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International organizations

World Bank www.worldbank.org
 International Monetary Fund www.imf.org
 United Nations Conference on Trade and Development (UNCTAD) www.unctad.org
 United Nations Development Programme (UNDP) www.undp.org
 Food and Agricultural Organization (FAO) www.fao.org
 World Trade Organization (WTO) www.wto.org
 World Health Organization (WHO) www.who.int
 United Nations Industrial Development Organization (UNIDO) www.unido.org
 International Labour Organization (ILO) www.ilo.org
 African Development Bank <http://afdb.org>
 Asian Development Bank www.adb.org
 Inter-American Development Bank www.iadb.org
 World Development Movement www.wdm.org.uk
 Centre for Global Development (Washington) www.cgdev.org
 Non-Governmental Organizations Global Network www.ngo.org
 Heritage Foundation www.heritage.org

Databases

Penn World Tables (accessed through the National Bureau of Economic Research) www.nber.org/pub/pwt56.html
 Economic Growth Resources (Jon Temple, Bristol University) www.bris.ac.uk/Depts/Economics/Growth
 World Bank <http://econ.worldbank.org/prr/globalisation>
 IMF/World Bank Library Network <http://jotis>

Globalization

Department for International Development, UK www.globalisation.gov.uk
 Centre for Research on Globalization <http://www.globalresearch.ca>
 The Globalization Website <http://www.emory.edu/soc/globalization/>
 Institute for International Economics <http://www.ii.com/research/globalization.htm>
 New Economics Foundation www.neweconomics.org/gen

The development gap and the measurement of poverty

CHAPTER OUTLINE

- The development gap and income distribution in the world economy
- The measurement and comparability of per capita income
- Purchasing Power Parity (PPP)
- Per capita income as an index of development
- Measuring poverty
- Meeting the Millennium Poverty Reduction Target
- Tackling poverty from the grass roots
- Human Poverty Index and Human Development Index
- Can the poor countries ever catch up?

THE DEVELOPMENT GAP AND INCOME DISTRIBUTION IN THE WORLD ECONOMY

By any standard one cares to take, the evidence is unequivocal that the world's income is distributed extremely unequally between nations and people, and that there exists in the world a broad north-south division into rich and poor countries. The World Bank classifies the countries of the world into three broad categories: low-income countries, middle-income countries, and high-income countries. Table 2.1 gives the level of per capita income in 2002 for all countries in the world with populations greater than 1 million; and at the bottom of the table the average levels of per capita income are given for the low-, middle- and high-income countries. Ignoring for the moment measurement difficulties (see later) we see that for the low-income countries, the average level of income per head is only US\$430 per annum, compared to US\$26,490 for the high-income countries (measured at current exchange rates). This gives some idea of the range of income differences, but it is an understatement of the degree of income inequality in the world economy because it compares only *average* income for poor and rich

Table 2.1 Size of the economy, 2002

Afghanistan	28	-	-	-	-
Albania	3	1 450	120	4 960	112
Algeria	31	1 720	114	5 530	103
Angola	13	710	146	1 840	163
Argentina	36	4 220	74	10 190	72
Armenia	3	790	144	3 230	139
Australia	20	19 530	29	27 440	19
Austria	8	23 860	18	28 910	12
Azerbaijan	8	710	146	3 010	142
Bangladesh	136	380	171	1 770	165
Belarus	10	1 360	124	5 500	105
Belgium	10	22 940	21	28 130	16
Benin	7	380	171	1 060	185
Bolivia	9	900	140	2 390	149
Bosnia and Herzegovina	4	1 310	125	-	-
Botswana	2	3 010	88	7 740	84
Brazil	174	2 830	91	7 450	86
Bulgaria	8	1 770	111	7 030	87
Burkina Faso	12	250	187	1 090	184
Burundi	7	100	206	630	204
Cambodia	12	300	178	1 970	159
Cameroon	16	550	156	1 910	162
Canada	31	22 390	23	28 930	11
Central African Republic	4	250	187	1 170	183
Chad	8	210	194	1 010	187
Chile	16	4 250	73	9 420	76
China	1 280	960	136	4 520	125
Hong Kong, China	7	24 690	16	27 490	18
Colombia	44	1 820	109	6 150	98
Congo, Dem. Rep.	52	100	206	630	204
Congo, Rep.	4	610	153	710	202
Costa Rica	4	4 070	77	8 560	81
Côte d'Ivoire	17	620	152	1 450	177
Croatia	4	4 540	71	10 000	74
Czech Republic	10	5 480	68	14 920	55
Denmark	5	30 260	9	30 600	8
Dominican Republic	9	-	-	6 270	97
Ecuador	13	1 490	118	3 340	138
Egypt, Arab Rep.	66	1 470	119	3 810	132
El Salvador	6	2 110	101	4 790	120
Eritrea	4	190	196	1 040	186
Estonia	1	4 190	75	11 630	63
Ethiopia	67	100	206	780	200
Finland	5	23 890	17	26 160	25
France	59	22 240	24	27 040	21
Gabon	1	3 060	87	5 530	103
Gambia, The	1	270	184	1 660	169
Georgia	5	650	151	2 270	152
Germany	82	22 740	22	26 980	22
Ghana	20	270	184	2 080	156
Greece	11	11 660	48	18 770	43
Guatemala	12	1 760	112	4 030	129

Table 2.1 continued

Guinea	8	410	169	2 060	157
Guinea-Bissau	1	130	205	680	203
Haiti	8	440	165	1 610	172
Honduras	7	930	138	2 540	147
Hungary	10	5 290	69	13 070	58
India	1 049	470	161	2 650	146
Indonesia	212	710	146	3 070	141
Iran, Islamic Rep.	66	1 720	114	6 690	91
Ireland	4	23 030	20	29 570	9
Israel	7	16 020	37	19 000	41
Italy	58	19 080	30	26 170	24
Jamaica	3	2 690	93	3 680	134
Japan	127	34 010	7	27 380	20
Jordan	5	1 760	112	4 180	127
Kazakhstan	15	1 520	117	5 630	101
Kenya	31	360	174	1 010	187
Korea, Rep.	48	9 930	53	16 960	51
Kuwait	2	16 340	36	17 780	47
Kyrgyz Republic	5	290	181	1 560	175
Lao PDR	6	310	176	1 660	169
Latvia	2	3 480	86	9 190	77
Lebanon	4	3 990	79	4 600	123
Lesotho	2	550	156	2 970	143
Liberia	3	140	201	-	-
Lithuania	3	3 670	83	10 190	72
Macedonia, FYR	2	1 710	116	6 420	95
Madagascar	16	230	191	730	201
Malawi	11	160	200	570	207
Malaysia	24	3 540	84	8 500	82
Mali	11	240	189	860	192
Mauritania	3	280	183	1 790	164
Mauritius	1	3 860	81	10 820	67
Mexico	101	5 920	66	8 800	80
Moldova	4	460	164	1 600	173
Mongolia	2	430	166	1 710	167
Morocco	30	1 170	128	3 730	133
Mozambique	18	200	195	990	189
Namibia	2	1 790	110	6 880	89
Nepal	24	230	191	1 370	179
Netherlands	16	23 390	19	28 250	15
New Zealand	4	13 260	44	20 550	39
Nicaragua	5	710	146	2 350	150
Niger	11	180	197	800	195
Nigeria	133	300	178	800	195
Norway	5	38 730	3	36 690	3
Oman	3	7 830	59	13 000	59
Pakistan	145	420	168	1 960	160
Panama	3	4 020	78	6 060	99

Table 2.1 continued

Papua New Guinea	5	530	158	2 180	153
Paraguay	6	1 170	128	4 590	124
Peru	27	2 020	103	4 880	117
Philippines	80	1 030	134	4 450	126
Poland	39	4 570	70	10 450	70
Portugal	10	10 720	50	17 820	46
Romania	22	1 870	108	6 490	93
Russian Federation	144	2 130	99	8 080	83
Rwanda	8	230	191	1 260	182
Saudi Arabia	22	8 530	57	12 660	60
Senegal	10	470	161	1 540	176
Serbia and Montenegro	8	1 400	123	-	-
Sierra Leone	5	140	201	500	208
Singapore	4	20 690	27	23 730	31
Slovak Republic	5	3 970	80	12 590	61
Slovenia	2	10 370	52	18 480	45
South Africa	45	2 500	94	9 810	75
Spain	41	14 580	40	21 210	36
Sri Lanka	19	850	142	3 510	135
Sudan	33	370	173	1 740	166
Swaziland	1	1 240	127	4 730	122
Sweden	9	25 970	12	25 820	26
Switzerland	7	36 170	4	31 840	7
Syrian Arab Republic	17	1 130	130	3 470	136
Tajikistan	6	180	197	930	191
Tanzania	35	290	181	580	206
Thailand	62	2 000	104	6 890	88
Togo	5	270	184	1 450	177
Trinidad and Tobago	1	6 750	63	9 000	79
Tunisia	10	1 990	105	6 440	94
Turkey	70	2 490	95	6 300	96
Turkmenistan	5	-	-	4 780	121
Uganda	25	240	189	1 360	180
Ukraine	49	780	145	4 800	119
United Arab Emirates	3	-	-	24 030	30
United Kingdom	59	25 510	13	26 580	23
United States	288	35 400	6	36 110	4
Uruguay	3	4 340	72	7 710	85
Uzbekistan	25	310	176	1 640	171
Venezuela, RB	25	4 080	76	5 220	110
Vietnam	80	430	166	2 300	151
West Bank and Gaza	3	1 110	131	-	-
Yemen, Rep.	19	490	160	800	195
Zambia	10	340	175	800	195
Zimbabwe	13	-	-	2 180	153

Table 2.1 continued

World	6 199	5 120	7 820
Low income	2 495	430	2 110
Middle income	2 738	1 850	5 800
Lower middle income	2 408	1 400	5 290
Upper middle income	329	5 110	9 550
Low & middle income	5 282	1 170	4 030
East Asia & Pacific	1 838	960	4 280
Europe & Central Asia	473	2 160	6 900
Latin America & Carib.	525	3 280	6 950
Middle East & N. Africa	306	2 240	5 670
South Asia	1 401	460	2 460
Sub-Saharan Africa	689	450	1 700
High Income	966	26 490	28 480

Source: World Bank, *World Development Indicators, 2004* (Washington, DC: World Bank).

countries. If the income per head of the poorest countries of Burundi, the Democratic Republic of Congo and Ethiopia are compared with the richest listed country (Norway), the gap is clearly wider: \$100 and \$38,730, respectively. Furthermore if the income per capita of the poorest people in poor countries is compared with the income per head of the richest people in rich countries, the gap becomes colossal. For example, the ratio of the average income of the richest 5 per cent of the world's population to the average income of the poorest 5 per cent of the world's population is roughly 120:1. The richest 1 per cent of people in the world receive as much income as the bottom 60 per cent. Or, to put it another way, the 60 million richest people receive as much income as 2.7 billion poor. The total income of the richest 25 million Americans is equal to the total income of 2 billion of the world's poorest people. The assets of the world's 400 billionaires (mostly in rich countries) exceed the total amount of income of nearly one-half of the world's total population. It is no wonder that the United Nations Development Programme (UNDP) has described the world as 'gargantuan in its excesses and grotesque in its human and economic inequalities'.¹

We can illustrate this inequality with a simple picture (Figure 2.1) which divides the world's population up into equal 20 per cent shares (quintiles) from poorest to richest, and then shows the percentage of income that each share receives. Interestingly, and ironically, the picture resembles a champagne glass with a very narrow stem in the hands of the poor and a wide open bowl (containing the champagne) in the hands of the rich (Wade, 2001).

The above discussion indicates that there are two aspects to the measurement of income inequality across the world. The first is the inequality between nations, which may be termed **international inequality**. The other is the inequality between people across the world, which also takes account of the distribution of income *within* countries, which may be termed **global inequality**. Both may be portrayed using a **Lorenz curve** diagram, and measured by the **Gini ratio**, which uses information on how income is

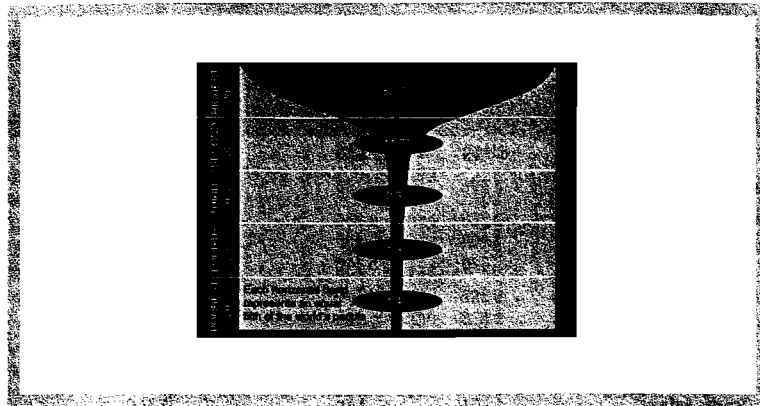


Figure 2.1 Distribution of world income, 1989 (percent of total, with quintiles of population ranked by income)

distributed across the whole population, not just between the extremes of rich and poor (as dramatized above).

Let us first consider **international inequality** and what the Gini ratio shows. If for simplicity of exposition we use the World Bank's threefold classification of low-, middle- and high-income countries, we find that the low-income countries contain approximately 40 per cent of the world's population and receive only 3 per cent of the world's income; the middle-income countries contain 45 per cent of the world's population and receive 16 per cent of world income; and the rich industrialized countries contain 15 per cent of the world's population yet receive 81 per cent of world income. Income distribution data of this type can be represented graphically on a so-called **Lorenz curve diagram**, as shown in Figure 2.2.

The 45° line in Figure 2.2 represents a perfectly equal distribution of income across the population of countries. The bowed curve is the Lorenz curve, showing graphically the degree of inequality. To draw the curve, first rank countries, or groups of countries, in ascending order according to the ratio between the percentage of income they receive and the percentage population they contain; then cumulate the observations and plot on the diagram. Taking the data given above, our ranking is obviously low-income, middle-income and high-income. The *cumulative* distribution of income is 3/40, then 19/85 when the middle-income country figures are added to the first observation figures for the low-income countries, and 100/100 when the high-income country figures are added. Plotting these distributions gives the Lorenz curve shown in Figure 2.2. If historical data are available, changes in the distribution of income through time can be shown. It is possible, however, that two (or more) Lorenz curves may cross, precluding a definite conclusion as to whether the distribution has narrowed or widened from a visual inspection of the curves alone. In this case a more precise measure of distribution is required. One measure is to express the area enclosed between the Lorenz curve and the 45° line as a ratio of the total area under the 45° line. This is the **Gini ratio**, which varies from 0 (complete equality) to 1 (complete inequality).

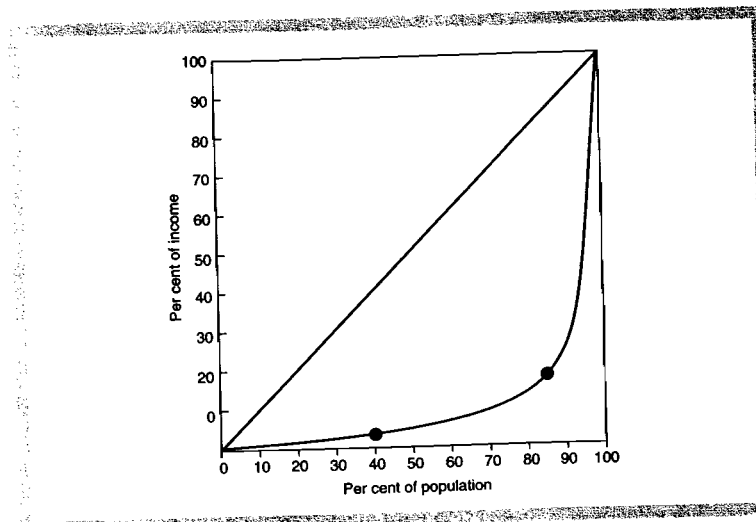


Figure 2.2 Lorenz curve diagram

The question now is: what has been happening to the international distribution of income over time? Is inequality increasing or decreasing? The answer depends on the measure of inequality taken; and also seems to depend on whether the per capita income of countries is measured in US dollars at the official rate of exchange, or in terms of purchasing power parity (PPP) (i.e. what a dollar will buy in the individual country concerned). There is no doubt that the **range** or absolute gap between the very richest and the very poorest countries has been increasing over time and also the **relative** income gap. According to Easterlin (2000), in 1820 the income ratio between the richest and poorest countries was approximately 3:1. For example, average per capita income in Great Britain in 1820 was roughly \$1765 (measured at 1990 prices) compared to \$523 in China. Now the ratio of average income in the richest and poorest country is 380! But while some countries have fallen behind the richest, others have caught up, which is why the Gini ratio is a more appropriate measure of distribution because it exploits the information for all countries.

There has been a mass of recent studies measuring and summarizing what has been happening to international inequality since the 1950s, e.g. Norwegian Institute of International Affairs (2000), Maddison (2003), Ghose (2004), Wade (2004), Sutcliffe (2004), Svedberg (2004), which reach the following conclusions:

- International inequality measured by the Gini ratio, giving equal weight to each country, has stayed the same or increased slightly, but certainly hasn't fallen (the Gini ratio is about 0.55).
- International inequality measured by the Gini ratio, with each country weighted by the size of its population, has decreased since 1980 because of the fast growth of China (which contains one-fifth of the world's population), but without China in the sample the weighted distribution of income is also more unequal.

- Measuring living standards using PPP estimates of per capita income, the gap between the richest and poorest countries has increased, but the overall Gini ratio has declined slightly largely because of the fast growth of China. If China is removed from the sample, international inequality has stayed roughly the same as in 1965 (Norwegian Institute of International Affairs, 2000).
- Taking a large sample of developing countries, only 20 per cent of countries have converged on the per capita incomes of developed countries, and that is why international inequality has increased (Ghose, 2004).
- The ratio of the income of the top decile of the world's population to the bottom decile has increased, and the ratio of the average income per head of the 10 richest countries to the 10 poorest countries has increased from 36 in 1950 to 47 in 2001 (Sutcliffe, 2004).

Turning now to **global inequality**, what does the evidence show? Since global inequality also takes account of the distribution of income within countries (as well as the country's average per capita income), global inequality can be expected to be higher than international inequality, but by how much? The most comprehensive study is by Milanovic (2002). He derives measures of income distribution for 1988 and 1993 based on household survey data for 91 countries, covering 84 per cent of the world's population and 93 per cent of world GDP, measuring income at PPP rates of exchange. The Gini ratio was calculated as 0.63 in 1988 and 0.66 in 1993.² The ratio is higher than for international inequality, but not by much. Most of the global inequality (88 per cent) is the result of between-country inequality rather than within-country inequality. And the slight increase in global inequality between 1988 and 1993 was largely the result of increasing differences between countries rather than rising inequality within countries. In some countries inequality increased, but in others it decreased. Four major factors are cited as the cause of increased global inequality within this limited period: (1) the faster growth of Organization for Economic Cooperation and Development (OECD) countries than developing countries; (2) faster population growth in developing countries than in OECD countries; (3) slow growth of output in rural China, India and Africa, and (4) the widening gap between rural and urban China.

The general conclusion must be that however the distribution of income is measured, there is a huge development gap in the world economy between rich and poor countries and between rich and poor people. This development gap naturally extends into other aspects of human welfare such as health; nutrition; life expectancy; education; employment opportunities etc., as we shall come to see later in this chapter and in Chapter 3. Before this, however, we must discuss some technical problems concerning the measurement and comparability of per capita income across countries, and the measurement of poverty itself.

THE MEASUREMENT AND COMPARABILITY OF PER CAPITA INCOME

When using per capita income (PCY) figures to measure poverty, to classify countries into rich and poor and to compare the rate of development in different countries over time, the difficulties of measuring real per capita income and real living standards between

countries must be continually borne in mind. There are two issues to discuss. The first concerns the problems associated with national income accounting, particularly in developing countries. The second is the problem of converting each country's per capita income in *domestic* currency into a common unit of account (that is, the US dollar) so as to be able to make meaningful international comparisons of living standards. This leads to the topic of **purchasing-power parity (PPP)** estimates of PCY.

Turning first to national income accounting, the first point to bear in mind is that only goods that are produced and then sold in the market are included in the value of national income, measured by either the output or the expenditure method. Much output in developing countries never reaches the market, particularly in the rural sector where production is for subsistence purposes. If no allowance is made for the subsistence sector, this will bias downwards the calculation of national income, and therefore PCY. This point also implies that any long-term growth estimates will have an upward bias as a result of the extension of the money economy and the shift of economic activities from the household and subsistence sector to the market place. Furthermore, if no allowance is made for the subsistence sector in some countries, it may be misleading to compare periods in these countries' history and to compare growth rates between countries. Part of the observed trend of faster GDP growth in developing countries over the last 50 years may be partly a statistical illusion arising from the changing balance between the informal subsistence sector and the modern exchange sector.

Growth rates may also be biased upwards by using prices as weights when compiling national income totals from the output statistics of different sectors of the economy (unless the weights are revised frequently), since goods with high prices, which subsequently fall, are usually the fastest growing. This is more of a danger in developing countries than in developed countries because of their less sophisticated accounting techniques, the greater difficulty in revising price weights, and the more widespread introduction of new goods with high initial prices.

A consideration of prices is also necessary when deciding what price index to use as a deflator of money national income in order to obtain an index of *real* income. The task of converting money income statistics into real income raises all the difficulties, not peculiar to developing countries, connected with the use of index numbers, such as which base year to take, how to take account of changes in the quality of products, which weighting system to employ, and so on. These are conceptual issues to be sorted out by the national income statistician rather than by the development economist, but it is important for the economist to know how figures for real national income, or per capita income, have been arrived at prior to analysis.

But apart from the problems of bias and choice of price deflator, there is the sheer practical difficulty of measuring money national income in a rural economy where communications are bad, illiteracy rife, and many of the goods produced and consumed are not exchanged for money. Differences in the extent of the subsistence economy between developing countries, and differences in the ease and difficulty of collecting data, may markedly influence estimates of national income, and therefore of per capita income differences, between these countries and the rest of the world. Attempts are now being made in developing countries to make some allowances for production that never reaches the market place, but the estimates are likely to be subject to a wide margin of error.

Some testimony to the role that the subsistence sector must play in the economies of most developing countries is provided by the inconceivability that 60 per cent of the world's population could remain alive on the equivalent of \$1,000 per annum. But this is not the whole story.

PURCHASING POWER PARITY (PPP)

The other part of the story, and probably the major part, concerns the understatement of living standards in developing countries when their national incomes measured in local currencies are converted into US dollars (as the common unit of account) at the official rate of exchange. If the US dollar is used as the unit of account, the national per capita income of country X in US dollars is given by

$$\frac{\text{GNP}_X}{\text{Population}} \div \text{Exchange rate}$$

For example, if the GNP of country X is 100 billion rupees, its population is 5 million, and there are 10 rupees to the dollar, then the per capita income of country X in dollars is

$$\frac{100 \text{ billion}}{5 \text{ million}} \div 10 = \$2,000$$

But if the living standards of the two countries are to be compared by this method, it must be assumed that 10 rupees in country X buys the same living standard as \$1 in the United States. It is well known, however, that official exchange rates between two countries' currencies are not good measures of the PPP between countries, especially between countries at different levels of development. The reason is this: exchange rates are largely determined by the supply of and demand for currencies based on goods and assets that are traded, the prices of which tend to be equalized internationally. PPP, however, depends not only on the prices of traded goods, but also on the prices of non-traded goods, which are largely determined by unit labour costs, and these tend to be lower the poorer the country. As a general rule, it can be said that the lower the level of development and the poorer the country, the lower the ratio of the price of non-traded goods to traded goods and the more the use of the official exchange rate will *understate* the living standards of the developing country measured in US dollars.

Let us give a simple example. The motor car is an internationally traded good. Suppose that the dollar price of a particular model of car is \$10,000 and there are 10 rupees to the dollar. Ignoring transport costs, tariffs and so on, the price of the car in India will be \$10,000 \times 10 = 100,000 rupees, otherwise a profit will be made by dealers buying in the cheapest market and selling in the most expensive. The forces of demand and supply (and arbitrage) will equalize the price of traded goods. But let us now consider a non-traded good such as a haircut. Suppose a haircut in the United States costs \$10. At the official exchange rate of 10 rupees to the dollar, a haircut in India should be 100 rupees. But suppose that in fact it is only 25 rupees. This would mean that as far as haircuts are concerned, the value of the rupee is underestimated by a factor of four.

The PPP rate of exchange for haircuts alone is \$10 \div 25 rupees, or \$1 = 2.5 rupees. If the national income of country X measured in rupees was divided by 2.5 instead of 10, the national income of country X in dollars, and therefore PCY in dollars, would now be four times higher: \$8,000 per head instead of \$2,000 per head as in the example above.

As development proceeds the ratio of the price of non-traded goods to traded goods tends to rise as wage levels in the non-traded goods sector rise but productivity growth is slow – slower than in the traded goods sector. **To make meaningful international comparisons of income and living standards, therefore, what is required is a measure of PPP, or a real exchange rate, between countries.**

There are several methods of constructing PPP ratios in order to make binary comparisons (one country with another) or 'multilateral' comparisons in which the currency of any one of a group of countries can act as the unit of account without altering the ratios of living standards between countries.

The most common way of constructing a PPP ratio between two countries is to revalue the national incomes of the two countries by selecting a comparable basket of goods and services in each country and estimating the purchasing-power equivalent of each item in country A relative to country B . Thus if P_{ia} is the price of item i in country A and P_{ib} is the price of item i in country B , the purchasing-power equivalent of item i in country A relative to country B is P_{ia}/P_{ib} . By extending this calculation to all goods and applying the price ratios to the average quantities consumed of each item in the two countries, we obtain a formula for the overall purchasing-power equivalent in country A relative to country B :

$$\frac{\sum_i Q_i P_{ia}}{\sum_i Q_i P_{ib}}$$

where Q_i is the geometric mean of the quantities of each good consumed in the two countries. The purchasing-power-equivalent ratio can then be used to convert one country's national income measured in local currency into another country's currency as the unit of account (for example the US dollar). To use our earlier example, suppose that the official exchange rate between the Indian rupee and the US dollar is 10:1, while the purchasing-power-equivalent ratio is 2.5:1. This means that converting the Indian national income into US dollars at the PPP rate will quadruple the amount received at the official exchange rate.

Irving Kravis and his associates (1975, 1978) have developed a method of making **multilateral** comparisons of real per capita incomes across countries by constructing world price ratios based on price and quantity data for over 100 commodity categories in over 100 countries. The international prices are then used to value quantities in each of the countries. The international prices and product values are expressed in international dollars (\$). An international dollar has the same overall purchasing power as a US dollar for national income as a whole, but relative prices for each country are relative to average world prices rather than US prices. This multilateral approach allows a direct comparison between any two countries using any country's currency as the unit of account.

In this method, the **purchasing-power parity rate of exchange (PPPR)** is equal to the official exchange rate divided by the extent to which conversion of PCY at the official exchange rate understates the true level of PCY when measured at international prices. Suppose, for example, there are 7 Kenyan shillings to 1 US dollar, and that the official exchange rate conversion understates the Kenyan PCY by 50 per cent when Kenyan national income is measured in international dollars. The PPPR of Kenyan shillings to US dollars is therefore $PPPR = 7/1.5 = 4.66$. That is, to compare living standards between Kenya and the United States, the real exchange rate of 4.66 ought to be used, not the official exchange rate of 7 shillings to one dollar.

The pioneering work of Kravis is now regularly extended and updated by his collaborators, Summers and Heston, who have produced international comparisons of price levels and real per capita incomes at international prices for all the major countries in the world since 1950, which can be compared with the World Bank estimates of per capita incomes based on official rates of exchange with the US dollar (see, for example, Summers and Heston, 1988, 1991).

The difference between estimates of PCY measured at the official exchange rate and PPP estimates of PCY is shown in Table 2.1 (p. 24). By comparing the figures and ranks in columns 2 and 3, it can be seen that the difference is quite dramatic, and in general the difference is greater the poorer the country. In India, for example, the PPP estimate of PCY is \$2650 compared with an estimated \$470 at the official exchange rate. In Kenya the figure is \$1010 compared with \$360.

In the high-income countries, however, there is hardly any difference between the two estimates. Norway enjoys the highest standard of living in the world, with the US a close second using the PPP method.

PER CAPITA INCOME AS AN INDEX OF DEVELOPMENT

Now let us turn to the question of the use of per capita income figures as an index of development and for making a distinction between developed and developing countries, as well as between rich and poor. While there may be an association between poverty and underdevelopment and riches and development, there are a number of reasons why some care must be taken when using per capita income figures alone as a criterion of development (unless underdevelopment is *defined* as poverty and development as riches). Apart from the difficulty of measuring income in many countries and the difficulty of making intercountry comparisons, using a single per capita income figure to separate developed from developing countries is inevitably somewhat arbitrary, as it ignores such factors as the distribution of income within countries, differences in development potential and other physical indicators of the quality of life. It is not so much a question of whether or not low-income countries should be labelled 'underdeveloped' or 'developing', but what income level should be used as the criterion for separating the developed from the developing countries, and whether all high-income countries should be labelled 'developed'. In many ways it should be the *nature* and *characteristics* of the countries that determine which income level should be used as the dividing line. It also makes sense to categorize separately the oil-rich countries, which have high per capita incomes

but cannot be regarded as developed by the criteria discussed in Chapter 1.

Within the countries outside the industrialized bloc, the per capita income level dividing the low- and middle-income countries is arbitrary, but none is fully industrialized and all are 'developing' in this sense. Acronyms abound to describe the different stages of development. Perhaps the most amusing set is attributable to the Brazilian economist Roberto Campos, who distinguishes five categories of countries: the HICs, PICs, NICs, MICs and DICs. These stand for hardly industrialized countries, partly industrialized countries, newly industrialized countries, mature industrialized countries and decadent industrialized countries! The HICs and the PICs would certainly cover all the low-income countries and at least the lower half of the middle-income countries. The NICs cover most of the upper half of the middle-income countries – Brazil, Mexico, Hong Kong and Singapore being prime examples. The MICs and DICs cover most of those countries classified as 'industrial market economies', with the exception of Ireland, New Zealand and Australia, which have become rich through agriculture.

But bearing in mind the arbitrariness of per capita income, it is still very convenient to have a readily available and easily understandable criterion for classifying countries, and perhaps per capita income is the best single index we have. It also has one positive advantage, namely that it focuses on the *raison d'être* of development: raising living standards and eradicating poverty. And in the last resort per capita income is not a bad proxy for the social and economic structure of societies. If developing countries are defined on the basis of a per capita income level so as to include most of the countries of Asia, Africa and Latin America, striking similarities are found between the characteristics and development obstacles of many of the countries in these continents. These include:

- A high proportion of the labour force engaged in agriculture but low agricultural productivity
- A high proportion of domestic expenditure on food and necessities
- An export trade dominated by primary products and an import trade dominated by manufactured goods
- A low level of technology
- A high birth rate coupled with a falling death rate
- Savings undertaken by a small percentage of the population.

There are, of course, some countries that on a per capita income basis are classified as developed and possess most of the above-mentioned characteristics (e.g. some oil-producing countries), but the exceptions are few, and the reverse of this situation is almost inconceivable. Also these countries have many social problems in common, such as growing unemployment in urban areas, inegalitarian income distributions, and poor health and standards of education – about which we shall say more later.

In general, therefore, we conclude that per capita income may be used as a starting point for classifying *levels* of development, and can certainly be used to identify the *need* for development. The only major reservation that we shall have to consider later concerns the case of geographically dual economies, where an aggregate per capita income figure can disguise as great a need for the development of a sizeable region within the country as the need for the development of the country itself.

There is a difference, however, between using per capita income as a guideline for

classifying countries into developed or underdeveloped at a point *in time* and using the growth of per capita income as an index of development *over time*. The difficulty of using per capita income for the latter purpose is the obvious one that if, in a particular period, per capita income did not grow because population growth matched the growth of a country's total income, one would be forced into the odd position of denying that a country had developed even though its national product had increased. This is an inherent weakness of linking the concept of development to a measure of living standards.

This leads on to the distinction between **growth** and **development**. Development without growth is hardly conceivable, but growth is possible without development. The upswing of the trade cycle is the most obvious example of the possibility of growth without development; and examples of abortive 'take-offs' are not hard to find where countries have grown rapidly for a short time and then reverted to relative stagnation. Historically, Argentina is a case in point. On the other hand development is hardly possible without growth; but development is possible, as we have suggested, without a rise in per capita income. It would be a strange, rather purposeless, type of development, however, that left per capita income unchanged, unless the stationary per capita income was only temporary and a strong foundation was being laid for progress in the future. For the ultimate rationale of development must be to improve living standards and welfare, and while an increase in measured per capita income may not be a sufficient condition for an increase in individual welfare, it is a necessary condition in the absence of radical institutional innovations, such as an increase in public goods.

An increase in income is not a sufficient condition for an increase in welfare, because an increase in income can involve costs as well as benefits. It may have been generated at the expense of leisure or by the production of goods not immediately consumable. **If development is looked upon as a means of improving the welfare of present generations, probably the best index to take would be consumption per man-hour worked.** This index, in contrast to an index of per capita income, focuses directly on the immediate utility derivable from consumption goods in relation to the disutility of the work effort involved in their production.

MEASURING POVERTY

The World Bank defines poverty as the inability of people to attain a minimum standard of living.³ This definition gives rise to three questions. How do we measure the standard of living? What is meant by a *minimum* standard of living? How can we express the overall extent of poverty in a single measure?

The most obvious measure of living standards is an individual's (or household's) real income or expenditure (with an allowance made for output produced for own consumption). The same level of real income and expenditure in different countries, however, may be associated with different levels of nutrition, life expectancy, infant mortality, schooling and so on, which must be considered as an integral part of 'the standard of living'. Measures of living standards based on per capita income, therefore, may need to be supplemented by further measures that include these other variables. We discuss later the attempt by the United Nations Development Programme (UNDP)

to construct a **Human Poverty Index** and a **Human Development Index**, which take some of these factors into account.

To separate the poor from the not so poor, an arbitrary per capita income figure has to be taken that is sufficient to provide a minimum acceptable level of consumption. There are two main ways of setting a consumption poverty line in order to measure poverty and make comparison across countries: the **PPP method** and the **food energy method**. As we saw above, a country's PPP is defined as the number of units of the country's currency required to buy the same amount of goods and services in the domestic market as a dollar in the United States. The World Bank publishes the PPP levels of per capita income for all countries (see Table 2.1). For the measurement of poverty, to give an example, the PPP poverty line could be set at, say, \$30 per month or \$360 per annum. By definition, people on this PPP poverty line in any country have the purchasing power to obtain the same level of consumption of any person on the poverty line in any other country. But the composition of the consumption bundle is very likely to differ. The PPP poverty line is not explicitly linked to nutritional intakes derived from different consumption bundles, so there are likely to be intercountry differences in nutrition on the PPP poverty line.

The **food energy method** of setting a consumption poverty line is one way of dealing with this problem by defining a minimum internationally agreed calorie intake line, and converting consumption bundles into calorie intakes using the nutritional values of consumption goods (with non-food goods having a zero value). The problem here, however, is that consumers in different countries may choose different combinations of food and other goods which then require different incomes to meet nutritional requirements. Indeed the nature of the society and the stage of development reached may require different combinations. What are regarded as optional extras in some countries may be necessities in others. The United Nation's Food and Agriculture Organisation (FAO) defines undernourishment as 'food intake that is continuously insufficient to meet dietary energy requirements.'

A consumption-based poverty line can therefore be thought of as comprising two elements: an objective measure of the expenditure necessary to buy a minimum level of nutrition; and a subjective additional amount that varies from country to country, reflecting the cost to individuals of participating in the everyday life of society.

All this is in theory. In practice, to measure the extent of absolute poverty in the Third World, the World Bank takes the figure of \$1 a day. For details on how this poverty line is calculated, and its historical antecedents, see Case example 2.1. Once the poverty line has been decided, the simplest way to measure the amount of poverty is by the **head count index** which simply adds up the number of people who fall below the poverty line (sometimes expressed as a proportion of the total population). By this measure, the World Bank has calculated that the number of poor people in the developing countries is nearly 1.2 billion. The trend in numbers, and the distribution of the poor across regions, is shown in Table 2.2. It can be seen that, since 1987, the trend in numbers has been fairly static. Poverty in South Asia and Africa has been increasing, but this increase has been offset by falls in East Asia and Pacific. Poverty is also most concentrated in South Asia and Africa where more than 40 per cent of the population are living on less than \$1 per day.

Case example 2.1

Measuring Income Poverty, 1899 and 1998

In a classic study first published in 1901, Seebohm Rowntree calculated that 10 per cent of the population of the English city of York in 1899 was living in poverty (below minimum needed expenditures). The World Bank calculates that a quarter of the population of the developing world – about 1.2 billion people – is now living in poverty (below \$1 a day). These two calculations of income poverty are separated by a century and have very different coverage. Nevertheless, the basic concepts and methods they embody have strong similarities.

Rowntree's approach

Rowntree's method was to conduct a survey covering nearly every working-class family in York to collect information on earnings and expenditures. He then defined poverty as a level of total earnings insufficient to obtain the minimum necessities for the maintenance of 'merely physical efficiency', including food, rent, and other items. He calculated that for a family of five – a father, mother, and three children – the minimum weekly expenditure to maintain physical efficiency was 21 shillings, 8 pence; he proposed other amounts for families of different size and composition. Comparing these poverty lines with family earnings, he arrived at his poverty estimate.

The World Bank's approach

The World Bank has been estimating global income poverty figures since 1990. The latest round of estimation, in October 1999, used new sample survey data and price information to obtain comparable figures for 1987, 1990, 1993, 1996, and 1998 (the figures for 1998 are preliminary estimates).

Consumption Poverty estimates are based on consumption or income data collected through household surveys. Data for 96 countries, from a total of 265 nationally representative surveys, corresponding to 88 per cent of the developing world's people, are now available.

Consumption is conventionally viewed as the preferred welfare indicator, for practical reasons of reliability and because consumption is thought better to capture long-run welfare levels than current income. Where survey data were available on incomes but not on consumption, consumption was estimated by multiplying all incomes by the share of aggregate private consumption in national income based on national accounts data. This procedure, unchanged from past exercises, scales back income to obtain consumption but leaves the distribution unchanged.

Prices To compare consumption levels across countries, estimates of price levels are needed, and the World Bank's purchasing power parity (PPP) estimates for 1993 were used. These estimates are based on new price data generated by the International

Case example 2.1 cont'd

Comparison Programme (ICP), which now covers 110 countries, up from 64 in 1985, and a more comprehensive set of commodities.

Poverty lines The 1990 calculations of the international poverty lines had to be updated using 1993 price data and the 1993 PPP estimates. That line is equal to \$1.08 a day in 1993 PPP terms (referred to as '\$1 a day'). This line has a similar purchasing power to the \$1 a day line in 1985 PPP prices, in terms of the command over domestic goods.

Country-specific poverty lines The \$1 a day poverty estimates described here are useful only as indicators of global progress, not to assess progress at the country level or to guide country policy and programme formulation. Country-specific poverty lines, reflecting what it means to be poor in each country's situation and not affected by international price comparisons, are used in country-level analysis.

Source: Based on World Development Report 2000/2001: Attacking Poverty (New York: Oxford University Press, 2000).

One weakness of the head count index, however, is that it ignores the *extent* to which the poor fall below the poverty line, so that crude comparisons between countries, or over time, may be misleading. To overcome this weakness, the concept of the **poverty gap** may be used. This measures the transfer of income required to bring the income of every poor person up to the poverty line, or the aggregate income shortfall of the poor as a percentage of aggregate consumption. It is interesting to note that despite the massive number of people in absolute poverty, the transfer needed to leave everybody above the poverty line is relatively small – only about 3 per cent of total consumption in the developing countries as a whole. The World Bank calculated for Latin America that 'raising all the poor of the continent to just above the poverty line would cost only 0.7 per cent of regional GDP – the approximate equivalent of a 2 per cent income tax on the wealthiest fifth of the population'.⁴

The focus of the World Bank is now very much on poverty eradication. When Robert McNamara was President of the World Bank in the 1970s, he defined absolute poverty as 'a condition of life so degraded by disease, illiteracy, and malnutrition and squalor, as to deny its victims basic human necessities – [a condition] so limited as to prevent the realisation of the potential of the genes with which one was born'. In May 1992 the then President of the World Bank, Lewis Preston, declared that poverty reduction will be 'the benchmark by which our performance as a development institution will be measured'. And in the *World Development Report 2000/2001*, the President, James Wolfensohn, wrote: 'poverty amidst plenty is the world's greatest challenge. We at the Bank have made it our mission to fight poverty with passion and professionalism, putting it at the centre of all the work that we do.'

Table 2.2 Income poverty, by region, selected years, 1987-98

East Asia and Pacific	417.5	452.4	431.9	265.1	278.3
Excluding China	114.1	92.0	83.5	55.1	65.1
Europe and Central Asia	1.1	7.1	18.3	23.8	24.0
Latin America and the Caribbean	63.7	73.8	70.8	76.0	78.2
Middle East and North Africa	9.3	5.7	5.0	5.0	5.5
South Asia	474.4	495.1	505.1	531.7	522.0
Sub-Saharan Africa	217.2	242.3	273.3	289.0	290.9
Total	1,183.2	1,276.4	1,304.3	1,190.6	1,198.9
Excluding China	879.8	915.9	955.9	980.5	985.7
East Asia and Pacific	26.6	27.6	25.2	14.9	15.3
Excluding China	23.9	18.5	15.9	10.0	11.3
Europe and Central Asia	0.2	1.6	4.0	5.1	5.1
Latin America and the Caribbean	15.3	16.8	15.3	15.6	15.6
Middle East and North Africa	4.3	2.4	1.9	1.8	1.9
South Asia	44.9	44.0	42.4	42.3	40.0
Sub-Saharan Africa	46.6	47.7	49.7	48.5	46.3
Total	28.3	29.0	28.1	24.5	24.0
Excluding China	28.5	28.1	27.7	27.0	26.2

Source: World Development Report 2000/2001 (New York: Oxford University Press, 2000)

MEETING THE MILLENNIUM POVERTY REDUCTION TARGET

To meet the Millennium Goal of halving the proportion of people living in absolute poverty by 2015 compared to the level in 1990 requires a sustained growth in the level of per capita income. To calculate the growth required, the elasticity of the poverty rate with respect to the level of per capita income needs to be known. This can be estimated using the equation below:

$$\log P_i = a + b \log PCY_i \quad (2.1)$$

Where P_i is the headcount poverty rate for country i , PCY_i is the level of per capita income, and b is the elasticity of the poverty rate. Besley and Burgess (2003) calculate this elasticity for developing countries as a whole and for different continents. The results are shown in Table 2.3. The elasticity for the whole sample of countries is 0.73 which means that the poverty rate declines by 0.73 per cent for every one per cent increase in per capita income (given the distribution of income). To reduce the poverty rate by 50 percent (say from 50 per cent to 25 per cent) would therefore require income growth of approximately 70 per cent. The annual growth of per capita income can then be calculated. The rate calculated for developing countries as a whole is 3.8 per cent per annum compared

Table 2.3 Growth and poverty across the globe, 1990-2015

Elasticity of poverty with respect to income per capita	-0.73	-1.00	-1.14	-0.73	-0.72	-0.59	-0.49
Annual growth rate needed to halve world poverty by 2015 (%)	3.8	2.7	2.4	3.8	3.8	4.7	5.6
Historical growth 1960-1990 (%)	1.7	3.3	2.0	1.3	4.3	1.9	0.2

Source: T. Besley and R. Burgess, 'Halving Global Poverty', *Journal of Economic Perspectives*, Summer 2003.

to the historical growth of only 1.7 per cent per annum 1960-90. In South Asia and Africa, the required growth rates are much higher, and even further out of line with historical experience. The depressing conclusion to be reached is that it is unlikely that most countries will achieve the millennium poverty reduction target – the required growth rates are too high – unless poverty is also tackled at the 'grass-roots' by income and wealth redistribution and institutional change. This is the World Bank's new approach to tackling poverty.

TACKLING POVERTY FROM THE 'GRASS ROOTS'

Poverty not only means low income and consumption, and low levels of human development in terms of education and health care, but also feelings of powerlessness, vulnerability and fear because poor people are not free, and are exposed to greater risk, living on the margin of subsistence.

What it means to be poor is well illustrated from the World Bank's study *The Voices of the Poor*, which asked 60,000 poor people in 60 countries to articulate their feelings about their physical and mental state. The answers are contained in Case example 2.2, which are both moving and revealing. Feelings of helplessness, humiliation and lack of self-esteem are paramount.

The World Bank proposes a three-pronged strategy for poverty reduction: **promoting opportunity; facilitating empowerment and enhancing security.**

Promoting opportunity is partly about expanding economic opportunities for poor people through the process of economic growth, and partly about expanding the asset base of poor people and increasing the return on those assets. The major causes of individual poverty can be linked to a lack of assets and/or a low return on assets. Important assets to enable people to grow out of poverty include (1) natural assets, such as land; (2) human assets, such as education and health; (3) financial assets, including access to credit, and (4) social assets, such as networks of contacts. The return on assets once acquired depends on the institutional framework of a country, the performance of the economy, and what is happening in the world economy. The state has a role

to play in expanding poor people's assets because markets do not work well for poor people owing to lack of access, power and collateral. The state can help in three major ways: first by using its power to redistribute resources; secondly through institutional reforms to deliver services more effectively, particularly in the fields of health and education; and thirdly by facilitating the engagement of poor people in programmes which help them to acquire assets, such as land and credit.

Case example 2.2

The Voices of the Poor

Poor people in 60 countries were asked to analyse and share their ideas of well-being (a good experience of life) and 'ill-being' (a bad experience of life).

Well-being was variously described as happiness, harmony, peace, freedom from anxiety, and peace of mind. In Russia people say, 'Well-being is a life free from daily worries about lack of money.' In Bangladesh, 'to have a life free from anxiety'. In Brazil, 'not having to go through so many rough spots.'

People describe ill-being as lack of material things, as bad experiences, and as bad feelings about oneself. A group of young men in Jamaica ranks lack of self-confidence as the second biggest impact of poverty: 'Poverty means we don't believe in self, we hardly travel out of the community – so frustrated, just locked up in a house all day.'

Although the nature of ill-being and poverty varies among locations and people – something that policy responses must take into account – there is a striking commonality across countries. Not surprisingly, material well-being turns out to be very important. Lack of food, shelter, and clothing is mentioned everywhere as critical. In Kenya a man says: 'Don't ask me what poverty is because you have met it outside my house. Look at the house and count the number of holes. Look at my utensils and the clothes I am wearing. Look at everything and write what you see. What you see is poverty.'

Alongside the material, physical well-being features prominently in the characterizations of poverty. And the two meld together when lack of food leads to ill health – or when ill health leads to an inability to earn income. People speak about the importance of looking well fed. In Ethiopia poor people say, 'We are skinny', 'We are deprived and pale', and speak of life that 'makes you older than your age'.

Security of income is also closely tied to health. But insecurity extends beyond ill health. Crime and violence are often mentioned by poor people. In Ethiopia women say, 'We live hour to hour,' worrying about whether it will rain. An Argentine says, 'You have work, and you are fine. If not, you starve. That's how it is.'

Two social aspects of ill-being and poverty also emerged. For many poor people, well-being means the freedom of choice and action and the power to control one's life. A young woman in Jamaica says that poverty is 'like living in jail, living in bondage, waiting to be free'.

Case example 2.2 *cont'd*

Linked to these feelings are definitions of well-being as social well-being and comments on the stigma of poverty. As an old woman in Bulgaria says, 'To be well means to see your grandchildren happy and well dressed and to know that your children have settled down; to be able to give them food and money whenever they come to see you, and not to ask them for help and money.' A Somali proverb captures the other side: 'Prolonged sickness and persistent poverty cause people to hate you.'

The following quotations are an illustration of what living in poverty means:

Certainly our farming is little; all the products, things bought from stores, are expensive; it is hard to live, we work and earn little money, buy few things or products; products are scarce, there is no money and we feel poor. (From a discussion group of poor men and women, Ecuador)

We face a calamity when my husband falls ill. Our life comes to a halt until he recovers and goes back to work. (Poor woman, Zawyet Sultan, Egypt)

Poverty is humiliation, the sense of being dependent on them, and of being forced to accept rudeness, insults, and indifference when we seek help. (Poor woman, Latvia)

Source: World Bank, *World Development Report 2000/2001: Attacking Poverty* (New York: Oxford University Press, 2000).

A growing economy is absolutely crucial for poverty reduction. Poverty cannot be reduced in a stagnant economy. There is a strong negative association across countries between the average growth of income and consumption and the *share* of people living on less than \$1 per day. A 1 percentage point growth of income above the average is associated with a 2 percentage point reduction in the share of people living in poverty.

On the other hand, similar rates of growth of countries are associated with different rates of poverty reduction. This is the result of existing inequalities in the distribution of income, assets and access to opportunities. Growth is much more effective in reducing poverty where the income distribution is more equal than where there are big inequalities. The World Bank estimates that when inequality is low, growth reduces poverty by nearly twice as much as when inequality is high. If income inequality remains unchanged in Latin America and sub-Saharan Africa, the Bank's poverty targets will not be met even if per capita income grows at 4 per cent per annum to the year 2015 (which itself is optimistic).

Research at the World Bank by Dollar and Kraay (2000) taking 80 countries over the last 40 years shows that growth benefits the poor as much as the rich. On average, incomes of the poor rise one-for-one with incomes overall. This means that growth itself is not a cause of income inequality. Nor is there evidence that inequality promotes growth because some rich people are able to save and invest more. If anything, unequal societies impair growth through inefficiency and political instability.

Facilitating empowerment is a new departure in the thinking of the World Bank compared to its 1990 *Report*. Empowering poor people means strengthening the

participation of poor people in decision-making; eliminating various forms of discrimination – ethnic, religious, sexual – and making state institutions more accountable and responsive to poor people. The great challenge here is to tackle the institutional structures of poor countries that continue to marginalize, discriminate against, and disenfranchise vulnerable sections of society. The law, the church, bureaucrats and local elites, and customs and traditions, all play a part. The state has a role to play in helping to empower people by (1) curbing corruption and harassment, and using the power of the state to redistribute resources for actions benefiting the poor; (2) ensuring that the legal system is fair and accessible to the poor; (3) making sure that the delivery of local services is not captured by local elites; (4) encouraging the participation of poor people in the political process; and (5) galvanizing political support for public action against poverty.

Enhancing security means reducing poor people's vulnerability to the various forms of insecurity that affect people's lives such as economic shocks; natural disasters; crop failures; ill health; violence; wars, etc. and helping people to cope with these adverse shocks when they occur. The wide range of risks that poor people are exposed to is highlighted in Case example 2.3. This vulnerability to risk requires a range of insurance mechanisms for managing risk such as: health and old-age insurance; unemployment insurance and workforce programmes; social funds and cash transfers; microfinance programmes; insurance against crop failures and price instability, and so on.

The World Bank points out, however, that promoting opportunities, facilitating empowerment, and enhancing security are *necessary* conditions for tackling poverty, but not *sufficient* conditions in an interdependent, global economy. International action is also required to help poor people in at least five ways:

- Promoting global financial stability and reducing the risks of economic crisis
- Opening up markets (particularly in developed countries) to the goods of poor countries
- Encouraging the production of international public goods that benefit poor people; for example, the control of disease; agricultural research; the dissemination of knowledge
- More foreign aid and debt relief
- Giving a greater voice to poor countries and peoples in the global forums and multilateral institutions of the world such as the World Bank, IMF and WTO.

Case example 2.3

Poor People's Exposure to Risk

Poor people are exposed to a wide range of risks.

Illness and injury

Poor people often live and work in environments that expose them to greater risk of illness or injury, and they have less access to health care. Their health risks are strongly connected to the availability of food, which is affected by almost all the risks the poor face (natural disasters, wars, harvest failures, and food price

Case example 2.3 cont'd

fluctuations). Communicable diseases are concentrated among the poor, with respiratory infections the leading cause of death. A recent study of poverty in India found that the poor are 4.5 times as likely to contract tuberculosis as the rich and twice as likely to lose a child before the age of two.

Illness and injury in the household have both direct costs (for prevention, care and cure) and opportunity costs (lost income or schooling while ill). The timing, duration and frequency of illness also affect its impact. A study of South India found that households can compensate for an illness during the slack agricultural season, but illness during the peak season leads to a heavy loss of income, especially on small farms, usually necessitating costly informal borrowing.

Old age

Many risks are associated with ageing: illness, social isolation, inability to continue working and uncertainty about whether transfers will provide an adequate living. The incidence of poverty among the elderly varies significantly. In most Latin American countries the proportion of people in poverty is lower for the elderly than for the population at large. In contrast, in many countries of the former Soviet Union the incidence of poverty is above average among the elderly, particularly among people 75 and older. Women, because of their longer life expectancy, constitute the majority of the elderly, and they tend to be more prone to poverty in old age than men. The number of elderly people in the developing world will increase significantly in coming decades with the rapid demographic transition.

Consultations with poor people show that income security is a prime concern of the elderly, followed closely by access to health services, suitable housing, and the quality of family and community life. Isolation, loneliness, and fear all too often mark old people's lives.

Crime and domestic violence

Crime and domestic violence reduce earnings and make it harder to escape poverty. While the rich can hire private security guards and fortify their homes, the poor have few means to protect themselves against crime. In São Paulo, Brazil, in 1992 the murder rate for adolescent males in poor neighbourhoods was 11 times that in wealthier ones. Poor people frequently voice their fear of violence and the resulting powerlessness. 'I do not know whom to trust, the police or the criminals.'

Crime also hurts poor people indirectly. Children exposed to violence may perform worse in school. A study of urban communities in Ecuador, Hungary, the Philippines and Zambia showed that difficult economic conditions lead to destruction of social capital as involvement in community organizations declines, informal ties among residents weaken, and gang violence, vandalism and crime increase. Violence and crime may thus deprive poor people of two of their best means of reducing vulnerability: human and social capital.

Unemployment and other labour market risks

Labour market risks include unemployment, falling wages, and having to take up precarious and low-quality jobs in the informal sector as a result of macroeconomic crises or policy reform. The first workers to be laid off during cutbacks in public sector jobs are usually those with low skills, who then join the ranks of the urban poor, a pattern observed in Africa and Latin America during the structural adjustment reforms of the 1980s and early 1990s. The East Asian crisis also had pronounced effects on labour markets, with real wages and non-agricultural employment falling in all affected countries. As state enterprises in Eastern Europe and the countries of the former Soviet Union were privatized, poverty increased among displaced workers with low education and obsolete skills, not qualified to work in emerging industries.

Fluctuations in demand for labour often disproportionately affect women and young workers. Most public sector retrenchment programmes have affected women's employment more than men's, and women are more likely than men to work for small firms, which tend to be more sensitive to demand fluctuations. As incomes fall, poor households try to increase their labour market participation, especially for women and children.

Harvest failure and food price fluctuations

Weather-related uncertainties (mainly rainfall), plant disease and pests create harvest risk for all farmers, but technologies for reducing such risks (irrigation, pesticides, disease-resistant varieties) are less available in poor areas. In 1994–6 less than 20 per cent of all cropland was irrigated in low- and middle-income countries (only 4 per cent in Sub-Saharan Africa).

Fluctuations in food prices are a related risk. Since poor households spend a large part of their income on food, even small price increases can severely affect food intake. Households that meet their food needs through a subsistence agriculture are less vulnerable than households that have to buy all their food.

Liberalization of markets often boosts the price of staples – a benefit to small farmers if they are net sellers of food. Hurt are the urban poor and the landless rural poor, as net food buyers, and farmers who engage in seasonal switching, selling food after the harvest when food is plentiful and cheap and buying it when it is scarce and expensive. Where transport facilities are good, traders can step in and equalize prices over the year through arbitrage, but such infrastructure is lacking in many areas.

Source: World Bank, *World Development Report 2000/2001: Attacking Poverty* (Oxford: Oxford University Press, 2000).

HUMAN POVERTY INDEX AND HUMAN DEVELOPMENT INDEX

To overcome the limitation of taking a single measure of PCY as an index of development and the problem of using PCY as a measure of living standards, the United Nations Development Programme (UNDP) has developed two alternative indices by which to compare the level of development and the progress of countries: the **Human Development Index (HDI)** and the **Human Poverty Index (HPI)**. These indices give alternative measures of the economic well-being of nations that do not necessarily accord with the usual measure: the level of per capita income. As the UNDP says in its *Human Development Report* (2004) 'although GNP growth is absolutely necessary to meet all essential human objectives, countries differ in the way that they translate growth into human development'. The UNDP defines human development as 'a process of enlarging people's choices'. This depends not only on income but also on other social indicators such as life expectancy, education, literacy and health provision.

We consider first the Human Development Index because the UNDP uses this index to rank countries. The **Human Development Index** is based on three variables:

- Life expectancy at birth
- Educational attainment, measured by a combination of adult literacy (two-thirds weight) and combined primary, secondary and tertiary school enrolment ratios (one-third weight)
- Standard of living measured by real PCY at PPP.

These variables are shown in the first four columns of Table 2.4. To construct the index, fixed minimum and maximum values are taken for each of the variables. For life expectancy at birth the range is 25–85 years. For adult literacy the range is 0–100 per cent. For real per capita GDP the range is \$100–40,000. For any component of the HDI, the individual indices can be computed according to the general formula:

$$\text{Index} = \frac{\text{Actual value} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}} \quad (2.2)$$

The index thus ranges from 0 to 1. If the actual value of the variable is the minimum, the index is zero. If the actual value is equal to the maximum value, the index is one. Let us take the example of life expectancy in India (country 127). The life expectancy is 63.7 years, and if we put this value into (2.2) we get $(63.7 - 25)/(85 - 25) = 38.7/60 = 0.64$.⁵

The three indices are shown in columns (5), (6) and (7) of Table 2.4. The HDI is an average of the three indices and is given in column (8), with countries ranked from highest to lowest. The ranking of countries by HDI is then compared with the ranking by PCY in column (9). Among the developing countries, some are shown to have much higher HDIs than PCY, and vice versa. In the former category are countries such as Cuba, Jamaica, Philippines, and many countries of the former Soviet Union, while in the latter category are many of the oil-producing countries, such as Qatar, Saudi Arabia and Oman, and South Africa and Botswana.

Table 2.4 Human Development Index, 2002

HDI rank	Life expectancy at birth (years) 2002	Adult literacy rate (% ages 15 and above) 2002	Combined gross enrolment ratio for primary, secondary and tertiary schools (%) 2001/02	GDP per capita (PPP US\$) 2002	Life expectancy index	Education index	GDP index	Human development index (HDI) value 2002	GDP per capita (PPP US\$) rank minus HDI rank
High human development									
1	Norway	78.9	98	36,600	0.90	0.99	0.99	0.956	1
2	Sweden	80.0	114	26,050	0.92	0.99	0.93	0.946	19
3	Australia	79.1	113	28,260	0.90	0.99	0.94	0.946	9
4	Canada	79.3	95	29,480	0.90	0.98	0.95	0.943	5
5	Netherlands	78.3	99	29,100	0.89	0.99	0.95	0.942	6
6	Belgium	78.7	111	27,570	0.90	0.99	0.94	0.942	7
7	Iceland	79.7	90	29,750	0.91	0.96	0.95	0.941	1
8	United States	77.0	92	35,750	0.87	0.97	0.98	0.939	-4
9	Japan	81.5	84	26,940	0.94	0.94	0.93	0.938	6
10	Ireland	76.9	90	36,360	0.86	0.96	0.98	0.936	-7
11	Switzerland	79.1	88	30,010	0.90	0.95	0.95	0.936	-4
12	United Kingdom	78.1	113	26,150	0.88	0.99	0.93	0.936	8
13	Finland	77.9	106	26,190	0.88	0.99	0.93	0.935	6
14	Austria	78.5	91	29,220	0.89	0.96	0.95	0.934	-4
15	Luxembourg	78.3	75	61,190	0.89	0.91	1.00	0.933	-14
16	France	78.9	91	26,920	0.90	0.96	0.93	0.932	0
17	Denmark	76.6	96	30,940	0.86	0.98	0.96	0.932	-12
18	New Zealand	78.2	101	21,740	0.89	0.99	0.90	0.926	6
19	Germany	78.2	88	27,100	0.89	0.95	0.94	0.925	-5
20	Spain	79.2	92	21,460	0.90	0.97	0.90	0.922	5
21	Italy	78.7	82	26,430	0.89	0.93	0.92	0.920	-3
22	Israel	79.1	92	19,530	0.90	0.94	0.88	0.908	5
23	Hong Kong, China (SAR)	79.9	72	26,910	0.91	0.86	0.93	0.903	-6
24	Greece	78.2	86	18,720	0.89	0.95	0.87	0.902	5
25	Singapore	78.0	87	24,040	0.88	0.91	0.92	0.902	-3
26	Portugal	76.1	93	18,280	0.85	0.97	0.87	0.897	6
27	Slovenia	76.2	90	18,540	0.85	0.96	0.87	0.895	3
28	Korea, Rep. of	75.4	92	16,950	0.84	0.97	0.86	0.888	9
29	Barbados	77.1	88	15,290	0.87	0.95	0.84	0.888	11
30	Cyprus	78.2	74	18,360	0.89	0.89	0.87	0.883	1
31	Malta	78.3	77	17,640	0.89	0.87	0.86	0.875	3
Medium human development									
32	Czech Republic	75.3	78	15,780	0.84	0.92	0.84	0.868	7
33	Negera Brunei Darussalam	76.2	73	19,210	0.85	0.87	0.88	0.867	-5
34	Argentina	74.1	94	10,880	0.82	0.96	0.78	0.853	14
35	Seychelles	72.7	85	18,232	0.80	0.90	0.87	0.853	-2
36	Estonia	71.6	96	12,260	0.78	0.98	0.80	0.853	10
37	Poland	73.8	90	10,560	0.81	0.96	0.78	0.850	13
38	Hungary	71.7	86	13,400	0.78	0.95	0.82	0.848	3
39	Saint Kitts and Nevis	70.0	97	12,420	0.75	0.98	0.80	0.844	6
40	Bahrain	73.9	79	17,170	0.81	0.85	0.86	0.843	-4
41	Lithuania	72.5	90	10,320	0.79	0.96	0.77	0.842	10
42	Slovakia	73.6	74	12,840	0.81	0.91	0.81	0.842	1
43	Chile	76.0	79	9,820	0.85	0.90	0.77	0.839	11
44	Kuwait	76.5	76	16,240	0.86	0.81	0.85	0.838	-6
45	Costa Rica	78.0	69	8,840	0.88	0.84	0.75	0.834	14
46	Uruguay	75.2	85	7,830	0.84	0.94	0.73	0.833	16
47	Qatar	72.0	82	19,844	0.78	0.83	0.88	0.833	-21
48	Croatia	74.1	73	10,240	0.82	0.90	0.77	0.830	4
49	United Arab Emirates	74.6	68	22,420	0.83	0.74	0.90	0.824	-26
50	Latvia	70.9	87	9,210	0.76	0.95	0.75	0.823	6
51	Bahamas	67.1	74	17,280	0.86	0.88	0.86	0.815	-16
52	Cuba	76.7	78	5,259	0.86	0.91	0.66	0.809	39
53	Mexico	73.3	74	8,970	0.81	0.85	0.75	0.802	5
54	Trinidad and Tobago	71.4	64	9,430	0.77	0.87	0.76	0.801	1
55	Antigua and Barbuda	73.9	69	10,920	0.82	0.80	0.78	0.800	-8
Medium human development									
56	Bulgaria	70.9	76	7,130	0.77	0.91	0.71	0.796	10
57	Russian Federation	66.7	88	8,230	0.69	0.95	0.74	0.795	3
58	Libyan Arab Jamahiriya	72.6	97	7,570	0.79	0.87	0.72	0.794	6
59	Malaysia	73.0	70	9,120	0.80	0.83	0.75	0.793	-2
60	Macedonia, TFYR	73.5	70	6,470	0.81	0.87	0.70	0.793	15
61	Panama	74.6	73	6,170	0.83	0.86	0.69	0.791	18
62	Belarus	69.9	88	5,520	0.75	0.95	0.67	0.790	24
63	Tonga	68.4	82	6,850	0.72	0.93	0.71	0.787	5
64	Mauritius	71.9	69	10,810	0.78	0.79	0.78	0.785	-15
65	Albania	73.6	69	4,830	0.82	0.89	0.65	0.781	31
66	Bosnia and Herzegovina	74.0	64	5,970	0.82	0.84	0.68	0.781	15
67	Suriname	71.0	74	6,590	0.77	0.87	0.70	0.780	6
68	Venezuela	73.6	71	5,380	0.81	0.86	0.67	0.778	21
69	Romania	70.5	68	6,560	0.76	0.88	0.70	0.778	5
70	Ukraine	69.5	84	4,870	0.74	0.94	0.65	0.777	25
71	Saint Lucia	72.4	74	5,300	0.79	0.88	0.66	0.777	19
72	Brazil	68.0	92	7,770	0.72	0.88	0.73	0.775	-9

Table 2.4 continued

	Life expectancy at birth (years)	Adult literacy rate (% ages 15 and above)	Combined gross enrollment ratio for primary and secondary schools (%)	GDP per capita (PPP US\$)	Life expectancy (years)	Human development index (HDI)	GDP per capita (PPP US\$) rank minus HDI
73 Colombia	72.1	92.1	68	6,370	0.78	0.84	0.69
74 Oman	72.3	74.4	63	13,340	0.79	0.71	0.82
75 Samoa (Western)	69.8	98.7	69	5,600	0.75	0.89	0.67
76 Thailand	69.1	92.6	73	7,010	0.74	0.86	0.71
77 Saudi Arabia	72.1	77.9	57	12,650	0.79	0.71	0.81
78 Kazakhstan	66.2	99.4	81	5,870	0.69	0.93	0.68
79 Jamaica	75.6	87.6	75	3,980	0.84	0.83	0.61
80 Lebanon	73.5	86.5	78	4,360	0.81	0.84	0.63
81 Fiji	69.6	92.9	73	5,440	0.74	0.86	0.67
82 Armenia	72.3	99.4	72	3,120	0.79	0.90	0.57
83 Philippines	69.8	92.6	81	4,170	0.75	0.89	0.62
84 Maldives	67.2	97.2	78	4,798	0.70	0.91	0.65
85 Peru	69.7	85.0	88	5,010	0.74	0.86	0.65
86 Turkmenistan	66.9	98.8	81	4,300	0.70	0.93	0.63
87 Saint Vincent & the Grenadines	74.0	83.1	64	5,460	0.82	0.77	0.67
88 Turkey	70.4	86.5	68	6,390	0.76	0.80	0.69
89 Paraguay	70.7	91.6	72	4,610	0.76	0.85	0.64
90 Jordan	70.9	90.9	77	4,220	0.76	0.86	0.62
91 Azerbaijan	72.1	97.0	69	3,210	0.78	0.88	0.58
92 Tunisia	72.9	73.2	75	6,760	0.79	0.74	0.70
93 Grenada	65.3	94.4	65	7,280	0.67	0.85	0.72
94 China	70.9	90.9	68	4,580	0.76	0.83	0.64
95 Dominica	73.1	76.4	74	5,640	0.80	0.76	0.67
96 Sri Lanka	72.5	92.1	65	3,570	0.79	0.83	0.60
97 Georgia	73.5	100.0	69	2,260	0.81	0.89	0.52
98 Dominican Republic	66.7	84.4	77	6,640	0.70	0.82	0.70
99 Belize	71.5	76.9	71	6,080	0.78	0.75	0.69
100 Ecuador	70.7	91.0	72	3,580	0.76	0.85	0.60
101 Iran, Islamic Rep. of	70.1	77.1	69	6,690	0.75	0.74	0.70
102 Occupied Palestinian Territories	72.3	90.2	79	-	0.79	0.86	0.52
103 El Salvador	70.6	79.7	66	4,890	0.76	0.75	0.65
104 Guyana	63.2	96.5	75	4,260	0.64	0.89	0.63
105 Cape Verde	70.0	75.7	73	5,000	0.75	0.75	0.65
106 Syrian Arab Republic	71.7	82.9	59	3,620	0.78	0.75	0.60
107 Uzbekistan	69.5	99.3	76	1,670	0.74	0.91	0.47
108 Algeria	69.5	68.9	70	5,760	0.74	0.69	0.68
109 Equatorial Guinea	49.1	84.2	58	30,130	0.40	0.76	0.95
110 Kyrgyzstan	68.4	97.0	81	1,620	0.72	0.92	0.46
111 Indonesia	66.6	87.9	65	3,230	0.69	0.80	0.58
112 Viet Nam	69.0	90.3	64	2,300	0.73	0.82	0.52
113 Moldova, Rep. of	68.8	99.0	62	1,470	0.73	0.87	0.45
114 Bolivia	63.7	86.7	86	2,460	0.64	0.86	0.53
115 Honduras	68.8	80.0	62	2,600	0.73	0.74	0.54
116 Tajikistan	68.6	99.5	73	980	0.73	0.90	0.38
117 Mongolia	63.7	97.8	70	1,710	0.64	0.89	0.47
118 Nicaragua	69.4	76.7	65	2,470	0.74	0.73	0.54
119 South Africa	68.6	86.0	77	10,070	0.40	0.83	0.77
120 Egypt	65.7	55.6	76	3,810	0.73	0.82	0.61
121 Guatemala	65.7	69.9	56	4,080	0.68	0.65	0.62
122 Gabon	56.6	71.0	74	6,590	0.53	0.72	0.70
123 São Tomé and Príncipe	69.7	83.1	62	1,317	0.75	0.76	0.43
124 Solomon Islands	69.0	76.6	50	1,590	0.73	0.68	0.46
125 Morocco	68.5	50.7	57	3,810	0.72	0.53	0.61
126 Namibia	45.3	83.3	71	6,210	0.34	0.34	0.69
127 India	63.7	61.3	55	2,670	0.64	0.59	0.55
128 Botswana	41.4	78.9	70	8,170	0.27	0.76	0.73
129 Vanuatu	68.6	34.0	59	2,890	0.73	0.42	0.56
130 Cambodia	57.4	69.4	59	2,060	0.54	0.66	0.50
131 Ghana	57.8	73.8	46	2,130	0.55	0.65	0.51
132 Myanmar	57.2	85.3	48	1,027	0.54	0.73	0.39
133 Papua New Guinea	57.4	64.6	41	2,270	0.54	0.57	0.52
134 Bhutan	63.0	47.0	-	1,969	0.63	0.48	0.50
135 Lao People's Dem. Rep.	54.3	66.4	59	1,720	0.49	0.64	0.47
136 Comoros	60.6	56.2	45	1,690	0.59	0.53	0.47
137 Swaziland	35.7	80.9	61	4,550	0.18	0.74	0.64
138 Bangladesh	61.1	41.1	54	1,700	0.60	0.45	0.47
139 Sudan	55.5	59.9	36	1,820	0.51	0.52	0.48
140 Nepal	59.6	44.0	61	1,370	0.58	0.50	0.44
141 Cameroon	46.8	67.9	56	2,000	0.36	0.64	0.50
Low human development							
142 Pakistan	60.8	41.5	37	1,940	0.60	0.40	0.49
143 Togo	49.9	59.6	67	1,480	0.41	0.62	0.45
144 Republic of Congo-Brazzaville	48.3	82.8	48	980	0.39	0.71	0.38

Table 2.4 continued

	Life expectancy at birth (years)	Adult literacy rate (% ages 15 and above)	Combined gross enrolment ratio for primary, secondary and tertiary schools (%)	GDP per capita (PPP US\$)	Life expectancy	Education	Human development index (HDI)	GDP per capita (PPP US\$) rank minus HDI
145 Lesotho	36.3	81.4	65	2,420	0.19	0.76	0.493	-24
146 Uganda	45.7	68.9	71	1,390	0.34	0.70	0.493	4
147 Zimbabwe	33.9	90.0	58	2,400	0.15	0.79	0.491	-25
148 Kenya	45.2	84.3	53	1,020	0.34	0.74	0.488	11
149 Yemen	59.8	49.0	53	870	0.58	0.50	0.482	16
150 Madagascar	53.4	67.3	45	740	0.47	0.60	0.469	20
151 Nigeria	51.6	66.8	45	860	0.44	0.59	0.466	15
152 Mauritania	52.3	41.2	44	2,220	0.45	0.52	0.465	-25
153 Haiti	49.4	51.9	52	1,610	0.41	0.52	0.463	-9
154 Djibouti	45.8	65.5	24	1,990	0.35	0.52	0.454	-21
155 Gambia	53.9	37.8	45	1,690	0.48	0.40	0.452	-15
156 Eritrea	52.7	56.7	33	890	0.46	0.49	0.439	8
157 Senegal	52.7	39.3	38	1,580	0.46	0.39	0.437	-11
158 Timor-Leste	49.3	58.6	75	-	0.41	0.64	0.436	19
159 Rwanda	38.9	69.2	53	1,270	0.23	0.64	0.431	-6
160 Guinea	48.9	41.0	29	2,100	0.40	0.37	0.425	-30
161 Benin	50.7	39.8	52	1,070	0.43	0.44	0.421	-5
162 Tanzania, U. Rep. of	43.5	77.1	31	580	0.31	0.62	0.407	12
163 Côte d'Ivoire	41.2	49.7	42	1,520	0.27	0.47	0.399	-16
164 Zambia	32.7	79.9	45	840	0.13	0.68	0.389	3
165 Malawi	37.8	61.8	74	580	0.21	0.66	0.388	9
166 Angola	40.1	42.0	30	2,130	0.25	0.38	0.381	-38
167 Chad	44.7	45.8	35	1,020	0.33	0.42	0.379	-8
168 Congo, Dem. Rep. of the	41.4	62.7	27	650	0.27	0.51	0.365	4
169 Central African Rep.	39.8	48.6	31	1,170	0.25	0.43	0.361	-15
170 Ethiopia	45.5	46.5	34	780	0.34	0.39	0.359	-1
171 Mozambique	38.5	41.5	41	1,050	0.22	0.45	0.354	-14
172 Guinea-Bissau	45.2	39.6	37	710	0.34	0.39	0.350	-1
173 Burundi	40.8	50.4	33	630	0.26	0.45	0.339	0
174 Mali	48.5	19.0	26	930	0.39	0.21	0.326	-11
175 Burkina Faso	45.8	12.8	22	1,100	0.35	0.16	0.302	-20
176 Niger	46.0	17.1	19	800	0.35	0.18	0.292	-8
177 Sierra Leone	34.3	36.0	45	520	0.16	0.39	0.273	-1

Developing countries	64.6	76.7	60	4,054	0.66	0.71	0.663	-
Least developed countries	50.6	52.5	43	1,307	0.43	0.49	0.446	-
Arab States	66.3	63.3	60	5,069	0.69	0.61	0.651	-
East Asia and the Pacific	69.8	90.3	65	4,768	0.75	0.83	0.740	-
Lat. Amer. and the Carib.	70.5	88.6	81	7,223	0.76	0.86	0.777	-
South Asia	63.2	57.6	54	2,658	0.64	0.57	0.584	-
Sub-Saharan Africa	46.3	63.2	44	1,790	0.35	0.56	0.465	-
Central & Eastern Europe & CIS	69.5	99.3	79	7,192	0.74	0.93	0.796	-
OECD	77.1	-	87	24,904	0.87	0.94	0.911	-
High-income OECD	78.3	-	93	29,000	0.89	0.97	0.935	-
High human development	77.4	-	89	24,806	0.87	0.95	0.915	-
Medium human development	67.2	80.4	64	4,269	0.70	0.75	0.695	-
Low human development	49.1	54.3	40	1,184	0.40	0.50	0.438	-
High income	78.3	-	92	28,741	0.89	0.97	0.933	-
Middle income	70.0	89.7	71	5,908	0.75	0.84	0.756	-
Low income	59.1	63.6	51	2,149	0.57	0.59	0.557	-
World	66.9	-	64	7,804	0.70	0.76	0.729	-

Note: * A positive figure indicates that the HDI is higher than the PCY rank, and vice versa for a negative figure.
Source: UNDP, Human Development Report 2004 (New York: Oxford University Press, 2004).

The **Human Poverty Index** is based on three main indices:

- The percentage of the population not expected to survive to the age of 40 (P_1)
- The adult illiteracy rate (P_2)
- A deprivation index based on an average of two variables: the percentage of the population without access to safe water and the percentage of underweight children under five years old (P_3).

The formula for the HPI is given by:

$$\text{HPI} = [1/3(P_1^3 + P_2^3 + P_3^3) - 3]^{1/3} \quad (2.3)$$

The data and the results for 177 developing countries are shown in Table 2.5.

The total number of those suffering deprivation and various aspects of human poverty is shown in Table 2.6 (by continent and area of the world). At the start of the third millennium, over 1 billion people still lack access to safe water, nearly 1 billion are illiterate, and half a billion will die before the age of 40. The UNDP calculates, however, that the cost of eradicating poverty across the globe is relatively small compared with global income, and that 'political commitment, not financial resources, is the real obstacle to poverty eradication'. Basic social services could be made available to all people in developing countries at the cost of \$40 billion over 10 years. A further \$40 billion over 20 years could eradicate income poverty across the world. A cost of \$80 billion is less than 0.3 per cent of the global world income of \$32,000 billion.

CAN THE POOR COUNTRIES EVER CATCH UP?

If living standards are largely determined by the level and growth of productivity, the interesting question is whether the developing countries will ever catch up with the performance of the rich industrialized countries. There are at least three possible mechanisms by which **catch-up** may occur.

First, it is sometimes argued that the larger the gap between a country's technology, productivity and per capita income on the one hand and the level of productivity in the advanced countries on the other, the greater the scope for a poor country to absorb existing technology and to catch up with richer countries. Technology is thought of as a public good, so for a given amount of technological investment a poor country can reap high returns because it has paid none of the development costs. Clearly, there also has to be the willingness and ability to invest. A productivity gap is a necessary but not a sufficient condition for catch-up by this means.

Second, the process of development is characterized by a shift of resources from low-productivity agriculture to higher-productivity industrial and service activities. Other things being equal, this should also produce a move towards convergence to the extent that the resource shifts are greater in poor countries than in rich countries.

Third, mainstream neoclassical growth theory predicts convergence (see Chapter 4) because of the assumption of diminishing returns to capital. Rich countries with a lot of capital per head will have a lower productivity of capital than poor countries. Thus if tastes and preferences are the same, the same amount of saving and investment in poor countries should lead to faster growth than in rich countries.

Table 2.5 Human Poverty Index

High human development					
23 Hong Kong, China (SAR)	-	1.8	6.5	-	-
25 Singapore	6.3	1.9	7.5	0	14
28 Korea, Rep. of	-	3.4	2.1	8	-
29 Barbados	2.5	2.6	0.3	0	6
30 Cyprus	-	2.9	3.2	0	-
33 Brunei Darussalam	-	2.8	6.1	-	-
34 Argentina	-	5.1	3.0	-	5
35 Seychelles	-	-	8.1	-	6
39 Saint Kitts and Nevis	-	-	-	2	-
40 Bahrain	-	4.0	11.5	-	9
43 Chile	4.1	4.1	4.3	7	1
44 Kuwait	-	2.6	17.1	-	10
45 Costa Rica	4.4	3.7	4.2	5	5
46 Uruguay	3.6	4.4	2.3	2	5
47 Qatar	-	5.1	15.8	-	6
49 United Arab Emirates	-	3.4	22.7	-	14
51 Bahamas	-	16.0	4.5	3	-
52 Cuba	5.0	4.1	3.1	9	4
53 Mexico	9.1	7.6	9.5	12	8
54 Trinidad and Tobago	7.7	9.1	1.5	10	7
55 Antigua and Barbuda	-	-	-	9	10
Medium human development					
58 Libyan Arab Jamahiriya	15.3	4.5	18.3	28	5
59 Malaysia	-	4.2	11.3	-	12
61 Panama	7.7	6.8	7.7	10	7
63 Tonga	-	8.9	1.2	0	-
64 Mauritius	11.3	4.6	15.7	0	15
67 Suriname	-	6.5	-	18	13
68 Venezuela	8.5	5.9	6.9	17	5
71 Saint Lucia	-	5.7	-	2	14
72 Brazil	11.8	11.5	13.6	13	6
73 Colombia	8.1	8.4	7.9	9	7
74 Oman	31.5	5.0	25.6	61	24
75 Samoa (Western)	-	6.6	1.3	1	-
76 Thailand	13.1	10.2	7.4	16	19
77 Saudi Arabia	15.8	5.2	22.1	5	14
79 Jamaica	9.2	4.9	12.4	8	6
80 Lebanon	9.5	4.3	13.5	0	3
81 Fiji	21.3	5.4	7.1	53	8
83 Philippines	15.0	7.4	7.4	14	28
84 Maldives	11.4	10.2	2.8	0	30
85 Peru	13.2	10.2	15.0	20	7
87 St. Vincent & the Grenadines	-	3.9	-	7	-

Table 2.5 continued

88 Turkey	12.0	8.0	13.5	18	8
89 Paraguay	10.6	8.0	8.4	22	5
90 Jordan	7.2	6.6	9.1	4	5
92 Tunisia	19.2	4.9	26.8	20	4
93 Grenada	-	-	-	5	-
94 China	13.2	7.1	9.1	25	11
95 Dominica	-	-	-	3	5
96 Sri Lanka	18.2	5.1	7.9	23	29
98 Dominican Republic	13.7	14.6	15.6	14	5
99 Belize	16.7	11.3	23.1	8	6
100 Ecuador	12.0	10.3	9.0	15	15
101 Iran, Islamic Rep. of	16.4	7.0	22.9	8	11
102 Occupied Palestinian Territories	-	5.2	-	14	4
103 El Salvador	17.0	9.9	20.3	23	12
104 Guyana	12.9	17.6	1.4	6	14
105 Cape Verde	19.7	7.6	24.3	26	14
106 Syrian Arab Republic	13.7	5.7	17.1	20	7
108 Algeria	21.9	9.3	31.1	11	6
119 Equatorial Guinea	32.7	36.4	15.8	56	19
111 Indonesia	17.8	10.8	12.1	22	26
112 Viet Nam	20.0	10.7	9.7	23	33
114 Bolivia	14.4	16.0	13.3	17	10
115 Honduras	16.6	13.8	20.0	12	17
117 Mongolia	19.1	13.0	2.2	40	13
118 Nicaragua	18.3	10.3	23.3	23	10
119 South Africa	31.7	44.9	14.0	14	12
120 Egypt	30.9	8.6	44.4	3	11
121 Guatemala	22.5	14.1	30.1	8	24
122 Gabon	-	28.1	-	14	12
123 São Tomé and Príncipe	-	10.0	-	-	13
124 Solomon Islands	-	6.8	-	29	21
125 Morocco	34.5	9.4	49.3	20	9
126 Namibia	37.7	52.3	16.7	23	24
127 India	31.4	15.3	38.7	16	47
128 Botswana	43.5	61.9	21.1	5	13
129 Vanuatu	-	7.3	-	12	20
130 Cambodia	42.6	24.0	30.6	70	45
131 Ghana	26.0	25.8	26.2	27	25
132 Myanmar	25.4	24.6	14.7	28	35
133 Papua New Guinea	37.0	19.0	35.4	58	35
134 Bhutan	-	17.3	-	38	19
135 Lao People's Dem. Rep.	40.3	27.9	33.6	63	40
136 Comoros	31.4	18.1	43.8	4	25
137 Swaziland	-	70.5	19.1	-	10
138 Bangladesh	42.2	17.3	58.9	3	48

Table 2.5 continued

139 Sudan	31.6	27.6	40.1	25	17
140 Nepal	41.2	19.3	56.0	12	48
141 Cameroon	36.9	44.2	32.1	42	21
Low human development					
142 Pakistan	41.9	17.8	58.5	10	38
143 Togo	38.0	37.9	40.4	46	25
144 Congo	31.9	39.3	17.2	49	14
145 Lesotho	47.9	68.1	18.6	22	18
146 Uganda	36.4	41.1	31.1	48	23
147 Zimbabwe	52.0	74.8	10.0	17	13
148 Kenya	37.5	49.5	15.7	43	21
149 Yemen	40.3	19.1	51.0	31	46
150 Madagascar	35.9	29.0	32.7	53	33
151 Nigeria	35.1	34.9	33.2	38	36
152 Mauritania	48.3	30.5	58.8	63	32
153 Haiti	41.1	37.3	48.1	54	17
154 Djibouti	34.3	42.9	34.5	0	18
155 Gambia	45.8	29.6	62.2	38	17
156 Eritrea	41.8	27.5	43.3	54	44
157 Senegal	44.1	27.7	60.7	22	23
158 Timor-Leste	-	33.0	-	-	43
159 Rwanda	44.7	54.3	30.8	59	27
160 Guinea	-	35.9	-	52	23
161 Benin	45.7	34.6	60.2	37	23
162 Tanzania, U. Rep. of	36.0	46.4	22.9	32	29
163 Côte d'Ivoire	45.0	51.7	50.3	19	21
164 Zambia	50.4	70.1	20.1	36	28
165 Malawi	46.8	59.6	38.2	43	25
166 Angola	-	49.2	-	62	31
167 Chad	49.6	42.9	54.2	73	28
168 Congo, Dem. Rep. of the	42.9	47.2	37.3	55	31
169 Central African Rep.	47.7	55.3	51.4	30	24
170 Ethiopia	55.5	43.3	58.5	76	47
171 Mozambique	49.8	56.0	53.5	43	26
172 Guinea-Bissau	48.0	41.3	60.4	44	25
173 Burundi	45.8	50.5	49.6	22	45
174 Mali	58.9	35.3	81.0	35	33
175 Burkina Faso	65.5	43.4	87.2	58	34
176 Niger	61.4	38.7	82.9	41	40
177 Sierra Leone	-	57.5	-	43	27

Source: UNDP, *Human Development Report 2004* (New York: Oxford University Press, 2004).