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The Developing World Is Poorer Than We Thought, But No Less Successful in the Fight against Poverty

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Abstract

The paper presents a major overhaul to the World Bank's past estimates of global poverty, incorporating new and better data. Extreme poverty—as judged by what "poverty" means in the world's poorest countries—is found to be more pervasive than we thought. Yet the data also provide robust evidence of continually declining poverty incidence and depth since the early 1980s. For 2005 we estimate that 1.4 billion people, or one quarter of the population of the developing world, lived below our international line of $1.25 a day in 2005 prices; 25 years earlier there were 1.9 billion poor, or one half of the population. Progress was uneven across regions. The poverty rate in East Asia fell from 80% to under 20 percent over this period. By contrast it stayed at around 50 percent in Sub-Saharan Africa, though with signs of progress since the mid 1990s. Because of lags in survey data availability, these estimates do not yet reflect the sharp rise in food prices since 2005.

The developing world is poorer than we thought, but no less successful in the fight against poverty

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1. Introduction

In assessing the extent of poverty in a given country one naturally focuses on a poverty line that is considered appropriate for that country. However, poverty lines vary across countries in terms of their purchasing power, and they have an economic gradient, such that richer countries tend to adopt higher standards of living in defining poverty.[2] For the purposes of measuring poverty in the world as a whole, the World Bank's "$1 a day" measures have aimed to apply a common standard, anchored to what "poverty" means in the world's poorest countries. By this view, two people with the same purchasing power over commodities should be treated the same way—both are either poor or not poor—even if they live in different countries.[3] By also focusing on the standards of the poorest countries, the $1 a day line gives the global poverty measure a salience in focusing on the world's poorest. Nonetheless, a higher line—more typical of developing countries as a whole—is also of interest, and a line set at double that found in the poorest countries has been widely used for this purpose.

Implementing this approach requires data on prices, to permit comparisons between countries. International comparisons of economic aggregates have long recognized that market exchange rates—which tend to equate purchasing power in terms of internationally traded goods—are deceptive, given that some commodities are not traded; this includes services but also many goods, including some food staples. Furthermore, there is likely to be a systematic effect, stemming from the fact that low real wages in developing countries entail that labor-intensive non-traded goods tend to be relatively cheap. In the literature, this is known as the "Balassa-Samuelson effect,"[4] and is the now widely-accepted explanation for an empirical finding known as the "Penn effect"—that GDP comparisons based on market exchange rates tend to understate the real incomes of developing countries.[5] Similarly, market exchange rates overstate the extent of poverty in the world. For this reason, global economic measurement, including poverty measurement, has used Purchasing Power Parity (PPP) rates rather than market exchange rates. A PPP is the conversion rate for a given currency into a reference

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[2]　Evidence on this point (using two data sets from different sources, one for the 1980s and one post-1990) can be found in Ravallion et al. (1991) and Ravallion et al. (2008).

[3]　Ravallion (2008) provides a theoretical justification for this view and discusses the validity of the welfare assumptions on which it is based.

[4]　See Balassa (1964) and Samuelson (1964).

[5]　The term "Penn effect" stems from Penn World Tables (Summers and Heston, 1991), which provided the price level indices across countries that were used to establish this effect empirically.

currency (invariably the $US) with the aim of assuring parity in terms of purchasing power over commodities, both internationally traded and non-traded.

Following this approach, Ravallion, Datt and van de Walle (RDV) (1991) (in research done for the 1990 *World Development Report*) compiled data on national poverty lines across 33 countries and proposed a poverty line of $1 per day at 1985 PPP as being typical of low-income countries.[6] Using household surveys for just 22 countries they estimated that one third of the population of the developing world in 1985 lived below the $1 a day standard.[7]

Since then the Bank's researchers have updated the original RDV estimates of global poverty measures in the light of new and often better data. The estimates done for the 2000/01 *World Development Report: Attacking Poverty* used an international poverty line of $1.08 a day, at 1993 PPP, based on the original set of national poverty lines in RDV (Chen and Ravallion, 2001). In 2004, about one in five people in the developing world—slightly less than one billion people—were deemed to be poor by this standard (Chen and Ravallion, 2007). This was the first time that the Bank's global poverty count had fallen below one billion.

Alas the revised estimates reported in the present paper suggest that our celebrations in finally getting under the one billion mark for the "$1 a day" poverty count were premature. The need for the (major) revision reported here stems in large part from biases in prior rounds of the price surveys that were used to estimate the PPP exchange rates used for currency conversions. The main data source for estimating PPPs has been the price surveys within countries done for the *International Comparison Program*. This started in 1968 with PPP estimates for just 10 countries, based on rather crude price surveys.[8] Prior to the present paper, our global poverty measures had been anchored to the 1993 round of the ICP. An independent evaluation (known as the *Ryten Report*; see UN, 1998) of the 1993-96 ICP rounds identified a number of methodological and operational concerns, including lack of clear standards in defining

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[6]   RDV also used a lower line of $0.75 per day, which was the predicted line in the poorest country in their data set, Somalia, though it also happened to coincide with India's line at the time.
[7]   By the "developing world" we mean all low and middle income countries—essentially the Part 2 member countries of the World Bank.
[8]   The ICP started as a joint project of the UN and the University of Pennsylvania, with support from the Ford Foundation and the World Bank. Prior to 2000, the Penn World Tables (PWT; see Summers and Heston, 1991) were the main source of the PPPs for consumption used in the World Bank's global poverty measures. In 2000 we switched to the PPPs estimated by the Bank's Development Data Group. There are methodological differences between the PWT and the Bank's PPPs, as discussed in Ackland et al. (2006) and World Bank (2008, Appendix G).

internationally comparable commodities. This is a serious concern when comparing the cost of living between poor countries and rich ones, given that there is likely to be an economic gradient in the quality of commodities consumed; without strict standards in defining the products to be priced, there is a risk that one will underestimate the cost of living in poor countries by confusing quality differences with price differences. PPPs will be underestimated in poor countries.

This highlights the difficulty of doing price surveys for the purposes of international comparisons. The existence of non-traded goods is (on the one hand) the main reason why we need to use a PPP rather than market exchange rate, but (on the other hand) non-traded goods are harder to compare between countries. The only way to deal with this is through detailed product listings and descriptions, which add significantly to the cost of the data collection.

The 2005 ICP has taken considerable effort to address this problem as well as introducing other improvements in the data and estimation methods for PPPs (World Bank, 2008a,b).[9] Following the Ryten Report, a number of methodological and operational improvements were implemented by the 2005 ICP (managed by the World Bank's Development Data Group; the new PPPs and reported in World Bank, 2008a). The new ICP data imply some dramatic revisions to past estimates, consistent with the view that the old ICP data had under-estimated the cost-of-living in poor countries. The comparisons of the 2005 and 1993 ICP rounds made by Ravallion, Chen and Sangraula (RCS) (2008) are consistent with the view that there was such a bias in the 1993 PPPs. The Penn effect is still evident, but it was overstated in the past.

The 2005 ICP also greatly expanded country coverage. China participated officially for the first time, and the results have naturally attracted much attention, given that they suggest that China's economy in 2005 is 40 percent smaller than we all thought.[10] The new PPP for China is about half the market exchange rate, while prior estimates for 1993 had suggested it was about one quarter of the market rate.[11] Keidel (2007) claimed that the new PPP for China adds 300 million to the count of that country's poor. Some observers have gone further to claim that the new PPPs also cast doubt on the extent of China's—and (hence) the world's—progress over time

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[9]   While we do not know of any cost comparisons, there can be little doubt that the 2005 ICP entailed a far higher cost than previous rounds; as the Ryten Report had also discussed, fixing the problems with the ICP data would inevitably come at a cost.

[10]   With the PPP revisions implied by the 2005 ICP round, China's GDP per capita at PPP for 2005 falls from $6,760 to $4,091 (World Bank, 2008b).

[11]   The old estimate was based a bilateral comparison of 1986 prices between the United States and China as documented in Ruoen and Kai (1995).

against poverty. For example, the Bretton Woods Project (an NGO) claims that the new PPPs "…undermine the much-trumpeted claims that globalization has reduced the number of people living in extreme poverty".[12] This would be surprising if it were true, given that rates of economic growth at the country level are not altered by changing the PPP benchmark; with China's (remarkable) growth rates intact one must expect that progress over time will be similar using the new PPP, even if the poverty rate is higher (by international standards) at all dates.

This paper estimates the global poverty count for 2005 and updates all our past estimates back to 1981. There are three key improvements over past estimates. The first is the use of the results of the 2005 ICP. While this ICP round is clearly a large advance (for the reasons noted above), one problem is that (like prior ICP rounds) there is a degree of "urban bias" in the ICP price surveys, in that the sampling of outlets for collecting prices did not always properly represent rural areas, where prices tend to be lower in most developing countries. This clearly matters to poverty measurement. Based on the information provided by the ICP team at the World Bank (drawing on information from regional ICP offices) we identified a number of countries where such a bias is likely and we implement a correction drawing on supplementary data on the differentials in national poverty lines between urban and rural areas.

Second, we implement an updated international poverty line and test robustness to that choice. Recognizing that the new PPPs also change the $US value of national poverty lines in the poorest countries, our international poverty line of $1.25 per day in 2005 is deliberately lower than the 2005 value in the US of our old international line. The new line is the mean of the national poverty lines for the poorest 15 countries in terms of consumption per capita.[13] To test robustness of our main qualitative results to the choice of poverty line we also give results for a range of lines spanning $1.00 to $2.50 per day in 2005 prices. The lower bound (not to be confused with the old "$1 a day" line, which was not in 2005 prices) corresponds fairly closely to the national poverty lines used by India, while the upper bound is representative of the poverty lines found amongst low-income countries in Eastern Europe and Central Asia. A $2.00 line is the median poverty line found amongst developing countries as a whole.

Third, we improved on the coverage of the household survey data base. As far as possible, we rely on household surveys for measuring poverty, following past practice. In this

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[12]   See http://www.brettonwoodsproject.org/art-560008.
[13]   RCS also propose a schedule of relative poverty lines; in a forthcoming paper we will report our estimates of relative poverty in the world using these lines.

paper we draw on 675 surveys, spanning 1979-2006 and 116 countries. Our methods of analyzing these data follow the methods outlined in Chen and Ravallion (2004, 2007). The international poverty line is converted to local currencies in the ICP benchmark year and is then converted to the prices prevailing at the time of the relevant household survey using the best available Consumer Price Index (CPI) for that country. (Equivalently, the survey data on household consumption or income for the survey year are expressed in the prices of the ICP base year, and then converted to PPP $'s.) Then the poverty rate is calculated from that survey. All inter-temporal comparisons are real, as assessed using the country-specific CPI. We make estimates at three-year intervals over 1981-2005. Interpolation/extrapolation methods are used to line up the survey-based estimates with these reference years, including 2005.

Note that PPPs for different benchmark years cannot be expected to be consistent with national data sources (Dalgaard and Sørensen, 2002; World Bank, 2008b). We follow common practice in letting the national data override the ICP data for inter-temporal comparisons; this is the most reasonable position to take given the changes in methodology between different ICP rounds (World Bank, 2008b). Thus the PPP conversion is only done once for a given country, and all estimates are revised back in time consistently with the data for that country. So the PPPs serve the role of locating the residents of each country in the "global" distribution, but we do not mix the new PPPs with those from previous ICP rounds. We will, however, discuss the salient differences between the new results reported here using the 2005 ICP and our past estimates.

We find that the incidence of poverty in the world is higher than past estimates have suggested. The main reason is that the 2005 ICP price data suggest that past PPPs had implicitly underestimated the cost of living in most developing countries. However, we find that the poverty profile across regions of the developing world and the overall rate of progress against absolute poverty are fairly similar to past estimates.

2.   The 2005 ICP round and its implications for global poverty measures

The 2005 ICP round is the most complete and thorough assessment to date of how the cost of living varies across countries. The world was divided into six regions with different product lists for each. All regions participated in the 2005 ICP, although the participation rate was lower for Latin America. The ICP collected primary data on the prices for 600-1000 (depending on the region) goods and services grouped under 155 "basic headings" deemed to be

comparable across countries. The prices were typically obtained from a large sample of outlets in each country. The price surveys were done by the government statistics offices in each country, under supervision from regional authorities.[14]

The 2005 ICP is a clear improvement over 1993—the last year used for global poverty measurement. The number of countries participating is larger (146, as compared to 117 in 1993). This is also the first time that a number of countries—including China, which we return to—have participated in the ICP. And the surveys have been implemented on a more scientific basis. The 2005 ICP also used stricter standards in defining internationally comparable qualities of the goods identified in the ICP price surveys. New methods were used for measuring government compensation and housing. Adjustments were also made for the lower average productivity of public sector workers in developing countries (lowering the imputed value of the services derived from public administration, education and health). Ring comparisons (linking regional PPP estimates through global prices) were done for more countries (18 in all—a marked improvement over past ICP rounds). Otherwise, the PPPs calculated from the ICP data (and reported in World Bank, 2008a) follow standard methods; as in the past, the Bank uses a multilateral extension of the bilateral Fisher price index known as the EKS method.[15]

The changes in the methods of product listing and pricing are of particular relevance to global poverty measurement. Following the recommendations of the Ryten Report (UN, 1998), the 2005 ICP applied more rigorous standards of specifying internationally comparable commodities for linking across countries (World Bank, 2008b). In comparison to 2005, it is likely that the 1993 ICP would have used lower qualities of goods in poor countries than would have been found in (say) the US market.[16] The goods priced by the 1993 ICP tended to be more typical of the items available in local markets. The 1993 ICP round also over-valued the services derived from government in developing countries. RCS show that a sizable underestimation of

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[14]   The PPP was based on a price survey for 98 of our 116 countries. For the other 18 the PPPs were estimated by ICP staff from a regression model; those countries are Algeria, Costa Rica, Dominican Republic, El Salvador, Guatemala, Guyana, Haití, Honduras, Jamaica, Nicaragua, Panama, Papua New Guinea, St. Lucia, Suriname, Timor-Leste, Trinidad and Tobago, Turkmenistan and Uzbekistan.

[15]   On the advantages of this method over the alternative (Geary-Khamis) method see Ackland et al. (2006). In the 2005 ICP the Africa region chose a different aggregation method (African Development Bank, 2007); World Bank (2008b) describes this as a minor difference to the EKS method.

[16]   Heston and Summers (2008) describe the ways in which the 2005 ICP was an improvement over past ICP rounds, and point specifically to the "…quantum improvement in the way regional comparisons were linked together from the standpoint of reviewing price collection" (p.3). There were also a number of problems in the implementation of the 1993 ICP round, as discussed in Ahmed (2003).

the 1993 PPP is implied by the new PPP data and the data on rates of inflation. Furthermore, the extent of this underestimation tends to be greater for poorer countries.

While these are clear improvements, the new PPPs still have some limitations. As the introduction noted, there is a problem of "urban bias" in the ICP price surveys for a number of counties; the next section describes our methods of addressing this problem. As was argued in Ravallion et al. (1991), a further concern is that the weights attached to different commodities in the conventional PPP rate may not be appropriate for the poor. Deaton and Dupriez (2008) have estimated "PPPs for the poor" for a subset of countries with the required data; the preliminary results do not suggest that the implied re-weighting has much impact on the consumption PPP. Another limitation is that the PPP is a national average. Just as the cost of living tends to be lower in poorer countries, one expects it to be lower in poorer regions within one country, especially in rural areas. Ravallion et al. (2007) have allowed for urban-rural cost of living differences facing the poor, and provided an urban-rural breakdown of our prior global poverty measures using the 1993 PPP. We plan to update these estimates in future work.

Some dramatic revisions to past PPPs are implied, not least for the two most populous developing countries, China and India (neither of which had actually participated in the 1993 ICP). For example, the 1993 consumption PPP used for China was 1.42 Yuan to the $US in 1993 (updating an earlier estimate by Ruoen and Chen, 1995), while the new estimate based on the 2005 ICP is 3.46 Yuan (4.09 if one excludes government consumption). The corresponding "price level index" (PPP divided by market exchange rate) went from 25% in 1993 to 52% in 2005. So the Penn effect is still evident, but the size of this effect has declined markedly, with a new PPP at about half the market exchange rate rather than one quarter. Adjusting solely for the differential inflation rates in the US and China one would have expected the 2005 PPP to be 1.80 Yuan not 3.46. Similarly, India's 1993 consumption PPP was Rs 7.0, while the 2005 PPP is Rs 16, and the price level index went from 23% to 40%. If one updated the 1993 PPP for inflation one would have obtained a 2005 PPP of Rs 11 rather than Rs 16.

Clearly these PPP revisions have important implications for assessing the extent of absolute poverty in the world. There are two ways the PPP revisions matter and the two effects work in opposite directions. The first effect is that a higher PPP means that the $ values of the consumption levels in poor countries fall; this increases aggregate poverty relative to any given international $ value of the poverty line. It could also matter to the overall rate of progress in

reducing poverty, given that there is a compositional effect in the aggregate, in that the (implicit) weights on the growth rates of individual countries change with the new PPPs.

The second effect is that the PPP revisions change the international poverty line, which is anchored to the poverty lines found in low-income countries. Those poverty lines remain the same in local currency units, but their $ values tend to fall. Thus the changes introduced by the 2005 ICP imply that simply updating the old 1993 poverty line for inflation in the US is deceptive about the appropriate international poverty line for the developing world in 2005. The international poverty line for 1993 proposed by Chen and Ravallion (2001), and used in our subsequent updates, was $1.08 a day ($32.74 per month). If one adjusts only for inflation in the US one obtains $1.45 a day at 2005 prices. Later in this paper we provide global estimates using the $1.45 line. However, RCS show that $1.45 in 2005 prices is well above the 2005 PPP equivalent of the $1.08 line in 1993 prices, when that equivalence is determined by calculating the mean national poverty line at 2005 PPP for countries with a 1993 national poverty line in a neighborhood of $1.08.[17] The 1993 PPP's were too low and hence the $ values of the national poverty lines were set too high in 1993.

Which of these two effects dominates depends on how the revisions introduced by the 2005 ICP change the PPP relativities between poor and less poor countries. RCS show that the implied proportionate upward revision to the 1993 PPP is greater for poorer countries. Thus, given that the international line is anchored to the lines found in the poorest countries, we can expect to find that, on balance, the first effect is dominant and global poverty counts rises.[18] We confirm that expectation later in this paper.

3.   International poverty lines

In setting an international poverty line using the 2005 ICP we have aimed to follow the same definition used in our past work, namely that the line should be representative of the

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[17]   More precisely, RCS estimate $E[Z_i^{05}|Z_i^{93} = \$1.08]$ where Z_i^t is the $ poverty line in country i using ICP round t. Using a non-parametric regression, RCS obtain $\hat{E}[Z_i^{05}|Z_i^{93} = \$1.08] = \$1.13$.

[18]   The impact of the PPP revisions on the log of the aggregate headcount index is the weighted sum across all countries of the impacts on the log of the PPP less the impact on the log international poverty line, where the weights are given by the product of the country-specific shares of aggregate poverty and the country-specific elasticity of the cumulative distribution function evaluated at the international line. The proportionate impact on the international poverty line is the weighted mean of the impacts on the PPPs for the reference group of countries, where the weights are the appropriate poverty-line shares.

national lines found in the poorest countries—in the spirit of the original "$1 a day" line (Ravallion et al., 1991; World Bank, 1990). For this purpose, RCS have compiled a new set of national poverty lines for developing countries drawn from the World Bank's country-specific *Poverty Assessments* and the *Poverty Reduction Strategy Papers* done by the governments of the countries concerned. While the RDV data set on national poverty lines was drawn from sources for the 1980s, the new and larger compilation produced by RCS are all post-1990, such that in no case do the proximate sources overlap. RCS converted these national poverty lines to a common currency using the new set of consumption PPPs estimated from the 2005 round of the ICP.

Figure 1 plots the poverty lines compiled by RCS against log household consumption per capita at 2005 PPP; there are 74 countries with complete data. The Figure also gives a nonparametric regression of the national poverty lines against log mean consumption. Above a certain point, the poverty line rises with mean consumption. The overall elasticity of the poverty line to mean consumption is about 0.7. However, the slope is essentially zero amongst the poorest 20 or so countries, where absolute poverty clearly dominates.

RCS also show that the economic gradient in national poverty lines evident in Figure 1 is driven more by the gradient in the non-food component of the poverty lines (which accounts for about 60% of the overall elasticity) than the food component, although there is still an appreciable share attributable to the gradient in food poverty lines. Note that national food poverty lines are invariably anchored to predetermined nutritional requirements for good health and normal activity levels, and those nutritional requirements tend to be quite similar across countries at different levels of economic development. So the economic gradient in the food poverty line largely reflects the fact that richer countries tend to use a more expensive food bundle—more meat and vegetables, less starchy staples, and more processed foods generally— for attaining the same nutritional needs.

On the basis of the pattern evident in Figure 1, RCS proposed an international poverty line of $1.25 a day for 2005, which is the mean of the lines found in the poorest 15 countries in terms of consumption per capita, namely: Malawi, Mali, Ethiopia, Sierra Leone, Niger, Uganda, Gambia, Rwanda, Guinea-Bissau, Tanzania, Tajikistan, Mozambique, Chad, Nepal and Ghana. (Their median poverty line is very similar, at $1.27 per day.) Consumption per capita for this group ranges from $1.03 to $1.87 per day with a mean of $1.40 per day. The level of this poverty line is quite robust to the choice of the poorest 15 countries (taking plus or minus five countries

ranked by consumption per capita). However, it makes sense to focus on the poorest 15 since the econometric tests reported in RCS imply that national poverty lines tend to rise with consumption per person when it exceeds about $2 per day, which is near the upper bound of the consumption levels found amongst these 15 countries. Of course, there is still a variance in the national poverty lines at any given level of mean consumption, including amongst the poorest countries. The poverty lines found amongst the poorest 15 countries vary from $0.70 to $1.90 per day and RCS estimate the robust standard error of the $1.25 line to be $0.10 per day.

To assess the robustness of qualitative comparisons, we will also provide estimates for four other lines: (i) $1.00 a day at 2005 PPP, which is very close to the national poverty line used by the Government of India;[19] (ii) $1.45, as obtained by updating the 1993 $1.08 line for inflation in the US; (iii) $2.00, which is the median of the RCS sample of national poverty lines for developing and transition economies; and (iv) $2.50, twice the $1.25 line, which is also the median poverty line of complementary subset to the poorest 15 of countries in the RCS data set of national poverty lines. The range $1.00 to $1.45 is roughly the 95% confidence interval for our estimate of the mean poverty line for the poorest 15 countries.

We use the same PPPs to convert the international lines to local currency. While the ICP aimed to obtain nationally representative prices that was not always the case. As noted in the introduction, the main source of sampling bias appears to be that the surveys were confined to urban areas in some countries. For example, the ICP survey for China was confined to 11 cities; although the survey included some surrounding rural areas, it cannot be considered representative of rural China; evidence on this point is provided by Chen and Ravallion (2008). Based on ICP sampling information we treat the 2005 consumption PPPs as urban PPPs for Argentina, Brazil, Bolivia, Cambodia, Chile, China, Colombia, Ecuador, Pakistan, Peru, Thailand and Uruguay. We then use existing differentials in urban-rural poverty lines at country level for these countries (from Ravallion et al., 2007) to correct the national PPP for the purpose of measuring poverty. For India the ICP included rural areas, but they were underrepresented. We derived urban and rural poverty lines consistent with both the urban-rural differential in the national poverty lines and the relevant features of the design of the ICP samples for India.[20]

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[19] India's official poverty lines for 2004/05 were Rs 17.71 and Rs 11.71 per day for urban and rural areas. Using our urban and rural PPPs for 2005 (described below) these represent $1.03 per day.

[20] For food, clothing and footwear, 72% of the 717 sampled price outlets for India's ICP were in urban areas and only 28% were rural, while for other goods the outlets were solely urban. The ICP took

4.   Household survey data

We have estimated all poverty measures ourselves from the primary (unit record or tabulated) sample survey data rather than relying on pre-existing poverty measures. And all our previous estimates have been updated to assure internal consistency. Households are ranked by either consumption or income per person. The distributions are weighted by household size and sample expansion factors. Thus our poverty counts give the number of people living in households with per capita consumption or income below the international poverty line. The primary data come in various forms, ranging from micro data (the most common) to specially designed grouped tabulations from the raw data, constructed following our guidelines.

Our reliance on survey data merits comment in the light of a debate in the literature about the implications for global poverty measures of the discrepancies found between aggregate household consumption as estimated from surveys and the private consumption component of domestic absorption in the national accounts (NAS), which tends to be higher than the survey mean. Some authors have argued that the survey mean should be ignored and replaced by NAS consumption per capita, though still using the surveys for measuring inequality.[21] This will yield lower poverty measures for most countries; for some countries (including India) it will also yield a higher rate of poverty reduction over time. However, other researchers (including ourselves) have argued that there is no basis for assuming that the gap between the survey mean and NAS consumption is entirely due to errors in the surveys; the NAS numbers are no less questionable in many developing countries, and the discrepancy between the two data sources reflects a number of real factors, including differences in what is being included in the two measures (Deaton, 2005; Ravallion, 2003).[22] Nor is it plausible that the discrepancy is distribution-neutral, in that

simple averages of these prices. We assumed that goods other than food, clothing and footwear had the same prices in rural and urban areas. Then the implicit urban and rural international poverty lines for India consistent with the 2005 ICP have weights of 0.72 and 0.28 respectively. The ratio of the urban official poverty line for India in 2004/05 to the rural line is 1.51. Given the 2005 consumption PPP for India of Rs 15.60 from World Bank (2008a), the Rupee values of the international line of $1.25 for urban and rural areas in 2005 can then be backed out, and are Rs 21.53 and Rs 14.24 per day respectively.

[21]   See Bhalla (2002) and Karshenas (2003) (though their methods differ). Others have used a similar method based on GDP rather than consumption (including Sala-i-Martin, 2006, and Bourguignon and Morrisson, 2002) though this appears to have been done more for computational convenience as it did not require estimation from micro data.

[22]   For example, NAS private consumption includes imputed rents for owner-occupied housing, imputed services from financial intermediaries and the expenditures of non-profit organizations; none of these are included in consumption aggregates from standard household surveys. Surveys, on the other hand, are undoubtedly better at picking up consumption from informal-sector activities.

the surveys get inequality right and the mean wrong; there is likely to be some under-reporting or selective compliance in a household survey, but it would seem unlikely that these sources of error would only affect the mean and not the measure of inequality.[23]

We draw on 675 surveys for 116 countries, as listed in the Appendix. Taking the most recent survey for each country, about 1.23 million households were interviewed in the surveys used for our 2005 estimate. The surveys were mostly done by governmental statistics offices as part of their routine operations. Not all available surveys were included. A survey was dropped if there were known to be serious comparability problems with the rest of the data set. Also, we have not used surveys for 2006 or 2007 when we already have a survey for 2005—the latest year for which we provide estimates in this paper. As in past work, we have tried to eliminate obvious comparability problems, either by re-estimating the consumption/income aggregates or the more radical step of dropping a survey. However, there are problems that we cannot deal with. For example, it is known that differences in survey methods (such as questionnaire design) can create non-negligible differences in the estimates obtained for consumption or income.

Following past practice, "poverty" is assessed using household per capita expenditure on consumption or household income per capita as measured from the national sample surveys.[24] When there is a choice we use consumption in preference to income, on the grounds that consumption is likely to be the better measure of current welfare on both theoretical and practical grounds.[25] Of the 675 surveys, 417 allow us to estimate the distribution of consumption expenditures; this is true of all the surveys used in the Middle East and North Africa, South Asia and Sub-Saharan Africa, though income surveys are more common in Latin America.[26] Given

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[23]   Korinek et al. (2006) examine the implications of selective compliance for measures of poverty and inequality. They find that correcting for selective compliance in the Current Population Survey for the US leads to a higher inequality measure but has little affect on measures of poverty.

[24]   The use of a "per capita" normalization is standard in the literature on developing countries. This stems from the general presumption that there is rather little scope for economies of size in consumption for poor people. However, that assumption can be questioned; see Lanjouw and Ravallion (1995).

[25]   Consumption requires fewer imputations and assumptions, is likely to be reported more accurately and is arguably a better measure of current economic welfare than income. For further discussion see Ravallion (1994, 2003) and Deaton and Zaidi (2002). It has also been argued that consumption is a better welfare indicator in developed countries; see Slesnick (1998).

[26]   For a few cases we do not have consumption distributions but we still have survey-based estimates of mean consumption. Then we replace the income mean by the consumption mean leaving the Lorenz curve the same (i.e., all incomes are scaled up by the ratio of the consumption mean to the income mean). There is, however, no obvious basis for adjusting the Lorenz curve.

that savings and credit can be used to smooth consumption from income shocks, one expects higher inequality for incomes than consumptions, for the same place and data.

The measures of consumption (or income, when consumption is unavailable) in our survey data set are reasonably comprehensive, including both cash spending and imputed values for consumption from own production. But we acknowledge that even the best consumption data need not adequately reflect certain "non-market" dimensions of welfare, such as access to certain public services, or intra-household inequalities. For these reasons, our poverty measures need to be supplemented by other data, such as on infant and child mortality, to obtain a more complete picture of how living standards are evolving.

We use standard poverty measures for which the aggregate measure is the (population-weighted) sum of individual measures. In this paper we report three such poverty measures.[27] The first measure is the <u>headcount index</u> given by the percentage of the population living in households with consumption or income per person below the poverty line. We also give estimates of the <u>number of poor</u>, as obtained by applying the estimated headcount index to the population of each region under the assumption that the countries without surveys are a random sub-sample of the region. Our third measure is the <u>poverty gap index</u>, which is the mean distance below the poverty line as a proportion of the line where the mean is taken over the whole population, counting the non-poor as having zero poverty gaps.

Having converted the international poverty line at PPP to local currency in 2005 we convert it to the prices prevailing at each survey date using the country-specific official Consumer Price Index (CPI).[28] The weights in this index may or may not accord well with consumer budget shares at the poverty line. In periods of relative price shifts, this will bias our comparisons of the incidence of poverty over time, depending on the extent of utility-compensated substitution possibilities for people at the poverty line.

We use population weights (for urban and rural poverty measures, as well as across countries) from the World Bank's Development Data Platform (DDP).

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[27]   *PovcalNet* provides a wider range of measures, drawn from the literature on poverty measurement. See http://econ.worldbank.org/povcalnet.

[28]   Note that the same poverty line is generally used for urban and rural areas. There are three exceptions, Brazil, China and India, where we estimate poverty measures separately for urban and rural areas; we also use sector-specific CPIs for China and India.

We started the series in 1981 and made estimates at three yearly intervals, up to 2005. For the 116 countries, 14 have only one survey; 18 have two surveys; 14 have three; while 70 have four or more surveys over the period, of which 23 have 10 or more surveys. If there is only one survey for a country then we estimate measures for each reference year by applying the growth rate in real private consumption per person from the NAS to the survey mean — assuming that the Lorenz curve for that country does not change.[29] This seems the best option for dealing with this problem, though there can be no guarantee that the Lorenz curve would not have shifted or that a survey-based measure of consumption would have grown at the same rate as private consumption in the NAS. For example, growth in the latter might reflect growth in the spending by non-profit organizations— which are not separated from households in the NAS for most developing countries—rather than household spending (Ravallion, 2003).

While we follow our past practice in relying on the household surveys in measuring poverty at the survey date, we will use the annual NAS data for interpolation purposes given the irregular spacing of surveys. We first estimate mean consumption at the reference year using the NAS growth rate between the survey year and the reference year. Suppose the reference year is 1993 and we have two surveys, for 1989 and 1995 say. We have two means at the reference year based on two surveys, M93(89) and M93(95) where M93(t) is the estimated mean for 1993 using the survey for year t. Based on the 1989 distribution and M93(89), we get the H93(89), the headcount index obtained using the 1993 mean and the 1989 distribution. Similarly, based on the 1995 distribution and M93, we get H93(95). Then the poverty headcount for 1993 is estimated by the weighted average of H93(89) and H93(95).[30]

In the aggregate, 90% of the population of the developing world is represented by surveys within two years of 2005.[31] Survey coverage by region varies from 74% of the population of the Middle East and North Africa (MENA) to 98% of the population of South Asia. Naturally, the further back we go, the fewer the number of surveys—reflecting the

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[29]   For a few SSA countries, private consumption per capita is missing from the World Bank's Development Data Platform; we use the series from *Africa Development Indicators* 2007.
[30]   Thus H93=[(1995-1993)/(1995-1989)].H93(89)+[(1993-1989)/(1995-1989)].H93(95). In a small number of cases this method did not give sensible results in that either M93(89) or M93(95) was outside the interval [M(89), M(95)] even though the NA growth rates were positive for both 1989-93 and 1993-95. In these cases we scaled down the growth rates according to the survey means for 1989 and 1995.
[31]   Some countries have graduated from the set of developing countries; we apply the same definition over time to avoid selection bias. In this paper our definition is anchored to 2005.

expansion in household survey data collection for developing countries since the 1980s. And coverage deteriorates in the last year or two of the series, given the lags in survey processing.

Two instructive guides to the reliability of our estimates are to count the number of surveys by year and to measure the coverage rate. Figure 2 gives the number of surveys; we give the three-year moving average centered on each year (given that having a survey last year or next year can help greatly in estimating poverty this year). For comparison purposes, we also give the numbers of surveys used by Chen and Ravallion (2004). By this measure, our estimates around the mid 1990s onwards are clearly the most reliable while our estimate for 1981 is the least reliable. We have only 18 surveys up to 1983, though the number doubles by 1985. By contrast we have 480 surveys after 1993. Naturally the number of surveys drops off in the last year or so, given the lags in availability; there has been a marked improvement in the coverage of recent surveys, though this partly reflects our unwillingness to make an estimate yet for 2006 (as we still only have seven surveys for that year, at the time of writing).

Most regions are quite well covered from the latter half of the 1980s (East and South Asia being well covered from 1981 onwards).[32] Unsurprisingly, we have weak coverage in Eastern Europe and Central Asia (EECA) for the 1980s; many of these countries did not officially exist then. More worrying is the weak coverage for Sub-Saharan Africa (SSA) in the 1980s; indeed, our estimates for the early 1980s rely heavily on projections based on distributions around 1990. Table 1 gives the average survey year by region for each reference year.

By comparing Table 1 with the corresponding table in Chen and Ravallion (2004) we can see how much improvement there has been in reducing the lags in survey data availability. Like the present paper, Chen and Ravallion (2004) reported results for a reference year that was three years prior to the time of writing (namely 2001, versus 2005). Table 2 gives the average lag by region (where zero means no lag for the latest reference year). The overall mean has fallen by one year (1.6 to 0.6 years); for the region with the lowest mean lag for 2001, namely East Asia, the average lag is down to almost zero; for the region with the highest lag in 2001, namely SSA, the lag has also fallen appreciably, from 4.0 to 1.5 years, and MENA is now the region with the highest mean lag in survey data availability.

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[32]   China's survey data for the early 1980s are probably less reliable than later years, as discussed in Chen and Ravallion (2004) where we also describe our methods of adjusting for certain comparability problems in the China data, including changes in valuation methods.

Note that the lags in Table 2 reflect both the frequency of surveys and our access to the data. Based on our observations in assembling the data base for this study, we would conjecture that the large lag for MENA is due more to access to existing surveys than to the frequency of those surveys, while for SSA it is due more to infrequent production of adequate surveys.

The second indicator is the percentage of the population covered by household surveys. Table 3 gives the coverage rate by region and for each reference year; a country is defined as being covered if there was a survey (in our data base) within two years of the reference date (a five-year window). Note that our method only strictly requires one survey per country, though we have almost six surveys per country on average. But naturally, *ceteris paribus*, the more surveys we have for a given country the more confident we are about the estimates.

The weak coverage for EECA, MENA and SSA in the 1980s is evident in Table 3. Our estimates for these regions in the 1980s are heavily dependent on the extrapolations from NAS data. We will discuss the likely biases.

Note that there is a "hole" in coverage for South Asia in 1999. This reflects the well-known comparability problem due to India's National Sample Survey (NSS) for 1999/2000.[33] We decided to drop that NSS survey round given that we now have a new survey for 2004/05 that we consider to be reasonably comparable to the previous survey round of 1993/94. We also decided to only use the 5-yearly rounds of the NSS, which have larger samples and more detailed and more comparable consumption modules (aside from the 1999/00 round). Unfortunately, this leaves a 10-year gap in our survey coverage for India; the estimates for India over the intervening period use our interpolation method as described above. Including all available survey rounds for India adds to the variability in the series but does not change the trend.[34]

Given the lags in survey data availability, our estimates will not include the impacts of the recent rise in food and fuel prices. *Ex ante* projections of the welfare impacts of the rise in food prices for a set of nine low-income countries by Ivanic and Martin (2008) predict that, on balance, the rise in food prices over 2005-07 will have been poverty-increasing.

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[33] Further discussion and references can be found in Datt and Ravallion (2002).
[34] If one uses the 1999/2000 survey for India one obtains a sharp fall in that year, and a subsequent rise in poverty incidence to 2005. However, this is clearly spurious, being driven by the fact that the 1999/2000 survey over-estimates level of consumption relative to other survey rounds.

5.   Measures of global poverty

We report aggregate results over 1981-2005 for the regions of the developing world and (given their populations) China and India. Jointly with this paper, we have updated the website *PovcalNet* to provide public access to the underlying country-level data set, so that users to replicate these results and try different assumptions, including different poverty measures, poverty lines and country groupings, including deriving estimates for individual countries.[35]

The top row of Table 4, panel (a), reproduces our past estimates (from Chen and Ravallion, 2007) of the aggregate headcount indices using the $1.08 line at 1993 PPP for 1981-2005 at three-year intervals.[36] We then give our new estimates for the same reference years using the 2005 PPPs and for the range of lines from $1.00 to $2.50 in 2005 prices. Table 5 gives the corresponding counts of the number of poor.

Recall that the $1.45 line is obtained by adjusting the old $1.08 line in 1993 prices for inflation in the US between 1993 and 2005. However, as argued by RCS, the $1.25 line is more representative of the poverty lines found amongst the poorest countries in the world; in this sense, the $1.25 line for 2005 is more consistent with the definition of poverty underlying prior international poverty lines used by the World Bank. The $1.45 line is about two standard errors above the mean for the poorest 15 countries.[37] And the $1.00 line in 2005 prices is too low, being well below (by more than two standard errors) the average line for the poorest countries. The bulk of the following discussion will focus on the $1.25 line, though we test the robustness of our qualitative poverty comparisons to that choice.

Using the new PPPs from the 2005 ICP, it is clear that the global poverty count is appreciable higher than past estimates has suggested. Both the $1.25 and $1.45 lines indicate a substantially higher poverty count in 2005 than obtained using our old $1.08 line in 1993 prices; 1.7 billion people are found to live below the $1.45 line, and 1.4 billion live below the $1.25 line. Focusing on the $1.25 line, we find that 26% of the developing world's population in 2005 is

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[35]   See http://econ.worldbank.org/povcalnet. The process of updating the *PovcalNet* web site to incorporate the 2005 PPPs will be complete by September 16 2008.

[36]   We have updated the 2004 estimate in Chen and Ravallion (2007) to 2005 consistently with the data sued in that paper.

[37]   Looking at it another way, based on the regression function in Figure 1, the $1.45 line corresponds to a level of consumption per capita of around $2.25 per day—above which the value at the poverty lines start to rise with mean consumption (RCS).

poor, versus 17% using the old line at 1993 PPP—representing an extra 400 million people living in poverty.[38]

The two effects of the new PPPs on the global poverty rate (as described in section 2) can now be quantified. Holding constant the real value in the US of the 1993 poverty line of $1.08 per day, but revising the PPPs, the poverty rate for the developing world in 2005 rises from 17% to 32% (the latter figure corresponds to the $1.45 line). However, this does not allow for the fact that the same PPP revisions mean that the $US value of the poverty line at PPP was also overestimated. This second effect brings the poverty rate down from 32% to 26%, giving the net increase of 9% points.

Over the 25 year period, we find that the percentage of the population of the developing world living below $1.25 per day was almost halved, falling from 52% to 26%. (Expressed as a proportion of the population of the world, the decline is from 42% to 22%; this assumes that there is nobody living below $1.25 per day in the developed countries.[39]) The number of poor fell by slightly over 500 million, from 1.9 billion to 1.4 billion over 1981-2005 (Table 5). The trend rate of decline in the $1.25 a day poverty rate over 1981-2005 was 1% point per year; regressing the poverty rate on time the estimated trend is -0.98% per year with a robust standard error of 0.07% (R^2=0.97). This is slightly higher than the trend we had obtained using the 1993 PPPs, which was -0.83% per year (standard error=0.11%). Simply projecting this trend forward to 2015, the estimated headcount index for that year is 16.9% (standard error of 1.5%). Given that the 1990 poverty rate was 41.7%, the new estimates confirm the conclusion of Chen and Ravallion (2007) that the developing world as a whole is on track to achieving the Millennium Development Goal (MDG) of halving the 1990 poverty rate by 2015.

The 1% point per year rate of decline in the poverty rate also holds if one focuses on the period since 1990 (not just because this is the base year for the MDG but also recalling that the data for the 1980s is weaker). The $1.25 poverty rate fell 10% points in the 10 years of the 1980s (from 53% to 42%), and a further 16% points in the 16 years from 1990 to 2005.

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[38] Note that the difference between the 26% and 17% numbers reflects other updates to the data base, besides the new PPPs. When we use the new data base for 2005 to estimate the poverty rate based on the 1993 PPPs we get a slightly higher figure, namely 17.6% (957.4 million people).
[39] The population of the developing world in 2005 was 5453 million, representing 84.4% of the world's total population; in 1981, it was 3663 million or 81.3% of the total.

The qualitative comparisons over time are robust to the choice of poverty line; for any given pair of reference years in Table 4, the direction of change is the same across all poverty lines, and (indeed) between the old $1.08 line at 1993 PPP and the new lines. The conclusion that the incidence of poverty in the developing world as a whole has been falling persistently over time is robust to both the level of the poverty line and the PPPs.

It is notable that 2002-05 suggests a higher (absolute and proportionate) drop in the poverty rate than other periods. Given that lags in survey data availability mean that our 2005 estimate is more heavily dependent on non-survey data (notably the extrapolations based on NAS consumption growth rates) there is a concern that this might be exaggerated. However, that does not seem likely. The bulk of the decline is in fact driven by countries for which survey data are available close to 2005. The region for which non-survey data have played the biggest role for 2005 is Sub-Saharan Africa. If instead we assume that there was in fact no decline in the poverty rate over 2002-05 in SSA then the total headcount index (for all developing countries) for the $1.25 line in 2005 is 26.2%—still suggesting a sizeable decline relative to 2002.

China's success against absolute poverty has clearly played a major role in this overall progress. Panel (b) in Tables 4 and 5 repeats the calculations excluding China. Figure 3 plots the poverty rates over time with and without China. The $1.25 a day poverty rate falls from 40% to 29% over 1981-2005, with a rate of decline that is less than half the trend including China; the regression estimate of the trend falls to -0.43% per year (standard error of 0.04%; R^2=0.94), which is almost identical to the rate of decline for the non-China developing world that we had obtained using the 1993 PPPs (which gave a trend of -0.44% per year, standard error=0.01%). Based on our new estimates, the projected value for 2015 is 25.4% (standard error=1.0%), which is well over half the 1990 value (Table 4). So we can also confirm the assessment of Chen and Ravallion (2004) that past trends imply that the developing world outside China is not on track to reaching the MDG for poverty reduction.

Our estimates suggest less progress (in absolute and proportionate terms) in getting above the $2 per day line than the $1.25 line. The poverty rate by this higher standard has fallen from 70% in 1981 to 48% in 2005 (Table 4). The trend is about 0.8% per year (a regression coefficient on time of -0.83; standard error=0.08); excluding China, the trend is only 0.3% per year (a regression coefficient of -0.26; standard error=0.05%). This has not been sufficient to bring down the number of people living below $2 per day, which rose slightly, from 2.5 to 2.6 billion

(Table 5). Thus the number of people living between $1.25 and $2 a day has actually risen sharply over these 25 years, from about 600 million to 1.2 billion. This marked "bunching up" of people just above the $1.25 line suggests that the poverty rate according to that line could rise sharply with aggregate economic contraction (including real contraction due to higher prices).

Regional differences. Table 6 provides a regional breakdown of our estimates of the aggregate poverty measures for 2005, for each of the five poverty lines used in Tables 4 and 5. The regional rankings are not robust to the poverty line. Two changes are notable. At lower lines (under $2 per day) SSA has the highest incidence of poverty, but this switches to South Asia at higher lines. Second, MENA's poverty rate exceeds LAC's at $2 or higher, but the ranking reverses at lower lines.

Table 7 gives the estimates by year over 1981-2005 for four lines, $1.00, $1.25, $2.00 and $2.50. There have been notable changes in regional poverty rankings over this period (Table 7). Looking back to 1981, East Asia was the region with the highest incidence of poverty in the world, with 84% of the population living below $1.25 per day and 93% below the $2 line. South Asia had the next highest poverty rate, followed by SSA, LAC, MENA and lastly, EECA. Twenty years later, SSA had swapped places with East Asia where the $1.25 headcount index had fallen to 18%, with South Asia staying in second place. EECA had overtaken MENA.

The composition of world poverty has changed noticeably over time. The number of poor has fallen sharply in East Asia, but risen elsewhere (Figure 4). For East Asia, the MDG of halving the 1990 "$1 per day" poverty rate by 2015 was already reached a little after 2002. Again, China's progress against absolute poverty was a key factor; looking back to 1981, China's incidence of poverty (measured by the percentage below $1.25 per day) was roughly twice that for the rest of the developing world; by the mid-1990s, the Chinese poverty rate had fallen well below average. There were over 600 million fewer people living under $1.25 per day in China in 2005 than 25 years earlier. Progress was uneven over time, with setbacks in some periods (the late 1980s) and more rapid progress in others (the early 1980s and mid 1990s); Ravallion and Chen (2007) identify a number of factors (including policies) that account for this uneven progress against poverty over time (and space) in China.

Over 1981-2005, the $1.25 poverty rate in South Asia fell from 60% to 40%, which was not sufficient to bring down the number of poor (Table 8). If the trend over this period in South Asia were to continue until 2015 the poverty rate would fall to 32.1% (standard error=1.3%),

which is more than half its 1990 value. So South Asia is not on track to attaining the MDG without a higher trend rate of poverty reduction. Note, however, this conclusion is not robust to the choice of the poverty line. If instead we use a lower line of $1.00 per day at 2005 prices then the poverty rate would fall to 15.2% (standard error=1.4%) by 2015, which is less than half the 1990 value of 33.8%.[40] Not surprisingly (given its population weight), the same observations hold for India, which is not on track for attaining the MDG using the $1.25 line but is on track using the $1.00 line (which is also closer to the national poverty line in India).[41]

The extent of the "bunching up" that has occurred between $1.25 and $2 per day is particularly striking in both East and South Asia, where we find a total of about 900 million people living between these two lines, roughly equally split between the two sides of Asia. While this points again to the vulnerability of the poor, by the same token it also suggests that substantial further impacts on poverty can be expected from economic growth, provided that it does not come with substantially higher inequality.

We find a trend declining in the poverty rate in LAC, by both lines, but not sufficient to reduce the count of the number of poor over the 1981-2005 period as a whole, though with more encouraging signs of progress since 1999. The MENA region has experienced a fairly steady decline in the poverty rate, though (again) not sufficient to avoid a rising count in the number of poor in that region.

We find a generally rising incidence and number of poor in EECA using the lower lines ($1.00 and $1.25 a day) though there are very people are poor by this standard in EECA. The $2.50 a day line is more representative of the poverty lines found in the relatively poorer countries of EECA. By this standard, the poverty rate in EECA has shown little clear trend over time in either direction, though there are encouraging signs of a decline in poverty since the late 1990s. The paucity of survey data for EECA in the 1980s should also be recalled. Thus our estimates are heavily based on extrapolations, which do not allow for any changes in distribution. One would expect that distribution was better from the point of view of the poor in EECA in the 1980s, in which case poverty would have been even lower than we estimate—and the increase over time even larger.

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[40]   The time series of poverty rates (in %) for South Asia using the $1.00 line is 42.7 (1981), 38.0, 36.6, 33.8, 28.5, 28.8, 26.9, 26.5, 23.7 (2005).
[41]   The corresponding poverty rates for the $1.00 line in India are 42.1 (1981), 37.6, 35.7, 33.3, 31.1, 28.6, 27.0, 26.3, 24.3 (2005).

The incidence of poverty in Sub-Saharan Africa is virtually unchanged at about 50% in both 1981 and 2005. Within this period, there was an increase until the mid 1990s, and there has been an encouraging downward trend since then. The number of poor by our new $1.25 a day standard has almost doubled in SSA over 1981-2005, from 200 million to over 380 million. The share of the world's poor by this measure living in Africa has risen from 11% in 1981 to 27% in 2005. The trend increase in SSA's share of poverty is 0.65% points per year (standard error=0.04% points), implying that one third of the world's poor will live in this region by 2015 (more precisely, the projected poverty rate for that year is 32.5%, with a standard error of 1.1%).

Figure 5 gives the time series for SSA for the $1.00 and $2.00 lines as well as the $1.25 line. All three lines suggest falling incidence of poverty since the mid-1990s, but this becomes slightly more pronounced for the lower lines.

Poverty gaps. Table 9 gives the Poverty Gap (PG) indices for $1.25 and $2.00 per day. The aggregate PG index for 2005 is 7.7% for the $1.25 line and 18.9% for the $2 line. To put these numbers in perspective, world (including OECD) GDP per capita in 2005 at 2005 PPP was $24.58 per day, implying that the global aggregate poverty gap was 0.33% of global GDP using the $1.25 line and 1.30% using the $2 line.[42]

Comparing Tables 7 and 9, it can be seen that the regional rankings in terms of the poverty gap index are similar as those for the headcount index, and the changes over time follow similar patterns. What the PG measures do is magnify the inter-regional differences seen in the headcount indices. The most striking feature of the results in Table 7 is the depth of poverty in Africa, with a $1.25 per day poverty gap index of almost 21%—roughly twice the next poorest region by this measure (South Asia). For the $1.25 line, Africa's aggregate poverty gap represents 3.2% of the region's GDP; for the $2 line it is 9.0%.[43]

Table 10 gives the mean consumption of the poor.[44] For 2005, those living below the $1.25 a day line had a mean consumption of $0.87 (about 3.5% of global GDP per capita). The overall mean consumption of the poor tended to rise over time, from $0.73 per day in 1981 to

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[42] This assumes that nobody lives below our international poverty line in the OECD countries. Under this assumption, the aggregate poverty gap (as a % of global GDP) is $PG.(Z/\overline{Y}).(N/NW)$ where PG is the poverty gap index (in %), Z is the poverty line, $\overline{Y}$ is global GDP per capita, N is the population of the developing world and NW is world population.

[43] The GDP per capita of SSA in 2005, at 2005 PPP, was $8.13 per day.

[44] The mean consumption of the poor is $(1-PG/H)Z$ where PG is the poverty gap index, H is the headcount index and Z is the poverty line.

$0.87 in 2005 by the $1.25 line, and from $0.94 to $1.21 for the $2 line. Poverty has become shallower in the world as a whole.

The mean consumption of Africa's poor is not only lower than in any other region, it has shown very little increase over the period (Table 9). The mean consumption of those living under $1.25 per day in Africa was $0.74 per person per day in 1981 and fell to $0.73 in 2005. For the $2 line, the mean consumption of Africa's poor remained roughly constant. The same persistence in the depth of poverty is evident in EECA and LAC, though the poor have slightly higher average levels of living in both regions. The mean consumption of EECA's poor has actually fallen since the 1990s, even though the overall poverty rate was falling.

6.   Conclusions

Global poverty measurement combines data from virtually all branches of the statistical system. The measures reported here bring together household surveys, census data, national accounts and both national and international price data. Inevitably there are comparability and consistency problems when combining data from such diverse sources and the data are still far from ideal. However, thanks to the efforts and support of governmental statistics offices and international agencies, and improved technologies, the available data on the two key ingredients in poverty measurement—representative samples of household consumption expenditures (or incomes) and data on prices—have improved greatly since global poverty monitoring began. The country coverage of credible household survey data suitable for measuring poverty has improved markedly, the frequency of data has increased, public access to these data has improved, and the lags in data availability have been reduced appreciably. And with the substantial global effort that went into the 2005 *International Comparison Program* we are also in a better position to assure that the poverty lines used in different countries have similar purchasing power, so that two people living in different countries but with the same real standard of living are treated the same way.

The results of the 2005 ICP reveal that we have been underestimating the cost of living in poor countries in the past; the "Penn effect" is still evident, but it has been over-stated. Correcting for this bias has two opposing effects on global poverty measures using an international poverty line anchored to the poverty lines in the poorest countries. On the one hand, the international poverty line in constant-price $US has to be revised downwards given that the

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upward revisions to the purchasing power parities of poor countries implies lower $US values of their national poverty lines. At the same time, the purchasing power of household incomes in poor countries is also revised downwards. On balance, we find that the global poverty count rises, given that the data indicate larger proportionate revisions to the PPPs for poorer countries.

Our correction for the bias in past PPPs has added 400 million people to the global count for 2005, when judged against an international poverty line that is representative of the national poverty lines found in the poorest countries. In China alone, which had not previously participated officially in the ICP, the new PPP implies that an extra 10% of the population is living below our international poverty line. But the impact is not confined to China; there are upward revisions to our past estimates for all regions, consistent with the higher cost of living in developing countries implied by the results of the 2005 ICP.

While the new data suggest that the developing world is poorer than we thought, it has been no less successful in reducing the incidence of absolute poverty since the early 1980s. Indeed, the overall rate of progress against poverty is fairly similar to past estimates. This is hardly surprising, given that changing the PPP base *per se* does not alter the real growth rates over time or the distribution of consumption for individual countries. The trend rate of global poverty reduction of 1% point per year turns out to be slightly higher than we had estimated previously, due mainly to the higher weight on China's remarkable pace of poverty reduction. The developing world as a whole is clearly still on track to attaining the first Millennium Development Goal of halving the 1990s "extreme poverty" rate by 2015. China attained the MDG early in the millennium, almost 15 years ahead of the target date.

However, the developing world <u>outside</u> China will not attain the MDG without a higher rate of poverty reduction than we have seen over 1981-2005. The persistently high incidence <u>and</u> depth of poverty in Sub-Saharan Africa are particularly notable. There are encouraging signs of progress in this region since the late 1990s, although lags in survey data availability and problems of comparability and coverage leave us unsure about how robust this will prove to be.

The marked "bunching up" in the global distribution of consumption just above our international poverty line is also notable. There are a great many people who have reached the frugal $1.25 standard, but are still very poor, and clearly vulnerable to downside shocks. One such shock is the steep rise in international food and fuel prices since 2005. Despite the progress in reducing the lags in survey data availability, it will probably not be until 2010 that we can

make a reasonably confident assessment of the *ex post* impacts of the rising food and fuel prices on the world's poor. Until then, *ex ante* assessments will be required, based on pre-crisis data and economic assumptions. Such assessments suggest that at least a few years of the progress reported here have been eroded since 2005.

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Table 1: Average date of the surveys used for each reference year

Region	Average date of the surveys used for each reference year								
	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia-Pacific (EAP)	1982.2	1984.5	1987.3	1990.2	1993.0	1996.1	1999.0	2002.0	2004.9
Of which China	1981.0	1984.0	1987.0	1990.0	1993.0	1996.0	1999.0	2002.0	2005.0
Eastern Europe and Central Asia (EECA)	1988.3	1988.3	1988.5	1990.5	1993.3	1996.1	1999.0	2001.7	2004.0
Latin America and Caribbean (LAC)	1983.6	1984.1	1987.4	1990.6	1993.2	1996.1	1999.0	2002.0	2004.7
Middle East and North Africa (MENA)	1987.8	1987.8	1988.5	1990.1	1993.2	1995.8	1998.4	2000.8	2002.6
South Asia (SA)	1981.9	1983.5	1987.5	1990.2	1993.4	1996.0	1999.0	2001.9	2004.5
Of which India	1981.0	1983.0	1987.5	1990.0	1993.5	1996.0	1999.0	2002.0	2004.5
Sub-Saharan Africa (SSA)	1989.8	1991.3	1992.0	1993.3	1994.9	1997.3	1999.8	2002.1	2003.5
Total	**1984.1**	**1985.6**	**1988.1**	**1990.6**	**1993.4**	**1996.2**	**1999.1**	**2001.9**	**2004.4**

Table 2: Average lag in survey data availability for the latest reference year by region

Region	2001 (Chen and Ravallion, 2004)	2005 (Present paper)
East Asia	0.6	0.1
Eastern Europe and Central Asia	1.3	1.0
Latin America and Caribbean	0.9	0.3
Middle East and North Africa	2.2	2.4
South Asia	1.6	0.5
Sub-Saharan Africa	4.0	1.5
Total	**1.6**	**0.6**

Table 3: Proportion of the population represented by household surveys

Coverage rate: % of pop. represented by a survey two years either side of each year									
Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
EAP	75.5	87.5	90.3	95.1	94.9	95.0	94.1	95.4	95.4
China	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
EECA	0.0	8.5	93.2	58.9	86.7	88.3	91.4	93.8	94.0
LAC	48.2	34.6	80.9	88.4	87.0	94.7	94.7	96.0	95.7
MENA	0.0	40.3	39.5	80.4	70.0	73.8	66.5	39.3	55.2
SA	58.3	89.3	96.5	65.5	97.9	81.4	19.5	77.0	96.9
India	63.6	100.0	100.0	58.3	100.0	77.3	0.0	77.3	100.0
SSA	30.7	30.5	26.3	38.0	65.5	61.4	59.6	67.6	70.9
Total	**51.3**	**65.1**	**81.3**	**75.4**	**89.2**	**85.4**	**68.1**	**83.5**	**90.0**

Table 4: Headcount indices of poverty (% below each line)

	1981	1984	1987	1990	1993	1996	1999	2002	2005
(a) Aggregate for developing world									
Previous estimates using 1993 ICP (% living below $1.08 a day at 1993 PPP)									
	40.6	33.0	28.7	28.7	25.6	22.8	22.3	20.4	17.2
New estimates using 2005 ICP (% living below each line)									
$1.00	41.9	35.0	29.9	29.9	26.9	23.5	22.8	20.7	16.1
$1.25	52.2	47.1	41.8	41.7	38.9	34.7	33.7	31.0	25.7
$1.45	58.7	54.8	49.8	49.5	46.9	42.8	41.6	38.6	31.5
$2.00	69.5	67.7	64.2	63.1	61.4	58.3	57.1	53.6	47.6
$2.50	74.8	74.0	71.7	70.5	69.3	67.2	65.9	62.5	57.6
(b) Excluding China									
Previous estimates using 1993 ICP (% living below $1.08 a day at 1993 PPP)									
	32.0	30.1	28.7	27.1	24.7	24.6	23.8	22.6	21.5
New estimates using 2005 PPP (% living below each line)									
$1.00	30.2	28.5	26.9	24.9	23.2	23.5	22.3	21.3	18.6
$1.25	40.4	38.9	37.4	35.2	33.8	34.2	33.0	31.9	28.7
$1.45	47.0	46.0	44.4	42.5	41.3	41.7	40.7	39.5	36.2
$2.00	59.0	58.4	57.2	55.6	55.4	56.1	55.6	54.3	51.2
$2.50	65.6	65.5	64.3	63.1	63.3	64.1	63.9	62.8	60.1

Note: The headcount index is the percentage of the relevant population living in households with consumption per person below the poverty line.

Table 5: Numbers of poor (millions)

	1981	1984	1987	1990	1993	1996	1999	2002	2005
(a) Aggregate for developing world									
Past estimates using 1993 ICP (number in millions below $1.08 a day at 1993 PPP)									
	1488.5	1281.4	1178.5	1247.5	1172.4	1092.9	1119.8	1067.1	931.3
New estimates using 2005 ICP (number in millions below each line at 2005 PPP)									
$1.00	1535.3	1359.1	1228.3	1303.2	1235.6	1132.8	1146.4	1087.0	879.0
$1.25	1913.3	1827.1	1718.2	1817.5	1785.1	1672.0	1695.4	1627.1	1399.6
$1.45	2149.1	2125.1	2048.5	2159.1	2153.8	2060.4	2093.5	2021.5	1716.8
$2.00	2545.7	2625.4	2638.1	2753.6	2815.6	2807.2	2871.9	2808.4	2597.8
$2.50	2738.8	2872.1	2948.6	3075.9	3178.8	3235.7	3315.1	3276.3	3140.2
(b) Excluding China									
Past estimates using 1993 ICP (number in millions below $1.08 a day at 1993 PPP)									
	854.9	856.1	868.1	873.1	838.2	881.5	897.1	890.5	858.2
New estimates at 2005 ICP (number in millions below each line at 2005 PPP)									
$1.00	804.9	810.6	815.9	804.1	791.2	844.1	844.0	842.3	773.0
$1.25	1078.3	1107.2	1132.5	1134.3	1152.5	1229.2	1248.7	1263.9	1191.9
$1.45	1255.4	1306.7	1345.7	1370.9	1407.6	1500.3	1539.5	1567.1	1500.3
$2.00	1573.6	1662.0	1731.1	1792.8	1889.4	2015.1	2101.6	2153.5	2124.1
$2.50	1751.3	1862.3	1946.9	2035.6	2159.8	2305.4	2415.9	2487.5	2494.6

Table 6: Regional breakdown of the 2005 headcount index and number of poor for various poverty lines

(a) Headcount index (% living below poverty line)

Region	\$1.00	\$1.25	\$1.45	\$2.00	\$2.50
	Poverty line in 2005 prices				
East Asia and Pacific	9.5	17.9	20.6	39.7	52.4
Of which China	8.1	15.9	16.6	36.3	49.5
Eastern Europe and Central Asia	3.4	5.0	6.5	10.6	14.7
Latin America and Caribbean	5.0	8.2	10.9	17.9	24.1
Middle East and North Africa	2.0	4.6	7.6	19.0	30.9
South Asia	23.7	40.3	52.3	73.9	84.4
Of which India	24.3	41.6	53.9	75.6	85.7
Sub-Saharan Africa	39.2	50.4	57.9	72.2	79.9
Total	16.1	25.7	31.5	47.6	57.6

(b) Number of poor (millions)

Region	\$1.00	\$1.25	\$1.45	\$2.00	\$2.50
East Asia and Pacific	179.8	336.9	388.6	748.3	987.2
Of which China	106.1	207.7	216.5	473.7	645.6
Eastern Europe and Central Asia	16.0	23.9	30.9	50.1	69.5
Latin America and Caribbean	27.6	45.1	59.9	98.7	132.9
Middle East and North Africa	6.2	14.0	23.2	58.0	94.3
South Asia	350.3	595.5	772.2	1091.6	1246.4
Of which India	266.5	455.8	590.3	827.7	938.0
Sub-Saharan Africa	299.1	384.2	442.0	551.0	609.9
Total	879.0	1399.6	1716.8	2597.8	3140.2

Table 7: Regional breakdown of headcount index for international poverty lines of $1.00-$2.50 a day over 1981-2005

(a) % living below $1.00 a day

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	68.7	51.9	39.4	40.6	36.1	24.7	23.7	19.7	9.5
Of which China	73.5	52.9	38.0	44.0	37.7	23.7	24.1	19.1	8.1
Eastern Europe and Central Asia	0.7	0.5	0.4	0.8	2.1	2.5	3.4	3.7	3.4
Latin America and Caribbean	7.4	9.1	8.4	7.1	7.3	7.9	7.9	6.6	5.0
Middle East and North Africa	3.6	2.7	2.9	2.3	2.2	2.3	2.6	2.0	2.0
South Asia	41.9	38.0	36.6	33.6	28.6	28.9	26.9	26.5	23.7
Of which India	42.1	37.6	35.7	33.3	31.1	28.6	27.0	26.3	24.3
Sub-Saharan Africa	39.5	43.6	42.8	45.9	44.3	47.1	45.6	41.6	39.2
Total	41.7	35.0	29.9	29.8	27.0	23.6	22.8	20.7	16.1

(b) % living below $1.25 a day

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	78.8	67.0	54.4	56.0	51.2	37.1	35.5	29.6	17.9
Of which China	84.0	69.4	54.0	60.2	53.7	36.4	35.6	28.4	15.9
Eastern Europe and Central Asia	1.6	1.2	1.0	1.5	3.8	4.5	5.4	5.6	5.0
Latin America and Caribbean	12.3	13.9	12.4	10.7	10.8	11.5	11.6	10.1	8.2
Middle East and North Africa	8.6	6.8	6.9	5.4	5.2	5.3	5.8	4.7	4.6
South Asia	59.4	55.6	54.1	51.1	46.1	46.9	44.1	43.8	40.3
Of which India	59.8	55.5	53.6	51.3	49.4	46.6	44.8	43.9	41.6
Sub-Saharan Africa	50.8	54.7	53.4	54.9	54.8	57.5	56.4	52.7	50.4
Total	52.0	47.1	41.8	41.6	38.9	34.8	33.7	31.0	25.7

Table 7 cont.,

(c) % living below $2.00 a day

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	92.9	88.9	81.4	80.1	75.7	64.4	61.5	53.1	39.7
Of which China	97.8	92.9	83.7	84.6	78.6	65.1	61.4	51.2	36.3
Eastern Europe and Central Asia	8.2	6.3	5.5	6.7	10.9	12.4	13.5	12.6	10.6
Latin America and Caribbean	24.5	27.1	23.9	21.4	21.2	22.6	22.5	21.0	17.9
Middle East and North Africa	28.7	24.9	25.0	22.0	21.9	22.3	23.7	19.6	19.0
South Asia	86.6	84.8	83.8	82.2	79.2	80.0	77.4	77.1	73.9
Of which India	86.6	84.8	83.8	82.6	81.7	79.8	78.4	77.5	75.6
Sub-Saharan Africa	72.0	74.4	72.8	73.5	73.7	75.8	75.6	73.6	72.2
Total	69.4	67.6	64.1	63.1	61.4	58.4	57.1	53.6	47.6

(d) % living below $2.50 a day

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	95.4	93.7	89.6	87.4	83.6	75.0	71.5	63.3	52.4
Of which China	99.4	97.4	92.4	91.6	86.5	76.4	71.7	61.6	49.5
Eastern Europe and Central Asia	15.7	12.9	11.8	12.5	16.3	19.0	19.7	18.1	14.7
Latin America and Caribbean	31.0	34.8	30.7	27.9	27.7	29.4	29.2	27.8	24.1
Middle East and North Africa	41.3	37.1	37.1	33.7	33.8	34.9	35.9	31.8	30.9
South Asia	92.6	91.5	90.8	89.9	88.3	88.7	86.8	86.5	84.4
Of which India	92.5	91.5	90.8	90.2	89.9	88.7	87.6	86.9	85.7
Sub-Saharan Africa	79.5	81.2	79.8	80.6	80.5	82.2	82.1	80.7	79.9
Total	74.8	74.0	71.7	70.5	69.3	67.2	65.9	62.5	57.6

Table 8: Regional breakdown of number of poor (millions) for international poverty lines of $1.00-$2.50 a day over 1981-2005

(a) Number living below $1.00 a day

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	947.5	751.1	598.4	648.1	600.3	427.5	424.6	361.9	179.8
Of which China	730.4	548.5	412.4	499.1	444.4	288.7	302.4	244.7	106.1
Eastern Europe and Central Asia	2.9	2.2	2.0	3.5	9.8	12.0	16.2	17.6	16.0
Latin America and Caribbean	27.2	35.7	34.6	31.2	33.7	38.2	40.2	34.7	27.6
Middle East and North Africa	6.3	5.2	6.0	5.2	5.4	6.1	7.2	5.8	6.2
South Asia	387.2	374.2	384.4	376.6	340.7	365.5	359.0	372.5	350.3
Of which India	296.1	282.2	285.3	282.5	280.1	271.3	270.1	276.1	266.5
Sub-Saharan Africa	157.3	189.1	202.4	236.9	247.4	285.0	298.8	294.4	299.1
Total	1528.3	1357.5	1227.8	1301.5	1237.3	1134.2	1146.1	1087.0	879.0

(b) Number living below $1.25 a day

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	1087.6	968.8	826.2	893.4	851.7	642.2	635.7	543.9	336.9
Of which China	835.1	719.9	585.7	683.2	632.7	442.8	446.7	363.2	207.7
Eastern Europe and Central Asia	6.6	5.0	4.3	7.0	17.8	21.1	25.7	26.7	23.9
Latin America and Caribbean	44.9	54.3	51.4	46.7	49.7	56.0	58.8	53.7	45.1
Middle East and North Africa	14.9	12.9	14.3	12.2	12.7	13.7	16.0	13.5	14.0
South Asia	548.3	547.7	568.7	572.3	549.5	593.1	588.9	616.1	595.5
Of which India	420.5	416.0	428.0	435.5	444.3	441.8	447.2	460.5	455.8
Sub-Saharan Africa	202.0	237.1	252.8	283.7	305.9	347.8	370.0	373.2	384.2
Total	1904.3	1825.8	1717.7	1815.5	1787.2	1673.8	1695.1	1627.0	1399.6

Table 8 cont.,

(c) Number living below $2.00 a day

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	1281.8	1285.6	1236.7	1277.9	1259.8	1113.8	1100.5	975.6	748.3
Of which China	972.1	963.3	907.1	960.8	926.3	792.2	770.2	654.9	473.7
Eastern Europe and Central Asia	34.5	27.4	24.7	31.4	51.5	58.5	64.0	59.8	50.1
Latin America and Caribbean	89.6	105.7	99.0	93.7	97.8	109.7	114.2	111.1	98.7
Middle East and North Africa	49.7	47.4	51.9	49.6	52.9	57.4	64.9	56.7	58.0
South Asia	799.6	836.0	880.8	920.2	943.9	1010.4	1032.3	1083.8	1091.6
Of which India	608.9	635.6	669.0	701.6	735.0	757.1	782.8	813.1	827.7
Sub-Saharan Africa	286.4	322.7	344.8	379.5	411.2	458.3	495.6	521.4	551.0
Total	2541.5	2624.8	2637.9	2752.5	2817.1	2808.1	2871.6	2808.4	2597.8

(c) Number living below $2.50 a day

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	1316.1	1355.6	1360.1	1395.3	1391.2	1296.0	1278.7	1163.5	987.2
Of which China	987.5	1009.8	1001.7	1040.4	1019.0	930.2	899.2	788.8	645.6
Eastern Europe and Central Asia	66.3	56.0	52.6	58.4	76.8	89.6	93.2	85.8	69.5
Latin America and Caribbean	113.5	135.7	127.1	122.4	128.0	142.8	148.2	146.9	132.9
Middle East and North Africa	71.7	70.6	77.0	76.1	81.7	89.9	98.1	92.0	94.3
South Asia	855.0	902.2	954.1	1007.1	1052.2	1120.3	1158.9	1216.6	1246.4
Of which India	650.3	686.1	725.0	766.5	808.8	841.1	875.2	911.4	938.0
Sub-Saharan Africa	316.1	352.0	377.7	416.7	449.0	497.1	537.9	571.5	609.9
Total	2738.8	2872.1	2948.6	3075.9	3178.8	3235.7	3315.1	3276.3	3140.2

Table 9: Poverty gap index (x100) by region over 1981-2005

(a) $1.25

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	36.7	25.4	19.2	19.0	16.8	11.1	10.8	8.8	4.4
Of which China	39.3	25.6	18.5	20.7	17.6	10.7	11.1	8.7	4.0
Eastern Europe and Central Asia	0.4	0.3	0.2	0.4	1.1	1.3	1.8	1.8	1.7
Latin America and Caribbean	4.1	4.5	4.3	3.6	3.9	4.0	4.1	3.5	2.7
Middle East and North Africa	1.8	1.4	1.5	1.2	1.1	1.1	1.3	1.0	1.0
South Asia	19.9	17.5	16.5	15.1	12.5	12.5	11.7	11.5	10.3
Of which India	19.6	17.2	15.8	14.6	13.6	12.4	11.7	11.4	10.5
Sub-Saharan Africa	20.9	23.7	23.2	24.6	24.3	26.4	25.1	22.5	20.8
Total	**21.7**	**17.1**	**14.5**	**14.2**	**12.9**	**11.2**	**10.9**	**9.8**	**7.7**

(b) $2.00

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	55.8	45.9	38.2	38.1	35.0	26.6	25.5	21.3	13.6
Of which China	59.3	47.3	38.2	40.9	36.6	26.3	25.6	20.6	12.2
Eastern Europe and Central Asia	1.9	1.4	1.2	1.7	3.4	3.9	4.6	4.5	4.0
Latin America and Caribbean	9.5	10.6	9.5	8.3	8.4	8.9	8.0	7.9	6.6
Middle East and North Africa	8.0	6.7	6.8	5.7	5.6	5.6	6.2	4.9	4.8
South Asia	41.2	38.4	37.2	35.5	32.2	32.6	31.0	30.8	28.7
Of which India	40.8	38.2	36.7	35.3	34.1	32.4	31.3	30.8	29.5
Sub-Saharan Africa	36.6	39.6	38.7	39.9	39.7	41.9	41.0	38.7	36.4
Total	**36.9**	**32.8**	**29.5**	**29.1**	**27.4**	**24.9**	**24.2**	**22.4**	**18.9**

Note: The poverty gap index is the mean distance below the poverty line as a proportion of the line where the mean is taken over the whole population, counting the non-poor as having zero poverty gaps.

Table 10: Mean consumption of the poor ($ per day) by region over 1981-2005

(a) $1.25

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	0.67	0.77	0.81	0.83	0.84	0.87	0.87	0.88	0.94
Of which China	0.67	0.79	0.82	0.82	0.84	0.88	0.86	0.87	0.94
Eastern Europe and Central Asia	0.96	0.95	0.94	0.91	0.87	0.89	0.83	0.85	0.83
Latin America and Caribbean	0.83	0.84	0.82	0.83	0.80	0.82	0.80	0.82	0.83
Middle East and North Africa	0.99	0.99	0.98	0.97	0.99	0.99	0.98	0.99	0.98
South Asia	0.84	0.86	0.87	0.88	0.91	0.92	0.92	0.92	0.93
Of which India	0.84	0.86	0.88	0.89	0.91	0.92	0.92	0.93	0.93
Sub-Saharan Africa	0.74	0.71	0.71	0.69	0.70	0.68	0.69	0.72	0.73
Total	**0.73**	**0.79**	**0.82**	**0.82**	**0.84**	**0.85**	**0.85**	**0.86**	**0.87**

(b) $2.00

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	0.80	0.97	1.06	1.05	1.07	1.18	1.17	1.20	1.31
Of which China	0.79	0.98	1.09	1.03	1.07	1.19	1.17	1.19	1.33
Eastern Europe and Central Asia	1.55	1.56	1.57	1.51	1.38	1.37	1.31	1.29	1.25
Latin America and Caribbean	1.22	1.22	1.20	1.23	1.21	1.21	1.21	1.24	1.26
Middle East and North Africa	1.44	1.47	1.46	1.48	1.49	1.50	1.48	1.50	1.50
South Asia	1.05	1.10	1.11	1.14	1.19	1.18	1.20	1.20	1.22
Of which India	1.06	1.10	1.12	1.15	1.17	1.19	1.20	1.21	1.22
Sub-Saharan Africa	0.98	0.94	0.94	0.91	0.92	0.89	0.92	0.95	0.99
Total	**0.94**	**1.03**	**1.08**	**1.08**	**1.11**	**1.14**	**1.15**	**1.16**	**1.21**

Figure 1: National poverty lines plotted against mean consumption
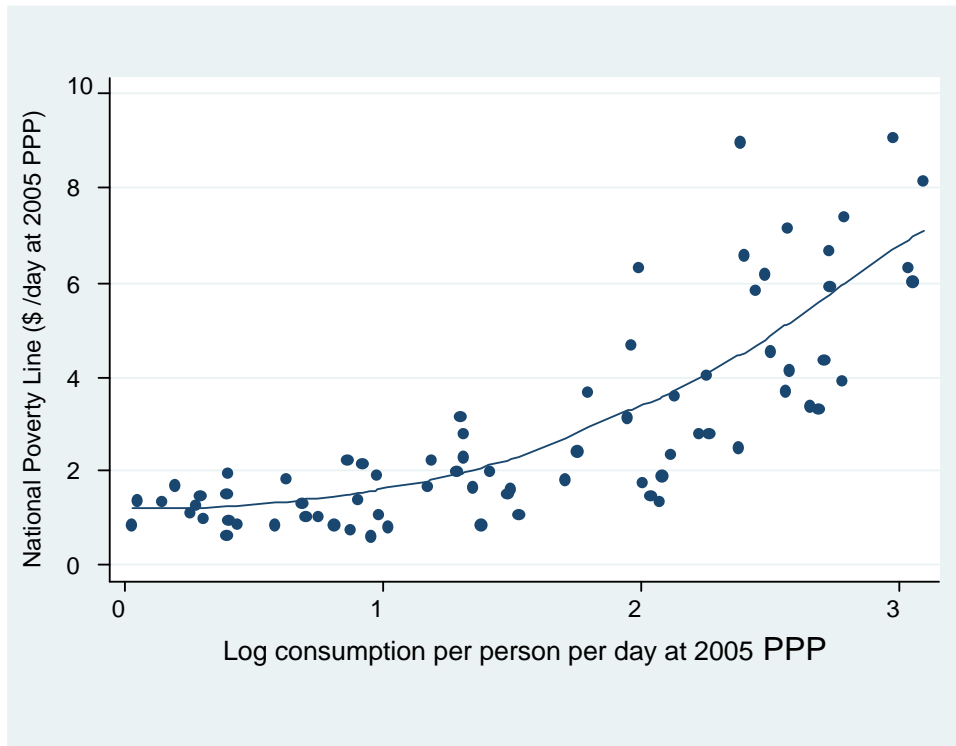
Figure 2: Number of surveys by year
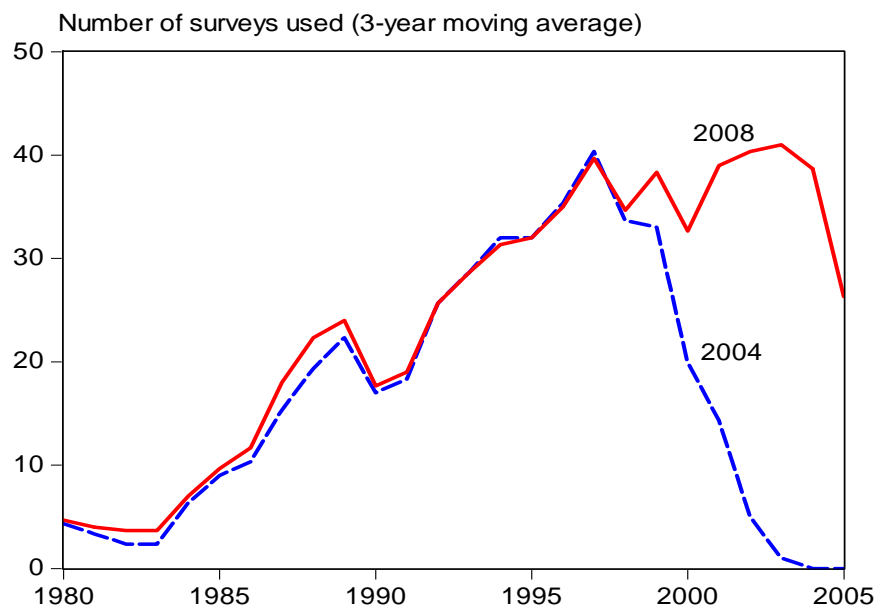
Figure 3: Headcount indices for the developing world 1981-2005

% below each poverty line (dashed lines exclude China)
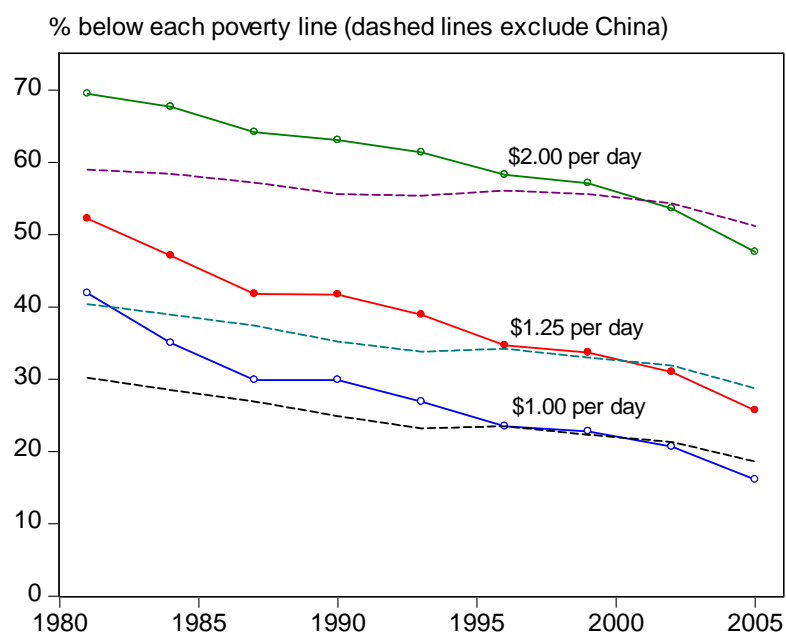
Note: Poverty lines in 2005 prices

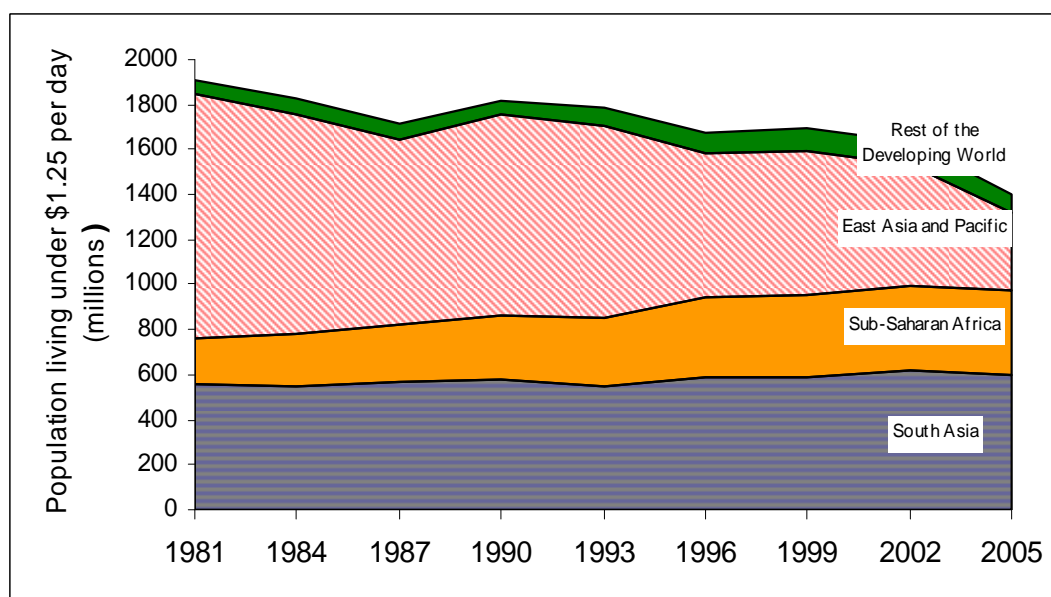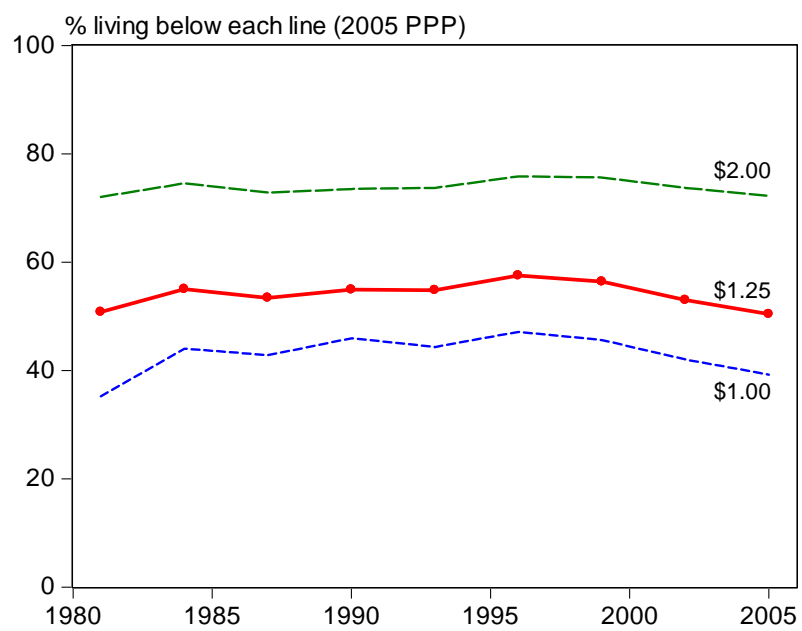**Figure 4: Numbers of poor by region 1981-2005**

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Figure 5: Poverty rates for Sub-Saharan Africa

Note: Poverty lines in 2005 prices

Appendix: Coverage of the data set used in this paper

Region	Coverage rate: % of 2005 pop. represented	Country	Survey dates	Welfare indicator
East Asia	96.1	Cambodia	1994, 1997, 2004	Expenditure
		China	1981, 1984, 1987,	Income
			1990, 1992, 1993, 1996, 1999, 2002, 2005	Expenditure
		Indonesia	1984, 1987, 1990, 1993, 1995, 1996, 1998, 1999, 2002, 2005	Expenditure
		Laos PDR	1993, 1997, 2002	Expenditure
		Malaysia	1984, 1987, 1989, 1992, 1995, 1997, 2004	Income
		Mongolia	1996, 1998, 2002, 2005	Expenditure
		Papua New Guinea	1996	Expenditure
		Philippines	1985, 1988, 1994, 1997, 2000, 2003, 2006	Expenditure
			1991	Income
		Thailand	1981	Income
			1988, 1992, 1994, 1996, 1998, 1999, 2000, 2002, 2004	Expenditure
		Timor Leste	2001	Expenditure
		Vietnam	1992, 1998, 2002, 2004, 2006	Expenditure
Eastern Europe & Central Asia	98.3	Albania	1996, 2002, 2004, 2005	Expenditure
		Armenia	1988, 1996	Income
			1996, 1998, 2001, 2002, 2003	Expenditure
		Azerbaijan	1988	Income
			1995, 2001, 2002, 2003, 2005	Expenditure
		Belarus	1988, 1993, 1995, 1997, 1998, 1999	Income
			1997, 1998, 1999, 2000, 2001, 2002, 2005	Expenditure
		Bosnia & Herzegovina	2001, 2004	Expenditure
		Bulgaria	1989, 1992, 1994, 1995, 1997, 2001, 2003	Expenditure
			1993, 1996	Income
		Croatia	1998, 1999, 2000, 2001, 2005	Expenditure
			1988, 1998	Income
		Czech Republic	1988, 1993,1996	Income
		Estonia	1988, 1993, 1995,	Income
			1998, 2000, 2001, 2002, 2003, 2004	Expenditure
		Georgia	1996, 1997,	Income
			1996, 1998-2003, 2005	Expenditure
		Hungary	1987, 1989, 1993	Income
			1998-2002, 2004	Expenditure
		Kazakhstan	1988, 1993	Income
			1993, 1996, 2001, 2002, 2003	Expenditure

		Kyrgyz Republic	1988, 1993, 1996, 1998	Income
			1997-2004	Expenditure
		Latvia	1988, 1993, 1996, 1998,	Income
			1998, 2002, 2003, 2004	Expenditure
		Lithuania	1988, 1993, 1994, 1996, 2000	Income
			1996, 1998, 2000-2004	Expenditure
		Macedonia	1988	Income
			1998, 1999, 2002, 2003	Expenditure
		Moldova	1988, 1992	Income
			1998, 1999, 2000, 2002, 2003, 2004	Expenditure
		Poland	1985, 1987, 1989, 1993 ,1995-1999	Income
			1992, 1996, 2000-2002, 2005	Expenditure
		Romania	1989, 1992, 1994	Income
			1998, 2000, 2001, 2002, 2003, 2005	Expenditure
		Russian Federation	1988, 1993-1998	Income
			1994-1998, 2000-2002, 2004	Expenditure
		Slovak Republic	1988, 1993, 1996	Income
		Slovenia	1987, 1993, 1996	Income
			1998, 2002, 2004	Expenditure
		Tajikistan	1988, 1998	Income
			1999, 2003, 2004	Expenditure
		Turkey	1987, 1994, 2002, 2003, 2005	Expenditure
			1994, 2000	Income
		Turkmenistan	1988, 1993	Income
			1998	Expenditure
		Ukraine	1988, 1992, 1995, 1997, 1999	Income
			1995, 1996, 1999, 2002-2005	Expenditure
		Uzbekistan	1989, 1993	Income
			1998, 2000, 2002, 2003	Expenditure
Latin America & Caribbean	97.8	Argentina (urban)	1980, 1986, 1989, 1992, 1996, 1998, 2001-2005	Income
		Bolivia	1986, 1990, 1997, 1999, 2002	Income
			1999, 2003	Expenditure
		Brazil	1979, 1981-1990, 1992, 1993, 1995-2005	Income
			1997	Expenditure
		Chile	1989, 1990, 1992, 1994, 1996, 1998, 2000, 2003	Income
		Colombia	1980, 1987, 1988, 1991, 1995, 96, 1998-2000, 2003, 2004	Income
		Costa Rica	1981, 1986, 1989, 1990, 1992, 1993, 1995-1998, 2000, 2001, 2003, 2004	Income
		Dominican Republic	1986, 1989, 1992,1996, 1998, 2000, 2003-2005	Income
		Ecuador	1988, 1993, 1998, 2003, 2005	Income
			1994-95	Expenditure
		El Salvador	1989, 1990, 1995-98, 2000, 2002, 2003	Income

		Guatemala	1986, 1989, 1998, 2002-2004, 2005	Income
			1998, 2000	Expenditure
		Guyana	1993, 1998	Expenditure
		Haiti	2001	Expenditure
		Honduras	1986, 1989-90, 1992, 1994-1999, 2003-2005	Income
		Jamaica	1988-93, 1995-2004	Expenditure
		Mexico	1984, 1989, 1994, 1996, 1998, 2000, 2002, 2004, 2006	Expenditure
			1994-1996, 1998, 2000, 2002	Income
		Nicaragua	1993, 2001, 2005	Expenditure
			1998, 2001	Income
		Panama	1979, 1989, 1991, 1995, 1996, 1998, 2000-2004	Income
			1997	Expenditure
		Paraguay	1990, 1995, 1997-1999, 2001, 2003-2005	Income
		Peru	1985, 1991, 1994	Expenditure
			1997, 2000-2003, 2005	Income
		St. Lucia	1995	Income
		Surinam	1999	Income
		Trinidad and Tobago	1988, 1992	Income
		Uruguay	1981, 1989, 1996-1998, 2000, 2001, 2002, 2003, 2004, 2005	Income
		Venezuela	1981, 1987, 1989, 1991, 1993, 1995-98, 2000, 2003, 2005	Income
Middle East & North Africa	79.4	Algeria	1988, 1995	Expenditure
		Djibouti	1996, 2002	Expenditure
		Egypt	1990, 1995, 1999, 2005	Expenditure
		Iran	1986, 1990, 1994, 1998, 2005	Expenditure
		Jordan	1986, 1992, 1997, 2002	Expenditure
		Morocco	1984, 1990, 1998, 2000/2001	Expenditure
		Tunisia	1985, 1990, 1995, 2000	Expenditure
		Yemen	1992, 1998, 2005	Expenditure
South Asia	98.3	Bangladesh	1983, 1985, 1988, 1991, 1995, 2000, 2005	Expenditure
		Bhutan	2003	Expenditure
		India	1977/78, 1983, 1987/88, 1993/94, 2004/05	Expenditure
		Nepal	1985, 1995, 2003	Expenditure
		Pakistan	1986/87, 1990/91, 1992/93, 1996/97, 1998/99, 2001/02, 2004/05	Expenditure
		Sri Lanka	1980, 1985, 1990, 1995, 2002	Expenditure
Sub-Saharan Africa	91.5	Angola	2000	Expenditure
		Benin	2003	Expenditure
		Botswana	1985/86, 1993	Expenditure
		Burkina Faso	1994, 1998, 2003	Expenditure
		Burundi	1992, 1998, 2006	Expenditure

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Cameroon	1996, 2001, 2004	Expenditure
Cape Verde	2001	Expenditure
Central African Rep.	1993, 2003	Expenditure
Chad	2002/03	Expenditure
Comoros	2004	Expenditure
Congo (DRC)	2005/06	Expenditure
Congo (ROC)	2005	Expenditure
Cote d'Ivoire	1985-88, 1993, 1995, 1998, 2002	Expenditure
Ethiopia	1981, 1995, 2000, 2004/05	Expenditure
Gabon	2005	Expenditure
Gambia	1992, 1998, 2003	Expenditure
Ghana	1987, 1989, 1991/92, 1998/99, 2005/2006	Expenditure
Guinea	1991, 1994, 2003	Expenditure
Guinea Bissau	1991, 1993, 2002	Expenditure
Kenya	1992, 1994, 1997, 2005/06	Expenditure
Lesotho	1986, 1993, 1995, 2002	Expenditure
Liberia	2005, 2007	Expenditure
Madagascar	1980, 1993, 1999, 2001, 2005	Expenditure
Malawi	1997, 2004	Expenditure
Mali	1989, 1994, 2001, 2006	Expenditure
Mauritania	1988, 1993, 1995, 2000	Expenditure
Mozambique	1996, 2002	Expenditure
Namibia	1993	Expenditure
Niger	1992, 1995, 2005	Expenditure
Nigeria	1985, 1992, 1996, 2003	Expenditure
Rwanda	1985, 1997, 2000	Expenditure
Senegal	1991, 1993,1994, 2001, 2005	Expenditure
Sierra Leone	1989, 2003	Expenditure
South Africa	1993, 1995, 2000	Expenditure
Sao Tome & Principe	2000	Expenditure
Swaziland	1994, 2000	Expenditure
Tanzania	1991, 2000	Expenditure
Togo	2006	Expenditure
Uganda	1989, 1992, 1996, 1999, 2001, 2005	Expenditure
Zambia	1991, 1993, 1996, 1998, 2003, 2004	Expenditure
Zimbabwe	1990/91, 1995	Expenditure

Note: The "coverage rates" reported here deem a country to be covered if there is at least one survey in the data set. By contrast the coverage rates in Table 3 refer only to whether ort not there is a survey within two years on either side of the survey year.