
Poverty as It Is—and Forecasts for 2015

The method of constructing percentile distributions can be used to assess trends in global and regional poverty, and it can be used not only for a given poverty line but for any poverty line. Further, the mean incomes of the poor can be computed, and the poverty gap derived. Knowledge of the poverty gap is critical for assessing questions about how much in transfers, or aid, is needed to alleviate poverty.

There has been a large *decline* in poverty during the past 20 years; this decline is based on a method that uses a constant poverty line—equal to a purchasing power parity (PPP) income of \$1.50 per capita per day, at 1993 prices—and thus a line that is adjusted upward by 15 percent from the traditional \$1-a-day line, equal to PPP \$1.30 at 1993 prices. This upward adjustment is meant to compensate for the fact that the national accounts consumption means may contain an upward bias due to possible undercoverage of rich people and understatement by them in the household surveys that are used to obtain distributions of expenditure.

Some contend (e.g., Reddy and Pogge 2002) that use of PPP data understates true “poverty” as measured by accurate local currency deflators and local currency baskets of consumption by poor people. Though theoretically this possibility exists, as is documented above (chapter 2), empirically it is the case that among poor countries especially, the use of PPP conversions is *overstating* the level and *understating* the decline in global poverty during the past 20 years.

Thus, a conservative, upper-bound estimate of global poverty at the turn of the century is 10.5 percent of the world’s population, or 13.1 percent of the population of the developing world. In absolute numbers,

the number of poor people in 2000 was 650 million, down by 800 million since 1980 (when the total was 1.48 billion) and down by 525 million since 1987. Because absolute poverty is ultimately a relative concept, such low levels of absolute poverty suggest that the time has come to *raise* the international poverty line. Using the relationship between levels of consumption and nationally defined poverty lines, a new poverty line is offered—rounding off, it is \$2 a day, at 1993 prices. It is also worth noting that the *mean* poverty line in the world today (based on local currency lines and converted to PPP using official PPP conversion factors) is also close to PPP \$2 a day.

How Much Poverty Is There in the World?

The \$1.08 poverty line does not really belong as a line, given that it was forced on the international community due to deficiencies in both the survey mean method and the “consumption” PPP exchange rates in accurately reflecting levels and trends of consumption poverty. Chapter 7 documented how the \$1.50 poverty line at 1993 prices captured the consistency of the national accounts, as well as the virtues of survey-based methods of estimating poverty. At one level, a \$1.50 poverty line is equal to a \$1.30 poverty line adjusted upward by 15 percent to account for undercoverage of rich people in surveys and the fact that they understate their incomes by a higher amount than do nonrich people. At another level, a \$1.50 poverty line is equal to a \$1.30 survey line with the survey capture of national accounts being kept fixed at 86.7 percent (the ratio of 1.3 and 1.5). No matter what assumption is used, the \$1.50 poverty line has the virtue of consistency and constancy.

Table 9.1 reports on estimates of the head count ratio for the developing world according to different methods (survey vs. national accounts means) and the corresponding equivalent poverty lines. All the data given in this table were computed according to official PPP exchange rates, as published in the World Bank’s *World Development Indicators*. The two preferred methods (survey data and the \$1.30 line, or national accounts and the \$1.50 line) are shown in bold. Note that these two methods yield virtually the same poverty ratio for all the years until 1980! But for 2000, the survey \$1.30 line yields a poverty estimate of 18.2 percent; the old “matching-but-now-no-more” national accounts data yield a 5-percent-age-point (or almost 30 percent) lower number of 13.1 percent.

The estimate most preferred for the present study is obviously the \$1.50 poverty line, using national accounts (and official PPP exchange rates!). This method yields a figure of 650 million poor people in 2000, about 500 million fewer than suggested by “official” World Bank figures.

Table 9.1 Poverty over the years

Measure	1950	1960	1970	1980	1990	2000
Head count ratio (percent)						
<i>Survey mean</i>						
\$1.08 poverty line	58.2	46.4	40.2	38.0	20.0	11.4
\$1.30 poverty line	65.8	55.4	49.3	46.5	29.0	18.2
\$1.73 poverty line	75.7	68.0	62.4	59.2	45.1	32.2
Country poverty line	75.4	70.4	65.9	62.6	50.2	37.3
<i>National accounts mean^a</i>						
\$1.25 poverty line	55.8	43.9	37.9	35.0	17.7	9.1
\$1.50 poverty line	63.2	52.5	46.4	43.5	25.4	13.1
\$2.00 poverty line	73.8	65.2	59.9	56.3	40.4	23.3
Country poverty line X 1.15	73.5	68.1	63.2	60.1	45.5	28.0
Number of poor people (millions)^b						
<i>Survey mean</i>						
\$1.08 poverty line	1,127	1,000	1,095	1,293	831	559
\$1.30 poverty line	1,275	1,193	1,342	1,581	1,208	899
\$1.73 poverty line	1,466	1,466	1,700	2,016	1,879	1,588
Country poverty line	1,461	1,517	1,794	2,130	2,091	1,840
<i>National accounts mean^a</i>						
\$1.25 poverty line	1,081	947	1,031	1,192	738	449
\$1.50 poverty line	1,223	1,131	1,262	1,479	1,056	647
\$2.00 poverty line	1,429	1,406	1,631	1,917	1,680	1,147
Country poverty line X 1.15	1,423	1,468	1,719	2,045	1,894	1,377

a. The national accounts poverty lines are all higher by a factor of (1.5/1.3) to account for the possibility that survey data undercount rich people and that they understate their consumption by a greater proportion. See the text for the derivation of the magnitude of this adjustment factor (equal to 1.5/1.3).

b. Poverty figures are for people in the developing world. Figures for the number of poor are computed by multiplying the estimated head count ratio by national populations.

Note: In many cases, income distribution data may not be available for decade-end years. In such cases, the table presents either the closest earlier year for which data are available, or, where earlier data are not available, data for the earliest later year. For example, if the latest survey took place in 1995, the 2000 figures reflect these values; if the first survey took place in 1975, the 1960 figures reflect those values.

Sources: Deininger and Squire (1996); World Income Inequality Database, available at www.wider.unu.edu/wiid; Asian Development Bank (2002); World Bank, *World Development Indicators*, CD-ROM.

Where Did Poverty Decline from 1960 to 2000?

It is tempting to conclude that declining poverty in the world is really about declines in China and India. Even if this were true, it would be an encouraging outcome if concern is with the world's poor people rather than with country-specific poor people. Many populous countries in the

world have reduced poverty—Brazil and Mexico in Latin America; Egypt in the Middle East and North Africa; and China, India, Indonesia, Pakistan, and Vietnam in Asia. It is true that the 1980-2000 globalization period bypassed poor people in Latin America and sub-Saharan Africa; but these continents did not register any growth in the 1980-2000 period either. Most poor people, however, reside or resided in South Asia and China; they have seen a significant increase in their incomes during the past 20 years, and a significant decline in poverty. As is shown below, this decline was of a miraculous nature: unprecedented in its scale, and unlikely to ever happen again on the same scale.

Table 9.2 documents the evolution of declines in poverty since 1960. The period 1960-80 is marked by an increase in the number of poor people in all regions of the world, except Latin America and the Middle East. The next two decades represent the “Asian Drama”—a transformation in many countries that not only halted the increase in the absolute number of poor people (which was going up because of population growth alone) but reversed it significantly. Asia saw more than a billion people rise out of poverty in just 20 years—a miracle.

The Evolution of World Poverty, 1820-2000

The SAP dataset allows for the estimation of poverty according to any given poverty line, and with any given combination of methods—surveys and national accounts, consumption and official PPP exchange rates. Bourguignon and Morrisson (2001) report estimates of world poverty from 1820-1950 according to the poverty line of \$1 a day, at 1985 prices. For 1950, they report that the number of poor people is 55 percent; using national accounts data, I obtain a lower figure, 47.2 percent. For 1992, the poverty ratio reported by Bourguignon and Morrisson is 23.7 percent; I obtain a lower number, 19.2 percent. One possible reason for this divergence is that Bourguignon and Morrisson attempt to “link” their national accounts method with the survey-based estimates of poverty produced by the World Bank in the 1990s; another reason could be in the PPP estimates used by them for China; and yet another reason could be a difference in the methods (the ones used in the present study being more complete).

Figure 9.1 reports estimates of poverty from 1820 to 2000; the estimates from 1820 to 1929 are from Bourguignon and Morrisson (and use the line of \$1 a day, at 1985 prices, and national accounts data). The estimates for 1950-2000 are my estimates based on \$1.50 a day, 1993 prices, and national accounts data. To be consistent with the earlier study, poverty ratios are reported in terms of the world’s population, not in terms of the population of the developing world.

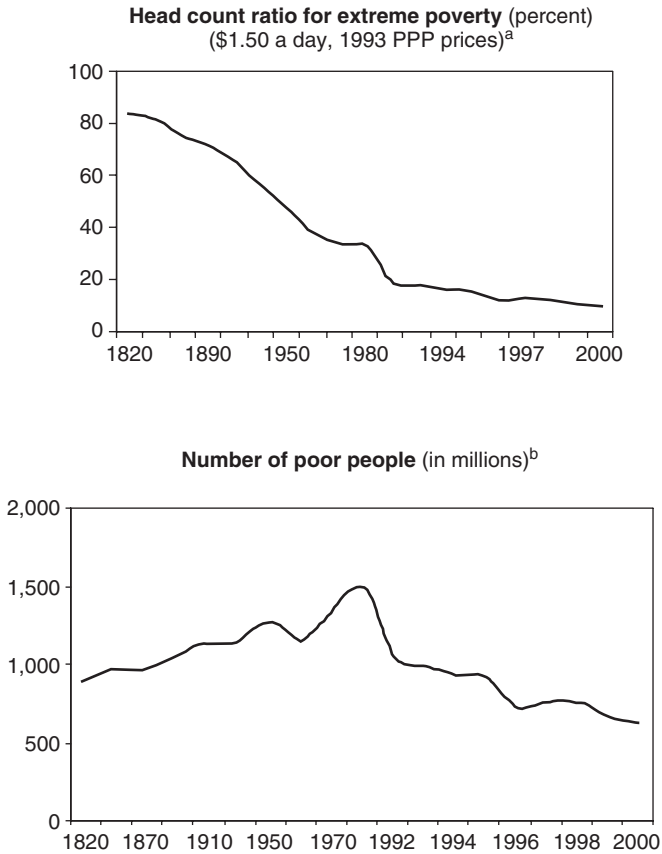
Table 9.2 Where did poverty decline?

Region and country	Population, 2000 (millions)	Change in number of poor people (\$1.50-a-day poverty line)		
		1960-80	1980-2000	1960-2000
East Asia				
China	1,265	206.8	-727.0	-520.2
Indonesia	210	8.1	-67.4	-59.3
Thailand	61	-5.9	-7.4	-13.3
Vietnam	78	16.5	-24.9	-8.4
Total	1,894	226.2	-841.0	-614.8
South Asia				
Bangladesh	131	9.7	2.1	11.8
India	1,011	92.4	-207.2	-114.8
Pakistan	137	-7.9	-16.0	-23.8
Total	1,355	101.2	-205.0	-103.8
Sub-Saharan Africa				
Ethiopia	65	9.7	23.3	33.0
Kenya	30	4.9	5.6	10.5
Nigeria	129	11.3	50.9	62.2
Tanzania	35	6.6	12.4	18.9
Uganda	22	4.06	-1.76	2.31
Lesotho	2	-0.25	0.10	-0.15
Mauritania	3	-0.22	0.11	-0.11
Total	661	70.6	173.8	244.4
Middle East and North Africa				
Egypt	64	-11.8	-1.2	-13.0
Total	374	-22.2	19.4	-2.8
Latin America				
Brazil	172	-14.1	8.9	-5.2
Mexico	97	-6.8	0.0	-6.8
Total	518	-21.8	14.0	-7.8
All less-developed countries	4,928	348.2	-831.6	-483.4

Note: The poverty line used is \$1.50 a day, national accounts means, 1993 prices. This is roughly equal to the popular \$1-a-day, 1985-prices poverty line, when such a line is used with survey data. The \$1.50-a-day poverty line incorporates within it the tendency for the rich to understate their expenditures to a greater degree than poor people, as well as the tendency for the rich to not be fully covered by surveys.

Sources: Deininger and Squire (1996); World Income Inequality Database, available at <http://www.wider.unu.edu/wiid>; Asian Development Bank (2002); World Bank, *World Development Indicators*, CD-ROM.

Figure 9.1 World poverty, 1820-2000



a. The poverty line used is \$1.50 a day, national accounts means, at 1993 prices. This is roughly equal to the popular \$1-a-day, 1985-prices poverty line, when such a line is used with survey data. The \$1.50-a-day poverty line incorporates within it the tendency for the rich to understate their expenditures to a greater degree than poor people, as well as the tendency for the rich to not be fully covered by surveys.

b. Figures for the number of poor are computed by multiplying the estimated head count ratio by the world population.

Sources: Deininger and Squire (1996); World Income Inequality Database, available at <http://www.wider.unu.edu/wiid>; Asian Development Bank (2002); World Bank, *World Development Indicators*, CD-ROM. For years prior to 1950, data were taken from Bourguignon and Morrison (2001).

Table 9.3 Poverty reduction yield of growth

Time period ^a	Income		Head count ratio		Yield
	Change	Equivalent 20-year change	Change	Equivalent 20-year change	
1820-50	11.1	7.4	-2.4	-1.6	2.2
1850-70	19.0	19.0	-6.1	-6.1	3.2
1870-90	22.4	22.4	-3.6	-3.6	1.6
1890-1910	27.1	27.1	-6.1	-6.1	2.3
1910-29	21.9	23.0	-9.3	-9.8	4.3
1929-50	16.6	15.8	17.3	16.5	-10.4
1950-70	51.3	51.3	-12.4	-12.4	2.4
1960-80	42.9	42.9	-4.6	-4.6	1.1
1970-90	28.2	28.2	-14.6	-14.6	5.2
1980-90	11.2	22.4	-13.6	-27.2	12.2
1990-2000	12.6	25.2	-9.7	-19.4	7.7
1980-2000	23.8	23.8	-23.3	-23.3	9.8
Mean		25.7		-9.4	3.5
Standard deviation		11.6		11.5	5.6

a. When a time period is either less or more than 20 years, the 20-year “equivalent” income or head count ratio change is presented, i.e., the actual change is multiplied by a fraction equal to (20 divided by the number of years); e.g., figures for 1910-29 will be multiplied by (20 divided by 19).

Note: The yield of growth is defined as the decline in poverty (head count ratio) brought about by each 10 percent growth in per capita incomes (data up through 1950) or per capita consumption (data for 1950 to 2000). Both income and consumption figures are national-accounts based. The poverty line used is \$1.50 a day, national accounts means, 1993 prices, for data for 1950-2000.

Sources: Deininger and Squire (1996); World Income Inequality Database, available at <http://www.wider.unu.edu/wiid>; Asian Development Bank (2002); World Bank, *World Development Indicators*, CD-ROM; for years prior to 1950, data taken from Bourguignon and Morrisson (2001).

In 1820, global poverty was close to 84 percent of the world’s population, and more than a century later, it had declined to 56 percent (in 1929). Twenty years later, it was approximately at this same level. There has been a constant drift downward in the poverty ratio since 1950, and by 1992, only a fifth of the world’s population was poor. The number of poor people in the world shows a different trajectory; not until the start of globalization (and consistently high growth rates in China and India) in the 1980s does it begin to decline. From a peak of 1.589 billion people in 1982, the number has declined by almost a billion.

Table 9.3 attempts to answer a simple question: In the past almost 200 years, when was there the maximum bang for the buck in poverty reduction? The table’s first two columns give estimates of consumption growth (income growth for the period 1820-1950) for each (approximate) 20-year period. The second two columns give the estimated change in

the head count ratio. The final column gives the poverty reduction yield of growth (i.e., the amount of poverty reduction brought about by each 10 percent growth in incomes). For example, during the 1820-50 period, income grew by 11.1 percent and the head count ratio declined by 2.4 percent; the yield, therefore, is 2.4 divided by 11.1, or 0.216 for each 1 percent of growth; for 10 percent, it is 2.16 or 2.2.

The highest yield in 190 years is observed for the 20-year globalization period, 1980-2000. In this golden age, world poverty declined by 23.3 percent, a (log) consumption growth of only 23.8 percent. In other words, each 10 percent in growth brought about a 9.8-percentage-point reduction in poverty. The next-best period (not overlapping with the globalization years 1980-2000) was 1910-29; it had a yield less than half; at that time, each 10 percent in growth brought about a reduction of “only” 4.3 percentage points in the head count ratio.

Not only were the years 1980-2000 the best for development, but they were the best by far. A slightly lengthy, and perhaps somewhat distracting, heuristic explanation of the phenomenon that we have all been privileged to witness is as follows. The only reason for this involved digression is that, ironically, though great strides were being made in the reduction of poverty, the world and its leaders—especially aid-giving and development research organizations—seem to have completely missed noticing this progress.

A Digression: How Do You Assess the Best?

Throughout the text, we have emphasized the importance of cleaning the data, of consistency checks, of checking for “smell” tests, and so on. So how can one assess if a particular period was remarkable, a genuine outlier? Let us look at an equivalent question from the world of sports: How can one determine whether a particular player was the best in his or her field? But you might justifiably object and say—that cannot be done; apples and oranges, or Tigers and Jordans. Worse, you cannot even compare a Wilt Chamberlain with Michael Jordan or Sachin Tendulkar with Don Bradman. And why not?

Let us make the problem very simple—let us compare players at a point in time. Clearly, Tiger Woods dominates the game of golf today, just as Muhammad Ali dominated boxing in the 1960s, or Jesse Owens dominated athletics in the 1930s. But who dominated *more*, that is the question.

The answer is only slightly complicated. If an index of performance can be constructed for each sport,¹ then how good a player is will be indicated by the distance between him and the number two player, in

1. For a first attempt for the sport of cricket, see Bhalla (1987).

standard deviation terms. The larger the distance, the better the player. Now apples and oranges can be compared, or Bradman and Jordan.²

Now back to globalization. Table 9.3 also reports the standard deviation for the poverty yield of growth—it is large and equal to 5.6. Given the second-best yield of 4.3 observed in 1910-29 (the overlapping period of 1970-90 does not count), it appears that the best period was ahead of second best by almost 1 standard deviation! That is like the second-best player after Tiger Woods having a handicap of 2. That is how good globalization was for the poor. It is difficult to find any other statistic that shows that the globalizing 1980s and 1990s were indeed the golden age of development.

Regional Poverty Trends

Table 9.4 documents the poverty levels in different regions of the world, according to the \$1.50 poverty line and using national accounts data. This line is approximately the same as that used in 1979 by Ahluwalia, Carter, and Chenery (with a \$1.25 consumption line, 1985 PPP, and also national accounts).

All areas of the world show significant declines in poverty, except sub-Saharan Africa. The two largest, and formerly poorest, regions of the world—East and South Asia—show parallel declines, and both regions had a poverty ratio in 2000 of less than 10 percent. In Latin America, the head count ratio was down from 16 percent in the 1960s to only 5 percent in the 1990s. In the Middle East and North Africa, the decline was more rapid—from 24 percent in the 1960s to 8 percent in 2000.

One major region of the world, sub-Saharan Africa, has been most unfortunate. Poverty rates there are at the same level as in the 1960s—about half the population then, and about 55 percent in 2000. The reality is even worse. The population has more than doubled during the past four decades, which means that the absolute number of poor people has also more than doubled, to reach about 362 million—more than half of the world's poor people.

Time to Raise the Poverty Line

The first important implication of the finding that poverty today is less than 15 percent is that the poverty line is too low. What should the new poverty line be? A common, and correct, presumption is that poverty lines tend to rise with economic development.

2. Work on this project is under way; preliminary results indicate that the Australian cricketer Donald Bradman might just have been the best athlete ever.

Table 9.4 Poverty in the world, 1950-2000

Region ^a and measure	Poverty line (PPP, \$1.50 a day)				Poverty line (PPP, \$2.00 a day)							
	1950	1960	1970	1980	1990	2000	1950	1960	1970	1980	1990	2000
Head count ratio (percent)												
East Asia	86.6	77.5	71.1	67.2	31.3	6.0	91.1	86.0	82.0	78.3	49.2	16.1
South Asia	44.3	37.2	32.1	34.4	18.5	7.8	64.3	58.1	55.2	56.3	39.3	21.1
Sub-Saharan Africa	59.3	53.2	52.2	49.9	55.3	54.8	70.2	65.4	63.4	62.3	67.1	66.8
Middle East and North Africa	26.3	24.3	13.4	4.3	5.2	7.8	40.3	37.2	23.3	10.4	10.2	14.0
Latin America	22.0	16.0	9.4	3.6	5.3	5.2	31.3	24.5	15.4	8.2	10.8	10.4
Eastern Europe	17.8	9.2	3.3	1.7	0	0	28.4	16.4	6.7	2.8	3.2	3.1
Developing world	63.2	52.5	46.4	43.5	25.4	13.1	73.8	65.2	59.9	56.3	40.4	23.3
Number of poor people (millions)												
East Asia	830	729	833	955	521	114	873	809	959	1114	820	306
South Asia	208	209	229	310	207	105	303	326	392	508	441	286
Sub-Saharan Africa	104	118	150	188	279	362	123	145	181	235	339	441
Middle East and North Africa	27	32	23	10	16	29	41	49	40	24	31	53
Latin America	36	35	27	13	23	27	51	53	44	30	48	54
Eastern Europe	49	29	12	7	0	0	78	52	24	11	13	13
Developing world	1,223	1,131	1,262	1,479	1,056	647	1,429	1,406	1,631	1,917	1,680	1,147

PPP = purchasing power parity

a. For the classification of regions, see appendix C.

Note: Calculations are based on national accounts means. In many cases, income distribution data may not be available for decade-end years. In such cases, the table presents either the closest earlier year for which data are available, or, where earlier data are not available, data for the earliest later year. For example, if the latest survey took place in 1995, the 2000 figures reflect these values; if the first survey took place in 1975, the 1960 figures reflect those values.

Sources: Deininger and Squire (1996); World Income Inequality Database, available at <http://www.wider.unu.edu/wiid>; Asian Development Bank (2002).

The first estimates of world poverty were reported for 1975 by Ahluwalia, Carter, and Chenery (1979). Since then, per capita consumption in the developing world has increased by 50 (log) percent—from \$3.38 per day to \$5.57 (in 2000). The elasticity of the poverty line with respect to average consumption is 0.54, as revealed by the following regression for 51 countries in 1993 (above, an analogous regression for 1964 was given):

$$\text{Log (poverty line)} = 0.043 + 0.54 * (\text{log per capita consumption})$$

51 countries; $R^2 = 0.46$; standard error of log consumption = 0.083

Thus, the poverty line needs to be raised by 0.27 (log) percent. Given an original poverty line of \$1.50 (and this poverty line incorporates adjustments for undercoverage, etc.), this yields \$1.96 as the new poverty line. Rounding off, one obtains \$2 as the new poverty line to use for developing countries.

Additional support for the \$2-a-day poverty line is obtained by noting that for the 50 developing countries for which we have data, the mean national poverty line (population-weighted) was equal to \$1.96 per day. Finally, this poverty line (\$2) has been in use in Latin America for some time; the average country-specific poverty line there is a high PPP \$6.11 a day; in sub-Saharan Africa, the average country-specific line is about \$1.50.

The alternative, not raising the poverty line, does not make much sense. As is shown throughout the book, poverty has declined significantly, and the concept of absolute poverty is from a bygone era. Absolute poverty is relative, hence the new poverty line.

Poverty in the world at \$2 a day translates into 23.3 percent of the world's population, or 1.147 billion people. Coincidentally, this level is identical to the "official" World Bank poverty numbers for a considerably lower (by log 62 percent) poverty line of \$1.08 a day.

Forecasts for 2000 and 2015

Using various assumptions, Ahluwalia, Carter, and Chenery (1979) forecast poverty levels for 2000 for the developing world excluding China: "Although in relative terms these projections represent impressive progress in reducing poverty—from about 50 percent of the population of developing countries in 1960 to 16 percent in 2000—they fall considerably short of the results that might be expected with more effective policies" (p. 320).

By estimating global poverty for the above country classification, and with an equivalent poverty line at 1993 prices (\$1.50 a day), one obtains almost exactly the result forecast: 13.1 percent of the developing

world's population. The individual region forecasts of Ahluwalia and his colleagues were not all correct—a greater decline in poverty was assumed for sub-Saharan Africa, a smaller decline for South Asia. Fortunately for the forecast, the errors canceled out. But it is still very surprising that Ahluwalia and his colleagues got it right more than 20 years ago.

Recent documents of international financial institutions suggest a halving of the world's head count ratio to 15 percent by 2015. But as is shown above, this target has already been achieved—using a poverty line that is considerably higher (\$1.08 vs. \$1.50). With poverty at only 13.1 percent of the developing world's population in 2000, what should realistic targets be for the international community and organizations for 2015?

This important question is taken up in the next chapter. It involves various methodological assumptions, as well as interpretations of the correct relationship between economic growth and poverty reduction.