

Technical Notes

These notes outline the scope and sources of the data presented in the tables and indicate the methodology and concepts used in their preparation. The sources cited in the Bibliography following the notes carry comprehensive definitions and descriptions of the concepts employed.¹

While the statistics and measures in this volume have been selected carefully, consistent with coverage of a large number of countries over extended time periods, readers are urged to exercise great care in interpreting them, particularly in comparing indicators across countries, since statistical practices, definitions, methodology, and coverage differ widely among countries. The statistical systems in many developing countries still are weak, and this affects the reliability of the data.

Country Groupings and Coverage

The 125 countries covered are grouped as follows:

—*Developing Countries* with populations over a million² are divided on the basis of 1977 per capita gross national product (GNP) into:

Low Income Countries—with per capita income of US\$300 and below (37 countries)

Middle Income Countries—with per capita income above US\$300 (55 countries)

—*Industrialized Countries* (18 countries)

—*Major Capital Surplus Oil Exporting Countries* (3 countries)

—*Centrally Planned Economies* (12 countries).²

Within each group, countries are listed in ascending order of per capita GNP in 1977, except for Cambodia and Lebanon, for which 1974 estimates of per capita GNP are the most recent available. Countries are listed in this same order in all the tables. They are shown alphabetically, with their reference numbers, on the page preceding the Table of Contents. The country com-

position of the Low Income and Middle Income groups shown in the tables of the present volume differs somewhat from that used in *World Development Indicators, 1978*, since it reflects the per capita income levels of 1977, rather than 1976, and takes account of revisions to the underlying estimates of GNP and population.

Countries with populations under one million are not covered in the tables, but basic data for small countries that are members of the United Nations and/or the World Bank are given in the Notes to Table 1 below.

Calculation of Growth Rates

Most growth rates have been calculated for two time periods: 1960 to 1970, and 1970 to 1977, or 1976 when data for 1977 were not available. All growth rates shown are in real terms and have been computed using the least-squares method unless otherwise noted.³

By using the least-squares method, all observations within the relevant time period have been taken into account, and the resulting growth rates reflect general trends without being unduly influenced by cyclical factors or exceptional variations in a particular year.

Group Summary Statistics

Depending on the nature of the particular indicator and on the available data, the summary statistic given for the groups of countries is either a weighted average, an average based on grouped data, or a median value. Since the coverage of countries is not uniform for all the indicators, users should exercise due caution in comparing the summary measures, both among indicators and among country groups. Where there are insufficient data or it is otherwise im-

³The least-squares growth rate, r , is calculated by regressing all the values of the variable studied within the relevant period over time using the following logarithmic form:

$$\text{Log } X_t = a + bt + e_t$$

where:

X_t = variable

t = time

e_t = error term

b = slope coefficient

then, $r = (\text{antilog } b) - 1$

Thus, $(\text{ant. } b) - 1$ provides a least-squares estimate of the growth rate.

¹Since the United Nations no longer reports data on the Republic of China, most of the indicators for this country are derived from national publications.

²Albania, People's Republic of China, Cuba, Democratic Republic of Korea, Mongolia, and Romania are grouped with centrally planned economies. Cambodia, Lao People's Democratic Republic, Socialist Republic of Viet Nam, and Yugoslavia are grouped with developing countries.

possible to derive a meaningful statistic, no indicator is shown at the group level.

The equation for the weighted average, \bar{X}_w , is

$$\bar{X}_w = \frac{\sum_{i=1}^n W_i x_i}{\sum_{i=1}^n W_i} \text{ where}$$

W = indicator used as the weight
x = indicator to be averaged
i = observations.

The weights used are given in the Notes on the individual indicators in question.

The equation for the group average, \bar{X}_g , is

$$\bar{X}_g = \frac{\sum_{i=1}^n j}{\sum_{i=1}^n k} \text{ where}$$

j and k are the component variables of the indicator to be averaged, and i = observations. For example, the group average energy consumption per capita is obtained by summing the energy consumption of all the countries in the group (in kilograms of coal equivalent) and then dividing this total by the sum of the countries' populations.

The median value is the central value of a set of values that have been arranged in order of magnitude. For each of the indicators and groups of countries in question, the values for individual countries are simply arranged from the largest to the smallest and the median located as that below and above which there is an equal number of values. Where there is an odd number of countries, the median is the middle item; where there is an even number, the median is halfway between (i.e., the mean of) the two middle items.

Table 1: Basic Indicators

The population estimates for mid-1977 are primarily from the UN Population Division, supplemented by data from the World Bank and the US Bureau of the Census.

The data on area are from the UN Demographic Yearbook, 1977.

Gross National Product (GNP) measures the total domestic and foreign output claimed by residents of a country. It comprises Gross Domestic Product (see below) plus factor incomes

(such as investment receipts and workers' remittances) accruing to residents from abroad, less the income earned in the domestic economy accruing to persons abroad.

Gross Domestic Product (GDP) measures the total final output of goods and services produced by the country's economy—that is, within the country's territory by residents and non-residents, regardless of its allocation between domestic and foreign claims. The value of both GDP and GNP is calculated without making deductions for the value of expenditure on capital goods for replacement purposes.

Population, incomes and area of small UN/World Bank member countries are as follows:

UN/World Bank Members with Population Under 1 Million			
	Population	GNP Per Capita	Area (thousand square kilometers)
	(millions)	(US dollars)	
	Mid-1977	1977	
Maldives	0.1	90	(.)
Cape Verde	0.3	130	4
Comoros	0.4	190	2
Gambia, The	0.6	200	11
Solomon Islands	0.2	250	28
Guinea-Bissau	0.5	280	36
Equatorial Guinea	0.3	330	28
Western Samoa	0.2	360	3
Botswana	0.7	410	600
Sao Tomé and Príncipe	0.1	420	1
Grenada	0.1	520	(.)
Guyana	0.8	560	215
Djibouti	0.3	580	22
Swaziland	0.5	610	17
Seychelles	0.1	710	(.)
Mauritius	0.9	760	2
Fiji	0.6	1,210	18
Surinam	0.4	1,470	163
Barbados	0.2	1,770	(.)
Cyprus	0.6	1,830	9
Malta	0.3	1,870	(.)
Oman	0.8	2,540	212
Bahamas	0.2	3,520	14
Bahrain	0.3	3,790	1
Gabon	0.5	3,860	268
Iceland	0.2	7,070	103
Luxembourg	0.4	7,160	3
Qatar	0.2	11,670	11
United Arab Emirates	0.8	14,420	84

The estimates of GNP underlying the 1977 GNP per capita figures and the real growth rates of GNP per capita have been prepared by the

World Bank on the basis of national accounts series compiled by national statistical offices, supplemented by data gathered on World Bank missions, and population data from the UN Population Division, the World Bank, and the US Bureau of the Census.

The 1977 GNP per capita figures are calculated according to the *World Bank Atlas* methodology, in the following manner: 1977 GNP in national currency units is first expressed in weighted average prices for the base period 1975-77, converted into US dollars at the GNP-weighted average exchange rate for this period, and then adjusted for US inflation between the 1975-77 base period and the current year, 1977. The resulting estimate of GNP is then divided by

capita and its growth differ substantially from those quoted in *World Development Indicators, 1978*. The differences partly reflect revisions to national accounts data made by the reporting countries. (Such revisions are common statistical practice, and can be far-reaching: for example, the US has recently revised its national accounts for all years since 1938.) However, they are mainly due to the use of new UN estimates of population, which take into account new data from censuses and surveys.

The conversion of the GNP of different countries to a common denominator is known to create distortions. The UN's International Comparison Project (ICP), in which the Bank has been a major participant, is designed to provide

Indexes of Per Capita GNP Converted to US Dollars at Official Exchange Rates, and Per Capita GDP in "International" Dollars, 1970 and 1975

(United States = 100)

	1970		1975	
	US Dollars (1)	International Dollars (2)	US Dollars (3)	International Dollars (4)
Kenya	3.3	6.3	3.2	6.1
India ^a	2.0	6.9	1.9	6.9
Philippines	4.8	12.0	5.3	13.9
Korea, Rep. of	6.1	12.1	8.2	16.9
Colombia	7.7	18.1	8.5	19.8
Malaysia	9.1	19.1	10.4	19.9
Iran	18.4	20.3	24.6	40.8
Hungary ^b	42.1	42.7	32.5	47.1
Italy	40.7	49.2	40.4	47.1
Japan	56.7	59.2	63.9	65.1
United Kingdom	53.5	63.5	53.6	62.0
Netherlands	81.1	68.7	84.2	70.5
Belgium	83.8	72.0	91.4	78.3
France	77.8	73.2	84.3	79.5
Germany, Fed. Rep.	93.3	78.2	93.3	79.2
United States	100.0	100.0	100.0	100.0

^a1975 GDP in international dollars estimated from ICP figure for 1973 using growth rates computed from *World Bank Atlas* data.

^b1970 GNP and 1975 GNP in US dollars are special World Bank estimates. The 1975 GDP in international dollars has been estimated from the ICP figure for 1974 using growth rates computed from *World Bank Atlas* data.

Sources: Col. (1) and (3)— *Atlas* method estimates based on 1975-77 average prices and exchange rates.

(2) and (4)— *International Comparisons of Real Product and Purchasing Power* (Baltimore and London: The Johns Hopkins University Press, 1978), page 14.

the mid-1977 population. This method is designed to reduce the impact of temporary under- or over-valuations of a particular currency and generally assures a greater degree of comparability of GNP per capita estimates among countries. The country-group averages for GNP per capita are weighted by the size of country populations; those for the growth of GNP per capita are weighted by the size of countries' GNP per capita in 1970.

For many countries the estimates of GNP per

more realistic comparisons of income levels based on comparisons of purchasing power. To date work has been completed for 16 countries based on 152 detailed categories of expenditure in each country. Work is well advanced on the third phase of the ICP, which will yield data on purchasing power for about 18 more, mostly developing, countries.

The table above provides examples for 1970 and 1975 of the differences between GNP per capita as conventionally computed and incomes

as calculated using the ICP methodology.¹

The *average annual rate of inflation* is the "implicit GDP deflator", which is calculated by dividing, for each year of the period in question, the value of GDP in current market prices by the value of GDP in constant market prices, both in national currency. This measure of inflation has limitations, especially for the oil producing countries in the light of the drastic increase in oil prices in late 1973.

The *adult literacy rate* is the percentage of population aged 15 and over able to read and write. These rates are based primarily on information from the UN Educational, Scientific and Cultural Organization (Unesco), supplemented by World Bank data. For some countries the estimates shown are for years other than, though not more than two years distant from, those specified. Hence the series is not strictly comparable between countries. The country-group averages are weighted by country populations.

Life expectancy at birth indicates the number of years newborn children would live if subject to the mortality risks prevailing for the cross-section of population at the time of their birth. Data are from the UN Population Division, supplemented from World Bank data files. The country-group averages are weighted by country populations.

The *index of per capita food production* shows the average annual quantity of food produced per capita in the years 1975-77 as a percentage of the average annual amount produced in 1969-71. The estimates are derived from those of the UN Food and Agriculture Organization, which are calculated by dividing indexes of the quantity of food production (comprising cereals, starchy roots, sugar cane, sugar beet, pulses, edible oil crops, nuts, fruits, vegetables, livestock, and livestock products) by indexes of population. Food production is measured net of animal feed, seeds for use in agriculture, and quantities lost in processing and distribution. The country-group averages are weighted by country populations.

Tables 2 and 3: Growth and Structure of Production

National accounts series in national currency units have been used to calculate the indicators

¹For a detailed description of the methodology, see I. B. Kravis, A. Heston, and R. Summers, *International Comparisons of Real Product and Purchasing Power* (Baltimore and London: The Johns Hopkins University Press, 1978). This book contains the results of Phase 2 of the United Nations International Comparison Project.

in these tables. The growth rates in Table 2 are calculated using constant-price series, while the shares of GDP in Table 3 are calculated from current-price series.

Gross Domestic Product (GDP) is defined in the Notes to Table 1 above. For most countries, GDP by industrial origin is measured at factor cost, but for some countries without complete national accounts series at factor cost, market-price data have been used. GDP at factor cost is equal to GDP at market prices, less net indirect taxes.

The *agricultural sector* covers agriculture, forestry, hunting, and fishing. The *industrial sector* comprises mining, manufacturing, construction, and electricity, water, and gas. All other branches of economic activity are regarded as *services*.

In Table 2, the average growth rates for the country groups are weighted, for both periods, by the size of countries' GDP at factor cost in 1970 US dollars. In Table 3, the average sectoral shares are weighted by the size of countries' GDP in current US dollars.

Changes in the national accounts series of individual countries are the main source of some substantial differences between the data in these two tables and the data quoted in *World Development Indicators, 1978*. These changes include revisions to historical national accounts series, and the adoption in some countries of the new UN System of National Accounts (1968).

Tables 4 and 5: Growth of Selected Demand Aggregates; Structure of Demand

National accounts series in national currency units have been used to compute the indicators in these tables. The growth rates in Table 4 are calculated in constant prices; the shares of GDP in Table 5 are expressed in current prices. Most of the definitions employed are those of the UN *System of National Accounts (SNA)*.

Gross Domestic Product (GDP) is defined in the Notes to Table 1 above.

Public consumption (General Government consumption in SNA terminology) includes all current expenditures for purchases of goods and services by all levels of government. Capital expenditure on national defense and security is regarded as a consumption expenditure.

Private consumption consists of the market value of all goods and services purchased or received as income in kind, by households and non-profit institutions. It includes the imputed

rent for owner-occupied dwellings.

Gross domestic investment consists of the outlays for additions to the fixed assets of both the private and public sectors, plus the net value of inventory changes.

Gross domestic savings shows the amount of gross domestic investment financed from domestic output. It is calculated as the difference between gross domestic investment and the deficit on current account of goods and non-factor services (excluding net current transfers). It comprises both public and private savings.

Exports of goods and non-factor services represent the value of all goods and non-factor services sold to the rest of the world; they include merchandise, freight insurance, travel, and other non-factor services. The value of factor services (such as investment receipts and workers' remittances from abroad) is excluded from this measure.

The *resource balance* is the difference between exports and imports of goods and non-factor services.

In Table 5, all the country-group averages are weighted by the size of countries' GDP, at market prices, in current US dollars.

Changes in the national accounts series of individual countries are the main source of some substantial differences between the data in these two tables and the data quoted in *World Development Indicators, 1978*. These changes include revisions to historical national accounts series, and the adoption in some countries of the new UN *System of National Accounts (1968)*.

Table 6: Industrialization

The *percentage distribution of value added* among the manufacturing industries is calculated from United Nations Industrial Development Organization (UNIDO) data, with base values expressed in 1970 US dollars.

The classification of the manufacturing industries is in accordance with the UN International Standard Industrial Classification (ISIC) of all economic activities. *Food and agriculture* comprises ISIC Major Groups 311, 313, and 314. *Textiles and clothing* comprises ISIC Major Groups 321-324. *Machinery and transport equipment* refers to ISIC Major Groups 382-384. *Chemicals* comprises ISIC Major Groups 351 and 352. *Other Manufacturing* comprises ISIC Major Division 3 less all of the above.

To calculate *gross manufacturing output per capita*, ratios of gross output to value added in

manufacturing, derived from the *UN Yearbook of Industrial Statistics*, were applied to data on value added in manufacturing from the World Bank's national accounts series in national currencies, converted into 1970 US dollars. Per capita values were then calculated using mid-year estimates of country populations.

Table 7: Energy

All data on energy are from UN sources. They refer to commercial forms of primary energy: coal and lignite, crude petroleum, natural gas and natural gas liquids, and hydro and nuclear electricity, converted into coal equivalent. The use of firewood and other traditional fuels, substantial in certain developing countries, is not taken into account since data are not available.

Energy consumption per dollar of GDP refers to the ratio of total energy consumption to GDP, in constant 1975 US dollars. This indicator shows the intensity of energy use in the economy.

Energy imports as a percentage of merchandise export earnings refers to the US dollar value of energy imports — Standard International Trade Classification (SITC) (Revised) Section 3 — as a percentage of total merchandise export earnings.

The data on energy imports do not permit a distinction to be drawn between petroleum imports for fuel and those for use in the petrochemical industry. Hence these percentages may overestimate the degrees of dependence on foreign energy.

Table 8: Growth of Merchandise Trade

The merchandise trade statistics are from the UN trade data system, including unpublished data and data from the *UN Monthly Bulletin of Statistics* and from the *UN Yearbook of International Trade Statistics*, supplemented by statistics from the UN Conference on Trade and Development (UNCTAD) and from the International Monetary Fund's (IMF) *Direction of Trade and International Financial Statistics*.

Merchandise exports and imports cover, with a few exceptions, all international changes in ownership of merchandise passing across the customs borders of the compiling countries. Exports are valued f.o.b. (free on board), imports c.i.f. (cost, insurance and freight). These values are expressed in current US dollars.

The growth rates of merchandise exports and imports are in real terms, and calculated from quantum indexes of exports and imports. For the majority of developing countries these indexes are taken from the UNCTAD *Handbook of International Trade and Development Statistics*, and computer printouts which show revised data. For industrialized countries, these quantum indexes are obtained from the *UN Yearbook of International Trade Statistics* and *UN Monthly Bulletin of Statistics*.

Revisions to the growth rates shown in *World Development Indicators, 1978* reflect, first, the use of different sources of underlying data which permit a change in methodology, so that all the growth rates shown this year have been computed from quantum indexes; and second, major data revisions by UNCTAD, as of March 1979.

The terms of trade (or the "net barter terms of trade") are calculated as the ratio of a country's export unit value index to the index of import unit values. The terms of trade index numbers shown here for 1960 and 1977, where 1970 = 100, thus indicate changes over time in the level of export prices expressed as a percentage of import prices. The unit value indexes are from the same UNCTAD and UN sources cited above, in connection with the growth rates of exports and imports.

Tables 9 and 10: Structure of Merchandise Trade

The trade shares in these tables are derived from trade values given in UN trade tapes and in the *UN Yearbook of International Trade Statistics*, expressed in current US dollars.

Merchandise exports and imports are defined in the Notes to Table 8 above.

In the categorization of exports in Table 9, *fuels, minerals and metals* refers to commodities in SITC (Rev.) Section 3, Divisions 27, 28 and the non-ferrous metals of SITC Division 68. *Other primary commodities* comprises SITC Sections 0, 1, 2, 4 (food and live animals, beverages and tobacco, inedible crude materials, oils, fats and waxes) less SITC Divisions 27 and 28 (minerals, crude fertilizers and metalliferous ores). *Textiles and clothing* refers to SITC Divisions 65 and 84 (textiles, yarn, fabrics, and clothing). *Machinery and transport equipment* refers to commodities in SITC Section 7. *Other manufactures*, calculated as the residual from the total value of manufactured exports, refers to SITC Sections 5 to 9 less 7 and Divisions 65, 68, and 84.

In the categorization of imports in Table 10, *food commodities* are those in SITC (Rev.) Sections 0, 1, 4, and Division 22 (food and live animals, beverages and tobacco, oils, and fats). *Fuels* refers to commodities in SITC Section 3. *Other primary commodities* comprises SITC Section 2 (crude materials excluding fuels) less SITC Division 22 (oilseeds and nuts), plus SITC Division 68 (non-ferrous metals). *Machinery and transport equipment* refers to commodities in SITC Section 7. *Other manufactures*, calculated as the residual from the total value of manufactured imports, refers to SITC Sections 5 to 9 less 7 and Division 68.

Table 11: Destination of Merchandise Exports

Merchandise exports are defined in the Notes to Table 8 above. All trade shares in this table are based on statistics on the value of trade in current US dollars, published by the IMF in its *Direction of Trade*. Unallocated exports are distributed among the country groups in proportion to their respective shares of allocable trade. Reflecting the practice used in the data source, the country groups shown in this table differ somewhat from those used elsewhere in the volume. Specifically:

- Developed Countries* include Gibraltar and Iceland in addition to those referred to as "industrialized" elsewhere in the volume
- Developing Countries* include Cuba and Romania, referred to as centrally planned economies elsewhere in the volume
- Capital Surplus Oil Exporting Countries* include Oman, Qatar and United Arab Emirates, in addition to Kuwait, Libya and Saudi Arabia
- Centrally Planned Economies* exclude Cuba and Romania.

Table 12: Trade in Manufactured Goods

The data in this table are from the UN, and are among those used to compute Special Table B in the *UN Yearbook of International Trade Statistics*.

Manufactured goods refers to commodities in the SITC (Rev.) Sections 5 through 9 (chemicals and related products, manufactured articles, machinery and transport equipment), excluding Division 68 (non-ferrous metals).

The country groups used are the same as those in Table 11, and differ somewhat from those used elsewhere in the volume. Specifically:

- Developed Countries* include Gibraltar and Iceland in addition to those referred to as "in-

The data for holdings of international reserves are from the IMF data files. The reserve levels shown for 1970 and 1977 refer to the end of the year indicated and are expressed in current US dollars. The reserve holdings at the end of 1977 are also expressed in terms of the number of months' imports of goods and services they could pay for, with imports at the average level for 1977.

Table 16: Net Flows of Official Development Assistance from Members of the OECD and OPEC

Official development assistance (ODA) consists of net disbursements of loans or grants made at concessional financial terms by official agencies of the members of the Development Assistance Committee of the Organisation for Economic Co-operation and Development (OECD) and members of the Organization of Petroleum Exporting Countries (OPEC), with the objective of promoting economic development and welfare. It includes the value of technical cooperation.

Figures for 1977 and earlier years are actual figures published by the OECD; those for 1978 are preliminary estimates. All others are projections by World Bank staff, based on OECD and World Bank estimates of GNP growth, on information on budget appropriations for aid, and on aid policy statements by governments. They are projections, not predictions, of what will occur, based on present plans.

The nominal values of ODA for the OECD countries as a group have been converted into constant 1977 prices using the US dollar GNP deflator. This deflator is based on price increases in the OECD countries (excluding Greece, Portugal, Spain, and Turkey) measured in terms of the US dollar. It takes account of parity changes between the US dollar and national currencies. (For example, when the US dollar depreciates, price increases measured in national currencies have to be adjusted upward by the amount of the depreciation to obtain price increases measured in US dollar terms.)

Finland became a member of the Development Assistance Committee (DAC) in January 1975; New Zealand became a member in 1973. The majority of OPEC countries introduced sizeable aid programs only in late 1973 or early 1974.

Table 17: Historical and Projected Population Growth, and Hypothetical Stationary Population

The estimates of mid-1977 population are those of Table 1.

The growth rates of total population are end-point rates calculated from mid-year country populations.

The projections of population to the year 2000 and to the point where it will eventually become stationary are made for each country separately, starting with information on its total population, fertility and mortality rates in 1975, the base year, and projecting these parameters forward for five year intervals on the basis of generalized assumptions until the population becomes stationary. The base year estimates are from the UN ("Demographic Estimates and Projections for the World, Regions, and Countries as Assessed in 1978: Provisional Report," 1979), the World Bank, the US Bureau of the Census, and the Population Council.

The net reproduction rate (NRR) indicates the number of daughters that a newborn girl will bear during her lifetime, assuming fixed age-specific fertility rates and a fixed set of mortality rates. The NRR thus measures the extent to which a cohort of newborn girls will reproduce themselves under given schedules of fertility and mortality rates.

A net reproduction rate of 1 indicates that fertility is at replacement level: at this rate child-bearing women, on average, bear only enough daughters to replace themselves in the population. A population will continue to grow after replacement level fertility has been reached, because its past higher birth rates will have produced an age distribution with a relatively high proportion of people currently in, or still to enter, the reproductive ages. This results in more births than deaths until the population changes to the older age distribution intrinsic in the low birth rate. The time taken for a country's population to become stationary after reaching replacement level fertility thus depends on its particular age structure and previous fertility patterns.

A stationary population is one in which age- and sex-specific mortality rates have remained unchanged over a long period, while, simultaneously, age-specific fertility rates have remained at replacement level (NRR = 1). In such a population, the birth rate will be constant and equal to the death rate, the age structure will be constant, and the growth rate will be zero.

- dustrialized" elsewhere in the volume
- Developing Countries include Cuba and Romania, referred to as centrally planned economies elsewhere in the volume
 - Capital Surplus Oil Exporting Countries include Oman, Qatar and United Arab Emirates, in addition to Kuwait, Libya and Saudi Arabia
 - Centrally Planned Economies exclude Cuba and Romania.

Table 13: Balance of Payments and Debt Service Ratios

The *current account balance* is the difference between (i) exports of goods and services plus inflows of unrequited official and private transfers, and (ii) imports of goods and services plus unrequited transfers to the rest of the world. Excluded from this figure are all interest payments on external public and publicly guaranteed debt, which are shown separately. The latter represent interest payments on the disbursed portion of outstanding public and publicly guaranteed debt plus commitment charges on undisbursed debt. The current account estimates have been taken from the IMF's data files; estimates of interest payments are from the World Bank's Debt Reporting System.

Debt service is the sum of interest payments and repayments of principal on external public and publicly guaranteed debt. Debt service data are taken from the Bank's Debt Reporting System. The *ratio of debt service to exports of goods and services* is a commonly used rule of thumb for assessing debt-servicing capacity. It is important to note, however, that the debt service ratios shown here do not cover unguaranteed private debt, which for some countries is substantial. Also it should be noted that debt contracted for the purchase of military equipment is not usually reported. The average ratios of debt service to GNP for the country groups are weighted by the size of countries' GNP in current US dollars (as quoted in the *World Bank Atlas, 1978*). The average ratios of debt service to exports of goods and services are weighted by the size of countries' exports of goods and services.

Since the World Bank's Debt Reporting System is concerned solely with developing countries, data on external debt are not given here for other groups of countries. Neither are comparable data for those countries available from other sources.

Table 14: Flows of External Capital

The data on the *gross inflow* and *repayment of principal* (amortization) of public and publicly guaranteed medium- and long-term loans are from the World Bank's Debt Reporting System. The *net inflow* is the gross inflow less the repayment of principal.

Since the World Bank's Debt Reporting System is concerned solely with developing countries, data on external debt are not given here for other groups of countries. Neither are comparable data for those countries available from other sources.

Net direct private investment is the net amount invested by non-residents of the country in enterprises in which they (or other non-residents) exercise a significant degree of managerial control; these net figures also take account of the value of direct investment abroad by residents. The IMF's balance of payments data files have been used in compiling these estimates.

Table 15: External Public Debt and International Reserves

External public debt outstanding represents the amount of public and publicly guaranteed loans that has been disbursed, net of cancelled loan commitments and repayments of principal. The data shown refer to the end of the year indicated, and are from the World Bank's Debt Reporting System. In estimating external public debt as a percentage of GNP, GNP is converted from national currencies into US dollars at the official exchange rate for the year in question.

Since the World Bank's Debt Reporting System is concerned solely with developing countries, data on external debt are not given here for other groups of countries. Neither are comparable data for those countries available from other sources.

Gross international reserves comprise the sum of a country's holdings of gold, Special Drawing Rights (SDRs), the reserve position of IMF members in the Fund, and holdings of foreign exchange under the control of monetary authorities. The gold component of these reserves is valued throughout at SDR 35 per ounce. This is equivalent to US\$35 per ounce before December 1971; US\$38 per ounce from December 1971 through January 1973; US\$42.22 per ounce from February 1973 through June 1974; and to the US dollar price of gold as measured by the market valuation of the SDR beginning in July 1974.

To make the projections, assumptions about future mortality rates are made in terms of female life expectancy at birth (that is, the number of years a newborn girl would live if subject to the mortality risks prevailing for the cross-section of population at the time of her birth). Countries were first divided into income groups, according to their per capita income in 1975. Within each income group, a set of annual increments in female life expectancy was assumed, depending on the level of female life expectancy in 1975. For a given life expectancy at birth the annual increments during the projection period are larger in countries where 1975 per capita income was higher.

To project fertility rates, the first step was to estimate the year in which fertility will reach replacement level. These estimates are speculative, and are based on information on trends in crude birth rates, total fertility rates (both defined in the Notes to Table 18), and the performance of family planning programs. The years given in *World Development Indicators, 1978* were reviewed country by country and altered where necessary on the basis of new information on declines in crude birth rates in 1965-75, the recent performance of family planning programs, and total fertility rates in 1975. For most countries, it was assumed that the total fertility rate would decline between 1975 and the year in which the $NRR=1$, after which fertility would remain at replacement level. For countries in Sub-Saharan Africa, total fertility rates were assumed to remain constant until 1980-85 and then to decline until replacement level was reached. In several industrialized countries, fertility is at present below replacement level. Since a population will not become stationary if its net reproduction rate is other than one, to make estimates of the hypothetical stationary population in these countries it was necessary to assume that their fertility rates would regain replacement levels. For the sake of consistency with the estimates made for other countries, the total fertility rates in these industrialized countries were assumed to increase to replacement level by the years 2000-2005, and then remain constant.

Throughout the projections, it was assumed that international migration would have no impact.

According to the projections, the total world population would increase from 4.14 billion in 1977 to 6.01 billion in the year 2000. The aver-

age annual growth rate between 1977 and 2000 would be about 1.63 percent, decreasing from 1.72 percent in 1977 to 1.36 percent in the year 2000. The crude birth rate would decline by 6 points (from 28.8 to 22.8 births per thousand population per year) and the death rate by 2 points (from 11.6 to 9.2 per thousand population per year). The present estimate of world population in the year 2000 is slightly lower than that used in last year's *World Development Report* (6.01 billion in place of 6.05 billion); the birth rate is also slightly lower (22.8 per thousand in place of 23.6 per thousand), while the death rate is roughly the same.

The estimates of the hypothetical size of the stationary population, and of the years when replacement level fertility and stationary population size would be reached, are speculative. They should not be regarded as predictions. They are included to provide a summary indication of the long-run implications of recent trends, on the basis of highly stylized assumptions. In particular, no account is taken of the effects that countries' future income growth and family planning might have on their fertility rates. Countries have been ascribed certain fertility and mortality trends on the basis of their present income levels, demographic parameters, and family planning performance, but if, for example, a country with low per capita GNP at present achieved rapid income growth over the projection period, its fertility rate would probably decline more rapidly than projected here. The estimated hypothetical stationary population of the world according to the present projections is 9.84 billion, or 395 million less than the corresponding estimate in last year's report. There are two main reasons for this reduction: the data now available indicate that fertility has declined faster than expected in some Latin American and Asian countries, and the assessment of the population growth potential of some large Sub-Saharan African countries has been revised.

Table 18: Demographic and Fertility-Related Indicators

The crude birth (and death) rates indicate the number of live births (deaths) per thousand population in a year. They are derived from the Bank's population projections given in Table 17. The country-group averages for birth and death rates and changes in those rates are weighted by the size of country populations.

The *total fertility rate* (TFR) represents the number of children that would be born per woman, if she were to live to the end of her child-bearing years and bear children at each age in accordance with the prevailing age-specific fertility rates. Most of the TFR quoted are from the provisional UN population projections in "Demographic Estimates and Projections for the World, Regions and Countries, as Assessed in 1978" (1979), supplemented by data from the World Bank, the Population Council, and the US Bureau of the Census.

The *percentage of women in the reproductive age group* refers to women of child-bearing age (15-44 years) as a percentage of the total female population. The estimates are derived from the Bank's population projections given in Table 17.

The *percentage of married women using contraceptives* refers only to married women of child-bearing age (15-44 years). These data are mainly derived from D. Nortman and E. Hofstadter, *Population and Family Planning Programs: A Factbook*, various issues (New York: Population Council); D. Nortman, "Changing Contraceptive Patterns: A Global Perspective", in *Population Bulletin*, Vol. 32, No. 3 (Washington, D.C.: Population Reference Bureau, Inc.); and *Family Planning Service Statistics Annual Report, 1976* (Washington, D.C.: Office of Population, Agency for International Development). The data refer to a variety of years, not more than two years distant from those specified.

Table 19: Labor Force

The *working age population* refers to the total population between 15 and 64 years of age. These estimates are based on the Bank's population projections given in Table 17.

The *labor force* describes economically active persons, including the armed forces and the unemployed, but excluding housewives, students, and economically inactive groups. Agriculture, industry, and services are defined in the Notes to Table 2 above. The estimates of the sectoral distribution of the labor force in 1960 are from the International Labour Office (*Labour Force: Estimates 1950-1970 and Projections 1975-2000*, second edition, Geneva, 1977); most of those for 1977 are geometric extrapolations of ILO estimates for 1960 and 1970 given in the source just quoted.

The *labor force growth rates* are derived from the Bank's population projections and ILO data

on activity rates, again from the source quoted above.

The application of ILO activity rates to the Bank's latest population projections may be inappropriate for some countries, where there have been important changes in levels of unemployment and underemployment, and/or in international and internal migration. The labor force estimates for 1977-2000 should thus be treated with caution.

Table 20: Urbanization

The data on *urban population as a percentage of total population* are taken from unpublished estimates and projections made by the UN Population Division.

The *growth rates of urban population* are calculated from the Bank's population projections and estimates of urban population shares from the UN Population Division.

Data on *urban agglomeration* are also from the UN.

Since the estimates in this table reflect the different definitions of "urban" used in different countries, cross-country comparisons should be interpreted with caution.

Table 21: Indicators Relating to Life Expectancy

Life expectancy at birth indicates the number of years newborn children would live if subject to the mortality risks prevailing for the cross-section of population at the time of their birth. The data are from the UN Population Division, supplemented from World Bank data files.

The *infant mortality rate* is the number of infants who die before 1 year of age, per thousand live births in a given year. The data are obtained from a variety of sources including UN *Demographic Yearbooks* and the US Bureau of the Census publication, *World Population: 1977*; they refer to a variety of years, not more than two years distant from those quoted.

The *child death rate* is the number of deaths among children 1 to 4 years of age, per thousand children in the same age group in a given year. For countries with reliable death registration, these rates are taken from UN *Demographic Yearbooks*; they refer to a variety of years, not more than two years distant from those quoted. For other countries, the rates have been derived from the appropriate Coale-Demeny Model life tables¹, to correspond to the expectation of life

¹Ansley J. Coale and Paul Demeny, *Regional Model Life Tables and Stable Populations* (Princeton, N.J.: Princeton University Press, 1966).

at birth for 1960 and 1977.

All the country-group averages in this table are weighted by the size of country populations.

Table 22: Health-Related Indicators

The estimates of *population per physician and per nursing person* are derived from World Health Organization (WHO) data, some of which have been revised since *World Development Indicators, 1978* was issued, to reflect new information supplied by reporting countries. Nursing persons include graduate, practical and assistant nurses. Both because country definitions of nursing personnel vary, and because the data shown are for years other than, but not more than two years distant from, those specified, the data for these two indicators are not strictly comparable between countries.

The *percentage of total population with access to safe water*, estimated by WHO, is the proportion of people with reasonable access to safe water supplies, defined to include treated surface water or untreated but uncontaminated water such as that obtained from boreholes, springs and sanitary wells. Some of the WHO estimates have been revised since last year's *World Development Indicators* was issued.

The *daily per capita calorie supply* is calculated by dividing the calorie equivalent of the available food supplies in a country by its total population. The available food supplies comprise domestic production, imports less exports, and changes in stocks; they exclude animal feed, seeds for use in agriculture, and the quantities of food lost in processing and distribution. The *daily per capita calorie requirement* refers to the calories needed to sustain the population at normal levels of activity and health, taking account of its age and sex distributions, average body weights, and environmental temperatures. Both sets of estimates are from the UN Food and Agriculture Organization.

All the country-group averages in this table are weighted by the size of country populations.

Table 23: Education

The data in this table refer to a variety of years, not more than two years distant from those specified, and are mostly taken from the UN Educational, Scientific and Cultural Organization (Unesco). Some of the Unesco data have been revised since *World Development Indicators, 1978* was issued, to reflect new information supplied by reporting countries.

Estimates of *total, male, and female enrollment in primary school*, of students of all ages, are expressed as percentages of the total (or total male or female) population of primary school age, to give "gross primary enrollment ratios". Although primary school age is generally considered to be 6 to 11 years, countries' educational systems vary. These differences between countries in the ages and duration of schooling are reflected in the ratios given. For countries with universal primary education, the gross enrollment ratios may exceed 100 percent since some pupils may be below or above the official primary school age.

The *gross secondary enrollment ratios* are calculated in the same manner.

The data on *numbers enrolled in higher education* as a percentage of the population aged 20-24 are from Unesco. The minimum condition of entry to higher education is the successful completion of education at the secondary level, or proof of equivalent knowledge or experience.

The *adult literacy rate* is the percentage of population aged 15 and over able to read and write. These rates are based largely on information from Unesco, supplemented by World Bank data.

All the country-group averages in this table are weighted by the size of country populations.

Table 24: Income Distribution

The data in this table refer to the distribution of total disposable household income accruing to percentile groups of households ranked by total household income. The distributions cover rural and urban areas and refer to different years between 1965 and 1977. Since the collection of income distribution data has not been systematically organized and integrated into the official statistical system in many countries, estimates are typically derived from surveys designed for other purposes (most often consumer expenditure surveys) that also collect some information on income. These surveys use a variety of concepts of income, and generally little effort is made to structure the questionnaires to ensure that income reporting is reasonably precise and accurate. Furthermore, the coverage of many of these surveys is seriously deficient for the purpose of obtaining reliable nationwide estimates of income distribution. Though the estimates given are considered the best available, they do not avoid all these problems, and hence should be interpreted with extreme caution.

The distributions for developing countries outside Latin America are from data gathered by the World Bank from national sources. Those for industrialized countries are taken from Malcolm Sawyer, *Income Distribution in OECD Countries* (Organisation for Economic Co-operation and Development Occasional Studies, July 1976); they refer to post-tax income, and conceptually are roughly comparable with the distributions for developing countries. The estimates for Latin American countries other than Mexico come from the preliminary results of a project on Measurement and Analysis of Income Distribution in Latin American Countries, being conducted by the UN Economic Commission for Latin America (ECLA) jointly with the World Bank. Those for Mexico are the first results from the 1977 Household Budget Survey.

Both the quality and the comparability of the estimates quoted are limited. The joint ECLA-World Bank project referred to above has investigated measurement errors in some of the estimates for Latin America. It compared data from household surveys and from national accounts and found substantial divergences between the two sources for incomes other than wages. Attempts have been made to adjust the observed distributions to make them consistent with national accounts estimates; these revisions typically increase the apparent degree of income inequality, as shown in the examples below:

	Income Share of Poorest 40 Percent		Income Share of Richest 20 Percent	
	Original	Adjusted	Original	Adjusted
Brazil	7.0	5.6	66.6	73.1
Chile	13.4	12.0	51.4	54.5
Honduras	7.3	6.6	67.8	69.7
Peru	7.0	5.7	61.0	64.7
Venezuela	10.3	9.8	54.0	54.9

It should be emphasized that these adjustments are themselves arbitrary. They are reported simply to indicate the range of variation that can be expected for these estimates.

The distribution of total household income shown in Table 24 is one of several distinct income distributions that are of interest. To

measure the inequality of incomes that is directly attributable to the structure of production and ownership of assets, one should look at the distribution of income across income-earning individuals. However, for purposes of welfare analysis or poverty measurement, household income is more relevant, since the household is a redistributing unit that combines incomes from individuals at different income levels to provide a relatively uniform level of welfare for all its members.

Households vary in size, and hence a further distinction needs to be drawn between distributions in which households are ranked according to their total incomes, and distributions in which households are ranked according to per capita household income. The latter distribution ensures that households are treated as poor (rich) according to whether their per capita income is low (high) and not according to whether total household income is high. The distinction is important because households with low per capita incomes are frequently large households, whose total income may be relatively high. Furthermore, since households vary in size, poor households often being larger than rich, the poorest 40 percent of households ranked in terms of per capita household income will typically contain more than 40 percent of the total population. For this reason, if one wishes to compare two distributions (for example, those of two countries, or those of rural and urban areas within a country) for welfare purposes, it is best to use the distribution of individuals ranked by per capita household income. Unfortunately, this can so far be done only for a few countries; further work on these countries is in progress within the Bank. The following table gives examples of the differences among the three distributions:

Income Share of Poorest 40 Percent of:	Republic of Sri Lanka	
	China	Lanka
Households ranked by household income	22.0	19.2
Households ranked by per capita household income	27.5	24.7
Individuals ranked by per capita household income	22.9	20.8