influences in different countries. Further, there is undoubtedly a marked difference among developing countries in the product mix of the same 2-digit ISIC industry. Nevertheless, summarizing the position in conventional terms of light and heavy industry, it appears that the heavy sector was the relatively more productive, per person engaged, in almost all developing countries. Indeed, in nearly one third of the countries shown in table 91, output per worker was more than 50 per cent higher in the heavy than in the light industry sector.

There are many reasons for the differences dicussed in this section, but a particularly important influence is the degree of skill of manpower.

Newsprint[o]	II	1	2	1	2	24	4	4
Other paper[p]	II	5	6	4	5	13	6	7
Paperboard[q]	II	3	3	3	3	11	6	6
Rubber								
Natural rubber[r]	I	100	100	100	100	2	—	2
Tires[s]	II	4	5	4	4	15	9	9

Source: United Nations Industrial Development Organization, based on data in the relevant issues of the United Nations *Statistical Yearbook*; United Nations Food and Agriculture Organization, *Production Yearbook*; *World Crop Statistics 1948–1964*; *Yearbook of Forest Products Statistics*, and *World Forest Products Statistics, 1954–1963*.

[a] Estimates are based on production in physical (weight or volume) terms. As a rule, they include estimates for non-reporting countries and for years for which data are not available. In the case of textile manufactures, however, due to the fragmentary nature of the data available, the share of developing countries in world production may be somewhat underestimated.

[b] Cotton yarn refers to the total weight of pure cotton yarn spun (including mixed yarn in various cases) whether for sale on commission or for further processing. Yarn spun from cotton waste is included but tire cord is generally excluded.

[c] Woven cotton fabrics refer to the production of such fabrics (including mixed fabrics in various cases) before undergoing finishing processes, such as bleaching, dyeing, printing, mercerising, glazing, etc.

[d] Raw wool refers to the weight of wool produced on a clean basis.

[e] Wool yarn refers to the weight of carded and combed (worsted) yarn spun for sale (including retail sale), on commission, or for further processing.

[f] Woven woollen fabrics refer to the weight of woollen and worsted fabrics (including mixed fabrics in various cases) in the pieces before undergoing finishing processes.

[g] Rayon and acetate filaments refer to both continuous and discontinuous fibres.

[h] Rayon and acetate fabrics refer to fabrics in the piece before undergoing finishing. Mixed rayon fabrics are in general included.

[i] Non-cellulosic fibres refer to man-made non-cellulosic fibres (such as nylon, terylene, orlon, saran) excluding textile glass fibre.

[j] Sawlogs refer to the total solid volume (excluding bark) of logs destined for sawing and for the manufacture of sleepers and of veneers. Logs transformed into hewn wood (excepting hewn railway sleepers) and roundwood for the manufacture of stoves (co-operage) and shingles are also included.

[k] Sawnwood refers to wood simply sawn lengthwise. Boxboards are included but sawn railway sleepers are excluded. Production includes wood sawn both from home grown and imported roundwood.

[l] Plywood covers veneer wood, plywood and blackboard, lawnboard and battenboard as well as cellular wood panels.

[m] Pulpwood refers to wood used for pulping, by mechanical means, by chemical means, or combined processes and to wood used in the manufacture of fibreboard and particleboard. The series also includes pitprops, *i.e.*, round timber used in mining operations.

[n] Woodpulp refers to fibrous material prepared from wood by mechanical and/or chemical processes for further manufacture into paper, paperboard, fibreboard or other cellulose products. Data are in air-day weights and include pulp produced as an intermediate product in integrated paper mills.

[o] Newsprint refers to bleached, unsized or slacked-sized printing paper, without coating, of the type usually used for newspapers usually with at least 70 per cent of the weight derived from mechanical pulp.

[p] Other paper covers all paper other than newsprint in rolls and in sheets and printing and writing paper. However, manufactures such as stationery, books, etc., are excluded.

[q] Paperboard designates all grades of fibrous material which are 0.3 mm (0.012 inch) or more in thickness made on a paperboard machine. Thinner products classified as paperboard in manufacture are also included.

[r] Natural rubber generally includes latex but excludes reclaimed rubber.

[s] Tires generally cover production of tires for passenger cars and commercial vehicles and exclude tires for other types of vehicles as well as inner tubes.

TABLE 103. GROWTH OF PRIMARY PRODUCTION OF SELECTED NON-FOOD AGRICULTURAL COMMODITIES AND ASSOCIATED MANUFACTURES PRODUCTION,[a] BY MAJOR PRODUCING COUNTRIES, 1955–1964

(Average annual change in production between 1955–1959 and 1960–1964)[b]

	I – Primary II – Processed	Less than –3 per cent		–3 to 3 per cent[c]		3 to 9 per cent		9 per cent and more	
		Number	Name	Number	Name	Number	Name	Number	Name
Cotton									
Cotton lint	I	0		2	Mexico, United Arab Rep.	4	India, Pakistan, Peru, Sudan	3	Brazil, Iran, Syria
Cotton yarn[d] . . .	II	0		1	India	4	Brazil, Mexico, Pakistan, Peru	2	Syria, United Arab Rep.
Woven cotton fabrics[d]	II	0		4	Brazil, India, Mexico, Peru	2	Pakistan, Syria	1	United Arab. Rep.
Wool									
Raw wool	I	0		6	Argentina, Brazil, Chile, India, Iraq, Uruguay	2	Iran, Pakistan	0	
Wool yarn[e]	II	0		1	Pakistan	1	Brazil	2	India, Iraq
Woven woollen fabrics[f]	II	0		1	India	0		2	Chile, Iraq
Artificial fibres									
Rayon and acetate filaments	II	0		1	Argentina	3	Brazil, Mexico, United Arab Rep.	1	India
Rayon and acetate fabrics	II	1	Argentina	0		2	United Arab Rep., Venezuela	1	India
Non-cellulosic fibres	II	0		0		0		4	Argentina, Brazil, Israel, Mexico

Wood products									
Sawlogs	I	1	Brazil	5	Colombia, Gabon, Indonesia, Mexico, Thailand	3	Chile, India, Philippines	1	Malaya
Sawnwood	II	0		6	Brazil, Colombia, Indonesia, Mexico, Philippines Thailand	3	Chile, Gabon, India	1	Malaya
Plywood	II	0		1	Chile	2	Indonesia, Mexico	7	Brazil, Colombia, Gabon, India, Malaya, Philippines, Thailand
Pulp and paper									
Pulpwood	I	0		0		2	Mexico, Peru	7	Argentina, Bahamas, Brazil, Chile, China (Taiwan), India, Korea
Wood-pulp[a]	II	0		1	Bahamas	1	China (Taiwan)	5	Argentina, Chile, India, Korea, Mexico
Newsprint[b]	II	0		3	Argentina, Bahamas, Peru	0		6	Brazil, China (Taiwan), Chile, India, Korea, Mexico

TABLE 103. GROWTH OF PRIMARY PRODUCTION OF SELECTED NON-FOOD AGRICULTURAL COMMODITIES AND ASSOCIATED MANUFACTURES PRODUCTION,[a] BY MAJOR PRODUCING COUNTRIES, 1955–1964 *(Continued)*

(Average annual change in production between 1955–1959 and 1960–1964)

	I = Primary II = Processed	Less than −3 per cent		−3 to 3 per cent[a]		3 to 9 per cent		9 per cent and more	
		Number	Name	Number	Name	Number	Name	Number	Name
Other paper[i] . . .	II	0		1	Bahamas	3	Argentina, Brazil, Chile	5	China (Taiwan), Korea, India, Mexico, Peru
Paperboard[i] . . .	II	0		2	Argentina, Bahamas	2	Chile, Mexico	5	Brazil, China (Taiwan), India, Korea, Peru
Rubber									
Natural rubber . .	I	0		2	Ceylon, Indonesia	2	Malaya, Thailand	0	
Tires[j]	II	0		4	Ceylon, Indonesia, Malaya, Thailand	0		0	

Source: United Nations Industrial Development Organization, based on data in United Nations *Statistical Yearbook* for textile and rubber products and in Food and Agriculture Organization *World Crop Statistics, 1948–1964, World Forest Products Statistics, 1954–1963, Yearbook of Forest Products Statistics* and *Production Yearbook* for all other times.

[a] For definition of series, see accompanying table 107. Countries included in the table are the major producers of the primary commodity and together they generally represent at least 80 per cent of the annual average production of all developing countries of the commodity in question, for the period 1960–1964. In the case of sawlogs, however, only the 10 major producers among developing countries and in the case of artificial fibres the major producers of the processed product are included. Growth rates shown sometimes include a degree of estimation.

[b] Simple arithmetic rate of change.

[c] Included in this column are countries which had no associated manufactures production throughout the period 1955–1965 (see below). Because of this and the unavailability of data for other countries, as indicated in subsequent footnotes, care should be taken in attempting to surmise the developing countries aggregate average annual change in production. Data on the latter are given in accompanying table 107.

[d] No data available on the production of cotton yarn and cotton fabrics for Iran and Sudan.

[e] No data available on the production of wool yarn for Argentina, Chile, Iran and Uruguay.

[f] No data available on the production of woven woollen fabrics for Argentina, Brazil, Iran, Uruguay and Pakistan.

[g] No data available on production of wood pulp for Peru. For the Bahamas, production from 1955 to 1964 was nil.

[h] Production of newsprint for the Bahamas and Peru from 1955 to 1964 was nil.

[i] Production of other paper and paperboard was nil for the Bahamas from 1955 to 1964.

[j] Production of tires was nil for all major rubber producers shown from 1955 to 1964.

with all primary products, the adoption of economic criteria does not require that they all be processed in their country of origin. However, in the case of cotton, an important economic fact is that textile mills can be low in terms of capital and power requirements.

Long-term prospects of demand are bright for the wood products industries of developing countries, many of which possess large forest areas. However, in 1955—1964 the rate of growth of sawlog output, a primary product, for the developing region as a whole probably increased by less than 2 per cent *per annum*. Production of sawnwood, a manufactured product, grew at a still lower rate. Since these degrees of expansion were little different from those in developed countries, the approximate shares of world output accounted for by developing countries, one sixth for sawlogs and only one tenth for sawnwood, remained unchanged in 1955—1964. The demand for sawnwood is closely related to the industrial and general economic development of developing countries because of its widespread use in construction also in packaging, furniture etc. Further, the relative depletion of forest resources in some developed countries has resulted in improved prospects for exports by developing countries. The ability of developing countries to meet these demands was not as seriously impaired, as in the case of other products, by uniformly high total capital requirements of processing plants. Fixed capital requirements per unit of output can vary significantly according to whether small mobile mills or highly mechanized mills are installed; this also depends on the cost involved in constructing access roads. Saw milling is usually the first forest industry to be established. However, competitiveness has suffered when the quality and homogeneity of the raw material intake were adverse and where markets were hard to find for the outputs of both good and inferior quality products. Achievement of low-cost output has become all the more important in view of the high elasticity of substitution between sawnwood and bricks, steel, cement and plastics. Within this context, some developing countries succeeded in a significant expansion of processing of sawlogs into sawnwood; between 1955—1959 and 1960—1964, the annual rate of growth of this manufacturing was about 10 per cent in Malaysia and 7 per cent in Chile. In other important wood-processing countries the expansion was more modest; in still others, such as Brazil, which has the largest production among developing countries, output stagnated over the ten-year period. It should be noted that while the direct value added between sawlogs and sawnwood is relatively small, an important indirect value is added where sawmill residues have been utilized. Processing of primary product into plywood in the developing countries as a whole increased at a much more rapid rate than sawnwood in developing countries and also at a faster rate than plywood in developed countries. Nevertheless, developing countries still produce a smaller proportion of world output of this more complex manufactured product than in the case of sawn-

TABLE 103. GROWTH OF PRIMARY PRODUCTION OF SELECTED NON-FOOD AGRICULTURAL COMMODITIES AND ASSOCIATED MANUFACTURES PRODUCTION,[a] BY MAJOR PRODUCING COUNTRIES, 1955—1964 *(Continued)*

(Average annual change in production between 1955—1959 and 1960—1964)

	I = Primary II = Processed	*Less than —3 per cent*		*—3 to 3 per cent*[c]		*3 to 9 per cent*		*9 per cent and more*	
		Number	*Name*	*Number*	*Name*	*Number*	*Name*	*Number*	*Name*
Other paper[d] . . .	II	0		1	Bahamas	3	Argentina, Brazil, Chile	5	China (Taiwan), Korea, India, Mexico, Peru
Paperboard[d] . . .	II	0		2	Argentina, Bahamas	2	Chile, Mexico	5	Brazil, China (Taiwan), India, Korea, Peru
Rubber									
Natural rubber . .	I	0		2	Ceylon, Indonesia	2	Malaya, Thailand	0	
Tires[f]	II	0		4	Ceylon, Indonesia, Malaya, Thailand	0		0	

Source: United Nations Industrial Development Organization, based on data in United Nations *Statistical Yearbook* for textile and rubber products and in Food and Agriculture Organization *World Crop Statistics, 1948—1964*, *World Forest Products Statistics, 1954—1963*, *Yearbook of Forest Products Statistics* and *Production Yearbook* for all other times.

[a] For definition of series, see accompanying table 107. Countries included in the table are the major producers of the primary commodity and together they generally represent at least 80 per cent of the annual average production of all developing countries of the commodity in question, for the period 1960—1964. In the case of sawlogs, however, only the 10 major producers among developing countries and in the case of artificial fibres the major producers of the processed product are included. Growth rates shown sometimes include a degree of estimation.

[b] Simple arithmetic rate of change.

[c] Included in this column are countries which had no associated manufactures production throughout the period 1955—1965 (see below). Because of this and the unavailability of data for other countries, as indicated in subsequent footnotes, care should be taken in attempting to surmise the developing countries aggregate average annual change in production. Data on the latter are given in accompanying table 107.

[d] No data available on the production of cotton yarn and cotton fabrics for Iran and Sudan.

[e] No data available on the production of wool yarn for Argentina, Chile, Iran and Uruguay.

[f] No data available on the production of woven woollen fabrics for Argentina, Brazil, Iran, Uruguay and Pakistan.

[g] No data available on production of wood pulp for Peru. For the Bahamas, production from 1955 to 1964 was nil.

[h] Production of newsprint for the Bahamas and Peru from 1955 to 1964 was nil.

[i] Production of other paper and paperboard was nil for the Bahamas from 1955 to 1964.

[j] Production of tires was nil for all major rubber producers shown from 1955 to 1964.

with all primary products, the adoption of economic criteria does not require that they all be processed in their country of origin. However, in the case of cotton, an important economic fact is that textile mills can be low in terms of capital and power requirements.

Long-term prospects of demand are bright for the wood products industries of developing countries, many of which possess large forest areas. However, in 1955—1964 the rate of growth of sawlog output, a primary product, for the developing region as a whole probably increased by less than 2 per cent *per annum*. Production of sawnwood, a manufactured product, grew at a still lower rate. Since these degrees of expansion were little different from those in developed countries, the approximate shares of world output accounted for by developing countries, one sixth for sawlogs and only one tenth for sawnwood, remained unchanged in 1955—1964. The demand for sawnwood is closely related to the industrial and general economic development of developing countries because of its widespread use in construction also in packaging, furniture etc. Further, the relative depletion of forest resources in some developed countries has resulted in improved prospects for exports by developing countries. The ability of developing countries to meet these demands was not as seriously impaired, as in the case of other products, by uniformly high total capital requirements of processing plants. Fixed capital requirements per unit of output can vary significantly according to whether small mobile mills or highly mechanized mills are installed; this also depends on the cost involved in constructing access roads. Saw milling is usually the first forest industry to be established. However, competitiveness has suffered when the quality and homogeneity of the raw material intake were adverse and where markets were hard to find for the outputs of both good and inferior quality products. Achievement of low-cost output has become all the more important in view of the high elasticity of substitution between sawnwood and bricks, steel, cement and plastics. Within this context, some developing countries succeeded in a significant expansion of processing of sawlogs into sawnwood; between 1955—1959 and 1960—1964, the annual rate of growth of this manufacturing was about 10 per cent in Malaysia and 7 per cent in Chile. In other important wood-processing countries the expansion was more modest; in still others, such as Brazil, which has the largest production among developing countries, output stagnated over the ten-year period. It should be noted that while the direct value added between sawlogs and sawnwood is relatively small, an important indirect value is added where sawmill residues have been utilized. Processing of primary product into plywood in the developing countries as a whole increased at a much more rapid rate than sawnwood in developing countries and also at a faster rate than plywood in developed countries. Nevertheless, developing countries still produce a smaller proportion of world output of this more complex manufactured product than in the case of sawn-

wood. There has been very little relation in the extent to which countries have concentrated on these two processed manufactures of forest resources.

While exploitation of forest resources for processing into wood-pulp, paper etc. is a much newer and smaller industry in developing countries, their recent rates of expansion in 1955—1964 were particularly high. There was nearly 20 per cent annual expansion in pulp-wood, which is one of the principal raw materials for such processed products as wood-pulp, newsprint, other paper and paperboard. Growth-rates of these processed products ranged from 11 to 25 per cent in the region. Since this expansion was considerably greater than in the developed countries, the relative role of developing countries has increased. However, in 1960—1964, their share of world output of these processed products still ranged from only 2 to 6 per cent. The share of developing countries in world output of pulp-wood, about 3 per cent, was considerably less than in the case of sawlogs. The limited degree of processing into pulp and paper by the developing countries has resulted from their low *per capita* incomes and a complex of production problems. However, with a high income elasticity of demand for pulp and paper, particularly at the lower *per capita* income levels, and with a desire to reduce heavy expenditures of foreign exchange for imports of such products, developing countries have attempted to engage in substantially greater processing of pulp-wood and similar raw materials. This has required the surmounting of several obstacles thus far accomplished to varying degrees in relatively few developing countries, such as Argentina, Brazil, Chile, Mexico and Peru in Latin America and China (Taiwan), India, the Republic of Korea and Pakistan in Asia. Most developing countries have small local markets which are difficult to supplement, except for some intra-trade of the developing region, in view of the established position of manufacturers of North America and western and southern Europe. In the pulp and paper industry, economies of scale and of integration are important, but these more economic plants are particularly capital intensive. In addition, competitiveness requires cheap and abundant power and fresh water for cooking and ample chemicals and bleaching. Though forest resources are theoretically abundant and renewable in the developing world, distribution of these resources is geographically concentrated and the availability of conifers, which yield favoured long-fibre pulp, is relatively limited. To overcome this problem, particular attention has been given to processes employing broad-leafed species as well as a range of agricultural residues, such as straw and sugar cane bagasse. Consideration has been given also to improving the primary product base through man-made forests and reclaimed natural forests.

There was a substantial expansion in the rubber products industries of developing countries in 1955—1964, as indicated by developments

in the production of tires. However, with regard to this major end use of rubber, developing countries were responsible for only about 5 per cent of world output. Of this production, the bulk occurred in about ten countries, most of which were not producers of natural rubber or synthetic rubber. While synthetic output is still in its infancy in developing countries, the production of natural rubber, which now plays only a secondary role to synthetic rubber, is a monopoly of developing countries. In the early 1960's none of the major producers of natural rubber, such as Ceylon, Indonesia, Malaysia and Thailand, possessed a tire industry, although some value was added in the manufacture of other rubber products. Inelasticity of supply and price instability of natural rubber, as well as technological gains in the production of synthetic rubber, have rapidly enhanced the latter for use in the rubber products industry of developed countries. Substantial extension of the use of synthetic rubber to developing countries is expected.

Processing of food

A central theme in current debate on the appropriate pattern of economic development in developing countries concerns the attainment of increasing output of foodstuffs. As previously suggested in the survey, however, the contribution of the local food manufacturing sector in meeting ever-rising domestic food expenditures may be considered as significant as the contribution of the farm sector. Thus far, the initial processing of farm output has undoubtedly been the dominant factor in the food manufacturing sector of developing countries. Such elementary processing has been essential to reduce weight and volume and thus limit transportation costs or to preserve food and thus reduce perishability. In some cases the undertaking of a larger number of these operations was not impeded by their being particularly capital intensive and skilled-labour intensive; consequently, the location of food processing plants has been closely related to areas of primary production. At times, local market conditions have warranted basing the food processing industry on imported foodstuffs. Although more advanced processing of food has perhaps been of less significance thus far, such activities have been pursued in developing countries despite the sometimes heavier capital requirements, when the nature of foreign markets or the size of local markets was appropriate. Production of all food manufactures increased at an annual rate of between 4 and 5 per cent in developing countries in 1955—1964. At the same time, primary food output increased between 2 and 3 per cent. Some insight into these aggregate results may be obtained from a limited review of processing operations for wheat and rice, meat and fish, oils and fruit, and sugar and beverages.

Among the primary foods subject to basic or initial processing, significant growth was registered in the milling of grains. The installation

of modern grain processing plants has provided benefits for developing countries, including the saving of foreign exchange when grain is substituted for flour imports; the establishment of plants for manufacture of livestock feed, utilizing by-products; and the establishment of food processing industries based on the milled product. Despite the widespread introduction of modern flour mills for processing wheat and the modernization of primitive mills in developing countries, the latter primitive facilities still represent a substantial share of total wheat milling capacity in many of these countries. The more modern mills have tended to be capital intensive, both for fixed plant and for working capital. To assist in their operation, governmental support has often been provided, and this has included protective fiscal measures. While some of the expansion of flour milling was for the processing of domestic wheat, an important part was for milling imported grain, particularly in tropical countries which produce little or no wheat. The extent of the shift in imports from flour to grain was impressive in a number of countries. The output of wheat flour in developing countries as a whole increased at an annual rate of 5 per cent in 1955–1964 (see table 104). India, Iran and Morocco are examples of developing countries which attained a relatively high rate of expansion in flour milling (see table 105). Wheat milling has tended to be market oriented, but rice milling has tended to be resource based. Many of the requirements and gains from processing, as indicated above, apply also to rice milling. The gain from recovery of by-products was particularly significant. For example, rice bran, which is rich in fat, protein and vitamin, has significant value and is used increasingly as feedstuff for livestock and poultry. It also provides oil for use in soap, margarine etc. These gains result from medium-scale and larger plants and from more capital-intensive plants.

In the case of meat, a much more modest rate of growth of processing was recorded in 1955–1964 in developing countries than for grains; their output of meat expanded at only about 1 per cent annually. Inasmuch as this growth was also more limited than that in developed countries, the developing countries' share of world output of beef and veal, pork, and mutton and lamb production fell, from the late 1950's to the early 1960's, to nearly one fifth of the total level. Indeed, in many developing countries, there was an absolute decline in meat production, despite relatively low levels of *per capita* consumption at the beginning of this period. In some of the countries with expanding production, this was due to the fact that part of their processed output went for export or for import substitution. While much of the processing continued to be restricted to the simple stage of slaughtering, there was increasing use of modern, large-scale central abattoirs, as well as the more complex and capital intensive processes of freezing and canning. These processes created a potential for linkages with machinery supplying sectors in developing countries with a more advanced manufacturing sector. A further benefit of modern slaughtering processes arises from the oppor-

TABLE 91. RATIOS OF EMPLOYMENT TO VALUE ADDED IN MANUFACTURING, BY INDUSTRIES, SELECTED DEVELOPING COUNTRIES,[a] RECENT YEARS

(Relation between ratio of employment to value added in major groups of manufacturing and similar ratio for total manufacturing: latter ratio equals 1.0)

		Manufacturing			*Food, beverages, tobacco*	*Textiles*	*Clothing, footwear and made-up textiles*	*Wood products, furniture*	*Paper and paper products*	*Chemicals, petroleum and coal products*	*Non-metallic mineral products*	*Basic metals*	*Metal products*
		Total	*Light*	*Heavy*									
		ISIC	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*
	Year	*2–3*	*20–26, 28–30, 39*	*27 31–38*	*20–22*	*23*	*24*	*25–26*	*27*	*31–32*	*33*	*34*	*35–38*
Latin America													
Dominican Republic	1962	1.0	1.1	0.6	1.1	1.1	1.1	1.1	0.3	0.3	0.5	5.4	1.0
Mexico	1960	1.0	1.2	0.8	0.9	1.3	2.2	1.8	0.7	0.6	1.0	0.6	1.3
Puerto Rico	1963	1.0	1.2	0.6	0.8	1.5	1.8	1.6	1.0	0.5	0.9	0.8	0.8
Brazil	1963	1.0	1.2	0.8	0.9	1.6	1.5	1.6	0.9	0.5	1.5	1.0	0.8
Chile	1963	1.0	1.1	0.9	0.8	1.3	1.9	2.1	0.4	0.6	1.0	0.5	1.3
Jamaica	1960	1.0	1.0	0.9	0.5	1.5	4.3	1.3	0.5	0.7	0.9	—	1.1
Peru	1963	1.0	1.0	0.9	0.8	1.2	2.2	2.4	0.6	0.6	1.2	0.7	1.3
Ecuador	1963	1.0	1.0	0.9	0.7	1.9	2.9	2.2	1.1	0.7	0.8	—	2.0
Argentina	1957	1.0	1.0	1.0	0.8	1.2	1.2	1.9	0.8	0.6	1.2	0.9	1.1
Colombia	1963	1.0	1.0	1.0	0.7	1.1	2.4	2.2	0.7	0.6	1.5	0.5	1.4
Uruguay	1960	1.0	1.0	1.1	0.7	1.0	1.8	1.8	0.6	0.6	1.3	0.7	1.6

tunity to develop hides and skins industries and plants to exploit by-products, including feedstuff. In addition, where internal markets were small in relation to efficient plant size, the opportunity arose for export to other developing countries. Potential foreign markets included developed as well as developing countries, especially where there were no fresh meat resources and where canned meat could help fill the need for protein. In the case of developed countries, however, persisting difficulties included tariffs, quotas and other trade obstacles.

The expanded volume of processing of fish into fish meal for export by Peru is a well-known example of developmental opportunities in the food processing sector. Generally there is wide variation among developing countries in the extent to which fish has been sold directly to consumers or has been processed. Consequently, over-all indices of growth of output should be interpreted with caution. The increased output of the unprocessed product, fish catches, was particularly high in a few developing countries, especially those in need of a supplement of domestic protein. In some countries, the major effort in processing concerned production of salted fish, while other countries concentrated on canning fish or making fish meal. A change from simple to more elaborate methods of processing requires increased facilities for storage and refrigeration. However, such changes result in greater opportunities for export to neighbouring developing countries which do not possess adequate fishing grounds and to developed countries where a potentially lucrative market extends from canned tuna to high-grade luxury fish products. The perishable nature of fish requires that processing plants be located near fishing grounds.

The processing of oilseeds in developing countries has been advocated on the grounds, *inter alia*, that almost all seeds can be processed into oil, that a significant value is often added by crushing and refining, and that local oil producing plants can stimulate the establishment of plants using oil for soap, margarine etc. Since individual countries tend to produce only a few of the great variety of oilseeds and since local markets are seldom large enough to absorb such specialized output, most developing countries export the bulk of their output at some stage of processing. A continuing problem facing exports in processed form from developing countries is that the relative unimportance of storage, shipping and weight reduction factors provides some economic justification for vegetable oil plants in developed countries. Since major consuming countries consider variation in their mix of oilseed purchases in accordance with relative price movements of different oilseeds, and since tariffs are imposed be developed countries against the processed but not the unprocessed product, it is not surprising that the rate of growth of processing in developing countries has not been uniformly favourable.

The output of sugar cane in developing countries as a whole increased by about 5 per cent a year in 1955—1964. The extent of increase in

TABLE 104. RELATION OF PRIMARY PRODUCTION OF SELECTED FOOD COMMODITIES TO ASSOCIATED MANUFACTURES PRODUCTION,[a] BY REGIONS, 1955–1964

(Percentages)

	I – Primary II – Processed	Production in developing countries as percentage of production in:				Average annual percentage increase in production between 1955–1959 and 1960–1964 in:		
		World excluding centrally planned economies		World including centrally planned economies		Developing countries	Developed market economies	World excluding centrally planned economies
		1955–1959	1960–1964	1955–1959	1960–1964			
Meat[b]								
Meat, total[c]	II	22	21	18	16	1	3	3
Beef and veal	II	29	27	25	23	1	3	2
Pork	II	11	11	8	8	3	3	3
Mutton and lamb	II	26	24	19	17	1	4	3
Dairy products								
Milk[d]	I	26	26	20	20	2	2	2
Butter[e]	II	23	22	18	16	—	2	2
Cheese[f]	II	9	8	7	7	2	4	4
Fish								
Fish catches[g]	I	31	44	28	39	20	3	8
Salted fish[h]	II	26	30	17	19	3	−1	—
Canned fish[i]	II	17	18	14	14	5	3	4
Fish meals[j]	II	19	48	19	47	76	5	19
Wheat								
Wheat[k]	I	27	27	17	17	3	3	3
Wheat flour[l]	II	24	27	...	...	5	1	2
Sugar								
Sugar cane[m]	I	91	91	91	91	5	6	5
Cane sugar[n]	II	86	84	86	84	3	6	3
Sugar beet[o]	I	2	3	1	1	14	5	5
Beet sugar[n]	II	2	3	1	1	19	5	5

Tobacco								
Tobacco[p]	I	48	50	42	44	3	1	2
Cigarettes[q]	II	23	24	18	19	5	4	4
Oilseeds and oils								
Olives[r]	I	6	6	6	6	5	5	5
Olive oil[s]	II	14	14	14	14	4	4	4
Palm kernels[t]	I	100	100	100	100	—	—	—
Palm oil[u]	II	100	100	100	100	1	—	1
Margarine	II	3	5	2	4	18	1	2

Source: United Nations Industrial Development Organization, based on data in the relevant issues of the United Nations, *Statistical Yearbook;* United Nations Food and Agriculture Organization, *Yearbook of Fishery Statistics; World Crop Statistics 1948–1964* and *Production Yearbook.*

[a] Estimates are based on production in physical (weight) terms. As a rule, they include estimates made at the country level for years for which data were not available. Because of this and other estimations embodied in the published data, the indicators shown here are only of an approximate nature.

[b] The data refer either to meat from animals slaughtered within the national boundaries, irrespective of the origin of animals, or meat from indigenous animals only, including, where applicable, the meat equivalent of exported live animals. Production figures of beef and veal (including buffalo meat), pork (including bacon and ham) and mutton and lamb (including goat meat) used in estimates shown are in terms of carcass weight, excluding edible offals, tallow and lard. In addition, for some countries the series refer to total production, i.e., both commercial and farm slaughter, while for others they refer to commercial production only or to inspected production, i.e., meat produced from animals slaughtered under government supervision.

[c] Total of meat products listed below.

[d] The data are believed to represent the total production of milk from cows, goats, sheep and buffaloes for consumption fresh or for conversion into products, such as butter, cheese, condensed milk, etc. The figures, in principle, exclude milk sucked by, but include milk fed to, young animals.

[e] Butter refers to either total or, in various instances, factory production only.

[f] Cheese refers either to total production from as far as possible all types of milk or, in various instances, to factory production only.

[g] Fish catches cover, as far as possible, nominal catches (live weight) from both sea and inland fisheries. The series generally include seaweeds, crustaceans and molluscs, but not aquatic mammals (whales, dolphins, etc.).

[h] Salted fish includes dried or salted cod, hakes, haddocks, herrings, sardines, anchovies and similar species, as well as dried or salted miscellaneous fish products on a net-product weight basis.

[i] Canned fish refers to Pacific salmons, herrings, sardines, anchovies, tunas, bonitos, skipjacks and similar species, as well as miscellaneous fish products in airtight containers on a net-product weight basis.

[j] Fish meals and solubles cover silages, homogenized, condensed fish and similar products made from white fish (ground fish) and oily fish on a net-product weight basis.

[k] Wheat includes available data on spelt.

[l] Wheat flour refers, as far as possible, to sifted (bolted) flour made from wheat, excluding bran and offal.

[m] Production of cane cut for sugar.

[n] Sugar produced by the centrifugal process reported, as far as possible, in raw value.

[o] Production of beets used for sugar.

[p] Series relates, as far as could be determined, to farm sales weight. Conversion factors for dry weight basis: 90 parts for 100.

[q] Cigarettes, as a general rule, include cigarillos.

[r] Olives for oil.

[s] Available information is insufficient to determine whether for most countries series relates to total production or to virgin oil extracted by mechanical methods only. In some cases they may refer to edible oil only, possibly including some oil extracted from residues.

[t] Commercialized production. Exports in cases where no information on production was available.

[u] For some African countries, estimates have been made for unreported subsistence production.

TABLE 105. GROWTH OF PRIMARY PRODUCTION OF SELECTED FOOD COMMODITIES AND ASSOCIATED MANUFACTURES PRODUCTION,[a] BY MAJOR PRODUCING COUNTRIES, 1955–1964

(Average annual change in production between 1955–1959 and 1960–1964)[b]

	I – Primary II – Processed	Less than –3 per cent		–3 to 3 per cent[c]		3 to 9 per cent		9 per cent and more	
		Number	Name	Number	Name	Number	Name	Number	Name
Meat									
Beef and veal . . .	II	0		6	Argentina, Brazil, Chile, Pakistan, United Arab Republic, Uruguay	1	Mexico	1	Venezuela
Pork	II	0		3	Argentina, Rep. of Korea, Mexico	3	Brazil, China (Taiwan), Philippines	0	
Mutton and lamb .	II	0		9	Algeria, Argentina, Brazil, Iraq, Morocco, Pakistan, Peru, Syria, Uruguay	1	United Arab Republic	0	
Dairy Products									
Milk[d]	I	0		5	Argentina, Chile, Colombia, Pakistan, United Arab Republic	4	Brazil, Mexico, Uruguay, Venezuela	0	
Butter[e]	II	1	Chile	5	Argentina, Brazil, India, Pakistan, Venezuela	0		0	
Cheese[f]	II	0		3	Argentina, Brazil, Venezuela	0		0	
Fish									
Fish catches	I	0		2	India, Burma	4	Indonesia, Rep. of Korea, Pakistan, Philippines	4	Chile, Peru, Thailand, South West Africa

Canned fish[a] . . .	II	2	India, Rep. of Korea	1	Peru	2	Pakistan, Philippines	3	Chile, South West Africa, Thailand
Salted fish[b]	II	3	India, Rep. of Korea, South West Africa	0		3	Indonesia, Philippines, Thailand	3	Chile, Pakistan, Peru
Fish meals[c]	II	1	Pakistan	0		0		3	Chile, Peru, South West Africa
Wheat									
Wheat	I	0		8	Afghanistan, Chile, Iran, Morocco, Algeria, Argentina, Pakistan, United Arab Republic	2	India, Mexico	0	
Wheat flour[d] . . .	II	0		4	Algeria, Argentina, Chile, Mexico	2	Morocco, United Arab Republic	2	India, Iran
Sugar									
Sugar cane	I	1	Cuba	3	Argentina, Dominican Republic, Peru	4	Brazil, Colombia, Mexico, Philippines	2	India, Pakistan
Cane sugar	II	0		4	Argentina, Cuba, Dominican Republic, Peru	4	Brazil, India, Mexico, Philippines	2	Colombia, Pakistan
Sugar beets	I	0		0		1	Iran	4	Chile, Israel, Syria, Uruguay
Beet sugar.	II	0		0		0		5	Chile, Iran, Israel, Syria, Uruguay
Tobacco									
Tobacco	I	0		2	Mexico, Thailand	2	Brazil, India	2	Philippines Southern Rhodesia,
Cigarettes[b]	II	0		1	Philippines	3	Brazil, Mexico, Thailand	1	India

TABLE 105. GROWTH OF PRIMARY PRODUCTION OF SELECTED FOOD COMMODITIES AND ASSOCIATED MANUFACTURES PRODUCTION,[a] BY MAJOR PRODUCING COUNTRIES, 1955—1964 *(Continued)*

(Average annual change in production between 1955—1959 and 1960—1964)[b]

	I — Primary II — Processed	Less than —3 per cent		—3 to 3 per cent[c]		3 to 9 per cent		9 per cent and more	
		Number	Name	Number	Name	Number	Name	Number	Name
Olive oil									
Olives	I	0		2	Algeria, Argentina	1	Libya	2	Jordan, Syria
Olive oil	II	0		1	Algeria	2	Argentina, Libya	2	Jordan, Syria
Palm oil									
Palm kernels	I	1	Dem. Rep. of Congo	4	Dahomey, Indonesia, Nigeria, Sierra Leone	2	Cameroon, Mexico,	1	Brazil
Palm oil[d]	II	0		5	Dem. Rep. of Congo, Dahomey, Indonesia, Mexico, Nigeria	1	Cameroon	0	
Margarine	II	1	Indonesia	0		2	Brazil, Israel	3	Iran, United Arab Republic, Venezuela

Source: United Nations Industrial Development Organization, based on data in the relevant issues of the United Nations *Statistical Yearbook* and Food and Agriculture Organization, *Yearbook of Fishery Statistics*, *World Crop Statistics 1948—1964* and *Production Yearbook*.

[a] See general note and, for definition of series, footnotes in accompanying table 109. Countries included in the table are the major producers of the primary commodity and together they generally represent at least 80 per cent of the annual average production of all developing countries of the commodity in question for the period 1960—1964. For the processed commodity the rates of growth of production of the same major primary producers are shown. Growth rates shown sometimes include a degree of estimation.

[b] Simple arithmetic annual rate of change.

[c] Included in this column are countries which had no associated manufactured production throughout the period 1955—1964 (see below). Because of this and the unavailability data for other countries, care should be taken in attempting to surmise the developing countries' aggregate average annual increase in production. Data on the latter are given in table 109.

[d] India, a major producer of milk among developing countries, is not included.

[e] No information available on production of butter in Colombia, Mexico, United Arab Republic and Uruguay.

[f] No information available on production of cheese in Chile, Colombia, India, Mexico, United Arab Republic, Uruguay and Pakistan.

[g] No information available on canned fish for Burma and Indonesia from 1955 to 1964. Production of Thailand was nil during 1955—1959.

[h] No information available on salted fish for Burma from 1955 to 1964.

[i] No information available on fish meal in Burma, India, Indonesia, Korea, Philippines and Thailand.

[j] No information available on wheat flour production for Afghanistan and Pakistan.

[k] No information available on cigarette production for Southern Rhodesia.

[l] No information available on palm oil for Brazil and Sierra Leone.

output at the first stage of its processing in developing countries into centrifugal or non-centrifugal raw sugar was by and large similar. Considerable processing of a lower quality sugar continues in small-scale mills. More modern, expensive and high-capacity factories have been established where the market is larger and financial resources are available. Existence of such plants has spurred the development of a number of industries using by-products for making paper, alcohol and animal feed, and also subsequent-stage industries concerned with fruit, confectionery etc. A much smaller proportion of cane sugar is further processed into refined sugar in developing countries today, partly as a result of tariffs and other commercial arrangements calling for trade at the raw sugar stage.

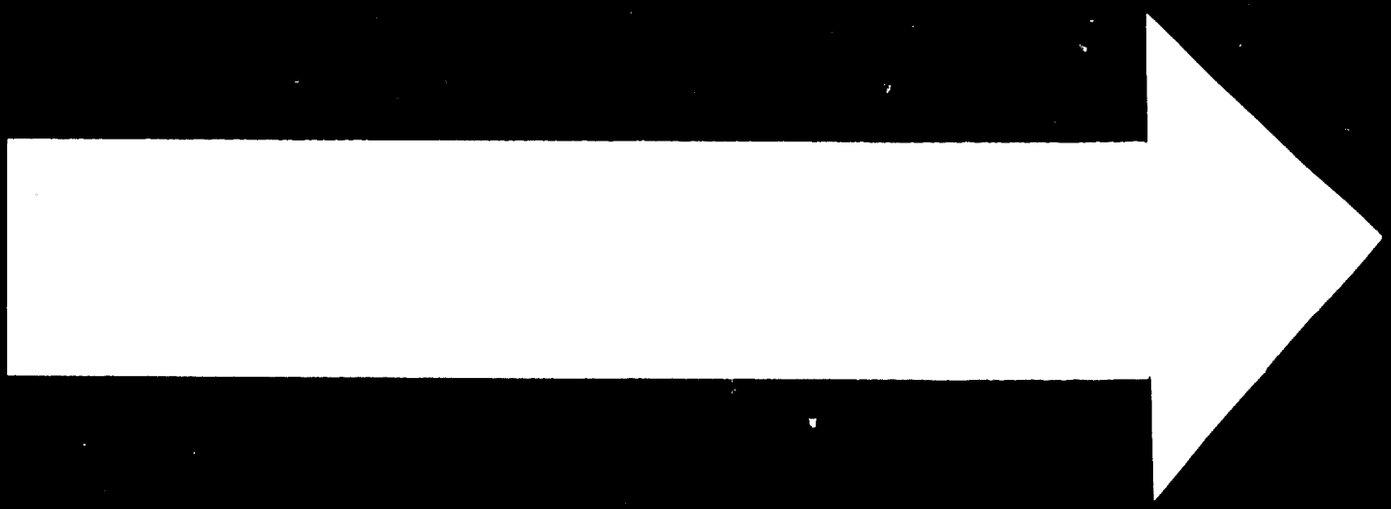
With regard to tobacco, the increase in production averaged more than 3 per cent *per annum* in 1955—1964 in developing countries, but the recorded expansion of the principal manufactured product, cigarettes, was closer to 5 per cent for the region as a whole, including a 9 per cent increase in India. Increase in processing of coffee production in Latin America and Africa is restricted largely to the amount essential to preserve the flavour of the bean, and this is generally accomplished by a labour intensive process with simple equipment. Further processing — blending, roasting and grinding — is preferably carried out near the point of consumption, which generally is in developed countries. As incomes rise and tastes change in developing countries, increasing facilities for such processing will be needed; in the meantime, the opportunity for processing beyond the basic stage in these countries is associated with the development of instant coffee from both robusta and arabica coffees. Countries in Africa dominate in the world production of *cocoa*, which has expanded significantly. In this commodity also, the initial processing, such as breaking of ripe pods, bean fermentation, sorting and grinding, takes place in the country of primary production. In recent years, there has been a sharp increase in developing countries in the manufacture of intermediate cocoa products, such as cocoa butter, powder and paste. However, these processes by themselves have not provided a large value added. Further development of complete chocolate factories has been highly restricted in developing countries by factors relating to both production and demand.

Gains from processing

Where the scope of industrial activity is limited simply to the elementary initial stages of processing primary products, the type of industrialization normally desired by developing countries will be unlikely to emerge. Rather, the importance of initial processing often lies in its being a necessary stepping stone to further manufacturing, both horizontally and vertically. The underlying thread in the commodity review above has been that direct gain in value added at the initial stages of processing is often

modest. Developing countries have already moved ahead, although in differing degrees, from the basic initial levels of processing to more sophisticated stages. In this context, it might be useful to attempt to gauge broadly the gains thus far to developing countries from manufacturing or processing in relation to their input of mainly domestic but also imported primary products and associated items. A rough measure of this consists of the ratio of value added by the manufacturing sector to inputs of raw materials and energy into that sector. This measure suggests that in recent years, in a large number of developing countries, the manufacturing sector has added a value of between 0.5 and 1.0 dollar for every dollar it spent on absorbing raw materials etc. (see table 106). While a number of countries in Latin America experienced gains in the upper part of the indicated range, several countries in Asia operated in the lower part, but too great a regional generalization is not warranted. In the absence of a thorough analysis of these differences in the degree of gain from processing, only some tentative suggestion may be advanced.

It appears that countries have gained more by processing primary products as they achieve a more diversified economy which allows for external economies. Greater exploitation of division of labour and greater restriction to a speciality within a specific manufacturing industry, naturally, has been the more efficient procedure. Further, there is a tendency for value added in manufacturing, per unit input, to be greater in many of the so-called heavy industry sectors than in light industries. This tendency is not as pronounced as might be expected; this is due, perhaps, to the fact that many activities of the heavy sector in developing countries have not been as sophisticated thus far as, by building on present intermediate attainments, they will eventually become. On the other hand, it is possible that in some of the light industry sectors that have been longer established in developing countries, relatively more of the potential for sophisticated processing has been exploited at this stage of their industrial development. In 18 of the 23 countries listed in table 106, the gains from processing raw materials etc. appeared greater in the heavy sectors than in the light sectors; but in only about one half of the group of 18 countries was the differential gain of heavy industries as a group clearly significant. Further, within each sector of manufacturing, the larger gains undoubtedly have emerged not only because of the greater number of stages of processing to which raw materials were subjected but also because of the internal efficiency of operation of labour, capital and the managerial factor. There were greater benefits where the general level of labour efficiency was higher, where the labour-mix of skills was more appropriate and the utilization of capital capacity was greater. Employment of improved technologies has also tended to reduce the level of input of raw materials per unit of value added. Differences between countries in the measure of processing gain per unit of raw materials have reflected, in part, the differences between countries in the relative prices of their raw



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Africa													
United Arab Republic	1962	1.0	1.2	0.7	0.9	1.3	1.3	1.6	0.9	0.4	1.1	0.6	1.0
Ivory Coast	1963	1.0	1.1	0.8	0.7	0.7	5.9	2.2	...	1.0	0.1	...	0.8
Southern Rodesia	1963	1.0	1.1	0.8	1.0	1.4	1.6	1.9	0.8	0.4	1.0	0.9	1.0
Kenya	1963	1.0	1.0	1.0	0.7	2.1	1.0	2.6	0.6	0.5	0.5	—	1.7
Ghana	1959	1.0	0.9	1.4	0.3	1.6	...	1.3	...	1.0	1.9	...	1.5
Tunisia	1958	1.0	0.8	1.4	0.7	...	...	2.2	1.5	1.3	1.8	...	1.1
Asia													
Burma	1960/61	1.0	1.4	0.4	1.3	1.9	2.4	1.5	2.1	0.2	1.1	2.6	1.2
Philippines	1962	1.0	1.2	0.7	0.8	2.0	2.9	2.1	1.0	0.4	0.9	1.2	1.0
Indonesia	1958	1.0	1.1	0.8	0.9	2.4	11.0	2.3	0.6	0.6	1.1	...	0.9
India	1962	1.0	1.2	0.8	1.2	1.2	1.6	1.4	0.3	0.4	1.1	0.9	0.9
Ceylon	1963	1.0	1.1	0.9	0.7	2.7	1.4	3.1	1.2	0.6	1.4	—	1.3
Israel	1963/64	1.0	1.1	0.9	0.8	1.2	1.7	1.3	0.7	0.6	0.7	0.7	1.1
Malaysia, West	1963	1.0	1.0	0.9	1.0	1.6	2.4	1.2	1.1	0.5	0.8	0.8	1.3
China (Taiwan)	1963	1.0	1.0	1.0	0.6	1.6	2.1	1.7	1.0	0.7	1.0	0.6	1.5
Iraq	1963	1.0	1.0	1.0	0.6	1.9	1.8	1.8	3.6	0.2	1.7	—	...
Korea, Rep. of	1963	1.0	1.0	1.0	0.5	1.6	1.8	1.1	0.7	0.8	1.0	0.9	1.5
Pakistan	1962/63	1.0	0.9	1.6	0.8	0.8	1.1	3.4	1.1	0.7	2.0	2.4	3.2
Thailand	1954	1.0	0.9	1.7	0.7	1.4	5.4	1.4	5.9	0.8	1.3	1.6	2.8

Source: United Nations Industrial Development Organization, based on United Nations, *The Growth of World Industry, 1938–1961, National Tables*, New York, 1963 and *The Growth of World Industry, 1953–1965, National Tables*, New York, 1967. For notes on limitations of data, see the sources.

• Within each region, countries are ranked by ratio of employment to value added in heavy manufacturing.

Structure of skills

There is a pressing need to improve the supply of skilled manpower in the modern industrial sector of developing countries. Tackling the problem adequately requires, first, the development of an extensive network of information on skill requirements of industry and on the various methods of meeting such requirements. Thus far, very little of the necessary information is available for many developing countries, so that much of the recent discussion of related issues remains at too general a level to be sufficiently useful. However, it has been suggested, for example, that on the average, in all sectors of the economy, about 1 per cent of the labour force of developing countries are workers with high-level skills, but the corresponding figure is about 4 or 5 per cent in developed countries.[75] Without a radical improvement in this situation, much of the effort of mobilizing financial resources for physical investment and of incorporating improved technologies into the industrial system of the developing countries may be wasted.

Approximate indications of the recent position regarding the availability of skills may be obtained from consideration of the "status" and "occupational" structures of the labour force. Concerning the "status" structure, the shift towards participation of a more highly skilled labour force in the modern manufacturing sector involves an associated shift in the economically active population from the ranks of those who work on their own account, or those who are family workers, to the ranks of employees. Until recently, in a significant minority of developing countries, more than one half of the economically active population in all sectors of the economy worked either on their own account or for the family without pay. Manufacturing activity at the artisan level allows for substantial employment with this status. Because of the continuing prevalence of artisan manufacturing activity in many developing countries, the proportion of the economically active population within the broadly defined manufacturing sector with this status is quite high. In almost one half of the developing countries for which data are given in table 92, more than one third of the active population engaged in manufacturing were workers on their own account or unpaid family workers. However, in those countries which have developed a significant modern sector of manufacturing, the proportionate influence of workers with such status has fallen and there has been a corresponding advance in the importance of the employee group. Thus, in the countries of Latin America listed in table 92, more than three quarters of the labour force in broadly defined manufacturing in Chile, Mexico and Puerto Rico were of employee status, while the corresponding proportion in Ecuador and Jamaica was less than one half. The former three countries have a much higher level of *per capita* manufacturing output than the latter

[75] See Angus Maddison (1965), *Foreign Skills and Technical Assistance in Economic Development*, Organization for Economic Co-operation and Development, Paris.

TABLE 92. EMPLOYMENT STATUS OF ECONOMICALLY ACTIVE POPULATION[a] ENGAGED IN MANUFACTURING, BY DEVELOPING COUNTRIES[b] RECENT CENSUS YEARS[c]

(Number of employees and percentage composition)

	Population engaged in manufacturing equals 100					*Population engaged in manufacturing as percentage of total economically active population*
	Employees		*Employers*	*Workers on own account*[d]	*Unpaid family workers and others*[e]	
	thousand	*per cent*	*per cent*	*per cent*	*per cent*	
Latin America						
Puerto Rico	90	88	...	3	9	17
Mexico	1,268	81	1	17	1	14
Chile	326	76	2	21	1	18
British Honduras	3	74	3	23	—	15
Uruguay	156	74	7	18	1	21
Venezuela	199	68	4	27	2	12
Panama	15	60	3	21	15	8
El Salvador	61	60	4	28	8	13
Honduras	25	55	1	37	6	8
Jamaica	42	47	3	40	10	15
Ecuador	82	39	3	52	6	14
Africa						
United Arab Rep.	555	79	4	13	4	9
Mauritius	20	73	3	14	9	15
Tunisia	42	51	...	46	3	6
Morocco	133	50	2	39	9	8
Ghana	53	22	...	76	2	9
Asia						
Hong Kong	410	86	5	8	1	39
Israel	128	76	5	13	1	24
Singapore	52	77	4	15	4	14
China (Taiwan)	233	71	8	14	7	11
Malaya	89	66	...	31	3	6
Iran	525	64	2	29	4	13
Korea, Rep. of	311	64	...	28	8	6
Jordan	19	59	7	30	4	8
Thailand	237	50	2	31	17	3
Philippines	347	41	1	44	13	10
India	6,331	35	2	10	53	11

Source: United Nations Industrial Development Organization based on United Nations *Demographic Yearbook, 1964*. For notes other than those below see basic source.

[a] Data for Jamaica and British Honduras exclude persons seeking work for first time; for Tunisia exclude Algerian refugees temporarily in the country, "employers" and "workers on own account" probably include family workers and "employees" include unemployed persons; for Morocco, exclude rural population of a part of the country; for Israel, include mining and quarrying but exclude members of "Quibbusim"; for Jordan, probably include family workers receiving pay.

[b] Within each region, countries are ranked by percentage of employees.

[c] Data refer to 1960 except for the following: Tunisia, China (Taiwan) and Iran — 1956; Singapore and Malaya — 1957; Venezuela, El Salvador, Honduras, Hong Kong, Israel, Jordan and India — 1961; Ecuador and Mauritius — 1962; Uruguay — 1963.

[d] Data for Puerto Rico, Tunisia, Ghana, Malaya, Republic of Korea, include also employers.

[e] Includes unemployed persons: Puerto Rico 8.6 per cent, Panama 13.5 per cent and Jordan 0.2 per cent of total economically active population engaged in manufacturing. Data for United Arab Republic include unemployed persons and those receiving wages in kind. For Mauritius, data include unpaid workers other than family workers and unemployed persons.

two. There was a roughly similar situation among the Asian countries, but a possibly wider range among countries of Africa. The significance of this transition in employment status in the present context is that the influences behind acquisition of skill tend to shift from the traditional and sometimes primitive to the modern and more complex. Employees subject to the wage and salary system in manufacturing may more easily acquire those industrial disciplines which are often important in the development of modern skills.

A closer and more conventional indication of skills acquired in developing countries, though still approximate, is obtained from the occupational distribution of the economically active population. As shown in table 93, there is a close, positive relation between inter-country differences in the proportion of the total labour force of a country engaged in manufacturing, on the one hand, and the proportion of the total labour force in the more advanced occupations, on the other hand. The latter includes professional and technical workers; administrative, executive and managerial workers; and craftsmen and production process workers. While at one end of the scale these three occupational categories account for less than one fifth of the economically active population, they account for between about one third and one half at the other end of the scale. Considering these occupations singly, however, the inter-

TABLE 93. DISTRIBUTION OF SELECTED OCCUPATIONS OF ECONOMICALLY ACTIVE POPULATION, BY DEVELOPING COUNTRIES,[a] RECENT CENSUS YEARS[b]

(Percentage composition: total economically active population equals 100)

	Professional, technical, and related workers	*Administrative, executive and managerial workers*[c]	*Craftsmen, production process workers etc.*[d]	*Total*	*Population engaged in manufacturing*
	ISCO 0	*ISCO 1*	*ISCO 7, 8*	*ISCO 0, 1, 7, 8*	*ISIC 2, 3*
Hong Kong	5	9	43	56	39
Puerto Rico	8	14	30	52	17
Israel	11	16	20	48	24
Singapore	5	2	31	37	14
Uruguay	6	1	27	35	21
Mauritius	5	1	30	35	15
Trinidad and Tobago	7	2	25	35	15
British Honduras	6	4	26	35	15
Chile	5	2	27	33	18
Cyprus	4	1	29	33	13
Jordan	4	1	29	33	8
Barbados	5	3	22	30	14
Iraq	3	9	18	29	9
Mexico	4	7	19	29	14
British Guiana	6	2	20	28	15
Jamaica	3	1	23	27	15
Venezuela	5	2	19	26	12
Syria	2	1	22	25	12

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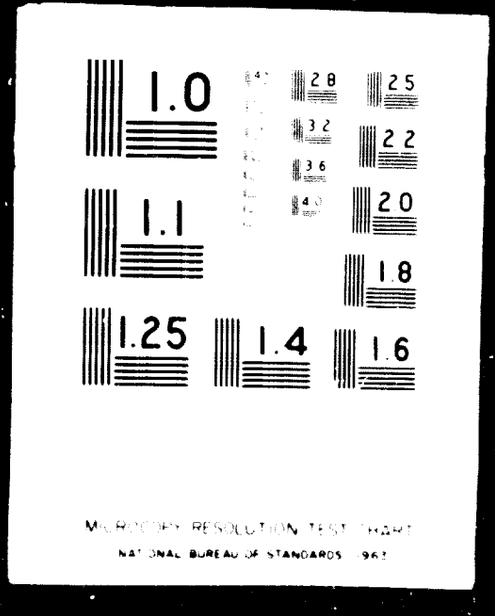
1.0
1.1
1.25
1.4
1.6
2.8
3.2
3.6
4.0
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2.2
2.0
1.8
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963

B. Capacity of installed power equipment per person engaged: total manufacturing equals 1.0

Latin America													
Peru	1963	1.0	0.8	1.3	1.2	0.8	0.1	0.5	2.2	1.7	1.9	2.6	0.4
Brazil	1959	1.0	0.9	1.2	1.2	0.8	0.2	0.9	2.5	1.6	0.9	1.7	0.8
Argentina	1957	1.0	0.9	1.1	1.3	0.8	0.2	0.8	2.5	1.5	1.6	1.7	0.6
Paraguay	1963	1.0	1.2	0.7	1.2	2.4	—	1.7	1.7	1.0	0.6	0.6	0.6
Guatemala	1953	1.0	0.9	1.4	1.2	0.9	0.1	1.3	...	0.9	1.7	0.6	0.6
Nicaragua	1953	1.0	1.0	1.0	0.9	3.5	...	2.3	...	0.9	1.4	...	0.5
Africa													
Mozambique	1958	1.0	0.9	2.1	0.9	0.7	0.1	1.2	...	3.8	2.4	...	0.9
Asia													
Korea, Rep. of	1963	1.0	0.8	1.4	1.0	0.4	2.7	0.8	1.7	2.2	1.0	1.8	0.9
China (Taiwan)	1961	1.0	0.8	1.3	1.3	0.6	—	0.5	2.6	1.8	1.1	3.3	0.6
Ceylon	1963	1.0	0.8	1.3	1.1	0.6	0.3	1.2	2.2	1.2	2.4	...	0.7
Jordan	1954	1.0	0.7	1.5	1.2	0.3	0.1	0.9	0.3	0.1	3.4	...	0.7
Indonesia	1958	1.0	0.9	1.3	0.9	0.4	...	2.1	1.8	1.5	1.4	...	1.1

Source: United Nations Industrial Development Organization, based on United Nations *The Growth of World Industry 1938–1961, National Tables*, New York 1963, and *The Growth of World Industry 1953–1965, National Tables*, New York 1967. The available data on capacity of installed power equipment and development do not necessarily refer to the same scope of manufacturing activities. For details other than indicated above, see notes in the sources.

[a] Data refer to: Rated horsepower of prime movers not driving generators plus all electric motors in *all establishments:* China (Taiwan); *in establishments engaging five or more persons:* Korea (five persons employed or more), Peru, Ceylon (and utilizing mechanical power equipment); *in establishments with ten or more employees:* Indonesia; *with eleven or more employees:* Argentina. Horsepower of all prime movers plus the horsepower of electric motors run on the purchased electricity *in all establishments:* Brazil (including some small units engaged in good production); Mozambique, Paraguay; *with a gross value of production exceeding 12,000 cordobas or with one employee or more:* Nicaragua; *with three or more manual workers:* Guatemala; *with five or more adult persons engaged:* Jordan (excluding establishments primarily engaged in repair work and custom manufacturing).

[b] Countries are ranked by the capacity of installed power equipment per person engaged in H.P. for total manufacturing.

on capacity of installed power equipment. This may be due, in part, to dissimilar experiences of each industrial sector regarding unutilized capacity.

The assurance of a ready availability of adequate supplies of electricity and other forms of energy for more rapid industrialization requires that governments take a co-ordinated approach to energy development. Without such a commitment, developing countries may be faced either with an aborted or a distorted industrialization. The initial requirement is for an over-all projection of future demand for and domestic supplies of energy. Assessment of energy demand for industry should include appropriate attention to the needs of the small-scale manufacturing sector in both rural and urban areas. Recognizing that the development of domestic sources of energy may take considerable time — an oil field may require two years to get into operation, a coal mine may take between two and five years, and hydro power may need four to eight years for completion — the adequate supply of energy for immediate industrialization may involve substantial allocation of foreign exchange for the import of fuels. With simultaneous or subsequent production, distribution and use of locally exploited primary energy resources, there will generally be a further claim on foreign exchange because of the high import content of capital equipment. There may be an associated need to attract foreign financial resources to meet these heavy investment requirements. Even where the unit cost of energy is relatively high, it may be generally desirable for energy development to move ahead of industrial expansion. Although the cost of energy per unit of value added in manufacturing is relatively small, there might be consideration of the advisability of its subsidization in manufacturing use. Generally, as the size of the market for energy develops, and as dependence on pools of privately produced energy becomes particularly inappropriate, there is need for centralized public agencies to consider assumption of general responsibility for energy policy.[88]

D. Choice of technology

Industrial progress in individual countries has resulted in average annual rates of growth of industrial production, employment and productivity of 7, 4 and 3 per cent, respectively, for developing countries as a whole over the period 1955—1964. Undoubtedly greater progress could have been achieved had there been a more vigorous employment of more appropriate technologies of manufacturing production. Such

[88] See United Nations (1963), *Approach to an Energy Policy in a Developing Economy* (document E/CN.14/EP/2).

technologies may be regarded as those which would have produced the greater gain per unit of inputs, measured in terms of social costs and benefits, and viewed in a longer-term and dynamic context. Some of the technologies employed in recent industrialization have been taken over from developed countries without material modification. In some countries and in some industries this was an entirely appropriate policy, and one that might well have been emulated elsewhere. In other instances there appears to have been insufficient modification of technologies of manufacturing production to conform to the circumstances prevalent in developing countries. The assumption which has sometimes been insufficiently examined was that the most up-to-date technology of the developed countries was the best for outright adoption in developing countries. There are two groups of circumstances which separate many developing countries from the developed countries and which bear on the choice of technology for a more rapid industrialization. The more obvious difference, perhaps, concerns factor proportions, i.e. that many developing countries have a relatively greater scarcity of capital and a more abundant availability of manpower than do most developed countries. A related set of circumstances concerns dissimilar levels of general development, as manifested, for instance, by differing structure of industry, size of plant and general interdependence of the economy, including availability of co-operating factors.

Developing countries face a particularly difficult problem of technological choice arising from the vastly different factor proportions of capital and unskilled labour supply typical of developing as compared with developed countries. It is to be regretted that consideration of this matter has sometimes produced extreme approaches that could be detrimental to sound over-all economic and social development. The highly necessary objective of economic development that has been generally pursued has been that of maximizing the present value of current and future output and income. The indicated means for the attainment of this objective has been the adoption by developing countries of the modern capital-intensive technologies of the developed countries. The high profit and low cost of these technologies could produce the savings for further investment. The vital requirement for a more rapid mobilization of domestic savings has been previously considered.[86] The increasing re-investment of these savings ultimately provides for higher future employment, output and income than would be possible by alternative approaches. Provided that the developing country can use these means to achieve the objective stated, this approach has very considerable appeal. However, it may not make a significant contribution to the solution of the pressing problem of present widespread unemployment in some developing countries. The social perils and urgency of this situation will seldom permit governments to deal with it essentially by the promise

[86] See chapter III, section C, above.

of its eventual change. In fact, the social pressures inherent in the present situation may well frustrate the achievement of such change. This may lead to espousal of the entirely different objective of maximum immediate employment, to be achieved through the adoption of highly labour-intensive technologies, with current investment funds spread thinly across the labour force. While income, savings and hence future growth from current output thus produced may well be much lower than otherwise, the misery of widespread present unemployment would be somewhat reduced. The difficult "trade-off" or compromise between these objectives can only be determined by the individual country in the light of the pressures and potentialities existing within it. The experience of some countries might suggest a general caution before considering a significant departure from the objective of maximizing the present value of current and future output and income. Similar decisions regarding a trade-off are required where other objectives involving capital intensity have been given prominence. These objectives have included desires for independence by developing countries from substantial reliance on foreign aid and for domestic redistribution of income.

There are other social benefits from the greater immediate use of labour, including the more rapid establishment of a disciplined labour force for industry within the country. Consideration of more labour-intensive technologies is also warranted by the fact that in developing countries the social cost of labour tends to be lower than its private cost to the manufacturer. There is considerable idle unskilled labour whose employment requires little extra social cost. The cost of labour to manufacturers in many developing countries often includes expenses for training and provision of housing. On the other hand, the use of capital has sometimes been made more attractive to the manufacturer than its social cost would warrant because of an element of subsidy, inherent in overvalued foreign exchange rates, which makes the domestic price of foreign equipment lower than its real social cost. In some countries, the private cost of capital has been lowered also through governmental fixing of interest rates below the equilibrium level of an uncontrolled market where it would be determined by the marginal productivity of investment. However, it has been difficult in practice to obtain a close enough measure of these differences between social and private net benefits of using capital and labour.

It is essential to recognize that the opportunities for shifting from capital-intensive to labour-intensive technologies are probably more limited in manufacturing than in other sectors. Greater possibilities undoubtedly exist in agriculture and in construction where the impact on employment of any specific capital-substituting technology is generally likely to be larger. Further, even where opportunities for a shift to labour-intensive technologies do exist, the ultimate cost of such shifts made in the modern manufacturing sector may well be substantial. This sector

is the most likely to provide a relatively rapid expansion of income and savings. Any compromise with the most efficient production processes in this sector may result not only in a direct burden but may impose a significant brake on general economic development.

Monetary and fiscal policies have sometimes been used where it has been deemed necessary to use government instruments to spur the use of labour in relation to capital in manufacturing. These have been employed to raise interest rates of capital, to impose excise duties on domestic investment goods and import duties on imported capital equipment. Alternatively, there has been recourse to general investment licensing or to import licensing for capital equipment; the latter has been effective because of the generally high import content of such equipment. Industrial projects with technologies in general accordance with national development needs and factor proportions may also be given priority through long-term loans and subsidies from industrial development corporations.

At the operational level, several production processes in manufacturing have been considered with the object of significantly increasing employment per unit of investment without departing substantially from least cost output. In moving from general consideration to specific adoption of these processes, detailed cost-benefit analyses are imperative. There has been previous reference to the use of multiple labour shifts working the same machines. It has been estimated, for instance, that it might be possible to increase labour employment working a given quantity of fixed capital by several times if the transition is made between one shift which is poorly managed and three shifts where the production process is well managed, with incentives and intensive staffing.[87] There is often scope for using additional labour to give machinery more careful service and repair than is indicated as being necessary in manuals supplied by engineers of developed countries. Greater technological flexibility, in the direction of reducing the capital cost to labour cost ratio, may be achieved also in some circumstances by employment of second-hand machinery, if this is justified by realistic estimates of total cost, including the relatively higher servicing and repair costs which may occur as compared with first-hand equipment. With careful selection, such machinery might cost only one third as much as new machinery. This figure should not be regarded as representative. It has been estimated that in the United States alone, about $ 90 billion worth of machinery will be replaced within the next decade. While most of this machinery will be absorbed by smaller firms within the country, overseas buyers have free access to this source of equipment through established distribution channels. Further, greater employment per unit of capital can sometimes be achieved by special efforts in developing countries to

[87] See Morris J. Solomon (1963), *Better Plant Utilization in India — A Blueprint for Action*, Asia Publishing House, Calcutta.

separate the so-called core operations, which often involve a fixed capital-employment ratio in manufacturing, from their ancillary or auxiliary operations. Developing countries may be able more easily to substitute labour for capital in the latter operations, which include handling of materials, warehousing, packaging, maintenance, transport within the plant etc. Similarly, where the production of components for such products as radios, bicycles and some agricultural equipment can be separated from their assembly, it may be possible in one stage, but not in the other, to employ more labour-intensive techniques than is generally considered standard.

Greater technological flexibility in manufacturing production is often regarded as more likely in the light industry sectors, including, for instance, the food and textile industries. As the markets for manufactured foodstuffs become concentrated in urban centres, with their higher levels of *per capita* income, and as agricultural productivity rises and transport networks become more complete, there will be an increasing shift in general to more capital-intensive production processes of food preservation etc. Nevertheless, scope remains for use of more labour-intensive methods for certain processes, including grading, coring, cleaning, transporting and storing. While, in general, more capital-intensive processes in textile manufacture lower the cost of production, the possibility might exist in some circumstances for a reasonable trade-off between reducing unit cost and reducing the capital-employment ratio. Thus, it has been estimated that by increasing unit cost of output by one-eighth, it might be possible to use older (1950) textile production processes which, compared with newer processes, increase labour per unit of output almost three-fold and reduce investment per worker by two thirds.[88] This illustration should not be considered typical.

The search for greater technological flexibility, which is stimulated by typical factor proportions in developing countries, need not involve therefore a return to primitive processes of production, to nineteenth century designs of equipment or to hand-operated blast furnaces. Rather, it requires a greater readiness to eschew unquestioned adoption of the most up-to-date and most prestigious capital-intensive and integrated production processes, which have been developed for use in countries where labour is particularly scarce and to seek out the efficient processes employed in those developed countries where the relative abundance of capital and labour is somewhat closer to the situation in many developing countries.

The second but associated set of circumstances which often require special attention when choosing appropriate technologies relates to the particular character of general development in developing countries. One

[88] See United Nations, Economic Commission for Latin America (1966), *Choice of Technologies in the Latin American Textile Industry* (document E/CN.12/746).

aspect of this is the different structure of manufacturing production in developing countries. While the relative importance of light to heavy industries is generally greater in developing than in developed countries, the emphasis of current efforts at industrialization in developing countries is towards relatively more heavy industry. This generally requires correspondingly greater attention to more capital-intensive technologies. As suggested in tables 109 and 110, which give census information for periods close to the beginning of the 1960's, the heavy sector of manufacturing as a whole has in all cases required more fixed capital per worker than the light industry. The particular extent of this increased capital intensity has reflected variations in product mix as well as in technologies used. It is clear that, as implied earlier in the survey, the food, tobacco and beverage industries which are covered by censuses of manufacturing often involve relatively high capital-intensive processes. Indeed, in a few countries this sector appears to be among the most capital-intensive of all manufacturing. The generally low capital intensity of the light industry sector therefore derives more from the technologies which have been employed in the manufacture of textiles, clothing, and wood products other than paper. Similarly, in the heavy sector the past position has been that manufacture of metal products has quite often required less capital per worker than manufacturing as a whole. Generally, however, the opposite was the case for such other major groups within the heavy sector as paper, chemicals and petroleum products, non-metallic mineral products and basic metals. These observations should not conceal the fact that within each of the ISIC 2-digit major groups of industry, there are particular industries with considerable variation in requirements of capital per worker. In addition, the amount of capital used per worker at any level of industry aggregation has been significantly influenced by requirements not only for fixed capital but also for working capital. The basic data for some of the countries listed in table 109 indicate that for every dollar of fixed capital there has sometimes been a need for working capital ranging from 50 cents to $ 1.50. Generally, the relative importance of working to fixed capital was more marked for light industries than for heavy industries.

An expanding level of modern industrial activity involves movement towards a larger size of plant, and this is also generally associated with the use of more capital-intensive technologies. The extent of economies of scale and the shift towards capital intensity as size increases in manufacturing may be briefly illustrated. Considering some typical canning plants in the manufacturing sector, it has been estimated that as capacity increases by more than fivefold, capital costs per unit of output may fall by about six sevenths and labour costs per unit of output may decline by more than 90 per cent.[89] With regard to returns in terms of output

[89] See Food and Agriculture Organization of the United Nations, *State of Food and Agriculture, 1966* (Rome).

TABLE 109. CAPITAL TO EMPLOYMENT RATIOS IN MANUFACTURING INDUSTRIES, SELECTED COUNTRIES OF LATIN AMERICA, RECENT YEARS

(Capital-employment ratio of individual sector expressed in relation to capital-employment ratio for total manufacturing)

	Manufacturing			*Food, beverages and tobacco*	*Textiles*	*Clothing, footwear and made-up textiles*	*Wood products and furniture*	*Paper and paper products*	*Chemicals, petroleum and coal products*	*Non-metallic mineral products*	*Basic metals*	*Metal products*
	Total	*Light*	*Heavy*									
	ISIC	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*
	2–3	*20–26, 28–30, 39*	*31–38, 27*	*20–22*	*23*	*24*	*25–26*	*27*	*31–32*	*33*	*34*	*35–38*
Chile (1957)[a]												
Fixed capital	1.00	0.53	1.94	0.68	0.71	0.19	0.32	3.37	1.56	1.75	5.71	0.48
Total capital	1.00	0.64	1.71	0.78	0.82	0.32	0.47	2.72	1.63	1.38	4.75	0.56
Ecuador (1961)[b]												
Fixed capital	1.00	0.97	1.13	1.64	0.55	0.21	0.17	0.60	1.30	1.40	....	0.43[c]
Mexico (1960)[d]												
Fixed capital	1.00	0.63	1.62	0.88	0.50	0.22	0.41	2.19	2.97	1.16	0.31	0.47
Total capital	1.00	0.77	1.39	0.93	0.75	0.24	0.41	1.90	2.23	1.00	2.52	0.62
Peru (1960)[e]												
Fixed capital	1.00	0.87	1.31	1.29	0.70	0.17	0.28	0.72	1.33	1.13	4.70	0.37
Venezuela (1961)[f]												
Fixed capital	1.00	0.45	2.12	0.70	0.48	0.12	0.22	7.68	4.65	7.68	14.42	2.98

Source: United Nations Industrial Development Organization, based on data in *The Process of Industrial Development in Latin America*, document prepared for the Latin American Symposium on Industrial Development, Santiago, March 1966, E/CN. 12/716/Add. 2.

[a] Employment refers to establishments employing over 5 workers.
[b] Capital of artisan sector excluded. Employment includes establishments employing over 7 workers and a production value of over 180,000 sucres.
[c] Includes ISIC 34.
[d] Industry data on capital do not sum up to the specified total; employment figures include an unspecified number of establishments employing over 5 workers.
[e] Includes only establishments employing over 5 workers; the industry data on capital and employment do not sum up to the specified total.
[f] Including "industrial units" employing over 5 workers.

TABLE 110. CAPITAL TO EMPLOYMENT RATIOS IN MANUFACTURING INDUSTRIES, SELECTED COUNTRIES OF ASIA, RECENT YEARS

(Capital-employment ratio of individual sector expressed in relation to capital-employment ratio for total manufacturing)

	Manufacturing, total[a]	Food and tobacco	Textiles	Wood-based industries (excluding paper)	Chemicals	Cement, glass and clay products	Metallurgical	Engineering	Others[b]
China (Taiwan) (1961)									
Fixed capital	1.00	1.56	0.94	0.54	1.65	0.81	0.73	0.50	0.48
India (1961)									
Fixed capital	1.00	0.72	0.49	0.56	3.02	1.26	2.40	0.95	0.63
Total capital	1.00	0.93	0.50	0.61	2.83	1.04	2.11	1.04	0.71
Korea, Rep. of (1962)									
Fixed capital	1.00	1.30	0.82	1.03	1.08	1.15	1.26	1.07	0.73
Total capital	1.00	1.25	0.86	1.43	1.25	1.08	1.26	1.11	0.69
Pakistan (1959/1960)									
Fixed capital	1.00	1.43	0.78	0.50	2.10	1.59	0.66	0.52	1.00
Total capital	1.00	1.56	0.75	0.48	1.85	1.46	0.92	0.94	0.89
Philippines (1960)									
Fixed capital	1.00	0.84	1.31	0.70	1.54	2.03	1.47	0.90	0.59

Source: United Nations Industrial Development Organization based on United Nations, *Economic Survey of Asia and the Far East*, 1965. See source for details further to those shown below.

[a] For Philippines, products of petroleum and coal included in "others".

[b] For Pakistan, petroleum and coal products and manufacture of tires and tubes which are not included in the chemicals group are included in the total.

to scale of capital employed in pulp and paper mills, it has been estimated that as the capacity of mills producing bleached and unbleached chemical pulp and paper increases eightfold, fixed investment per ton of output may decline by 50 per cent.[90] In the various stages of iron and steel production — iron ore reduction, steel making and rolling of flat products — it has been estimated that as the capacity of the respective plant is increased tenfold, capital costs per unit of output may decline between two and three fifths, and labour costs per unit of output may decline by between three and four fifths.[91] However, as an indication of the lack of universality of significant returns to scale, it has been indicated that beyond a certain plant size there may not by any substantial economies of scale in some areas of the textile industry.[92] Economies of scale tend to be more marked in the heavy than in the light industry sector.

Developing countries face various challenges in considering the use of larger-sized plants. There is the need to avoid introduction of plant sizes whose rated economies of scale cannot be adequately exploited because of the lack of co-operating factors within the country. The small markets resulting from low levels of *per capita* income and population in many developing countries, coupled with the absence of export opportunities, very often militate against use of the large plants whose capacity can only be fully exploited under the demand conditions in more developed countries. On the supply side, these large-scale plants particularly require experienced management, highly skilled engineers, a factory-oriented general labour force and a regular supply of raw materials. In some countries there may therefore be a need to search for alternatives to large plants which may not be as biased towards a reduction of the ratio of labour to capital. Although some economies of scale arise from purely technological economies, others result from the facilities of economic overheads. Where the benefits of large plants derive primarily from economic overheads, developing countries might — without excessive cost — spur efforts towards smaller and more labour-intensive production, units with facilities of economic overheads provided by industrial extension services, industrial finance corporations, sales and purchase co-operatives, industrial research institutions, corporations supplying machines on the hire-purchase basis, firms specializing in maintenance, repairs and tooling, credit co-operatives etc.

Small-scale manufacturing by the artisan sector remains of vital

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[90] See Report of FAO/ECAFE Conference on Pulp and Paper Development Prospects in Asia and the Far East, Tokyo, October 1960, in United Nations publication *Pulp and Paper Prospects in Asia and the Far East* (Sales No.: 62.II.F.4).

[91] See United Nations, *Proceedings of the United Nations Inter-regional Symposium on the Application of Modern Technical Practices in the Iron and Steel Industry to Developing Countries, Prague—Geneva, November 1963* (Sales No.: 64.II.B.7).

[92] See United Nations, Economic Commission for Latin America (1966), *Economies of Scale in the Cotton Spinning and Weaving Industry* (document E/CN.12/748).

materials, labour, capital and manufactured products. These differences have arisen both from different situations of supply and demand for various items in each country and from the organization of the market for each item. While in some sectors of manufacturing in a country, for instance, trade unions have been well organized, the close structure of industrial organization elsewhere has permitted oligopolistic or even monopolistic pricing. The policies of governments in pursuing their developmental targets have also produced variation in the sectoral measures of gains from processing. Protection against imports of certain manufactured products and the imposition of selective internal indirect taxes have tended, depending on various elasticities, to create distinct patterns of value added among the various sectors of manufacturing. In interpreting the data in table 106, account must also be taken of an essentially statistical problem. Within a sector, the greater the degree of vertical integration in one industrial establishment or the more consolidated the accounts of the sector, the smaller the appearance of processing gains.

Energy consumption

The wide gap now existing between the levels of manufacturing output *per capita* in various parts of the world also exists in the case of energy consumption.[81] A more rapid and sustainable industrial development requires a policy directed towards providing more abundant energy at attractive prices in developing countries. While in 1961—1964 the consumption of most forms of energy was about one quarter of a metric ton (250 kilograms) per head of the total population in developing countries as a whole, the corresponding figures were about three and four tons, respectively, in the centrally planned economies and in the developed market economies. The gap might be somewhat smaller with the inclusion of some fuels, such as wood, for which reliable information is lacking but which are relatively more important for the developing regions.

Among the developing regions, the recorded *per capita* consumption of energy was as much as seven times larger in Latin America than in Africa, with the intermediate consumption level of Asia being closer to that of Africa. However, even these indications do not reveal adequately the extent of disparity among developing countries in availability of this essential ingredient for industrial expansion and general economic and social advance. Thus, while the top one third of 131 developing countries and territories with available data had levels of energy consumption in excess of the average level of 250 kilograms *per capita*, energy consumption in the lower one third of these countries was less than one quarter of the average level, and generally was considerably less.

[81] See United Nations, *World Energy Supplies 1961—1964*, Statistical Papers, Series J, No. 9 (Sales No.: 66.XVII.9).

significance to developing countries considering the large part of the labour force employed in it. However, general prescriptions for technological improvement are particularly difficult because of the highly heterogeneous character of the artisan sector. Only selected areas of this sector would appear useful candidates for technological improvement involving increased capital intensity, given rapidly changing patterns of demand. It should be appreciated that the general limitation of investment funds implies that any funds allocated to the artisan sector may involve a corresponding denial of such funds to the much more productive modern sector of manufacturing. However, this assumes that there is a homogeneous capital market. In practice, much of the equipment for the artisan sector might be financed by the entrepreneur of the small enterprise whose alternative use of income would be increased consumption, land speculation or hoarding, or by local sources which would be difficult to mobilize for the financing of national development. There is a particular case for increased government stimulation of improved production techniques under the latter conditions, especially where little foreign exchange expenditure is involved for purchases of equipment. More encouragement might be given also to the use of methods of production in the artisan sector which primarily involve improved management techniques and provision of services which can be supplied without materially reducing non-financial resources for the modern sector of manufacturing. While there is a danger of concentration on improving this sector to the detriment of the modern sector, an artisan sector subject to technological improvement, rather than widespread stagnation, can benefit the modern manufacturing sector in several ways. It can provide a source of labour possessing some degree of skill; it can perform essential ancillary servicing; and it can develop a substantial role as sub-contractor.

A further characteristic of the present status of general development which bears importantly on the choice of appropriate technologies in developing countries relates to the degree of interdependence between, and balance within, the various elements of their economy. Those developing countries which, for instance, lack an appropriate infrastructure, a ready availability of raw materials or a balanced complex of skills in their labour force are unlikely clients for efficient use of the unadapted technologies of the developed countries. These technologies are generally highly productive only in an environment of adequate energy and transportation, uniform quality and regular inflow of raw materials and sufficient availability of medium and higher levels of labour skills. There is an urgent need, therefore, to promote recognition of these differing circumstances.

There is much more that can be done to help in the adoption of more appropriate technologies in the manufacturing sector of developing countries than has been done thus far. There is a role for those most

directly involved in manufacturing, for governments in both developed and developing countries, and for international agencies. It should be more fully recognized, for instance, that local and foreign engineers, technicians, salesmen and economists have generally been trained against the background of conditions applicable to developed countries and, therefore, sometimes have insufficient appreciation of the problems posed by the different developmental situations found in many developing countries. Further, capital equipment suppliers in developed countries have seldom found it more profitable to develop and export products with specifications different from those acceptable in their domestic markets. The stimulus to make equipment more appropriate to the requirements of developing countries has sometimes been dulled by protection gained through "tied aid". An improved system of incentives, positive and negative, is required to change this and to obtain increased production, trade and consumption of more appropriate technologies. Public as well as private agencies in developed countries can facilitate the development and transfer of more appropriate technologies through establishment of data banks and adequate dissemination of such data. There might be increased attention in developed countries to research and training suited to the manufacturing conditions of developing countries. There might be greater incentive given to enterprise-to-enterprise transfer of appropriate operational technology, and, for instance, to greater use of the facilities of the patent offices of the industrial countries. There is a particular need to reduce the cost of foreign technology desired by developing countries. This might be achieved, *inter alia*, by tax concessions and by extensions of bilateral and multilateral aid programmes.[93]

In developing countries there is a basic requirement for trained personnel to assemble all relevant information, to select more appropriate technologies of production and to devise operational procedures for their implementation. An enhanced level of action on the part of international agencies, including UNIDO, might also be considered useful. Such action might relate to assistance in formulation of policies on appropriate technology by technical experts; development of technological data banks; provision of training courses; and establishment of industrial research institutes.

[93] See United Nations (1967), *Arrangements for the Transfer of Operative Technology to Developing Countries*, progress report by the Secretary-General to the Economic and Social Council (document E/4319).

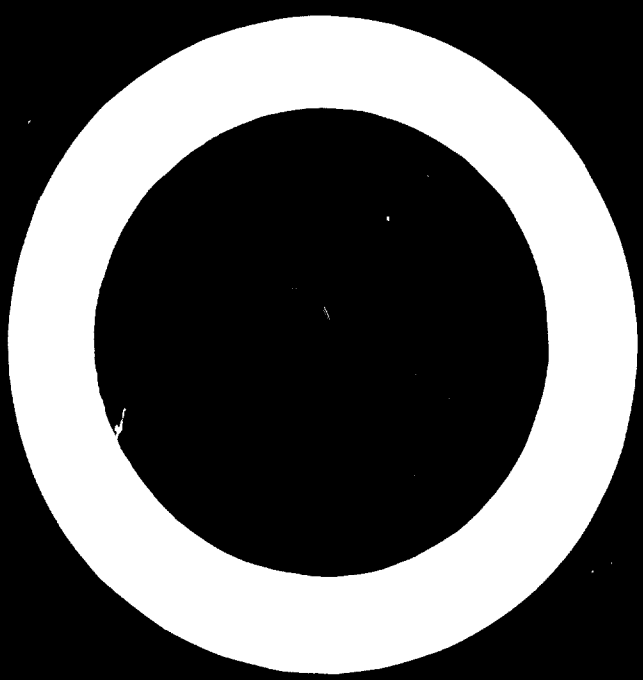

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TABLE 106. RATIOS OF VALUE ADDED BY MANUFACTURING TO INPUTS INTO MANUFACTURING,[a] BY DEVELOPING COUNTRIES,[b] BY MAJOR SECTORS, RECENT YEARS

(Units of value added per one hundred units of input)

		Manufacturing			*Food, beverages tobacco*	*Textiles*	*Clothing, footwear and made-up textiles*	*Wood products, furniture*	*Paper and paper products*	*Chemicals, petroleum and coal*	*Non-metallic mineral products*	*Basic metals*	*Metal products*
		Total	*Light*	*Heavy*									
		ISIC	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*	*ISIC*
		2–3	*20–26, 28–30, 39*	*27 31–38*	*20–22*	*23*	*24*	*25–26*	*27*	*31–32*	*33*	*34*	*35–38*
Ghana	1964	124	148	83	208	31	86	124	167	121	86	121	40
China (Taiwan)	1961	105	95	122	105	55	318	106	91	83	303	75	208
Brazil	1963	94	79	112	60	89	100	126	95	96	164	120	114
Libya	1964	94	74	119	70	65	...	92	...	48	78	...	149
Argentina	1957	91	84	100	75	79	84	108	100	71	146	65	137
Iraq	1963	91	60	162	61	68	38	61	44	190	168	52	48
Jamaica	1960	89	88	95	77	91	153	151	85	62	120	...	109
Chile	1957	82	76	93	63	91	81	108	42	76	119	101	127
Colombia	1963	78	76	83	68	84	70	101	69	75	129	46	100
Israel	1962/1963	78	68	93	54	70	61	80	86	118	77	62	107

Philippines	1961	77	81	72	87	56	56	77	48	76	130	37	73
Zambia	1963	75	59	127	47	...	57	153	...	...	234	...	104
Ecuador	1963	74	74	76	67	91	73	126	25	83	114	...	54
Nigeria	1963	72	125	41	152	136	37	153	65	43	134	4	45
Southern Rhodesia	1963	66	59	78	45	63	62	84	77	66	121	89	76
Lebanon	1955	63	69	51	68	69	75	90	38	54	...	...	51
Kenya	1963	62	57	71	46	71	64	142	72	60	158	...	66
Burma	1960/1961	61	43	149	38	43	41	49	80	185	186	33	59
Korea, Rep. of	1963	58	61	54	80	48	60	43	60	53	97	30	55
Pakistan	1959	51	44	81	30	75	69	108	70	104	104	64	69
Malaya, Federation of	1963	46	40	67	26	37	47	59	61	59	104	36	66
United Arab Republic	1960	46	41	69	23	53	66	59	54	79	75	66	58
India	1961	36	33	41	19	42	36	45	37	44	46	36	43

Source: United Nations Industrial Development Organization, based on national publications.

[a] Value added is generally the difference between the gross value, ex-producing unit, of production during the year of reference, including services rendered and goods sold without processing, and the cost of the raw materials, fuel, electricity and other goods consumed and the cost of work-subcontracted out and goods sold without processing during the year. The term inputs generally refers to the cost of raw materials etc. as indicated in the first sentence. In general, both terms are stated at market prices. National censuses of manufacturing differ importantly, as to exclusion of small establishments. The cut off point is generally determined by number of persons or value of production of establishments. In some instances, the classification of industries does not follow the normal form. For details, see national publications and United Nations, *The Growth of World Industry, 1953--1965, National Tables*, New York, 1967.

[b] Countries are ranked in order of the ratio of value added to inputs into manufacturing.

Although energy supplies are essential to help achieve efficiency in other productive sectors of the economy as well as to meet the needs of consumers for heat, light and transportation, the proportion of total energy absorbed by the manufacturing sector remains substantial. Among the developed market economies, the manufacturing sector often absorbs between one fifth and two fifths of total energy supplies. Possibly as a reflection of the relatively high income elasticity of demand for energy by consumers, the proportion of total energy consumption absorbed by manufacturing production appears to be larger in the less prosperous of the developed market economies. However, because of substantial structural differences, it would be inappropriate to project the energy consumption patterns of developing countries from those of the developed countries. Although information on developing countries is generally lacking, the manufacturing sector in six of these countries consumed between 15 and 40 per cent of total energy consumption.[82] A clear relation which exists between the absolute amount of energy consumed and value added, in terms of per person engaged in manufacturing, suggests that for each additional 50,000 kilowatt hours of all forms of energy per person in manufacturing, there tends to be an additional added value of about $ 1,600 per person in manufacturing. However, this was derived from data for fourteen countries, most of which were in the developed regions. None of these recorded a value added in manufacturing per person engaged of much below $ 2,000.

Of the various types of energy, modern industrialization particularly requires the use of electricity. Its strategic nature is perhaps belied by quantitative data which indicate that electricity consumption in the manufacturing sector probably accounts for between about one tenth and two tenths of consumption of all types of energy in the manufacturing sector in developed market economies, and for smaller proportions in developing countries.[83] Indeed, without this type of power, modern industrialization would be impossible. In thermal applications, electricity sometimes competes with coal, oil or gas and, in some limited cases with nuclear energy. However, in the mechanical application of energy, the field is reserved almost entirely for electricity. Industrial fields where the problem of substitution of fuels may arise are relatively marginal.[84]

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[82] While information on total energy consumption in developing countries is well-documented, as indicated above, readily available data on consumption specifically by the manufacturing sector is limited to about six countries. [See United Nations, *The Growth of World Industry, 1953—1956, National Tables* (Sales No.: 67.XVII.10).] Proportions given in the text were obtained by comparison of data in this source with those in *op. cit., World Energy Supplies, 1961—1969.*

[83] These proportions result from a comparison of fuels on the basis of the heat energy which can be obtained from them under ideal conditions. It is assumed that 1,000 kilowatt hours (KWH) is equivalent to one-eighth ton coal, or one-twelfth ton oil or one quarter ton wood. For details, see *op. cit., World Energy Supplies, 1961—1964* (Sales No.: 66.XVII.9).

[84] See United Nations, *The Role and Application of Electric Power in the Industrialization of Asia and the Far East* (Sales No.: 66.II.F.4).

Among the limited sample of fifteen developing countries listed in table 107, the variation in annual consumption of electricity in manufacturing per person engaged ranged from about 2,000 to 7,000 kilowatt hours. With few exceptions, for each country electricity consumption per person engaged in the heavy sectors as a whole was greater than, and often twice as great as, in the light industry sectors as a whole. However, in general, a sharp distinction must be made between metal products industries and other heavy sector industries producing, for instance, paper and paper products, chemicals and petroleum products, non-metallic minerals and basic metals. Unlike the situation in these latter industries, electricity consumption per person engaged in the metal products industries of developing countries has not been particularly high in relation to other industries and, indeed, was often little higher than that in the clothing and wood products industries. These two industries have generally been the modest consumers of electricity per person engaged. The manufactured food and textiles industries, together with metal products, were also intermediate claimants for electricity per person engaged. At the level of industrial aggregation used in table 107 it appears that in most developing countries, the significant industrial sectors which were the most intensive users of electricity often absorbed between five and ten times as much per person engaged as the least electricity intensive industries. To some extent, these conclusions are confirmed by a further sample of twelve developing countries for which data are available on a related variable, capacity of installed power equipment (see table 108).

The above indications on the average of country levels of electricity consumption per person engaged in each of the industrial sectors of manufacturing need to be considered together with those on the degree of country variation around these averages for each industrial sector. It appears that, except for metal products, there was greater country variation in use of electricity per person engaged in the heavy industries than in the light industries. The opposite might be expected on grounds that the range of technological choice is more restricted for given products in the heavy industries. While this technological inflexibility may hold true for some of the more narrowly defined of such industries, particularly those in the more industrially developed countries, it may well be that at present there exists a wider range of technological choice in the so-called heavy industries of developing countries. Perhaps the more important factor is the variation in product-mix within each industry. It is more likely that the product-mix of light industry sectors is less dissimilar between individual developing countries than in the case of heavy industry sectors. Countries with a small heavy industry tend to concentrate on a relatively limited and distinct group of products rather than on a fairly diversified range. This will undoubtedly change as industrialization proceeds. The pattern of industry variation around average levels indicated for electricity consumption is not reflected in data

TABLE 107. ELECTRICITY CONSUMPTION PER PERSON ENGAGED IN MANUFACTURING,[a] BY SELECTED DEVELOPING COUNTRIES,[b] RECENT YEARS

	Year	Manufacturing			Food, etc.	Textiles	Clothing, etc.	Wood products, etc.	Paper products	Chemicals, etc.	Non-metallic mineral products	Basic metals	Metal products
		Total ISIC 2–3	Light ISIC 20–26, 28–30, 39	Heavy ISIC 27, 31–38	ISIC 20–22	ISIC 23	ISIC 24	ISIC 25–26	ISIC 27	ISIC 31–32	ISIC 33	ISIC 34	ISIC 35–38
A. Electricity consumed per person engaged in thousand kwh													
Latin America													
Chile	1963	6.8	3.1	12.4	4.2	4.1	0.6	1.3	96.9	9.1	17.4	28.4	2.0
Colombia	1963	6.2	4.7	8.8	5.7	8.5	0.5	1.8	18.9	13.4	12.1	28.2	2.2
Mexico	1960	5.2	3.0	8.8	3.7	3.8	0.7	1.5	22.3	8.3	10.2	28.2	1.7
Ecuador	1963	3.5	3.0	5.6	3.9	2.8	0.5	2.0	1.2	3.4	16.6	...	1.1
Panama	1961	2.6	2.7	2.1	4.5	...	0.4	1.1	1.8	5.6	2.5	1.6	0.9
Dominican Republic	1962	2.1	1.7	7.3	1.8	2.2	0.2	0.5	5.5	4.4	21.7	1.7	0.9
Honduras	1963	1.8	1.4	3.8	2.0	3.9	0.2	0.5	0.4	2.2	11.6	...	0.7
El Salvador	1956	0.6	0.5	2.0	0.5	1.5	0.1	0.2	2.1	1.0	4.5	0.2	0.3
Asia													
Israel	1964	6.3	4.3	9.0	7.1	6.3	0.3	2.2	14.4	40.9	16.3	10.7	1.6
Iraq	1963	3.5	2.8	4.0	3.1	3.7	0.9	0.5	0.2	8.0	5.6	0.5	0.8
India	1962	3.2	2.0	5.1	0.7	2.7	0.6	0.6	8.1	15.3	4.4	8.5	1.2
Philippines	1956	3.0	2.3	5.8	2.6	2.3	0.4	3.5	9.1	6.0	14.7	14.9	1.4
Singapore	1963	2.8	2.1	3.8	3.9	—0.4—		1.1	1.0	12.4	6.8	5.8	1.2
Cyprus	1962	2.2	1.7	3.2	3.2	0.7	0.2	0.8	...	3.5	10.0	...	0.4
Kuwait	1963	2.1	2.8	1.8	4.2	...	1.0	1.9	...	...	1.4	...	2.0

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B. Electricity consumed per person engaged: total manufacturing equals 1.0

Latin America													
Chile	1963	1.0	0.5	1.8	0.6	0.6	0.1	0.2	14.3	1.4	2.6	4.2	0.3
Colombia	1963	1.0	0.8	1.4	0.9	1.4	0.1	0.3	3.0	2.1	1.9	4.5	0.3
Mexico	1960	1.0	0.6	1.7	0.7	0.7	0.1	0.3	4.3	1.6	2.0	5.4	0.3
Ecuador	1963	1.0	0.9	1.6	1.1	0.8	0.1	0.6	0.4	1.0	4.7	...	0.3
Panama	1961	1.0	1.0	0.8	1.8	...	0.2	0.4	0.7	2.2	1.0	0.6	0.4
Dominican Republic	1962	1.0	0.8	3.5	0.9	1.1	0.1	0.2	2.7	2.1	10.5	0.8	0.4
Honduras	1963	1.0	0.8	2.1	1.1	2.2	0.1	0.3	0.2	1.2	6.5	...	0.4
El Salvador	1956	1.0	0.7	3.3	0.7	2.5	0.1	0.3	3.4	1.7	7 2	0.4	0.5
Asia													
Israel	1964	1.0	0.7	1.4	1.1	1.0	—	0.3	2.3	6.5	2.6	1.7	0.3
Iraq	1963	1.0	0.8	1.2	0.9	1.1	0.2	0.1	—	2.3	1.6	0.1	0.2
India	1962	1.0	0.6	1.6	0.2	0.8	0.2	0.2	2.5	4.8	1.4	2.7	0.4
Philippines	1956	1.0	0.8	1.9	0.9	0.8	0.1	1.2	3.0	2.0	4.8	4.9	0.5
Singapore	1963	1.0	0.8	1.4	1.4	——1.6——		0.4	0.4	4.4	2.4	2.1	0.4
Cyprus	1962	1.0	0.8	1.5	1.5	0.3	0.1	0.4	...	1.6	4.6	...	0.2
Kuwait	1963	1.0	1.3	0.9	2.0	...	0.4	0.9	...	...	0.7	...	0.9

Source: United Nations Industrial Development Organization, based on United Nations *The Growth of World Industry 1938–1961, National Tables*, New York 1963, and *The Growth of World Industry 1953–1965, National Tables*, New York 1967. The available data on electricity consumption and employment do not necessarily refer to the same scope of manufacturing activities. Employment data sometimes include very small units and homeworkers, while electricity consumption data may have been obtained from establishments engaging five or more persons only as, for instance, is the case in El Salvador and Panama. For details other than indicated above, see notes in the sources.

a Data refer to: *Electricity consumed by all establishments:* Dominican Republic (all registered); *employing at least one paid employee:* Israel (as reported by Electricity Corporation and other establishments with power stations with a registered capacity exceeding 500 kw; *with five or more persons:* Colombia (or with a gross volume of production of 24,000 pesos or more during the year), Mexico, Honduras (and some smaller establishments having at least one paid worker), Cyprus, Kuwait (in private sector except those owned by oil companies), El Salvador, Panama; *with seven or more persons:* Ecuador (or with a gross value of production of 180,000 sucres or more during 1963 or with fixed assets of 50,000 sucres or more); *with ten or more persons:* Iraq, Chile (employees); *with twenty or more persons:* Philippines, Singapore; *purchased electricity only:* India (in factories employing fifty or more persons and using power).

b Countries are ranked by electricity consumed per person engaged in kwh for total manufacturing.

TABLE 108. CAPACITY OF INSTALLED POWER EQUIPMENT PER PERSON ENGAGED IN MANUFACTURING,[a] BY SELECTED DEVELOPING COUNTRIES,[b] IN RECENT YEARS

	Year	Manufacturing: Total ISIC 2–3	Manufacturing: Light ISIC 20–26, 28–30, 39	Manufacturing: Heavy ISIC 27, 31–38	Food, etc. ISIC 20–22	Textiles ISIC 23	Clothing, etc. ISIC 24	Wood products etc. ISIC 25–26	Paper products ISIC 27	Chemicals, etc. ISIC 31–32	Non-metallic mineral products ISIC 33	Basic metals ISIC 34	Metal products ISIC 35–38
A. Capacity of installed power equipment per person engaged in H.P.													
Latin America													
Peru	1963	4.5	3.8	6.0	5.2	3.8	0.6	2.2	9.7	7.8	8.5	11.8	1.9
Brazil	1959	2.9	2.6	3.5	3.6	2.3	0.5	2.8	7.2	4.7	2.5	4.8	2.4
Argentina	1957	2.6	2.4	2.9	3.5	2.1	0.4	2.2	6.6	4.0	4.3	4.6	1.7
Paraguay	1963	1.8	2.1	1.3	2.2	4.4	0.1	3.0	3.0	1.8	1.0	1.0	1.1
Guatemala	1953	1.5	1.4	2.1	1.9	1.4	0.2	2.1	...	1.5	2.7	1.0	0.9
Nicaragua	1953	0.9	0.9	0.9	0.8	3.3	...	2.1	...	0.8	1.3	...	0.5
Africa													
Mozambique	1958	0.9	0.8	2.0	0.8	0.6	0.1	1.1	...	3.5	2.2	...	0.9
Asia													
Korea, Rep. of	1963	2.3	1.7	3.3	2.3	1.0	6.2	1.9	3.9	5.1	2.4	4.2	2.2
China (Taiwan)	1961	2.1	1.7	2.7	2.8	1.3	0.1	1.1	5.4	3.7	2.4	6.8	1.2
Ceylon	1963	1.5	1.2	1.9	1.6	0.9	0.4	1.7	3.2	1.7	3.5	...	1.0
Jordan	1954	1.4	1.0	2.1	1.6	0.4	0.1	1.3	0.4	0.2	4.7	...	1.0
Indonesia	1958	0.6	0.6	0.8	0.6	0.3	...	1.3	1.1	1.0	0.8	...	0.7