

Calculating PPP Conversion Factors and “\$1-a-day” Poverty Lines

This note shows how to calculate the value of the “\$1-a-day” measure of extreme poverty in terms of local currency at current prices. This calculation simply adjusts the original estimate of the \$1-a-day line, based on 1993 prices, for accumulated price inflation since 1993. The table on the following pages shows the results for a number of developing and transition countries, using the most recent data on consumer prices available at the time of writing.

The calculation requires three pieces of information:

1. The 1993 consumption purchasing power parity (PPP) exchange rate for the country in question, available at <http://iresearch.worldbank.org/PovCalNet/jsp/index.jsp>
2. The country’s Consumer Price Index (CPI) for 1993.
3. The country’s CPI for the most recent month available, preferably using the same base as the figure for 1993. In the table that follows, all price data are stated relative to the base year of 2000: that is, the CPI for 2000 is set at 100.0, while the CPI for all other years is stated in terms of their value relative to 2000. These data were taken from various issues of the *International Financial Statistics*, published monthly by the International Monetary Fund.

With these three pieces of data in hand, the current PPP exchange rate is calculated by adjusting the 1993 PPP for cumulative inflation since 1993. That is,

$$PPP_{\text{current}} = PPP_{1993} * [CPI_{\text{current}}/CPI_{1993}]$$

For example, to update Bangladesh’s 1993 PPP exchange rate to its equivalent in terms of current prices, start with the published value of the PPP at 1993 prices (12.70 taka to \$1 U.S.), then multiply the result times the ratio of the most recent published value of Bangladesh’s CPI (145.3 in October 2006) to the average CPI for 1993 (67.925). That is,

$$PPP_{\text{October '06}} = 12.70 \text{ taka}/\$ * (145.3/67.925) = 12.70 * 2.14 = 27.17 \text{ taka}/\$$$

Finally, calculate the current value of the “\$1-a-day” poverty line (\$1.08 per day in PPP at 1993 prices) by multiplying the result by 1.08. In the case of Bangladesh, the “\$1-a-day” poverty line equals 29.34 taka per day at October 2006 prices (27.17 * 1.08).

Once inflated to the prices of a recent period, the PPP exchange rate and poverty line can be kept up-to-date using an estimate of current inflation rates. For example, the Central Bank of Bangladesh’s web site reports that the consumer price index rose by 6.65 percent during the 12 months ending in January 2007, equivalent to a monthly inflation rate of about 1.11%. Over the 6 months from October 2006 to April 2007, this inflation rate would raise consumer prices by roughly 3.33 percent, leading to an estimated “1-a-day” poverty line for April 2007 of 30.21 taka per day (29.24 * 1.0333). This approximation becomes less reliable, the higher and more variable the inflation rate and the longer the period over which it is projected.

For reference, the table on the following pages applies this approach to compute PPP exchange rates and the local-currency equivalent of the “\$1-a-day” international poverty line for a number of low- and middle-income countries, based on CPI data for the most recent period reported in the *International Financial Statistics* of February 2007.