



Technical notes

This fourteenth edition of the World Development Indicators provides economic, social, and natural resource indicators for selected periods or years for 184 economies and various analytical and geographical groups of economies.

The main criterion of country classification is gross national product (GNP) per capita. With the inclusion of four new World Bank members, Bulgaria, Czechoslovakia, Mongolia, and Namibia, the main tables now include country data on 124 economies. As only sparse data are available for four additional economies, these are not included in the main tables except in summary form under the heading *other economies*, where available; selected data are presented for them, and for the former German Democratic Republic, in Box A.2. Box A.1, showing basic indicators for economies with populations of less than 1 million, covers another fifty-six economies. Other changes are outlined in the introduction.

Considerable effort has been made to standardize the data; nevertheless, statistical methods, coverage, practices, and definitions differ widely among countries. In addition, the statistical systems in many developing economies are still weak, and this affects the availability and reliability of the data. Moreover, cross-country and cross-time comparisons always involve complex technical problems, which cannot be fully and unequivocally resolved. The data are drawn from the sources thought to be most authoritative, but many of them are subject to considerable margins of error.

Most social and demographic data from national sources are drawn from regular administrative files, although some come from special surveys or periodic census inquiries. In the case of survey and census data, figures for intermediate years have to be interpolated or otherwise estimated from the base reference statistics. Similarly, because not all data are up-

dated, some figures—especially those relating to current periods—may be extrapolated. Several estimates (for example, life expectancy) are derived from models based on assumptions about behavior and prevailing conditions. Issues related to the reliability of demographic indicators are reviewed in the UN's *World Population Trends and Policies*. Readers are urged to take these limitations into account in interpreting the indicators, particularly when making comparisons across economies.

A major methodological change introduced in this edition is the use of 1987 constant price series for calculating growth rates instead of the 1980 constant price series previously used.

To provide long-term trend analysis, facilitate international comparisons and include the effects of changes in intersectoral relative prices, constant price data for most economies are partially rebased to three base years and linked together. The year 1970 is the base year for data from 1960 to 1975, 1980 for 1976 to 1982, and 1987 for 1983 and beyond. These three periods are "chain-linked" to obtain 1987 prices throughout all three periods.

Chain-linking is accomplished for each of the three subperiods by rescaling; this moves the year in which current and constant price versions of the same time series have the same value, without altering the trend of either. Components of GDP are individually rescaled and summed to provide GDP and its subaggregates. In this process, a rescaling deviation may occur between the constant price GDP by industrial origin and the constant price GDP by expenditure. Such rescaling deviations are absorbed under the heading *private consumption, etc.* on the assumption that GDP by industrial origin is a more reliable estimate than GDP by expenditure.

Because private consumption is calculated as a residual, the national accounting identities are main-

Box A.1 Basic indicators for economies with populations of less than 1 million

		Population (thousands) mid-1989	Area (thousands of square kilometers)	GNP per capita ^a			Life expectancy at birth (years) 1989	Adult illiteracy (percent)		
				Dollars 1989	Average annual growth rate (percent) 1965-89	Average annual rate of inflation ^a (percent)		Female 1985	Total 1985	
						1965-80				1980-89
1	Guinea-Bissau	960	36	180	..	..	53.2	40	83	69
2	The Gambia	849	11	240	0.7	8.1	14.1	44	85	75
3	Equatorial Guinea	407	28	330	..	..	..	46	..	63
4	Guyana	796	215	340	-1.6	7.9	20.0	64	5	4
5	São Tomé and Príncipe	120	1	340	..	..	18.3	66	..	..
6	Maldives	210	b	420	2.5	..	6.4	61	..	..
7	Comoros	458	2	460	0.5	..	5.3	55	..	..
8	Solomon Islands	313	29	580	..	7.7	10.5	64	..	..
9	Kiribati	69	1	700	..	..	5.5	55	..	..
10	Western Samoa	163	3	700	..	..	9.7	66	..	..
11	Cape Verde	361	4	780	..	..	9.7	66	61	..
12	Vanuatu	152	12	860	..	..	4.3	64	..	..
13	Swaziland	761	17	900	2.1	9.0	11.9	56	34	32
14	Tonga	98	1	910	..	..	7.5	67	..	..
15	Fiji	740	18	1,650	1.8	10.3	5.6	67	19	15
16	Belize	184	23	1,720	2.5	7.1	2.4	68	..	..
17	St. Lucia	148	1	1,810	..	..	3.6	71	..	..
18	Grenada	94	b	1,900	..	..	..	69	..	..
19	Suriname	437	163	3,010	1.2	..	6.2	67	10	10
20	Seychelles	67	b	4,230	3.2	12.2	3.4	70	..	..
21	Malta	350	b	5,830	7.2	3.5	2.0	73	18	16
22	Barbados	256	b	6,350	2.4	11.0	5.5	75	..	..
23	Cyprus	695	9	7,040	..	..	6.0	76	..	..
24	The Bahamas	249	14	11,320	1.1	6.4	6.1	68	..	..
25	Qatar	422	11	15,500	..	..	..	70	..	..
26	Iceland	254	103	21,070	3.4	26.8	34.8	78	..	..
27	Luxembourg	377	3	24,980	6.1	4.3	4.4	75	..	..
28	American Samoa	38	b	c	..	..	..	72	..	..
29	Andorra	50	..	c	..	..	..	..	..	..
30	Antigua and Barbuda	78	b	d	..	..	6.7	74	..	..
31	Aruba	60	b	c	..	..	..	..	..	..
32	Bahrain	489	1	c	..	..	-1.3	69	36	27
33	Bermuda	60	b	c	..	8.1	9.1	..	..	..
34	Brunei	249	6	c	..	..	-5.1	75	..	..
35	Channel Islands	142	..	c	..	..	..	77	..	..
36	Djibouti	411	23	e	..	..	..	48	..	..
37	Dominica	82	1	e	0.5	12.6	6.1	75	..	..
38	Faeroe Islands	47	1	c	..	..	..	..	..	..
39	French Guiana	90	90	d	..	..	..	..	..	..
40	French Polynesia	193	4	c	..	..	..	72	..	..
41	Gibraltar	31	b	d	..	..	..	..	..	..
42	Greenland	56	342	c	..	..	..	..	..	..
43	Guadeloupe	341	2	c	..	..	..	74	..	..
44	Guam	134	1	c	..	..	..	73	..	..
45	Isle of Man	67	..	c	..	..	..	..	..	..
46	Macao	448	b	d	..	..	..	72	..	..
47	Martinique	338	1	d	..	..	..	76	..	..
48	Mayotte	69	..	c	..	..	..	..	..	..
49	Netherlands Antilles	189	1	c	..	..	..	77	..	..
50	New Caledonia	162	19	d	..	..	..	69	..	..
51	Pacific Islands, Trust Territories	169	2	d	..	..	..	..	..	..
52	Puerto Rico ^f	3,301	9	c	..	..	..	75	..	..
53	Réunion	584	3	d	..	..	..	72	..	..
54	St. Kitts and Nevis	41	b	d	..	..	6.4	69	..	..
55	St. Vincent and the Grenadines	113	b	e	1.9	10.9	5.8	70	..	..
56	Virgin Islands (U.S.)	109	b	c	..	..	..	74	..	..

Note: Economies in italics are those for which 1989 GNP per capita cannot be calculated; figures in italics are for years other than those specified. a. See the technical note for Table 1. b. Less than 500 square kilometers. c. GNP per capita estimated to be in the high-income range. d. GNP per capita estimated to be in the upper-middle-income range. e. GNP per capita estimated to be in the lower-middle-income range. f. Population is more than 1 million.

Box A.2 Selected indicators for other economies

	Albania		Cuba		Former German Democratic Republic ^a		People's Democratic Republic of Korea		USSR	
	1965	1989	1965	1989	1965	1989	1965	1989	1965	1989
Population (millions)	2	3	8	11	17	17	12	21	232	288
Urban population (percentage of total)	32	35	58	74	73	77	45	60	52	66
Life expectancy at birth (years)	66	72	67	76	70	74	57	70	69	70
Crude birth rate (per 1,000 population)	35	24	34	18	17	12	44	22	18	18
Crude death rate (per 1,000 population)	9	6	8	7	14	13	12	5	7	10
Population per physician	2,100	..	1,150	530	870	440	..	420	480	270
Total fertility rate	5.4	3.0	4.4	1.9	2.5	1.8	6.5	2.4	2.5	2.4
Infant mortality (per 1,000 live births)	87	26	38	12	25	8	63	27	28	24
Low birth weight (percent)	..	..	..	8	..	6	..	..	..	..
Under 5 mortality (per 1,000 live births, female)	..	28	..	14	..	9	..	27	..	25
Under 5 mortality (per 1,000 live births, male)	..	34	..	17	..	12	..	36	..	33
Daily calorie supply (per capita)	2,376	2,741	2,373	3,103	3,203	3,890	2,298	3,193	3,205	3,386
Food production per capita index (1979-81 = 100)	84	96	82	108	72	113	73	108	86	113
Primary education (female)	87	98	119	101	111	105	..	100	103	..
Primary education (total)	92	99	121	104	109	105	..	100	103	105
Area (thousands of square kilometers)	..	29	..	111	..	108	..	121	..	22,402
Population projected to year 2000 (millions)	..	4	..	12	..	15	..	25	..	307

Note: For data comparability and coverage and definitions, see the technical notes for the appropriate main table. Figures in italics are for years other than those specified. a. Not included in the "other economies" country group in the main tables.

tained. Rebasings does involve incorporating in private consumption whatever statistical discrepancies arise for expenditure. The value added in the services sector also includes a statistical discrepancy, as reported by the original source.

With some exceptions, use of 1987 rather than 1980 values as country weights does not greatly alter the group indexes and growth rates reported here. Most exceptions relate to oil exporters and reflect declining shares of group GNP, trade, and so on from 1980 to 1987. This is most notable for Sub-Saharan Africa, with the dramatic decline in Nigeria's weight. In contrast, changing the base year for country series themselves, as described above, is likely to alter trends significantly. Differences of half a percentage point a year in growth rates could be quite common; larger changes may occur for economies that have undergone significant structural change, such as oil exporters.

The summary measures are calculated by simple addition when a variable is expressed in reasonably comparable units of account. Economic indicators that do not seem naturally additive are usually combined by a price-weighting scheme. The summary measures for social indicators are weighted by population.

The World Development Indicators, unlike the *World Tables*, provide data for (usually) two reference points rather than annual time series. For summary measures that cover many years, the calculation is based on the same country composition over time and across topics. The World Development Indicators permit group measures to be compiled only if the country data available for a given year account for at least two-thirds of the full group, as defined by the 1987 benchmarks. So long as that criterion is met, uncurrent reporters (and those not providing ample history) are, for years with missing data, assumed to

behave like the sample of the group that does provide estimates. Readers should keep in mind that the purpose is to maintain an appropriate relationship across topics, despite myriad problems with country data, and that nothing meaningful can be deduced about behavior at the country level by working back from group indicators. In addition, the weighting process may result in discrepancies between summed subgroup figures and overall totals. This is explained more fully in the introduction to the *World Tables*.

All growth rates shown are calculated from constant price series and, unless otherwise noted, have been computed using the least-squares method. The least-squares growth rate, r , is estimated by fitting a least-squares linear regression trend line to the logarithmic annual values of the variable in the relevant period. More specifically, the regression equation takes the form $\log X_t = a + bt + e_t$, where this is equivalent to the logarithmic transformation of the compound growth rate equation, $X_t = X_0(1 + r)^t$. In these equations, X is the variable, t is time, and $a = \log X_0$ and $b = \log(1 + r)$ are the parameters to be estimated; e is the error term. If b^* is the least-squares estimate of b , then the average annual percentage growth rate, r , is obtained as $[\text{antilog}(b^*)] - 1$ and multiplied by 100 to express it as a percentage.

Table 1. Basic indicators

For basic indicators for economies with populations of less than 1 million, see Box A.1. For selected indicators for other economies and for the former German Democratic Republic, see Box A.2.

Population numbers for mid-1989 are World Bank estimates. These are normally projections from the most recent population censuses or surveys; most are from the 1980s, and for a few countries, the 1960s or 1970s. Note that refugees not permanently settled in the country of asylum are generally considered to be part of the population of their country of origin.

The data on *area* are from the Food and Agriculture Organization. Area is the total surface area, measured in square kilometers, comprising land area and inland waters.

GNP per capita figures in US dollars are calculated according to the *World Bank Atlas* method, which is described below.

GNP per capita does not, by itself, constitute or measure welfare or success in development. It does not distinguish between the aims and ultimate uses of a given product, nor does it say whether it merely offsets some natural or other obstacle, or harms or contributes to welfare. For example, GNP is higher in colder countries, where people spend money on heating and warm clothes, than in balmy climates, where people are comfortable wearing light clothes in the open air.

More generally, GNP abstracts from environmental issues, particularly natural resource use. The Bank has joined with others to see how national accounts might provide insights into these issues. The possibility of developing "satellite" accounts is being considered; such accounts could delve into practical and conceptual difficulties, such as assigning a meaningful economic value to resources that markets do not yet perceive as "scarce" and allocating costs that are essentially global within a framework that is inherently national.

GNP measures the total domestic and foreign value added claimed by residents. It comprises GDP (defined in the note for Table 2) plus net factor income from abroad, which is the income residents receive from abroad for factor services (labor and capital) less similar payments made to nonresidents who contributed to the domestic economy.

In estimating GNP per capita, the Bank recognizes that perfect cross-country comparability of GNP per capita estimates cannot be achieved. Beyond the classic, strictly intractable index number problem, two obstacles stand in the way of adequate comparability. One concerns the GNP and population estimates themselves. There are differences in national accounting and demographic reporting systems and in the coverage and reliability of underlying statistical information among various countries. The other relates to the use of official exchange rates for converting GNP data, expressed in different national currencies, to a common denomination—conventionally the US dollar—to compare them across countries.

Recognizing that these shortcomings affect the comparability of the GNP per capita estimates, the World Bank has introduced several improvements in the estimation procedures. Through its regular review of member countries' national accounts, the Bank systematically evaluates the GNP estimates, focusing on the coverage and concepts employed and, where appropriate, making adjustments to improve comparability. As part of the review, Bank staff estimates of GNP (and sometimes of population) may be developed for the most recent period.

The World Bank also systematically assesses the appropriateness of official exchange rates as conversion factors. An alternative conversion factor is used (and reported in the *World Tables*) when the official exchange rate is judged to diverge by an exceptionally large margin from the rate effectively applied to foreign transactions. This applies to only a small number of countries. For all other countries the Bank calculates GNP per capita using the *Atlas* method.

The *Atlas* conversion factor for any year is the average of the exchange rate for that year and the exchange rates for the two preceding years, after adjusting them for differences in relative inflation between

the country and the United States. This three-year average smooths fluctuations in prices and exchange rates for each country. The resulting GNP in US dollars is divided by the midyear population for the latest of the three years to derive GNP per capita.

Some sixty low- and middle-income economies have suffered declining real GNP per capita in constant prices during the 1980s. In addition, significant currency and terms of trade fluctuations have affected relative income levels. For this reason the levels and ranking of GNP per capita estimates, calculated by the *Atlas* method, have sometimes changed in ways not necessarily related to the relative domestic growth performance of the economies.

The following formulas describe the procedures for computing the conversion factor for year t :

$$(e_{i-2,t}^*) = \frac{1}{3} [e_{i-2} \left(\frac{P_t}{P_{t-2}} \left| \frac{P_t^*}{P_{t-2}^*} \right. \right) + e_{i-1} \left(\frac{P_t}{P_{t-1}} \left| \frac{P_t^*}{P_{t-1}^*} \right. \right) + e_i]$$

and for calculating GNP per capita in US dollars for year t :

$$(Y_t^*) = (Y_t / N_t) \div e_{i-2,t}^*$$

where

- Y_t = current GNP (local currency) for year t
- P_t = GNP deflator for year t
- e_t = annual average exchange rate (local currency/US dollar) for year t
- N_t = midyear population for year t
- P_t^* = US GNP deflator for year t .

Because of problems associated with the availability of comparable data and the determination of conversion factors, information on GNP per capita is not shown for some economies.

The use of official exchange rates to convert national currency figures to US dollars does not reflect the relative domestic purchasing powers of currencies. The United Nations International Comparison Program (ICP) has developed measures of real GDP on an internationally comparable scale, using purchasing power parities (PPPs) instead of exchange rates as conversion factors. Table 30 shows the most recent ICP estimates. Information on the ICP has been published in four studies and in a number of other reports. The most recent study is Phase V, parts of which have already been published by the European Communities (EC)—covering Europe and Africa—and the Organisation for Economic Co-operation and Development (OECD).

The ICP figures reported in Table 30 are preliminary and may be revised. The United Nations and its regional economic commissions, as well as other international agencies, such as the EC, the OECD, and the World Bank, are working to improve the methodology and to extend annual purchasing power comparisons to all countries. However, exchange rates remain the only generally available means of

converting GNP from national currencies to US dollars.

The *average annual rate of inflation* is measured by the growth rate of the GDP implicit deflator for each of the periods shown. The GDP deflator is first calculated by dividing, for each year of the period, the value of GDP at current values by the value of GDP at constant values, both in national currency. The least-squares method is then used to calculate the growth rate of the GDP deflator for the period. This measure of inflation, like any other, has limitations. For some purposes, however, it is used as an indicator of inflation because it is the most broadly based measure, showing annual price movements for all goods and services produced in an economy.

Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life. Data are from the UN Population Division, supplemented by World Bank estimates, and do not yet reflect the potentially significant impact of the human immunodeficiency virus (HIV) epidemic.

Adult illiteracy is defined here as the proportion of the population over the age of fifteen who cannot, with understanding, read and write a short, simple statement on their everyday life. This is only one of three widely accepted definitions, and its application is subject to qualifiers in a number of countries.

The summary measures for GNP per capita, life expectancy, and adult illiteracy in this table are weighted by population. Those for average annual rates of inflation are weighted by the 1987 share of country GDP valued in current US dollars.

Tables 2 and 3. Growth and structure of production

Most of the definitions used are those of the UN *System of National Accounts* (SNA), Series F, No. 2, Revision 3. Estimates are obtained from national sources, sometimes reaching the World Bank through other international agencies but more often collected during World Bank staff missions.

World Bank staff review the quality of national accounts data and in some instances, through mission work or technical assistance, help adjust national series. Because of the sometimes limited capabilities of statistical offices and basic data problems, strict international comparability cannot be achieved, especially in economic activities that are difficult to measure such as parallel market transactions, the informal sector, or subsistence agriculture.

GDP measures the total output of goods and services for final use produced by residents and nonresidents, regardless of the allocation to domestic and foreign claims. It is calculated without making deductions for depreciation of "manmade" assets or deple-

tion and degradation of natural resources. Although SNA envisages estimates of GDP by industrial origin to be at producer prices, many countries still report such details at factor cost. International comparability of the estimates is affected by the use of differing country practices in valuation systems for reporting value added by production sectors. As a partial solution, GDP estimates are shown at purchaser values if the components are on this basis, and such instances are footnoted. However, for a few countries in Tables 2 and 3, GDP at purchaser values has been replaced by GDP at factor cost.

The figures for GDP are dollar values converted from domestic currencies using single-year official exchange rates. For a few countries where the official exchange rate does not reflect the rate effectively applied to actual foreign exchange transactions, an alternative conversion factor is used (and reported in the *World Tables*). Note that this table does not use the three-year averaging technique applied to GNP per capita in Table 1.

Agriculture covers forestry, hunting, and fishing as well as agriculture. In developing countries with high levels of subsistence farming, much of agricultural production is either not exchanged or not exchanged for money. This increases the difficulty of measuring the contribution of agriculture to GDP and reduces the reliability and comparability of such numbers. *Industry* comprises value added in mining; manufacturing (also reported as a separate subgroup); construction; and electricity, water, and gas. Value added in all other branches of economic activity, including imputed bank service charges, import duties, and any statistical discrepancies noted by national compilers, are categorized as *services, etc.*

Partially rebased, chain-linked 1987 series in domestic currencies, as explained at the beginning of the technical notes, are used to compute the growth rates in Table 2. The sectoral shares of GDP in Table 3 are based on current price series.

In calculating the summary measures for each indicator in Table 2, partially rebased constant 1987 US dollar values for each economy are calculated for each year of the periods covered; the values are aggregated across countries for each year; and the least-squares procedure is used to compute the growth rates. The average sectoral percentage shares in Table 3 are computed from group aggregates of sectoral GDP in current US dollars.

Table 4. Agriculture and food

The basic data for *value added in agriculture* are from the World Bank's national accounts series at current prices in national currencies. Value added in current prices in national currencies is converted to US dollars by applying the single-year conversion pro-

cedure, as described in the technical note for Tables 2 and 3.

The figures for the remainder of this table are from the Food and Agriculture Organization (FAO). *Cereal imports* are measured in grain equivalents and defined as comprising all cereals in the *Standard International Trade Classification* (SITC), Revision 2, Groups 041-046. *Food aid in cereals* covers wheat and flour, bulgur, rice, coarse grains, and the cereal component of blended foods. The figures are not directly comparable because of reporting and timing differences. Cereal imports are based on calendar-year data reported by recipient countries, and food aid in cereals is based on data for crop years reported by donors and international organizations, including the International Wheat Council and the World Food Programme. Furthermore, food aid information from donors may not correspond to actual receipts by beneficiaries during a given period because of delays in transportation and recording, or because aid is sometimes not reported to the FAO or other relevant international organizations. Food aid imports may also not show up in customs records. The earliest available food aid data are for 1974. The time reference for food aid is the crop year, July to June.

Fertilizer consumption measures the plant nutrients used in relation to arable land. Fertilizer products cover nitrogenous, potash, and phosphate fertilizers (which include ground rock phosphate). Arable land is defined as land under temporary crops (double-cropped areas are counted once), temporary meadows for mowing or pastures, land under market or kitchen gardens, and land temporarily fallow or lying idle, as well as land under permanent crops. The time reference for fertilizer consumption is the crop year, July to June.

The *average index of food production per capita* shows the average annual quantity of food produced per capita in 1987-89 in relation to the average produced annually in 1979-81. The estimates are derived by dividing the quantity of food production by the total population. For this index food is defined as comprising nuts, pulses, fruits, cereals, vegetables, sugar cane, sugar beet, starchy roots, edible oils, livestock, and livestock products. Quantities of food production are measured net of animal feed, seeds for use in agriculture, and food lost in processing and distribution.

The summary measures for fertilizer consumption are weighted by total arable land area; the summary measures for food production are weighted by population.

Table 5. Commercial energy

The data on energy are primarily from UN sources. They refer to commercial forms of primary energy—

petroleum and natural gas liquids, natural gas, solid fuels (coal, lignite, and so on), and primary electricity (nuclear, geothermal, and hydroelectric power)—all converted into oil equivalents. Figures on liquid fuel consumption include petroleum derivatives that have been consumed in nonenergy uses. For converting primary electricity into oil equivalents, a notional thermal efficiency of 34 percent has been assumed. The use of firewood, dried animal excrement, and other traditional fuels, although substantial in some developing countries, is not taken into account because reliable and comprehensive data are not available.

Energy imports refer to the dollar value of energy imports—Section 3 in the *Standard International Trade Classification*, Revision 1—and are expressed as a percentage of earnings from merchandise exports. Because data on energy imports do not permit a distinction between petroleum imports for fuel and those for use in the petrochemicals industry, these percentages may overestimate the dependence on imported energy.

The summary measures of energy production and consumption are computed by aggregating the respective volumes for each of the years covered by the periods and then applying the least-squares growth rate procedure. For energy consumption per capita, population weights are used to compute summary measures for the specified years.

The summary measures of energy imports as a percentage of merchandise exports are computed from group aggregates for energy imports and merchandise exports in current dollars.

Table 6. Structure of manufacturing

The basic data for *value added in manufacturing* are from the World Bank's national accounts series at current prices in national currencies. Value added in current prices in national currencies is converted to US dollars by applying the single-year conversion procedure, as described in the technical note for Tables 2 and 3.

The data for *distribution of manufacturing value added* among industries are provided by the United Nations Industrial Development Organization, and distribution calculations are from national currencies in current prices.

The classification of manufacturing industries is in accordance with the UN *International Standard Industrial Classification of All Economic Activities* (ISIC), Revision 2. *Food, beverages, and tobacco* comprise ISIC Division 31; *textiles and clothing*, Division 32; *machinery and transport equipment*, Major Groups 382–84; and *chemicals*, Major Groups 351 and 352. *Other* comprises wood and related products (Division 33), paper and related products (Division 34), petroleum and related

products (Major Groups 353–56), basic metals and mineral products (Divisions 36 and 37), fabricated metal products and professional goods (Major Groups 381 and 385), and other industries (Major Group 390). When data for textiles, machinery, or chemicals are shown as not available, they are also included in *other*.

Summary measures given for value added in manufacturing are totals calculated by the aggregation method noted at the beginning of the technical notes.

Table 7. Manufacturing earnings and output

Four indicators are shown—two relate to real earnings per employee, one to labor's share in total value added generated, and one to labor productivity in the manufacturing sector. The indicators are based on data from the United Nations Industrial Development Organization (UNIDO), although the deflators are from other sources, as explained below.

Earnings per employee are in constant prices and are derived by deflating nominal earnings per employee by the country's consumer price index (CPI). The CPI is from the International Monetary Fund's *International Financial Statistics*. *Total earnings as a percentage of value added* are derived by dividing total earnings of employees by value added in current prices, to show labor's share in income generated in the manufacturing sector. *Gross output per employee* is in constant prices and is presented as an index of overall labor productivity in manufacturing with 1980 as the base year. To derive this indicator, UNIDO data on gross output per employee in current prices are adjusted using the implicit deflators for value added in manufacturing or in industry, taken from the World Bank's national accounts data files.

To improve cross-country comparability, UNIDO has, where possible, standardized the coverage of establishments to those with five or more employees.

The concepts and definitions are in accordance with the *International Recommendations for Industrial Statistics*, published by the United Nations. Earnings (wages and salaries) cover all remuneration to employees paid by the employer during the year. The payments include (a) all regular and overtime cash payments and bonuses and cost of living allowances; (b) wages and salaries paid during vacation and sick leave; (c) taxes and social insurance contributions and the like, payable by the employees and deducted by the employer; and (d) payments in kind.

The value of gross output is estimated on the basis of either production or shipments. On the production basis it consists of (a) the value of all products of the establishment, (b) the value of industrial services rendered to others, (c) the value of goods shipped in the same condition as received, (d) the value of electricity sold, and (e) the net change in the value of work-in-

progress between the beginning and the end of the reference period. In the case of estimates compiled on a shipment basis, the net change between the beginning and the end of the reference period in the value of stocks of finished goods is also included. "Value added" is defined as the current value of gross output less the current cost of (a) materials, fuels, and other supplies consumed, (b) contract and commission work done by others, (c) repair and maintenance work done by others, and (d) goods shipped in the same condition as received.

The term "employees" in this table combines two categories defined by the UN, regular employees and persons engaged. Together these groups comprise regular employees, working proprietors, active business partners, and unpaid family workers; they exclude homeworkers. The data refer to the average number of employees working during the year.

Tables 8 and 9. Growth of consumption and investment; structure of demand

GDP is defined in the note for Tables 2 and 3, but for these two tables it is in purchaser values.

General government consumption includes all current expenditure for purchases of goods and services by all levels of government. Capital expenditure on national defense and security is regarded as consumption expenditure.

Private consumption, etc., is the market value of all goods and services, including durable products (such as cars, washing machines, and home computers) purchased or received as income in kind by households and nonprofit institutions. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings (see the note for Table 10 for details). In practice, it includes any statistical discrepancy in the use of resources. At constant prices, it also includes the rescaling deviation from partial rebasing, which is explained at the beginning of the technical notes.

Gross domestic investment consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories.

Gross domestic savings are calculated by deducting total consumption from GDP.

Exports of goods and nonfactor services represent the value of all goods and nonfactor services provided to the rest of the world; they include merchandise, freight, insurance, travel, and other nonfactor services. The value of factor services, such as investment income, interest, and labor income, is excluded. Current transfers are also excluded.

The *resource balance* is the difference between exports of goods and nonfactor services and imports of goods and nonfactor services.

Partially rebased 1987 series in constant domestic

currency units are used to compute the indicators in Table 8. Distribution of GDP in Table 9 is calculated from national accounts series in current domestic currency units.

The summary measures are calculated by the method explained in the note for Tables 2 and 3.

Table 10. Structure of consumption

Percentage shares of selected items in total household consumption expenditure are computed from details of GDP (expenditure at national market prices) defined in the UN *System of National Accounts* (SNA), mostly as collected from International Comparison Program (ICP) Phases IV (1980) and V (1985). For countries not covered by the ICP, less detailed national accounts estimates are included, where available, in order to present a general idea of the broad structure of consumption. The data cover eighty-four countries (including Bank staff estimates for China) and refer to the most recent estimates, generally for 1980 and 1985. Where they refer to other years the figures are shown in italics. *Consumption* here refers to private (nongovernment) consumption as defined in the SNA and in the notes for Tables 2 and 3, 4, and 9, except that education and medical care comprise government as well as private outlays. This ICP concept of "enhanced consumption" reflects who uses rather than who pays for consumption goods, and it improves international comparability because it is less sensitive to differing national practices regarding the financing of health and education services.

Cereals and tubers, a major subitem of *food*, comprise the main staple products: rice, flour, bread, all other cereals and cereal preparations, potatoes, yams, and other tubers. For high-income OECD members, however, this subitem does not include tubers. *Gross rents; fuel and power* consist of actual and imputed rents and repair and maintenance charges, as well as the subitem *fuel and power* (for heating, lighting, cooking, air conditioning, and so forth). Note that this item excludes energy used for transport (rarely reported to be more than 1 percent of total consumption in low- and middle-income economies). As mentioned, *medical care* and *education* include government as well as private consumption expenditure. *Transport and communication* also includes the purchase of *automobiles*, which are reported as a subitem. *Other consumption*, the residual group, includes beverages and tobacco, nondurable household goods and household services, recreational services, and services (including meals) supplied by hotels and restaurants; carry-out food is recorded here. It also includes the separately reported subitem *other consumer durables*, comprising household appliances, furniture, floor coverings, recreational equipment, and watches and jewelry.

Estimating the structure of consumption is one of the weakest aspects of national accounting in low- and middle-income economies. The structure is estimated through household expenditure surveys and similar survey techniques. It therefore shares any bias inherent in the sample frame. Since, conceptually, expenditure is not identical to consumption, other apparent discrepancies occur and data for some countries should be treated with caution. For example, some countries limit surveys to urban areas or, even more narrowly, to capital cities. This tends to produce lower than average shares for food and high shares for transport and communication, gross rents, fuel and power, and other consumption. Controlled food prices and incomplete national accounting for subsistence activities also contribute to low food shares.

Table 11. Central government expenditure

The data on central government finance in Tables 11 and 12 are from the IMF *Government Finance Statistics Yearbook* (1990) and IMF data files. The accounts of each country are reported using the system of common definitions and classifications found in the IMF *Manual on Government Finance Statistics* (1986).

For complete and authoritative explanations of concepts, definitions, and data sources, see these IMF sources. The commentary that follows is intended mainly to place these data in the context of the broad range of indicators reported in this edition.

The shares of *total expenditure* and *current revenue* by category are calculated from series in national currencies. Because of differences in coverage of available data, the individual components of central government expenditure and current revenue shown in these tables may not be strictly comparable across all economies.

Moreover, inadequate statistical coverage of state, provincial, and local governments dictates the use of central government data; this may seriously understate or distort the statistical portrayal of the allocation of resources for various purposes, especially in countries where lower levels of government have considerable autonomy and are responsible for many economic and social services. In addition, "central government" can mean either of two accounting concepts: consolidated or budgetary. For most countries, central government finance data have been consolidated into one overall account, but for others only the budgetary central government accounts are available. Since all central government units are not always included in the budgetary accounts, the overall picture of central government activities is usually incomplete. Countries reporting budgetary data are footnoted.

It must be emphasized that for these and other

reasons the data presented, especially those for education and health, are not comparable across countries. In many economies private health and education services are substantial; in others public services represent the major component of total expenditure but may be financed by lower levels of government. Caution should therefore be exercised in using the data for cross-country comparisons. Central government expenditure comprises the expenditure by all government offices, departments, establishments, and other bodies that are agencies or instruments of the central authority of a country. It includes both current and capital (development) expenditure.

Defense comprises all expenditure, whether by defense or other departments, on the maintenance of military forces, including the purchase of military supplies and equipment, construction, recruiting, and training. Also in this category are closely related items such as military aid programs. Defense does not include expenditure on public order and safety, which are classified separately.

Education comprises expenditure on the provision, management, inspection, and support of preprimary, primary, and secondary schools; of universities and colleges; and of vocational, technical, and other training institutions. Also included is expenditure on the general administration and regulation of the education system; on research into its objectives, organization, administration, and methods; and on such subsidiary services as transport, school meals, and school medical and dental services. Note that Table 10 provides an alternative measure of expenditure on education, private as well as public, relative to household consumption.

Health covers public expenditure on hospitals, maternity and dental centers, and clinics with a major medical component; on national health and medical insurance schemes; and on family planning and preventive care. Note that Table 10 provides a more comprehensive measure of expenditure on medical care, private as well as public, relative to household consumption.

Housing, amenities; social security and welfare cover expenditure on housing (excluding interest subsidies, which are usually classified with "other"), such as income-related schemes; on provision and support of housing and slum clearance activities; on community development; and on sanitary services. These categories also cover compensation for loss of income to the sick and temporarily disabled; payments to the elderly, the permanently disabled, and the unemployed; family, maternity, and child allowances; and the cost of welfare services, such as care of the aged, the disabled, and children. Many expenditures relevant to environmental defense, such as pollution abatement, water supply, sanitary affairs, and refuse

collection, are included indistinguishably in this category.

Economic services comprise expenditure associated with the regulation, support, and more efficient operation of business; economic development; redress of regional imbalances; and creation of employment opportunities. Research, trade promotion, geological surveys, and inspection and regulation of particular industry groups are among the activities included.

Other covers interest payments and items not included elsewhere; for a few economies it also includes amounts that could not be allocated to other components (or adjustments from accrual to cash accounts).

Total expenditure is more narrowly defined than the measure of general government consumption given in Table 9 because it excludes consumption expenditure by state and local governments. At the same time, central government expenditure is more broadly defined because it includes government's gross domestic investment and transfer payments.

Overall surplus/deficit is defined as current and capital revenue and official grants received, less total expenditure and lending minus repayments.

Table 12. Central government current revenue

Information on data sources and comparability is given in the note for Table 11. Current revenue by source is expressed as a percentage of *total current revenue*, which is the sum of tax revenue and nontax revenue and is calculated from national currencies.

Tax revenue comprises compulsory, unrequited, nonrepayable receipts for public purposes. It includes interest collected on tax arrears and penalties collected on nonpayment or late payment of taxes and is shown net of refunds and other corrective transactions. *Taxes on income, profit, and capital gains* are taxes levied on the actual or presumptive net income of individuals, on the profits of enterprises, and on capital gains, whether realized on land sales, securities, or other assets. Intragovernmental payments are eliminated in consolidation. *Social security contributions* include employers' and employees' social security contributions as well as those of self-employed and unemployed persons. *Domestic taxes on goods and services* include general sales and turnover or value added taxes, selective excises on goods, selective taxes on services, taxes on the use of goods or property, and profits of fiscal monopolies. *Taxes on international trade and transactions* include import duties, export duties, profits of export or import monopolies, exchange profits, and exchange taxes. *Other taxes* include employers' payroll or labor taxes, taxes on property, and taxes not allocable to other categories. They may include negative values that are adjust-

ments, for instance, for taxes collected on behalf of state and local governments and not allocable to individual tax categories.

Nontax revenue comprises receipts that are not a compulsory nonrepayable payment for public purposes, such as fines, administrative fees, or entrepreneurial income from government ownership of property. Proceeds of grants and borrowing, funds arising from the repayment of previous lending by governments, incurrence of liabilities, and proceeds from the sale of capital assets are not included.

Table 13. Money and interest rates

The data on monetary holdings are based on the IMF's *International Financial Statistics* (IFS). *Monetary holdings, broadly defined*, comprise the monetary and quasi-monetary liabilities of a country's financial institutions to residents other than the central government. For most countries, monetary holdings are the sum of money (IFS line 34) and quasi-money (IFS line 35). Money comprises the economy's means of payment: currency outside banks and demand deposits. Quasi-money comprises time and savings deposits and similar bank accounts that the issuer will readily exchange for money. Where nonmonetary financial institutions are important issuers of quasi-monetary liabilities, these are also included in the measure of monetary holdings.

The growth rates for monetary holdings are calculated from year-end figures, while the average of the year-end figures for the specified year and the previous year is used for the ratio of monetary holdings to GDP.

The *nominal interest rates of banks*, also from IFS, represent the rates paid by commercial or similar banks to holders of their quasi-monetary liabilities (deposit rate) and charged by the banks on loans to prime customers (lending rate). The data are, however, of limited international comparability partly because coverage and definitions vary, and partly because countries differ in the scope available to banks for adjusting interest rates to reflect market conditions.

Since interest rates (and growth rates for monetary holdings) are expressed in nominal terms, much of the variation among countries stems from differences in inflation. For easy reference, the Table 1 indicator of recent inflation is repeated in this table.

Table 14. Growth of merchandise trade

The main data source for current trade values is the UN Commodity Trade (Comtrade) data file supplemented by data from United Nations Conference on Trade and Development (UNCTAD) and World Bank

estimates. The statistics on merchandise trade are based on countries' customs returns.

Merchandise *exports* and *imports*, with some exceptions, cover international movements of goods across customs borders; trade in services is not included. Exports are valued f.o.b. (free on board) and imports c.i.f. (cost, insurance, and freight), unless otherwise specified in the foregoing sources. These values are in current dollars.

The growth rates of merchandise exports and imports are based on constant price data, which are obtained from export or import value data as deflated by the corresponding price index. The World Bank uses its own price indexes, which are based on international prices for primary commodities and unit value indexes for manufactures. These price indexes are country-specific and disaggregated by broad commodity groups. This ensures consistency between data for a group of countries and those for individual countries. Such consistency will increase as the World Bank continues to improve its trade price indexes for an increasing number of countries. These growth rates can differ from those derived from national practices because national price indexes may use different base years and weighting procedures from those used by the World Bank.

The *terms of trade*, or the net barter terms of trade, measure the relative movement of export prices against that of import prices. Calculated as the ratio of a country's index of average export prices to its average import price index, this indicator shows changes over a base year in the level of export prices as a percentage of import prices. The terms of trade index numbers are shown for 1985 and 1989, where 1987 = 100. The price indexes are from the source cited above for the growth rates of exports and imports.

The summary measures for the growth rates are calculated by aggregating the 1987 constant US dollar price series for each year and then applying the least-squares growth rate procedure for the periods shown.

Tables 15 and 16. Structure of merchandise imports and exports

The shares in these tables are derived from trade values in current dollars reported in the UN trade data system and the UN *Yearbook of International Trade Statistics*, supplemented by other secondary sources and World Bank estimates, as explained in the technical note for Table 14.

Merchandise *exports* and *imports* are also defined in that note.

The categorization of exports and imports follows the *Standard International Trade Classification* (SITC),

Series M, No. 34, Revision 1. Estimates from secondary sources also usually follow this definition. For some countries, data for certain commodity categories are unavailable and the full breakdown cannot be shown.

In Table 15, *food* commodities are those in SITC Sections 0, 1, and 4 and Division 22 (food and live animals, beverages, oils and fats, and oilseeds and nuts). Unlike previous years, Division 12, tobacco, is included in *food*, rather than *other primary commodities*; thus the data are not strictly comparable with those of previous years, particularly if tobacco is a major import item. *Fuels* are the commodities in SITC Section 3 (mineral fuels, and lubricants and related materials). *Other primary commodities* comprise SITC Section 2 (crude materials, excluding fuels), less Division 22 (oilseeds and nuts), plus Division 68 (nonferrous metals). *Machinery and transport equipment* are the commodities in SITC Section 7. *Other manufactures*, calculated residually from the total value of manufactured imports, represent SITC Sections 5 through 9, less Section 7 and Division 68.

In Table 16, *fuels, minerals, and metals* are the commodities in SITC Section 3 (mineral fuels, and lubricants and related materials), Divisions 27 and 28 (minerals and crude fertilizers, and metalliferous ores), and Division 68 (nonferrous metals). *Other primary commodities* comprise SITC Sections 0, 1, 2, and 4 (food and live animals, beverages and tobacco, inedible crude materials, oils, fats, and waxes), less Divisions 27 and 28. *Machinery and transport equipment* are the commodities in SITC Section 7. *Other manufactures* represent SITC Sections 5 through 9, less Section 7 and Division 68. *Textiles and clothing*, representing SITC Divisions 65 and 84 (textiles, yarns, fabrics, and clothing), are a subgroup of *other manufactures*.

The summary measures in Table 15 are weighted by total merchandise imports of individual countries in current dollars; those in Table 16 by total merchandise exports of individual countries in current dollars. (See the technical note for Table 14.)

Table 17. OECD imports of manufactured goods: origin and composition

The data are from the United Nations, reported by high-income OECD economies, which are the OECD members excluding Greece, Portugal, and Turkey.

The table reports the value of *imports of manufactures* of high-income OECD countries by the economy of origin, and the composition of such imports by major manufactured product groups.

The table replaces one in past editions on the origin and destination of manufactured exports, which was based on exports reported by individual economies. Since there was a lag of several years in reporting by

many developing economies, estimates based on various sources were used to fill the gaps. Until these estimates can be improved, this table, based on up-to-date and consistent but less comprehensive data, is included instead. Manufactured imports of the predominant markets from individual economies are the best available proxy of the magnitude and composition of the manufactured exports of these economies to all destinations taken together.

Manufactured goods are the commodities in the *Standard International Trade Classification (SITC)*, Revision 1, Sections 5 through 9 (chemical and related products, basic manufactures, manufactured articles, machinery and transport equipment, and other manufactured articles and goods not elsewhere classified), excluding Division 68 (nonferrous metals). This definition is somewhat broader than the one used to define exporters of manufactures.

The major manufactured product groups reported are defined as follows: *textiles and clothing* (SITC Sections 65 and 84), *chemicals* (SITC Section 5), *electrical machinery and electronics* (SITC Section 72), *transport equipment* (SITC Section 73), and *others*, defined as the residual. SITC Revision 1 data are used for the year 1969, whereas the equivalent data in Revision 2 are used for the year 1989.

Table 18. Balance of payments and reserves

The statistics for this table are mostly as reported by the IMF but do include recent estimates by World Bank staff and, in rare instances, the Bank's own coverage or classification adjustments to enhance international comparability. Values in this table are in US dollars converted at current exchange rates.

The *current account balance after official transfers* is the difference between (a) exports of goods and services (factor and nonfactor) as well as inflows of unrequited transfers (private and official) and (b) imports of goods and services as well as all unrequited transfers to the rest of the world.

The *current account balance (before official transfers)* is the current account balance that treats net official unrequited transfers as akin to official capital movements. The difference between the two balance of payments measures is essentially foreign aid in the form of grants, technical assistance, and food aid, which, for most developing countries, tends to make current account deficits smaller than the financing requirement.

Net workers' remittances cover payments and receipts of income by migrants who are employed or expect to be employed for more than a year in their new economy, where they are considered residents. These remittances are classified as private unrequited transfers and are included in the balance of payments

current account balance, whereas those derived from shorter-term stays are included in services as labor income. The distinction accords with internationally agreed guidelines, but many developing countries classify workers' remittances as a factor income receipt (and hence a component of GNP). The World Bank adheres to international guidelines in defining GNP and, therefore, may differ from national practices.

Gross international reserves comprise holdings of monetary gold, special drawing rights (SDRs), the reserve position of members in the IMF, and holdings of foreign exchange under the control of monetary authorities. The data on holdings of international reserves are from IMF data files. The gold component of these reserves is valued throughout at year-end (December 31) London prices: that is, \$37.37 an ounce in 1970 and \$401.00 an ounce in 1989. The reserve levels for 1970 and 1989 refer to the end of the year indicated and are in current dollars at prevailing exchange rates. Because of differences in the definition of international reserves, in the valuation of gold, and in reserve management practices, the levels of reserve holdings published in national sources do not have strictly comparable significance. Reserve holdings at the end of 1989 are also expressed in terms of the number of months of imports of goods and services they could pay for.

The summary measures are computed from group aggregates for gross international reserves and total imports of goods and services in current dollars.

Table 19. Official development assistance from OECD and OPEC members

Official development assistance (ODA) consists of net disbursements of loans and grants made on concessional financial terms by official agencies of the members of the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD) and members of the Organization of Petroleum Exporting Countries (OPEC) to promote economic development and welfare. Although this definition is meant to exclude purely military assistance, the borderline is sometimes blurred; the definition used by the country of origin usually prevails. ODA also includes the value of technical cooperation and assistance. All data shown are supplied by the OECD, and all US dollar values are converted at official exchange rates.

Total net flows are net disbursements to developing countries and multilateral institutions. The disbursements to multilateral institutions are now reported for all DAC members on the basis of the date of issue of notes; some DAC members previously reported on the basis of the date of encashment. *Total bilateral*

flows to low-income economies exclude unallocated bilateral flows and all disbursements to multilateral institutions.

The nominal values shown in the summary for ODA from high-income OECD countries were converted at 1987 prices using the dollar GDP deflator. This deflator is based on price increases in OECD countries (excluding Greece, Portugal, and Turkey) measured in dollars. It takes into account the parity changes between the dollar and national currencies. For example, when the dollar depreciates, price changes measured in national currencies have to be adjusted upward by the amount of the depreciation to obtain price changes in dollars.

The table, in addition to showing totals for OPEC, shows totals for the Organization of Arab Petroleum Exporting Countries (OAPEC). The donor members of OAPEC are Algeria, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and United Arab Emirates. ODA data for OPEC and OAPEC are also obtained from the OECD.

Table 20. Official development assistance: receipts

Net disbursements of ODA from all sources consist of loans and grants made on concessional financial terms by all bilateral official agencies and multilateral sources to promote economic development and welfare. They include the value of technical cooperation and assistance. The disbursements shown in this table are not strictly comparable with those shown in Table 19 since the receipts are from all sources; disbursements in Table 19 refer only to those made by high-income members of the OECD and members of OPEC. Net disbursements equal gross disbursements less payments to the originators of aid for amortization of past aid receipts. Net disbursements of ODA are shown per capita and as a percentage of GNP.

The summary measures of per capita ODA are computed from group aggregates for population and for ODA. Summary measures for ODA as a percentage of GNP are computed from group totals for ODA and for GNP in current US dollars.

Table 21. Total external debt

The data on debt in this and successive tables are from the World Bank Debtor Reporting System, supplemented by World Bank estimates. That system is concerned solely with developing economies and does not collect data on external debt for other groups of borrowers or from economies that are not members of the World Bank. The dollar figures on debt shown in Tables 21 through 25 are in US dollars converted at official exchange rates.

The data on debt include private nonguaranteed

debt reported by twenty-seven developing countries and complete or partial estimates for an additional twenty others that do not report, but for which this type of debt is known to be significant.

Public loans are external obligations of public debtors, including the national government, its agencies, and autonomous public bodies. *Publicly guaranteed loans* are external obligations of private debtors that are guaranteed for repayment by a public entity. These two categories are aggregated in the tables. *Private nonguaranteed loans* are external obligations of private debtors that are not guaranteed for repayment by a public entity.

Use of IMF credit denotes repurchase obligations to the IMF for all uses of IMF resources, excluding those resulting from drawings in the reserve tranche. It is shown for the end of the year specified. It comprises purchases outstanding under the credit tranches, including enlarged access resources, and all of the special facilities (the buffer stock, compensatory financing, extended fund, and oil facilities), Trust Fund loans, and operations under the enhanced structural adjustment facilities. Use of IMF credit outstanding at year-end (a stock) is converted to US dollars at the dollar-SDR exchange rate in effect at year-end.

Short-term debt is debt with an original maturity of one year or less. Available data permit no distinctions between public and private nonguaranteed short-term debt.

Total external debt is defined for the purpose of this Report as the sum of public, publicly guaranteed, and private nonguaranteed long-term debt, use of IMF credit, and short-term debt.

Table 22. Flow of public and private external capital

Data on disbursements, repayment of principal (amortization), and payment of interest are for public, publicly guaranteed, and private nonguaranteed long-term loans.

Disbursements are drawings on long-term loan commitments during the year specified.

Repayment of principal is the actual amount of principal (amortization) paid in foreign currency, goods, or services in the year specified.

Interest payments are actual amounts of interest paid in foreign currency, goods, or services in the year specified.

Table 23. Aggregate net resource flows and net transfers

Net flows on long-term debt are disbursements less the repayment of principal on public, publicly guaranteed, and private nonguaranteed long-term debt. Of-

Official grants are transfers made by an official agency in cash or in kind in respect of which no legal debt is incurred by the recipient. Data on official grants exclude grants for technical assistance.

Net foreign direct investment is defined as investment that is made to acquire a lasting interest (usually 10 percent of the voting stock) in an enterprise operating in a country other than that of the investor (defined according to residency), the investor's purpose being an effective voice in the management of the enterprise. *Aggregate net resource flows* are the sum of net flows on long-term debt (excluding IMF), plus official grants (excluding technical assistance), and net foreign direct investment. *Aggregate net transfers* are equal to aggregate net resource flows minus interest payments on long-term loans and foreign direct investment profits.

Table 24. Total external debt ratios

Total external debt as a percentage of exports of goods and services represents public, publicly guaranteed, private nonguaranteed long-term debt, use of IMF credit, and short-term debt drawn at year-end, net of repayments of principal and write-offs, and, throughout this table, goods and services include workers' remittances. For estimating *total external debt as a percentage of GNP*, the debt figures are converted into US dollars from currencies of repayment at end-of-year official exchange rates. GNP is converted from national currencies to US dollars by applying the conversion procedure described in the technical note for Tables 2 and 3.

Total debt service as a percentage of goods and services is the sum of principal repayments and interest payments on total external debt (as defined in the note for Table 21). It is one of several conventional measures used to assess a country's ability to service debt.

Interest payments as a percentage of exports of goods and services are actual payments made on total external debt.

The summary measures are weighted by exports of goods and services in current dollars and by GNP in current dollars, respectively.

Table 25. Terms of external public borrowing

Commitments refer to the public and publicly guaranteed loans for which contracts were signed in the year specified. They are reported in currencies of repayment and converted into US dollars at average annual official exchange rates.

Figures for *interest rates*, *maturities*, and *grace periods* are averages weighted by the amounts of the loans. Interest is the major charge levied on a loan and is

usually computed on the amount of principal drawn and outstanding. The maturity of a loan is the interval between the agreement date, when a loan agreement is signed or bonds are issued, and the date of final repayment of principal. The grace period is the interval between the agreement date and the date of the first repayment of principal.

Public loans with variable interest rates, as a percentage of public debt, refer to interest rates that float with movements in a key market rate; for example, the London interbank offered rate (LIBOR) or the US prime rate. This column shows the borrower's exposure to changes in international interest rates.

The summary measures in this table are weighted by the amounts of the loans.

Table 26. Population growth and projections

Population growth rates are period averages calculated from midyear populations.

Population estimates for mid-1989 and estimates of fertility and mortality are made by the World Bank from data provided by the UN Population Division, the UN Statistical Office, and country statistical offices. Estimates take into account the results of the latest population censuses, which, in some cases, are neither recent nor accurate. Note that refugees not permanently settled in the country of asylum are generally considered to be part of the population of their country of origin.

The projections of population for 2000, 2025, and the year in which the population will eventually become stationary (see definition below) are made for each economy separately. Information on total population by age and sex, fertility, mortality, and international migration is projected on the basis of generalized assumptions until the population becomes stationary.

A stationary population is one in which age- and sex-specific mortality rates have not changed over a long period, and during which fertility rates have remained at replacement level; that is, when the net reproduction rate (defined in the note for Table 27) equals 1. In such a population, the birth rate is constant and equal to the death rate, the age structure is constant, and the growth rate is zero.

Population projections are made age cohort by age cohort. Mortality, fertility, and migration are projected separately and the results are applied iteratively to the 1985 base-year age structure. For the projection period 1985 to 2005, the changes in mortality are country specific: increments in life expectancy and decrements in infant mortality are based on previous trends for each country. When female secondary school enrollment is high, mortality is assumed to decline more quickly. Infant mortality is projected

separately from adult mortality. Note that the data do not yet reflect the potentially significant impact of the human immunodeficiency virus (HIV) epidemic.

Projected fertility rates are also based on previous trends. For countries in which fertility has started to decline (termed “fertility transition”), this trend is assumed to continue. It has been observed that no country with a life expectancy of less than 50 years has experienced a fertility decline; for these countries fertility transition is delayed, and then the average decline of the group of countries in fertility transition is applied. Countries with below-replacement fertility are assumed to have constant total fertility rates until 1995–2000 and then to regain replacement level by 2030.

International migration rates are based on past and present trends in migration flows and migration policy. Among the sources consulted are estimates and projections made by national statistical offices, international agencies, and research institutions. Because of the uncertainty of future migration trends, it is assumed in the projections that net migration rates will reach zero by 2025.

The estimates of the size of the stationary population are speculative. *They should not be regarded as predictions.* They are included to show the implications of recent fertility and mortality trends on the basis of generalized assumptions. A fuller description of the methods and assumptions used to calculate the estimates is contained in *World Population Projections, 1989–90 Edition*.

Table 27. Demography and fertility

The *crude birth rate* and *crude death rate* indicate respectively the number of live births and deaths occurring per thousand population in a year. They come from the sources mentioned in the note to Table 26.

Women of childbearing age are those from age 15 to 49.

The *total fertility rate* represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children at each age in accordance with prevailing age-specific fertility rates. The rates given are from the sources mentioned in the note for Table 26.

The *net reproduction rate* (NRR), which measures the number of daughters a newborn girl will bear during her lifetime, assuming fixed age-specific fertility and mortality rates, reflects the extent to which a cohort of newborn girls will reproduce themselves. An NRR of 1 indicates that fertility is at replacement level: at this rate women will bear, on average, only enough daughters to replace themselves in the population. As with the size of the stationary population, the assumed year of reaching replacement-level fertility

is speculative and should not be regarded as a prediction.

Married women of childbearing age using contraception are women who are practicing, or whose husbands are practicing, any form of contraception. Contraceptive usage is generally measured for women age 15 to 49. A few countries use measures relating to other age groups, especially 15 to 44.

Data are mainly derived from demographic and health surveys, contraceptive prevalence surveys, World Bank country data, and Mauldin and Segal's article “Prevalence of Contraceptive Use: Trends and Issues” in volume 19 of *Studies in Family Planning* (1988). For a few countries for which no survey data are available, and for several African countries, program statistics are used. Program statistics may understate contraceptive prevalence because they do not measure use of methods such as rhythm, withdrawal, or abstinence, nor use of contraceptives not obtained through the official family planning program. The data refer to rates prevailing in a variety of years, generally not more than two years before the year specified in the table.

All summary measures are country data weighted by each country's share in the aggregate population.

Table 28. Health and nutrition

The estimates of *population per physician* and *per nursing person* are derived from World Health Organization (WHO) data and are supplemented by data obtained directly by the World Bank from national sources. The data refer to a variety of years, generally no more than two years before the year specified. The figure for physicians, in addition to the total number of registered practitioners in the country, includes medical assistants whose medical training is less than that of qualified physicians but who nevertheless dispense similar medical services, including simple operations. Nursing persons include graduate, practical, assistant, and auxiliary nurses, as well as paraprofessional personnel such as health workers, first aid workers, traditional birth attendants, and so on. The inclusion of auxiliary and paraprofessional personnel provides more realistic estimates of available nursing care. Because definitions of doctors and nursing personnel vary—and because the data shown are for a variety of years—the data for these two indicators are not strictly comparable across countries.

Data on *births attended by health staff* show the percentage of births recorded where a recognized health service worker was in attendance. The data are from WHO, supplemented by UNICEF data. They are based on national sources, derived mostly from official community reports and hospital records; some reflect only births in hospitals and other medical in-

stitutions. Sometimes smaller private and rural hospitals are excluded, and sometimes even relatively primitive local facilities are included. The coverage is therefore not always comprehensive, and the figures should be treated with extreme caution.

Babies with low birth weight are children born weighing less than 2,500 grams. Low birth weight is frequently associated with maternal malnutrition and tends to raise the risk of infant mortality and lead to poor growth in infancy and childhood, thus increasing the incidence of other forms of retarded development. The figures are derived from both WHO and UNICEF sources and are based on national data. The data are not strictly comparable across countries since they are compiled from a combination of surveys and administrative records that may not have representative national coverage.

The *infant mortality rate* is the number of infants who die before reaching one year of age, per thousand live births in a given year. The data are from the UN publication *Mortality of Children under Age 5: Projections, 1950-2025* as well as from the World Bank.

The *daily calorie supply (per capita)* is calculated by dividing the calorie equivalent of the food supplies in an economy by the population. Food supplies comprise domestic production, imports less exports, and changes in stocks; they exclude animal feed, seeds for use in agriculture, and food lost in processing and distribution. These estimates are from the Food and Agriculture Organization.

The summary measures in this table are country figures weighted by each country's share in the aggregate population.

Table 29. Education

The data in this table refer to a variety of years, generally not more than two years distant from those specified; however, figures for females sometimes refer to a year earlier than that for overall totals. The data are mostly from Unesco.

Primary school enrollment data are estimates of children of all ages enrolled in primary school. Figures are expressed as the ratio of pupils to the population of school-age children. Although many countries consider primary school age to be 6 to 11 years, others do not. For some countries with universal primary education, the gross enrollment ratios may exceed 100 percent because some pupils are younger or older than the country's standard primary school age.

The data on *secondary* school enrollment are calculated in the same manner, but again the definition of secondary school age differs among countries. It is most commonly considered to be 12 to 17 years. Late entry of more mature students as well as repetition

and the phenomenon of "bunching" in final grades can influence these ratios.

The *tertiary* enrollment ratio is calculated by dividing the number of pupils enrolled in all post-secondary schools and universities by the population in the 20-24 age group. Pupils attending vocational schools, adult education programs, two-year community colleges, and distance education centers (primarily correspondence courses) are included. The distribution of pupils across these different types of institutions varies among countries. The youth population—that is, 20 to 24 years—has been adopted by Unesco as the denominator since it represents an average tertiary level cohort even though people above and below this age group may be registered in tertiary institutions.

Primary net enrollment is the percentage of school-age children who are enrolled in school. Unlike gross enrollment, the net ratios correspond to the country's primary school-age group. This indicator gives a much clearer idea of how many children in the age group are actually enrolled in school, without the number being inflated by over- (or under-) age children.

The *primary pupil-teacher ratio* is the number of pupils enrolled in school in a country, divided by the number of teachers in the education system.

The summary measures in this table are country enrollment rates weighted by each country's share in the aggregate population.

Table 30. Income distribution and ICP estimates of GDP

The data in this table refer to the ICP estimates of GDP and the distribution of income or expenditure accruing to percentile groups of households ranked by total household income, per capita income, or expenditure.

The first column presents preliminary results of the UN International Comparison Program (ICP), Phase V, for 1985. ICP recasts traditional national accounts through special price collections and disaggregation of GDP by expenditure components. More comprehensive ICP results are expected to be available by the end of 1991. The figures given here are subject to change and should be regarded as indicative only. ICP Phase V details are prepared by national statistical offices. The results are coordinated by the UN Statistical Office (UNSO) with support from other international agencies, particularly the Statistical Office of the European Communities (Eurostat) and the Organisation for Economic Co-operation and Development (OECD). The World Bank, the Economic Commission for Europe, and the Economic and Social Commission for Asia and the Pacific also contribute to this exercise.

A total of sixty-four countries participated in ICP Phase V, and preliminary results are now available for fifty-seven. For one country (Nepal), total GDP data were not available, and comparisons were made for consumption only; two countries with populations of less than 1 million—Luxembourg, with 81.3 as its estimated index of GDP per capita, and Swaziland, with 13.6—have been omitted from this table. Data for the remaining seven countries, all Caribbean, are expected soon.

Although the GDP per capita figures are presented as indexes to the US value, the underlying data are expressed in US dollars. However, these dollar values, which are different from those shown in Tables 1 and 3 (see the technical notes for these tables), are obtained by special conversion factors designed to equalize purchasing powers of currencies in the respective countries. This conversion factor, commonly known as the purchasing power parity (PPP), is defined as the number of units of a country's currency required to buy the same amounts of goods and services in the domestic market as one dollar would buy in the United States. The computation of PPPs involves obtaining implicit quantities from national accounts expenditure data and specially collected price data and revaluing the implicit quantities in each country at a single set of average prices. The PPP rate thus equalizes dollar prices in every country, and cross-country comparisons of GDP based on them reflect differences in quantities of goods and services free of any price-level differentials. This procedure is designed to bring cross-country comparisons in line with cross-time real value comparisons that are based on constant price series.

The figures presented here are the results of a two-step exercise. Countries within a region or group such as the OECD are first compared using their own group average prices. Next, since group average prices may differ from each other, making the countries belonging to different groups not comparable, the group prices are adjusted to make them comparable at the world level. The adjustments, done by UNSO, are based on price differentials observed in a network of "link" countries representing each group. However, the linking is done in a manner that retains in the world comparison the relative levels of GDP observed in the group comparisons.

The two-step process was adopted because the relative GDP levels and rankings of two countries may change when more countries are brought into the comparison. It was felt that this should not be allowed to happen within geographic regions; that is, that the relationship of, say, Ghana and Senegal should not be affected by the prices prevailing in the United States. Thus overall GDP per capita levels are calculated at "regional" prices and then linked to-

gether. The linking is done by revaluing GDPs of all the countries at average "world" prices and reallocating the new regional totals on the basis of each country's share in the original comparison.

Such a method does not permit the comparison of more detailed quantities (such as food consumption). Hence these subaggregates and more detailed expenditure categories are calculated using world prices. These quantities are indeed comparable internationally, but they do not add up to the indicated GDPs because they are calculated at a different set of prices.

Some countries belong to several regional groups. Some groups have priority; others are equal. Thus fixity is always maintained between members of the European Communities, even within the OECD and world comparison. For Finland and Austria, however, the bilateral relationship that prevails within the OECD comparison is also the one used within the global comparison. However, a significantly different relationship (based on Central European prices) prevails in the comparison within that group, and this is the relationship presented in the separate publication of the European comparison.

The estimates in the second column are calculated from the actual ICP results reported in the first, by applying average annual growth rates of GNP computed from World Bank files. The numbers do not reflect changes in terms of trade. The estimates in the third column are calculated from those in the second by expressing the values in 1985 "international dollars" and multiplying them by the US inflation rate measured by the implicit GNP deflator. The ICP estimates are expressed in "international dollars," which have the same purchasing power over total US GDP as the US dollar in a given year, but with a purchasing power over subaggregates determined by average international prices rather than by US relative prices.

For further details on the ICP procedures, readers may consult the ICP Phase IV report, *World Comparisons of Purchasing Power and Real Product for 1980* (New York: United Nations, 1986).

The income distribution data cover rural and urban areas for all countries. The data refer to different years between 1979 and 1989 and are drawn from a variety of sources. These include the Economic Commission for Latin America and the Caribbean, the Luxembourg Income Study, the OECD, the UN's *National Accounts Statistics: Compendium of Income Distribution Statistics, 1985*, the World Bank, and national sources. Data for many countries have been updated, and some of the income distribution data previously published have been deleted because they refer to years long past.

In many countries the collection of income distribu-

tion data is not systematically organized or integrated with the official statistical system. The data are derived from surveys designed for other purposes, most often consumer expenditure surveys, that also collect information on income. These surveys use a variety of income concepts and sample designs, and in many cases their geographic coverage is too limited to provide reliable nationwide estimates of income distribution. Although the data presented here represent the best available estimates, they do not avoid all these problems and should be interpreted with caution.

Similarly, the scope of the indicator is limited for certain countries, and data for other countries are not fully comparable. Because households vary in size, a distribution in which households are ranked according to per capita household income, rather than according to total household income, is superior for many purposes. The distinction is important because households with low per capita incomes frequently are large households, whose total income may be high, whereas many households with low household incomes may be small households with high per capita income. Information on the distribution of per capita household income exists for only a few countries and is infrequently updated. Where possible, distributions are ranked according to per capita income; more often they are ranked by household income, with others ranked by per capita expenditure or household expenditure. Since the size of household is likely to be small for low-income households (for instance, single-person households and couples without children), the distribution of household income may overstate the income inequality. Also, since household savings tend to increase faster as income levels increase, the distribution of expenditure is inclined to understate the income inequality. The World Bank's Living Standards Measurement Study and the Social Dimensions of Adjustment project (the latter covering Sub-Saharan African countries) are assisting a few countries in improving their collection and analysis of data on income distribution.

Table 31. Urbanization

Data on urban population and agglomeration in large cities are from the UN's *Prospects of World Urbanization*, supplemented by data from the World Bank. The growth rates of urban population are calculated from the World Bank's population estimates; the estimates of urban population shares are calculated from both sources just cited.

Because the estimates in this table are based on different national definitions of what is urban, cross-country comparisons should be made with caution.

The summary measures for urban population as a

percentage of total population are calculated from country percentages weighted by each country's share in the aggregate population; the other summary measures in this table are weighted in the same fashion, using urban population.

Table 32. Women in development

This table provides some basic indicators disaggregated to show differences between the sexes that illustrate the condition of women in society. The measures reflect the demographic status of women and their access to health and education services. Statistical anomalies become even more apparent when social indicators are analyzed by gender, because reporting systems are often weak in areas related specifically to women. Indicators drawn from censuses and surveys, such as those on population, tend to be about as reliable for women as for men; but indicators based largely on administrative records, such as maternal and infant mortality, are less reliable. More resources are now being devoted to develop better information on these topics, but the reliability of data, even in the series shown, still varies significantly.

The *under 5 mortality rate* shows the probability of a newborn baby dying before reaching age 5. The rates are derived from life tables based on estimated current life expectancy at birth and on infant mortality rates. In general throughout the world more males are born than females. Under good nutritional and health conditions and in times of peace, male children under 5 have a higher death rate than females. These columns show that female-male differences in the risk of dying by age 5 vary substantially. In industrial market economies, female babies have a 23 percent lower risk of dying by age 5 than male babies; the risk of dying by age 5 is actually higher for females than for males in some lower-income economies. This suggests differential treatment of males and females with respect to food and medical care.

Such discrimination particularly affects very young girls, who may get a smaller share of scarce food or receive less prompt costly medical attention. This pattern of discrimination is not uniformly associated with development. There are low- and middle-income countries (and regions within countries) where the risk of dying by age 5 for females relative to males approximates the pattern found in industrial countries. In many other countries, however, the numbers starkly demonstrate the need to associate women more closely with development. The health and welfare indicators in both Table 28 and in this table's maternal mortality column draw attention, in particular, to the conditions associated with childbearing. This activity still carries the highest risk of death for

women of reproductive age in developing countries. The indicators reflect, but do not measure, both the availability of health services for women and the general welfare and nutritional status of mothers.

Life expectancy at birth is defined in the note to Table 1.

Maternal mortality refers to the number of female deaths that occur during childbirth per 100,000 live births. Because deaths during childbirth are defined more widely in some countries to include complications of pregnancy or the period after childbirth, or of abortion, and because many pregnant women die because of lack of suitable health care, maternal mortality is difficult to measure consistently and reliably across countries. The data in these two series are drawn from diverse national sources and collected by the World Health Organization (WHO), although many national administrative systems are weak and do not record vital events in a systematic way. The data are derived mostly from official community reports and hospital records, and some reflect only deaths in hospitals and other medical institutions. Sometimes smaller private and rural hospitals are excluded, and sometimes even relatively primitive local facilities are included. The coverage is therefore not always comprehensive, and the figures should be treated with extreme caution.

Clearly, many maternal deaths go unrecorded, particularly in countries with remote rural populations; this accounts for some of the very low numbers shown in the table, especially for several African countries. Moreover, it is not clear whether an increase in the number of mothers in hospital reflects more extensive medical care for women or more complications in pregnancy and childbirth because of poor nutrition, for instance. (Table 28 shows data on low birth weight.)

These time series attempt to bring together readily available information not always presented in international publications. WHO warns that there are inevitably gaps in the series, and it has invited countries to provide more comprehensive figures. They are reproduced here, from the 1986 WHO publication *Maternal Mortality Rates*, supplemented by the UNICEF publication *The State of the World's Children 1989*, as part of the international effort to highlight data in this field. The data refer to any year from 1977 to 1984.

The *education* indicators, based on Unesco sources, show the extent to which females have equal access to schooling.

Percentage of cohort persisting to grade 4 is the percentage of children starting primary school in 1970 and 1984, respectively, who continued to the fourth grade by 1973 and 1987. Figures in italics represent earlier or later cohorts. The data are based on enroll-

ment records. The slightly higher persistence ratios for females in some African countries may indicate male participation in activities such as animal herding.

All things being equal, and opportunities being the same, the ratios for *females per 100 males* should be close to 100. However, inequalities may cause the ratios to move in different directions. For example, the number of females per 100 males will rise at secondary school level if male attendance declines more rapidly in the final grades because of males' greater job opportunities, conscription into the army, or migration in search of work. In addition, since the numbers in these columns refer mainly to general secondary education, they do not capture those (mostly males) enrolled in technical and vocational schools or in full-time apprenticeships, as in Eastern Europe.

All summary measures are country data weighted by each country's share in the aggregate population.

Table 33. Forests, protected areas, and water

This new table on natural resources is a first step toward including environmental data in the assessment of development and the planning of economic strategies. It provides a partial picture of the status of forests, the extent of areas protected for conservation or other environmentally related purposes, and the availability and use of freshwater. The data reported here are drawn from the most authoritative sources available, cited in World Resources Institute's *World Resources 1990-91*. Perhaps even more than other data in this Report, however, these data should be used with caution. While they accurately characterize major differences in resources and uses between countries, true comparability is limited because of variation in data collection, statistical methods, definitions, and government resources.

No conceptual framework has yet been agreed upon that integrates natural resource and traditional economic data. Nor are the measures shown in this table intended to be final indicators of natural resource wealth, environmental health, or resource depletion. They have been chosen because they are available for most countries, are testable, and reflect some general conditions of the environment.

The *total area* of forest refers to the total natural stands of woody vegetation in which trees predominate. These estimates are derived from country statistics assembled by the Food and Agriculture Organization of the United Nations (FAO) in 1980. Some of them are based on more recent inventories or satellite-based assessments performed during the 1980s. In 1992 the FAO will complete and publish an assessment of world forest extent and health that should modify some of these estimates substantially. The to-

tal area of *closed forest* refers to those forest areas where trees cover a high proportion of the ground and there is no continuous ground cover.) Closed forest, for members of the Economic Commission for Europe (ECE), however, is defined as those forest areas where tree crowns cover more than 20 percent of the area. These natural stands do not include tree plantations.

Total annual deforestation refers to both closed and open forest. (Open forest is defined as at least a 10 percent tree cover with a continuous ground cover.) In the ECE countries open forest has 5-20 percent crown cover or a mixture of bush and stunted trees. Deforestation is defined as the permanent conversion of forest land to other uses including pasture, shifting cultivation, mechanized agriculture, or infrastructure development. Assessments of annual deforestation, both in open and closed forest, are difficult to make and are usually undertaken as special studies. The estimates shown here for 1981-85 were calculated in 1980, projecting the rate of deforestation during the first five years of the decade. Figures in italics are estimates from other periods and are based on more recent or better assessments than those used in the 1980 projections.

Special note should be taken of Brazil—the country with the world's largest tropical closed forest—which now undertakes annual deforestation assessments. Deforested areas do not include areas logged but intended for regeneration, nor areas degraded by fuelwood gathering, acid precipitation, or forest fires. In temperate industrialized countries the permanent conversion of remaining forest to other uses is relatively rare. Brazil is unique in having several assessments of forest extent and deforestation that use a common methodology based on images from Landsat satellites. Closed forest deforestation in the Legal Amazon of Brazil during 1990 is estimated at 13,800 square kilometers, down from the 17,900 square kilometers estimated in 1989. Between 1978 and 1988, deforestation in this region averaged about 21,000 square kilometers, having peaked in 1987 and declined greatly thereafter. By 1990, cumulative deforestation (both recent and historical) within the Legal Amazon totaled 415,000 square kilometers. Deforestation outside the Legal Amazon also occurs, but there is much less information on its extent. A 1980 estimate, that open forest deforestation in Brazil totaled about 1.05 million hectares, is the most recent available.

Protected land areas are nationally protected areas of at least 1,000 hectares that fall into one of five management categories: scientific reserves and strict nature reserves, national parks of national or international significance (not materially affected by human activity), natural monuments and natural landscapes

with some unique aspects, managed nature reserves and wildlife sanctuaries, and protected landscapes and seascapes (which may include cultural landscapes). This table does not include sites protected only under local or provincial law or areas where consumptive uses of wildlife are allowed. These data are subject to variations in definition and in reporting to the organizations, such as the World Conservation Monitoring Centre, that compile and disseminate these data.

Internal renewable water resources data are subject to variation in collection and estimation methods but accurately show the magnitude of water use in both total and per capita terms. These data, however, also hide what can be significant variation in total renewable water resources from one year to another. They also fail to distinguish the variation in water availability within a country both seasonally and geographically. Because freshwater resources are based on long-term averages, their estimation explicitly excludes decade-long cycles of wet and dry. These data are compiled from national, international, and professional publications from a variety of years. In the absence of other measures, estimates of sectoral withdrawals are modeled when necessary (based on information on industry, irrigation practices, livestock populations, crop mix, and precipitation). Data from small countries and arid regions are thought less reliable than those from large countries and more humid zones. These data do not include freshwater created by desalination plants.

Annual withdrawal refers to the average annual flows of rivers and underground waters that are derived from precipitation falling within the country. The *total withdrawn* and the *percentage* withdrawn of the total renewable resource are both reported in this table. The total water withdrawn for use can exceed the total renewable resource of a country for two reasons. Water might be withdrawn from a lake or river shared with another country, or it might be withdrawn from an aquifer that is not part of the renewable cycle. *Domestic* use includes drinking water, municipal use or supply, and uses for public services, commercial establishments, and homes. Direct withdrawals for *industrial* use, including withdrawals for cooling thermoelectric plants, are combined in the final column of this table with withdrawals for *agriculture* (irrigation and livestock production). Estimates of per capita use are based on 1987 population estimates, the base year of most of the resource and withdrawal estimates.