RETHINKING
GLOBAL POVERTY MEASUREMENT

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1 INTRODUCTION

From a money-metric perspective, poverty is a crystal-clear concept. A household is considered to be poor (poverty is typically estimated for households, not for individuals) if the total income or expenditure of its members lies below a specific threshold (referred to as the poverty line) which reflects the cost of meeting the family's basic food and non-food needs. Poverty can be thus be defined in terms of the monetary value required to attain a particular level of welfare. In a way, money is a proxy for some of the broader dimensions of poverty—for example, with sufficient financial resources, households and individuals can conceivably purchase better health care and better education for their children. However, they cannot easily improve their own education or job opportunities or access good and sufficient public services if they are not there to begin with. Therefore, while the 'money-metric' indicator of poverty is a powerful tool to understand the scope of deprivation, it should, at the very least, be supplemented by other indicators of well-being.[1]

Theoretically, the food poverty line is the principal anchor for money-metric poverty measurements. Following the 'basic needs approach', food poverty lines in developing countries are set as the cost of a normative 'basic needs' bundle of goods, which is typically chosen to reach a predetermined caloric requirement with a composition that is consistent with the consumption behaviour of the poor. This bundle is then evaluated using prices prevailing in each of the country's regions and at each date. The cost of the bundle is known as the food poverty line. The food poverty line is augmented by an allowance for expenditure on essential non-food goods. Following Engel's law, the non-food allowance can be estimated in two ways: (i) by regressing the food share against total expenditures and identifying the non-food share in the expenditure distribution of households whose expenditure on food is equivalent to the food poverty line; or (ii) by identifying the share of non-food expenditure for households whose total expenditure is equivalent to the food poverty line.

The former approach yields an 'upper' boundary of the poverty line, while the latter yields a 'lower' boundary, since it defines the total poverty line in terms of those households who had to displace food consumption to allow for non-food expenditures, deemed to be a minimum indispensable level of non-food requirements.

A poverty line can also be held constant over time and across countries, as has been the practice in the specialised literature dealing with global poverty comparisons conducted by the World Bank and the United Nations (e.g. the famous US$1 and US$2 per day per person purchasing power parity (PPP) poverty lines). As argued in this paper, if, for a variety of reasons, PPPs do not equate purchasing power, a more credible approach for international comparisons would allow the poverty line to be related to changes in the standard of living.[2]

It can be inferred from this typology of poverty lines that poverty measurement lends itself to a wide range of definitions and measurement methodologies. These conceptual and measurement differences yield, in turn, a spectrum of results. Data weaknesses and limitations in developing countries also present an often insurmountable obstacle to poverty and inequality assessments. Hence, it should not come as a surprise that there is little agreement, even among global poverty experts, on the most basic questions such as: how many poor people are there in the world today? Have developing countries been successful in reducing poverty? Relative to other developing regions, have sub-Saharan Africa and South Asia, the regions with lowest income per capita, performed well to reduce poverty and inequality and to grow per capita expenditure? What are the most common characteristics of the poor population in these most deprived regions? Which policies, programmes and interventions are most effective in reducing extreme poverty? Are there successful poverty reduction experiences that can be easily emulated?

No doubt, these questions are difficult to address, let alone in a single paper. Still, we attempt to cover, to the extent possible, the first three questions with some analytical and empirical depth, relying on the most famous measure of poverty, namely the headcount ratio (which is the ratio of those with consumption expenditure below a specified poverty line to total population and is also known as the 'poverty rate'). The relevant stylised facts we aim to examine for developing countries in this paper are thus primarily related to the spread of money-metric poverty and its evolution over time. However, we will briefly discuss the growth of consumption expenditure and the degree of inequality in the distribution of this expenditure.

Section 2 reviews the conventional storyline of global poverty based on the popular $1.25 poverty line. In Section 3, we examine national poverty lines, which we believe produce a more accurate picture for the majority of countries. However, national poverty lines have a serious comparability problem, since developing countries use a wide range of methodologies to define poverty. Furthermore, they are particularly problematic for the purpose of global comparison when countries with large demographic weight, such as China, are completely off mark. However, if we can prove that the vast majority of countries get their national poverty lines right, we can solve this problem by allowing the poverty line to vary with expenditure. Hence, in Section 4, using national poverty lines and per capita expenditure derived from household surveys, we estimate the appropriate poverty line for international comparisons for 59 developing countries based on a significant number of survey results (over 350 surveys) and report the poverty rates based on these 'new' poverty lines. Section 5 makes use of the same dataset to briefly examine the main growth and inequality trends underlying these poverty results. We end this paper with a few concluding remarks that summarise our main findings.

2 THE CONVENTIONAL POVERTY STORY AT A GLANCE

In cross-country comparisons, extreme poverty is regularly measured against the international $1.25 poverty line (in 2005 PPP). Using this commonly accepted poverty threshold, Figure 1 shows that nearly one quarter of the world's population can be considered as poor, and there has been a significant reduction in poverty. Hence, the conclusion is that the world is on track to meet the goal of poverty reduction by 2015. According to this measure, poverty is remarkably less widespread in Arab countries, Europe & Central Asia and Latin America (less than 5 per cent in 2005–2009) than in other developing regions. However, the magnitude of poverty and the ranking of some regions changes considerably with higher poverty lines. For example, in 2008, based on the $1.25 line, the Arab region has almost the same headcount poverty rate as the far richer Latin America & Caribbean region; yet, based on the $2.75 line, its poverty rate is double that of Latin America & the Caribbean. Poverty trends for the $1.25 and $2.00 lines are shown in Figures 2-A and B, respectively. Both graphs indicate the bulk of the progress worldwide was achieved in East Asia & the Pacific. This is understandable given the relatively high economic growth of China since 1990. According to the $2.00 poverty line, poverty reduction was far more subdued for developing regions, but also with the notable exception of East Asia & the Pacific.

FIGURE 1

Proportion of People Living on Less than $1.25, $2 and $2.75 a Day in Developing Regions, and Change in Poverty Rates (Percentage), 2000–2009
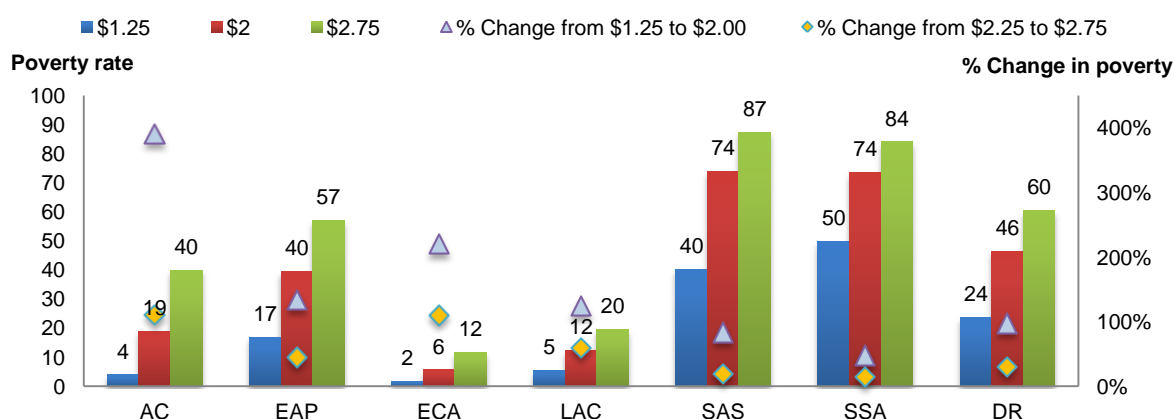
Source: Authors' calculation and estimates based on World Bank POVCAL datasets (in 2005 PPP), UNDP Poverty Assessment Reports and HIES unit record data.

One conclusion which can be easily derived from Figures 1 and 2 is that the choice of a poverty line, while clearly affecting poverty rates in all regions, has higher reverberations on poverty rates in some regions. This is quite clear in Figure 3, which plots poverty incidence curves over a range of poverty lines (ranging from $0.2 to $10 PPP). At any value lower than $1.25, the Arab region displays a very low poverty incidence (on a par with Europe & Central Asia and lower than Latin America & the Caribbean). However, poverty rates for the Arab region jump sharply at higher poverty lines so that, at a poverty line of approximately $3 per day, the region's poverty rate is far closer to that of the average for all developing regions. This is not the case for other regions. South Asia and sub-Saharan Africa are consistently poorer

than other regions. However, sub-Saharan Africa is poorer than South Asia only at poverty lines below $1.8. East Asia & the Pacific is consistently within close range of the global average, and Latin America & the Caribbean and Europe & Central Asia are consistently below poverty rates of other regions.

FIGURE 2

Poverty Rates for the $1.25 (A) and $2.00 (B) Poverty Lines in 2005 PPP, 1990–2008
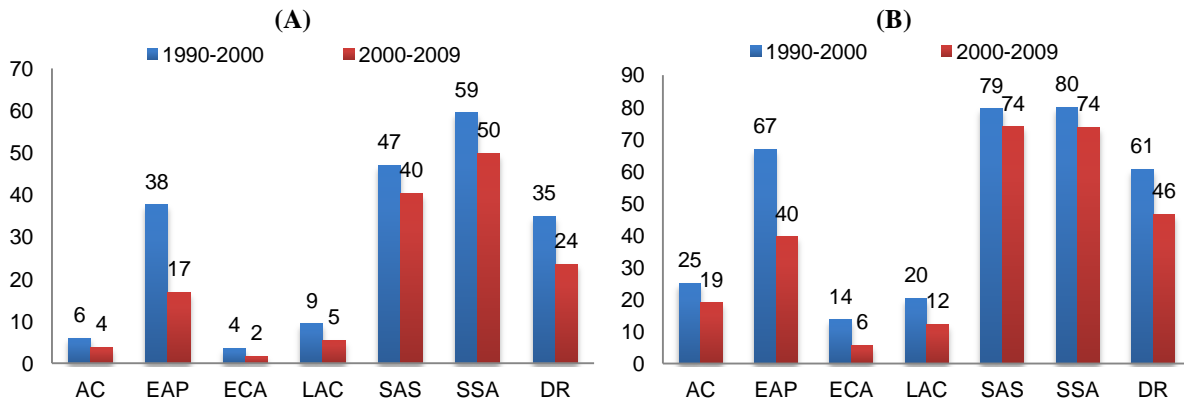
Source: ibid.

FIGURE 3

**Poverty Rates for Developing Regions Across a Range of Poverty Lines
(in 2005 PPP Based on Most Recent Surveys), 2000–2009**
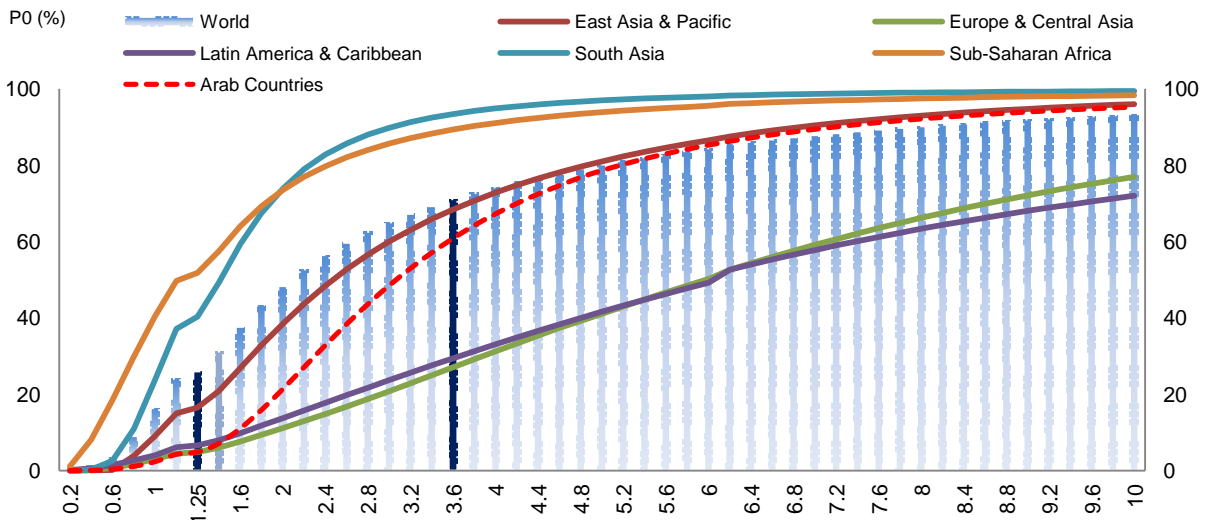
Source: ibid.

Figure 4 shows poverty rates over time. Clearly there is a shift downwards for all developing regions, indicating a lower poverty rate at any given poverty line. Consistent with the poverty rates based on fixed poverty lines, the largest reduction was witnessed in East Asia (mainly composed of China) followed by Latin America & the Caribbean. Other developing

regions witnessed less considerable shifts in their poverty rates. It is also interesting to note that the gap between the solid line (poverty rate based on the survey closest to 1990) and the dashed line (poverty rate based on the most recent survey) is not constant. Since the distance between the two lines shows the extent of poverty reduction for any given (or fixed) poverty line, it is easy to conclude that the extent of poverty reduction at the global and regional level is also highly contingent on the choice of an appropriate poverty line.

FIGURE 4

Poverty Rates for Developing Regions Across a Range of Poverty Lines (in 2005 PPP), 1990s (solid line) and most recent surveys (dashed line)
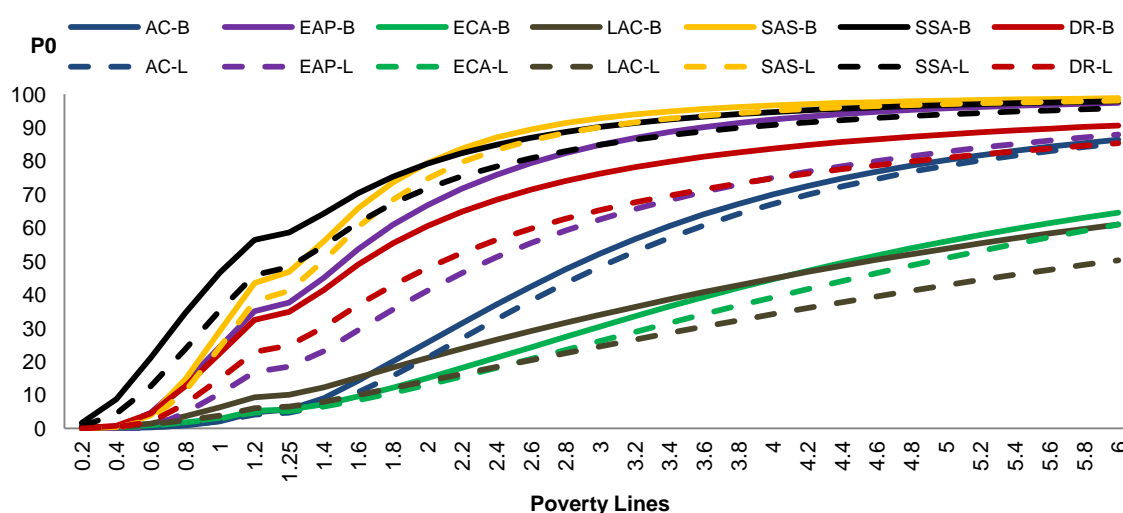
Source: ibid.

3 NATIONAL POVERTY LINES PRESENT MORE PLAUSIBLE POVERTY ESTIMATES FOR MOST DEVELOPING COUNTRIES BUT NOT WITHOUT SERIOUS COMPARABILITY PROBLEMS

In this section we pose the following question: does it make sense to hold a poverty line constant across countries with very different socio-economic features, hence very different money-metric poverty profiles? The fixed international lines which are used for producing global aggregates of poverty are supposed to test, in principle, for the ability to purchase a basket of commodities that is roughly similar across the world. But such a universal line is generally not without major perils.[3] The poverty line should be adjusted for different locations (such as urban and rural areas) within the country, if prices or access to goods and services differ. It should also be adjusted to capture the 'economies of scale' within households, as non-food items can be shared among household members. More importantly perhaps, it should also account for the differing 'basic needs' requirements of different household members—young versus old, male versus female. All these factors are omitted when a fixed poverty line is applied.

National poverty assessments avoid many of these problems by applying a 'household-specific' methodology to estimate poverty. Thus the first and most crucial step in estimating national poverty lines entails using data from Household Income Expenditure and

Consumption Surveys (HIES) and elsewhere (often nutritional surveys by the World Health Organization) to construct a food poverty line so that it meets the particular household's minimum nutritional requirements, depending on the household members' ages, gender composition and location. The estimated poverty lines should also account for regional differences in relative prices, expenditure patterns and activity levels, as well as the size and age composition of poor households. This leads to a variation in poverty lines depending on household location and composition.

However, while the cost of the minimum food bundle is derived from estimated physiological needs, there is no equivalent methodology for determining the minimum non-food bundle. The non-food allowance for each household can be estimated in two ways: (i) regressing the food share against total expenditures and identifying the non-food share in the expenditure distribution of households in which expenditure on food is equivalent to the food poverty line; or (ii) by identifying the share of non-food expenditure for households in which total expenditure is equivalent to the food poverty line. The former approach yields an 'upper' boundary of the poverty line (or upper poverty line), while the latter yields a 'lower' boundary or the lower poverty line, since it defines the total poverty line in terms of those households which had to displace food consumption to allow for non-food expenditures, considered to be a minimum indispensable level of non-food requirements. Obviously, this approach presents a better poverty measure than the fixed poverty line, since it takes into account location, age and gender composition, as well as economies of scale.

So can we rely on poverty rates based on national poverty lines to produce reliable global poverty estimates? Unfortunately not. Although most of the poverty assessment studies use similar surveying techniques and poverty assessment methodologies, there are still many inconsistencies which lead to serious comparability problems.[4] These problems arise not only from inconsistencies in the quality of data collection across countries but also from differences in the methodology used to construct food baskets (hence food poverty lines) and the treatment of imputed rent and durables.[5] Consequently, even if poverty assessments for most developing countries are constructed using the cost of basic needs approach (and the vast majority of these are indeed either led or technically supervised by the World Bank), the basis for establishing national poverty lines could still differ substantially across countries and more so across regions. Hence, we cannot rule out the presence of significant measurement errors in any comparison based on national poverty lines.

These comparability problems are already apparent in Figure 5, which plots global and regional poverty rates based on national poverty lines of 61 surveys for developing countries which are spread over two periods: from 1990 to 1999 and from 2000 to 2009. The figure shows that the overall poverty rate for developing regions stood at 19.7 per cent during the last decade. This rate is lower than the corresponding rate for the 1990s (26.9 per cent). Hence, there appears to have been a significant reduction in poverty since 1990 (a decline of 27 per cent over the period). As expected given the substantial difference in per capita consumption levels, poverty rates for sub-Saharan Africa are nearly twice the average for developing regions. However, poverty in Latin America is at almost the same level as in South Asia, while poverty rates in East Asia, Arab countries and Europe are significantly below the average.

One striking observation is that national poverty rates for the East Asia & Pacific region are far below what one would expect. Since China[6] holds the most significant share of the population of East Asia & Pacific, it is safe to conclude on the basis of this picture that its

national poverty line is likely to have a significant downward bias compared to other developing countries. Indeed this is also the view of the most recent poverty assessment report conducted by the World Bank, which suggests that the Chinese official poverty line is low relative to both international measurement standards and rising incomes within China.[7] In the same study, the World Bank proposes an alternative poverty line (close to the $1.25 line), which it claims is more consistent with international standards. Applying this line causes China's poverty rate to jump to 36 per cent in the 1990s and 13.1 per cent in the mid-2000s. But does it make sense that the poverty line for China, after having experienced significant economic growth and continuous rises in per capita expenditure, is still equivalent to that of the world's poorest countries?

FIGURE 5

Headcount Poverty Rates (P0) based on National Poverty Lines for Developing Regions and Percentage Change in Poverty, 1990–2000 and 2000–2009
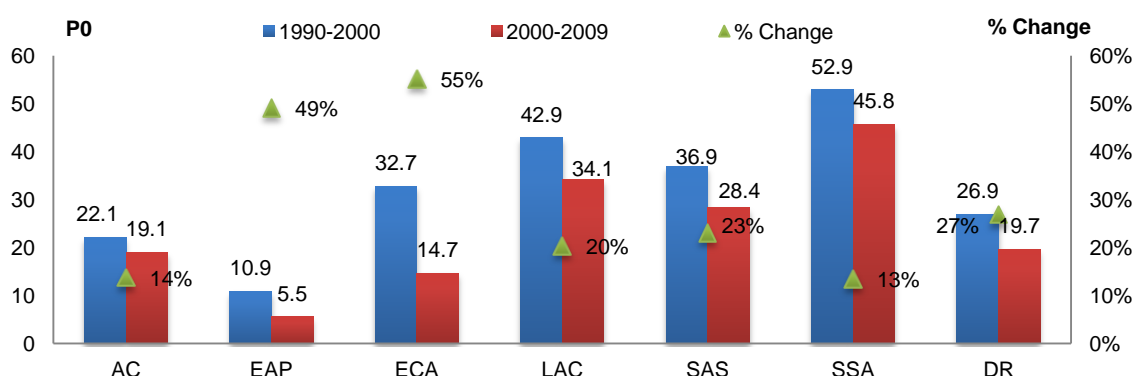
Source: Authors' estimates based on national poverty rates reported in the World Bank Development Indicators Database and UNDP-led poverty assessment reports for 61 developing countries.

This is a central question which we aim to address in the following section. Before we discuss our alternative poverty measurement methodology, however, let us pose another important question: other than political reasons, what are the other possible factors that would explain why countries such as China may have a lower than expected value for their national poverty line?

One important reason is that the cost of basic needs may actually be significantly lower due to the impact of existing public policy interventions including, most importantly, food, health and education subsidies, which lower the cost of attaining basic food and non-food needs. However, the cross-country relationship between total subsidies and poverty line for this sample of countries (in 2005 PPP per capita) is very weak, as shown in Figure 6. Countries with an excessively low ratio of national poverty line to mean consumption (less than 0.4) are shown not to have higher subsidy ratios. This implies that the level of subsidies in these countries is not large enough to justify the extremely low value of their national poverty lines relative to their average per capita expenditure.

FIGURE 6

Ratio of National Poverty Lines (PLs) and Total Subsidies (TS) to Mean Per Capita Consumption Expenditure (PCE) (in 2005 PPP Per Capita), 2000–2008
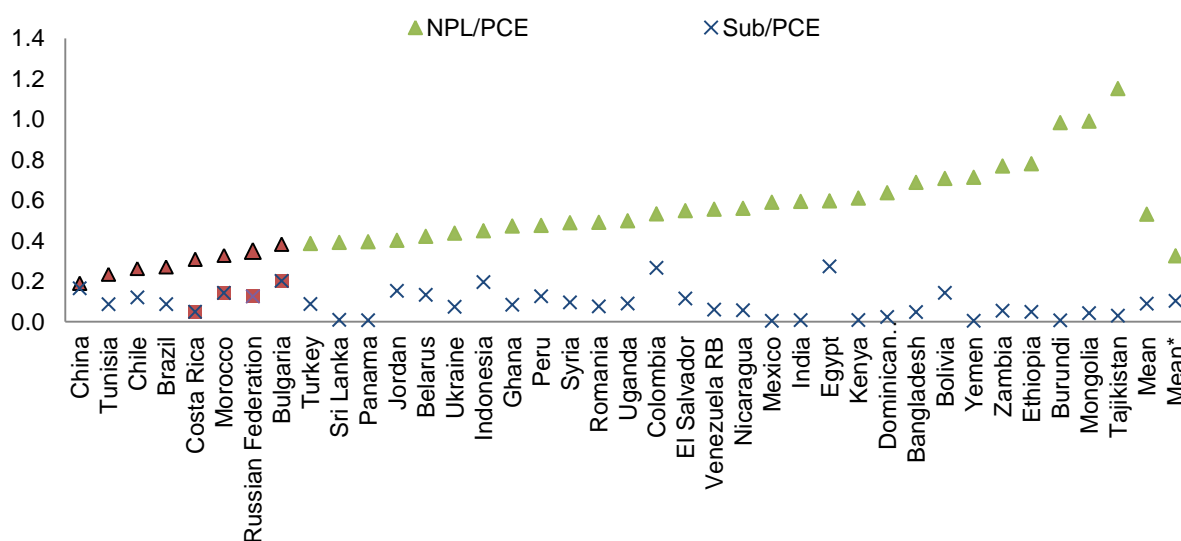

Source: Authors' estimates based on national poverty rates reported in the World Bank Development Indicators Database and World Bank WDI and IMF GFS for subsidies.

Notes:

- Total subsidies (calculated in per capita PPP 2005) include social benefits, public grants and subsidies to public and private enterprises).

- Mean indicates the mean TS/PCE for the full sample, whereas Mean* indicates the mean TS/PCE for countries which have a PL/PCE ratio of less than 0.4.

Conversely, national poverty rates for Latin America & the Caribbean and Eastern Europe appear to be incommensurately high when compared to the level of expenditure in these regions. Of course, part of this may be explained by the higher than average inequality in distribution of expenditure in some of these countries, but it is not at all an adequate explanation given the close range of poverty rates between Latin America & the Caribbean and other developing regions such as South Asia, where human development and deprivation is significantly higher, as illustrated in Abu-Ismail et. al. (2011).[8]

Whereas it is understandable that national poverty studies may sometimes have a political incentive to reduce poverty lines, the case for a higher poverty line is more perplexing. It can be argued, as in the case of all UNDP-led poverty assessment reports in the Arab region, that the upper poverty line is the more accurate threshold for measuring poverty. Indeed, the high expenditure ratio of the national poverty lines for the richer developing countries of Latin America & the Caribbean and Europe & Central Asia suggest that they are applying the upper poverty line threshold, which allows for a more generous portion of the non-food component of the national poverty line. From a policy perspective, this can also be justified if there is an attempt to design poverty reduction programmes that would target a majority of the poor population and not only the extremely poor.

To conclude, by international standards, it would seem that most developing countries get their poverty lines 'right'. By this we mean that the methodology used to derive national poverty lines generally adheres to the World Bank's definition of the lower poverty line

described earlier. There are a few countries which set the bar too low (China, Tunisia, Morocco, Brazil and Nepal) or too high (Mexico, Venezuela and Dominican Republic), but most countries will adopt broadly comparable methodologies in estimating their national poverty lines. The trouble is that some of the 'outliers' are developing countries with considerable demographic weight. This will lead to a strong bias in regional and global poverty rates. In Section 4 we try to address this problem.

4 DEVELOPING COUNTRIES MAY BE POORER THAN COMMONLY THOUGHT AND LESS SUCCESSFUL IN THEIR FIGHT AGAINST POVERTY

Despite their many problems, the World Bank used the national poverty lines of the poorest countries as a basis for establishing its $1.25 poverty line. It then relies on the PPPs to equate the cost of the same bundle of goods and services which can be purchased by $1.25 in the world's poorest countries. However, this argument can be strongly contested for a variety of reasons. First, comparisons of countries at different levels of development pose a potential problem because of differences in the relative importance of consumption of non-market goods. Moreover, although PPP exchange rates, such as those from the International Comparison Program or the Penn World Tables, take into account the local prices of goods and services that are not traded internationally, they were designed for comparing aggregates from national accounts, not for making international poverty comparisons. PPPs are also based on prices of goods and services that may not be representative of the consumption baskets of the poor, so they may not fully reflect the relative price level faced by the very poor consumers. As a result, there is no certainty that an international poverty line when applied will measure the same degree of deprivation across countries.

In this section, we suggest an alternative method for constructing more relevant international poverty lines. At the outset, it is important to note that we accept the World Bank's basic idea of relying on national poverty lines to construct a globally comparable poverty measure. However, we reject the assumption that this measure should be a fixed one, or that it should be based on the national poverty lines of the poorest countries. Rather, we argue that international poverty lines should be based on *a priori* and the already well-established stylised facts regarding the relationship between national poverty lines and the average per capita expenditure (in 2005 PPP). Fortunately, the recent increase in the number of country surveys available on the World Bank website allows us to examine the cross-country relationship between those indicators across a large number of household surveys (372) and developing countries (107).

The relationship is examined in Figure 7. The upper cluster of blue points in the figure measures PCE (based on household survey data). The red cluster measures the ratio of national poverty lines to this average consumption, and the figure ranks developing countries according to this ratio (from the lowest ratio for China Urban of 0.13 to the highest ratio for Haiti of 1.1). The figure tells a simple story. As indicated by the downward slope of the upper regression line, poorer countries tend to have a higher ratio. This is intuitively clear, since the share of household expenditure on basic needs in poorer countries tends to be high relative to the average income and hence consumes the bulk of expenditure for a majority of the population. On the other hand, as countries become richer, the share of meeting basic needs

tends to decline relative to average expenditure. This is also consistent with the well-known Engel's Law, which states that the share of expenditure on food and basic necessities declines as income rises, even if the absolute value of this expenditure increases as income rises.

No doubt any fixed poverty line will also obey Engel's Law. This is necessarily true, as any rise in expenditure will yield a lower ratio to any fixed poverty line. However, a fixed poverty line will have no commensurability with the national poverty lines, except for a minor group of countries. For example, the $1.25 may actually be too high even for the poorest African countries such as Burundi, which recorded an average PCE of less than $1 per day. Conversely, the ratio of the $1.25 poverty line to average PCE in Brazil will be approximately 0.1, which is less than half of the ratio of its national poverty line to PCE. Thus, it would make more sense to anchor international poverty lines to average PCE, rather than to a fixed and pre-specified value.

FIGURE 7

Ratio of National Poverty Line to Mean PCE in 2005 PPP Per Capita and PCE, 1990–1999 and 2000–2009 for 370 Household Surveys (107 Developing Countries)
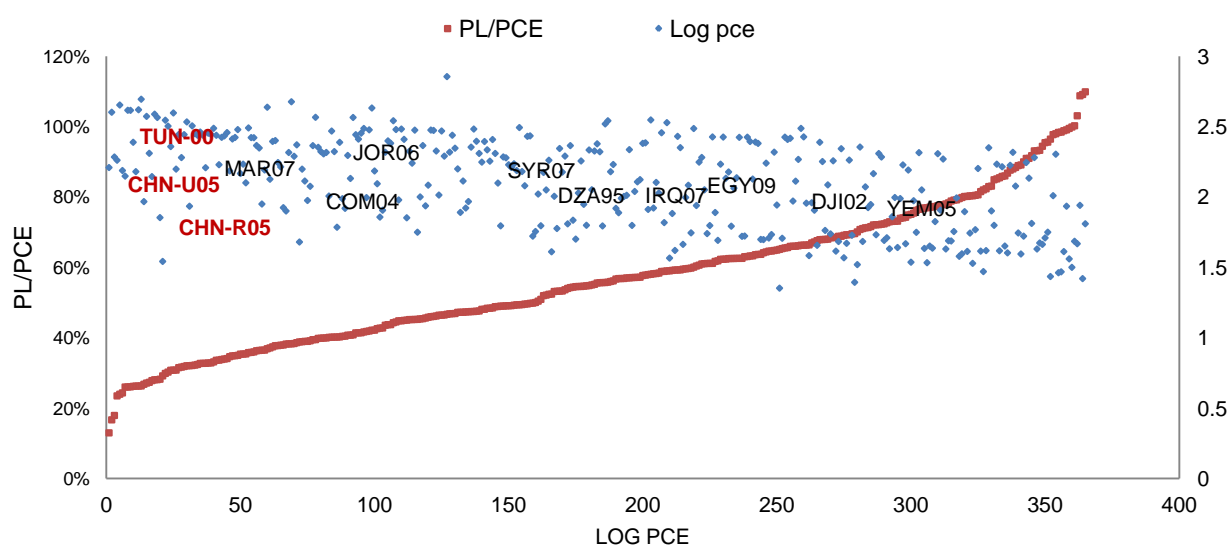
Source: Authors' estimates based on national poverty rates reported in the World Bank Development Indicators Database and UNDP-led poverty assessment reports for Arab countries.

To give a concrete example, consider the cases of China and Tunisia. As discussed earlier, both countries have very low national poverty lines relative to their PCE. This is easily discernible from their clustering along with mainly higher-income countries in Figure 7. One can easily conclude that both countries should be moved to the left towards the group of middle-income countries. But the question is by how far? In other words, what would be a justifiable ratio that is more consistent with their PCE, and how should it be derived? Answering this question is at the heart of reaching a more accurate methodology for global poverty comparisons.

Fortunately, with the data at hand, it is possible to arrive at more accurate and globally comparable poverty lines using a simple cross-country regression between mean PCE and the value of the national poverty line.[9] Table 1 reports the results based on this regression for 59 developing countries for which we have two surveys (1990–1999 and 2000–2009).

These countries had a total population of 3.9 and 4.4 billion in the 1990s and 2000s, respectively (approximately two-thirds of the world's population). The table also compares our (population-weighted) estimated poverty lines with the national poverty lines for these developing countries which are grouped according to level of PCE.[10] The poorest group contains countries which have a PCE of $60 per month or less. The most affluent group contains countries which have a PCE of $200 per month or more.

TABLE 1

National Poverty Lines (NPL) and Authors' Estimated Regression-based Poverty Lines (RPL) (2005 PPP Per Capita Per Day) for Developing Countries by Expenditure Groups, 1990–2000 and 2000–2009

	PCE per month	NPL per day	RPL per day	NPL/PCE	RPL/PCE
Low-Income Countries (average PCE below $60 per month)					
1990–1999	47	0.9	1.13	0.59	0.73
2000–2009	49	1.1	1.15	0.65	0.71
Lower Middle-Income Countries (average PCE from $60 to $100 per month)					
1990–1999	77.7	1.1	1.5	0.44	0.58
2000–2009	70.2	0.9	1.4	0.4	0.6
Middle-Income Countries (average PCE from $100 to $150 per month)					
1990–1999	114	2.3	2	0.6	0.52
2000–2009	109.6	1.8	1.9	0.49	0.52
Upper Middle-Income Countries (average PCE from $150 to $200 per month)					
1990–1999	165.8	3	2.7	0.55	0.5
2000–2009	163.2	0.9	2.7	0.17	0.5
High-Income Countries (average PCE above $200 per month)					
1990–1999	239.2	3.8	3.7	0.48	0.47
2000–2009	308.2	4	4.1	0.39	0.41

Source: ibid.

The main story emerging from the table is one that is consistent with stylised facts described earlier. The poorest category of developing countries will typically have national poverty lines that are approximately two-thirds the value of average PCE, while for the richest countries the ratio declines to one-third. However, the decline is not monotonic in the sense that it does not always move in the same direction as PCE. This is clear from the (population-weighted) value of the national poverty line for the lower middle PCE group that has a value higher than the lowest PCE group. Likewise, in the 2000s, the national poverty line for the group of countries in the upper middle PCE bracket is lower than that for countries in the middle PCE bracket. The same inconsistency applies to the respective ratios of the national poverty line to the PCE. These distortions are quite expected, however, due to the presence of rural China in the low PCE group and urban China in the lower middle group during the 1990s. With the phenomenal growth in PCE witnessed during the past two decades, both rural and urban China graduated to higher PCE groups during the subsequent period.

Despite the distorting impact of China, the table shows that national poverty lines generally rise with expenditure, while the PL/PCE ratio follows an opposite trend. Thus, the average national poverty line for a low-income country is expected to be $1.1. For middle- and

high-income countries the corresponding line is $1.76 and $4, respectively. As they are meant to correct these problems, our estimated poverty lines and PL/PCE ratios follow a predictable trajectory whereby the decline in the latter is closely related to the rise in expenditure, and the former are not too different from national poverty lines, except for the country groups which include China.

TABLE 2

National Poverty Lines (NPL) and Authors' Estimated Regression-based Poverty Lines (RPL) (2005 PPP Per Capita Per Day) for Developing Regions, 1990–2000 and 2000–2009

	PCE per month	NPL per day	RPL per day	NPL/PCE	RPL/PCE
Sub-Saharan Africa (11)					
1990–1999	48	1.2	1.1	0.73	0.72
2000–2009	58.8	1.3	1.3	0.65	0.66
South Asia (6)					
1990–1999	48.9	1.1	1.2	0.69	0.71
2000–2009	55.2	1.1	1.2	0.59	0.67
East Asia & Pacific (9)					
1990–1999	59.6	0.8	1.3	0.4	0.65
2000–2009	102.4	0.8	1.8	0.24	0.54
Arab countries (8)					
1990–1999	117.9	1.9	2	0.49	0.52
2000–2009	130	2.1	2.2	0.5	0.51
Europe & Central Asia (9)					
1990–1999	167	3.2	2.7	0.59	0.5
2000–2009	257.2	3.3	3.8	0.39	0.45
Latin America & Caribbean (16)					
1990–1999	254.3	3.9	3.9	0.47	0.46
2000–2009	323.2	4.3	4.2	0.41	0.39
Developing region (59)					
1990–1999	87.1	1.5	1.6	0.52	0.57
2000–2009	121.1	1.5	2	0.39	0.5

Source: ibid.

Table 2 repeats the same exercise using the regional classification. As one would expect, our estimated poverty lines and PL/PCE ratios are found to be least consistent with the national poverty lines in East Asia & Pacific. Our poverty lines are also slightly higher for South Asia, the Arab region and, in the 2000s, Eastern Europe. The results for Arab countries are expected given the significantly underestimated national poverty lines of Tunisia and Morocco ($2.9 versus $1.4, and $2.8 versus $1.7, respectively). For Latin America & the Caribbean, sub-Saharan Africa and Eastern Europe in the 1990s our estimates are also close to the national poverty lines.

As a result of these regional results, our estimated poverty line for developing regions as a whole is quite higher than both the $1.25 World Bank poverty line and the global average for national poverty lines ($1.6–2.0 versus $1.5 per day, respectively). The principal conclusion to draw from this exercise is that the $1.25 is far too low as a benchmark for global poverty measurement, since even if we decided to use a fixed global poverty line to monitor extreme poverty—and in any case there are strong reasons why we should not do so—the $2 per day line would be more consistent with the national poverty lines of all developing regions.

Using these estimated poverty lines, we can easily produce new poverty rates. Table 3 summarises these results and—for ease of comparison—also shows poverty rates based on the fixed World Bank poverty lines. The table indicates that 31 per cent of the world's population is poor. Eastern Europe and Arab countries, while significantly poorer than suggested by the conventional $1.25 poverty line, have the least poverty incidence worldwide. East Asia & Pacific ranks third at 28.1 per cent, followed by Latin America & the Caribbean, South Asia and sub-Saharan Africa at 32.4 per cent, 37 per cent and 47.3 per cent, respectively. In terms of poverty reduction, Latin America & the Caribbean and East Asia & Pacific take the lead role in global poverty reduction.

TABLE 3

Poverty Rates in 2000–2009 and Percentage Change in Headcount Poverty Rates Based on $1.25 and Authors' Estimated Regression-based Poverty Lines (RPL) for Developing Regions, 1990–1999 and 2000–2009

Region	Estimates Based on World Bank Poverty Lines						Authors' Estimates			
	$1.25	Rank	$2	Rank	$2.75	Rank	NPL	Rank	RPL	Rank
Headcount Poverty Rate (%) in 2000–2009 and rank										
Arab countries	3.9	2	19	3	40	3	19.1	3	21.5	2
East Asia & Pacific	16.9	4	39.5	4	57.1	4	5.6	1	28.1	3
Europe & Central Asia	1.7	1	5.6	1	11.7	1	14.7	2	20.3	1
Latin America & Caribbean	5.5	3	12.3	2	19.6	2	34.1	5	32.4	4
South Asia	40.3	5	73.9	6	87.5	6	28.4	4	37	5
Sub-Saharan Africa	49.8	6	73.6	5	84.1	5	45.8	6	47.3	6
Developing region	23.6		46.4		60.5		19.7		31.8	
Poverty Change (%) from 1990–1999										
Arab countries	-35.7	4	-24.3	4	-12.4	4	-14.4	5	-8	5
East Asia & Pacific	-55.1	1	-40.8	2	-30	3	-49.1	2	-21.8	2
Europe & Central Asia	-50.5	2	-59.1	1	-56.1	1	-55.2	1	-11.1	4
Latin America & Caribbean	-41.6	3	-39.5	3	-35.1	2	-20.4	4	-22.7	1
South Asia	-14.3	6	-7.1	6	-3.8	6	-23.1	3	-6.1	6
Sub-Saharan Africa	-16.3	5	-7.7	5	-5.1	5	-13.5	6	-12.5	3
Developing region	-32.3		-23.4		-17.9		-26.9		-14.4	

Source: Authors' estimates based on poverty lines reported in Annex Table 1.

5 GROWTH AND INEQUALITY DYNAMICS UNDERLYING GLOBAL POVERTY TRENDS

Our analyses in the previous section suggest that poverty in developing countries fell moderately over the period. As any change in poverty rate is the result of countervailing forces of growth and inequality, it would make sense to ask what happened to both, particularly as the answers are readily available from the same household data sources we used to estimate global poverty rate. Using the (GDP-weighted) Gini coefficient reported in these surveys, Figure 8 shows that inequality has stagnated for developing regions as a whole over the period from the 1990s to the 2000s. However, it has risen in East Asia and to a lesser extent in South Asia and declined in Latin America.

Global poverty reduction in the context of stagnating inequality implies that modest poverty reduction was mainly by growth of per capita real expenditure. Indeed, as indicated in Table 4, household PCE of developing regions increased by 39 per cent for the period. Growth in PCE derived from national accounts has also grown by a similar rate over the same period. However, there are major variations at the regional level. It is interesting to note that South Asia and Arab countries, the two slowest regions in terms of poverty reduction, held the highest discrepancies between both sources of data. It is also worthy to note that in both regions this discrepancy has increased rather significantly over the period. In Egypt, for example, PCE from the 2008 household survey was only 39 per cent of the value reported in national accounts during the same year. In 1996, this ratio was 46 per cent, indicating a divergence of both indicators.

FIGURE 8

Inequality in Expenditure for Developing Regions (Gini coefficient), 1990–1999 and 2000–2009
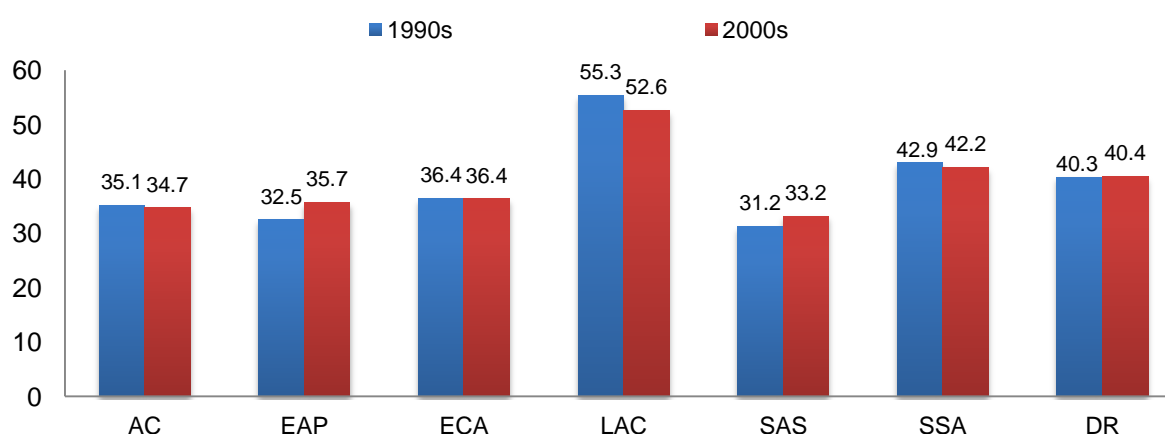
Source: Authors' estimates based on national poverty rates reported in the World Bank Development Indicators Database and UNDP-led poverty assessment reports for Arab countries.

Note: Regional Gini coefficients are weighted by total expenditure.

TABLE 4

Per capita Household Consumption Expenditure from Surveys (HCE) and National Accounts (HCE*) (2005 PPP) and their Total Percentage Change for Developing Regions, 1990–2000 and 2000–2009

Region	HCE 1990s	HCE 2000s	HCE* 1990s	HCE* 2000s	HCE/HCE* 1990s	HCE/HCE* 2000s	Δ Gini (%)	Δ HCE (%)	Δ HCE* (%)	Δ HCE*/ Δ HCE (%)
AC	117.9	130.0	189.4	247.1	**0.62**	**0.53**	-0.01	0.102	0.30	2.99
EAP	59.5	102.4	88.2	141.8	**0.67**	**0.72**	0.10	0.719	0.61	0.84
ECA	167.0	257.2	280.7	440.6	**0.59**	**0.58**	0.00	0.540	0.57	1.05
LAC	254.3	323.2	415.0	505.2	**0.61**	**0.64**	-0.05	0.271	0.22	0.80
SAS	48.9	55.2	77.4	110.0	**0.63**	**0.50**	0.06	0.130	0.42	3.25
SSA	48.0	58.8	52.4	61.3	**0.91**	**0.96**	-0.02	0.226	0.17	0.75
DR	87.1	121.0	137.0	192.7	**0.64**	**0.63**	0.00	0.390	0.41	1.04

Source: ibid.

Key: AC – Arab countries; EAP – East Asia & Pacific; ECA – Europe & Central Asia; LAC – Latin America & Caribbean; SAS – South Asia; SSA – Sub-Saharan Africa; DR – Developing region.

Although it is by no means obvious that estimates of household consumption derived from the national accounts are more robust than household survey-based estimates,[11] it is possible—indeed likely—that the national accounts in the Arab countries and South Asia have been unable to adequately reflect economic transactions mediated through the upper income group. If so, the actual level of inequality in those two regions could be significantly higher than captured by the Gini coefficients.

6 CONCLUDING REMARKS

These analyses suggest that harvesting any conclusive evidence on poverty levels in developing regions would require a complete overhaul to existing surveying techniques and assessment methodologies. Arguably, it would also require a stronger role for the United Nations in supporting the harmonisation of household surveys and standardisation of poverty monitoring methodologies. The serious impediments posed by data limitations and survey-related and methodological discrepancies as well as the inherent problems with the PPPs thus warrant some interpretive caution of our results and conclusions.[12] Indeed, we view PPPs as more akin to a common currency than as a common measure of purchasing power.

If the cost of the same bundle of goods and services will generally be higher in richer countries even in nominal PPP terms, then the World Bank's $1.25 poverty line makes little sense as a measure of extreme poverty. This is clearly demonstrated by the gap between national poverty lines and their resultant headcount poverty rates and those derived from the $1.25 line. As national poverty lines were derived from poverty assessment reports that apply the standard World Bank poverty methodology for measuring the cost of basic needs, this serves as evidence that this line does not measure the same level of deprivation across countries. We also show that the World Bank's $1.25 poverty line grossly misrepresents poverty in China, which has a very large demographic weight, hence distorts all global poverty estimates.

While it is rather easy to point out the flaws in the World Bank's measurement paradigm, it is more difficult to offer a viable alternative. The method we propose as an alternative retains the same fundamental principles which the World Bank applied to establish its $1.25 poverty line but is arguably a better basis for global poverty comparisons, since it builds on the cross-country relationship between the values of average expenditure and national poverty lines. The end result is a set of internationally comparable poverty lines that are more consistent with national poverty lines.

However, we are aware that this is a strong assumption, which may not always apply across time and space. Some countries, such as China, may have a lower than usual cost of living due to state subsidies (although evidence generally shows this is not a sufficient explanation for the significant bias in poverty lines of these countries). Other countries may have *cetiris paribus* a higher cost of living due to monopolies, labour shortages or other scarcity- and conflict-related factors. These are undoubtedly valid arguments, but we believe these are exceptional rather than general cases. Hence, taking appropriately defined national poverty lines as the yardstick, the error margin resulting from our methodology will be significantly less than that which results from the adoption of $1.25 as a benchmark for global poverty measurement.

With these methodological caveats in mind, two main empirical results emerge from our analyses. First, developing countries may be significantly poorer than conventionally thought, with hundreds of millions more people living under conditions of extreme poverty. More alarmingly, the world may be far less successful in its fight against poverty and as such may be missing the target of halving poverty by 2015. Second, there is evidence to suggest that inequality in South Asia and in the Arab region is significantly underestimated by the household surveys and that it has risen sharply since the 1990s in both regions.

TECHNICAL NOTE

DATA SOURCES

The data used in this paper are based on the World Development Indicators (WDI) database published annually by the World Bank, National Accounts (UNSD) and POVCAL (Table 5). For some Arab states, the poverty rates based on national poverty lines were extracted from the Arab Millennium Development Goals report.

TABLE 5

Data sources by variables

World Development Indicators	- Poverty headcount ratio at national poverty line (% of population) - GDP, PPP (constant 2005 international $) - GDP per capita, PPP (constant 2005 international $) - Population, total - PPP, conversion factor, (private consumption) LCU per international $
POVCAL	- Mean $ (PCE): the average monthly per capita income/consumption expenditure from survey in 2005 PPP (used as the explanatory variable) - Poverty gap - Gini index - Poverty headcount ratio at $1.25 a day (PPP) (% of population) - Poverty headcount ratio at $2 a day (PPP) (% of population)
National Accounts, UNSD	Household consumption expenditure (including non-profit institutions serving households)

COMPUTATION OF NATIONAL POVERTY LINES FOR CHINA, INDIA AND INDONESIA

The national poverty lines were computed using POVCAL (only for countries that have headcount ratio at national poverty line records in WDI). For China, India and Indonesia, the national poverty line was available at the urban and rural levels. The national poverty line at the country level is computed as weighted average as follows:

$$\mathbf{NPL_c = NPL_U W_U + NPL_R W_R} \, ,$$

where NPLc is the national poverty line at the country level, NPL_U and NPL_R are the national poverty lines for urban and rural regions, respectively. The shares of the urban and rural populations in the total population are used as weight:

$$\mathbf{W_i = \frac{Pop_i}{Pop_U + Pop_R}} \, ,$$ where i = U (urban) and R (rural).

The same formula was used to compute PCE and headcount ratio at $1.25 and $2 on the country level; for Gini index value on country level, it was computed based on the share of PCE (rural and urban).

TABLE 6

National Poverty Line (NPL) and Private Consumption Expenditure (PCE) at the Country Level for China, India and Indonesia

Country	NPL			PCE			Gini Index		
	Rural	**Urban**	**Total**	**Rural**	**Urban**	**Total**	**Rural**	**Urban**	**Total**
China 1996	18.56	27.56	21.47	47.87	85.96	60.17	33.62	29.09	31.53
China 2005	20.13	45.1	30.22	71.34	161.83	107.9	35.85	34.8	35.21
India 1994	32	33.56	32.41	43.76	54.91	46.7	28.59	34.34	30.37
India 2005	31.8	31.78	31.79	49.93	62.43	53.52	30.46	37.59	32.85
Indonesia 1996	27.4	24.5	26.33	46.06	60.95	51.55	27.56	37.54	31.91
Indonesia 2009	37.18	31.86	34.38	68.37	83.96	76.57	29.53	37.11	35.43

Source: Authors' estimates based on data from POVCAL.

SENSITIVITY TESTS

The average annual changes in PCE, GINI and poverty rate (see Annex Table 3 for country estimates) were used for sensitivity check. Theoretically speaking, if per capita consumption increases, and other things remain constant, poverty rates decline. Similarly, as inequality in the distribution of consumption expenditure declines, and other things remain the same, poverty rates decline. Tanzania, Thailand and Yemen did not satisfy the criteria, as the directions of changes were not consistent. Therefore, we dropped Tanzania and Thailand, while for Yemen we used the per capita means as per the country's assessment report (2005) and not the underestimated one listed in POVCAL.

TABLE 7

Annual Change in Gini, PCE and HCE by Regions and Sub-regions

Region	Total Change Gini	Total Change PCE	Total Change Poverty Rate
Least Developed Countries	11.37%	0.57%	-11.85%
Arab countries	-1.43%	11.15%	-14.45%
East Asia & Pacific	10.38%	71.90%	-40.53%
Europe & Central Asia	-16.27%	17.83%	-54.88%
Latin America & Caribbean	-4.94%	27.09%	-20.38%
South Asia	6.20%	12.97%	-23.09%
Sub-Saharan Africa	-1.81%	22.56%	-13.49%
Developing region	-2.54%	32.31%	-25.53%

Source: ibid.

METHODOLOGY FOR COMPUTING COMPARABLE NATIONAL POVERTY LINES

We provide two methods to construct more relevant international poverty lines. We accept the World Bank's basic idea of relying on national poverty lines to construct international poverty lines. However, we reject the assumption that this poverty line should be fixed or that it should be based on the national poverty lines of the poorest countries. Assuming that Engel's Law is verified and dealing with the PPPs as common currency not as purchasing power given its problems, we re-estimate the poverty lines based on the average per capita consumption. The two methods are based on the fact that the international poverty lines should be based on given stylised facts regarding the relationship between national poverty lines and the average per capita expenditure (in 2005 PPP). We use the recent increase in the number of country surveys available on the World Bank website to examine the cross-country relationship between national poverty lines and per capita consumption across a large number of developing countries.

In method 1, the natural logarithm of the national poverty line was regressed on PCE and PCE squared, given the non-linear relationship between the national poverty line and PCE. For method 2, on which we based our analysis earlier, we anchored the PCE on the ratio of the national poverty line to the PCE. Then we recomputed new poverty lines. The two methods show that the image of the poverty line is completely different and confirm the idea that no fixed poverty line should be used.

ESTIMATING POVERTY LINES USING REGRESSION

Using cross-country regression, we can easily estimate the appropriate lower poverty line for any developing country given its mean consumption per capita. The other important advantage of using cross-country regression analysis is that it will automatically eliminate any over-shooting and under-shooting of national poverty lines (such as in the case of China), hence provide a more realistic basis for global poverty comparisons. Furthermore, the recent increase in the number of poverty assessment surveys available online allows us to examine the cross-country relationship between average per capita expenditure and the value of these national poverty lines across a large number of developing countries.

A non-linear cross-country relationship is expected between poverty line (PL) and per capita mean consumption expenditure (PCE). The reason for this, as shown in Figure 9A, is that poorer countries tend to have higher PL/PCE ratios. This makes sense, since the cost of basic needs in the poorest developing countries, where there is mass poverty, will be only slightly less than average consumption. The opposite is true for richer developing countries. However, as countries get richer, it becomes more difficult to reduce this ratio beyond a certain threshold. Hence, we can proceed to estimate our 'variable' international poverty lines and re-estimate global poverty rates accordingly using a polynomial function as follows:

$$\ln(\text{NPL}) = \beta_0 + \beta_1 \ \text{PCE} \ + \beta_2 \ \text{PCE}^{\,2}$$

Several non-linear specifications have been used; we kept the one with the best fit.

FIGURE 9

PCE versus PL/PCE (A) and PCE versus NPL (B)
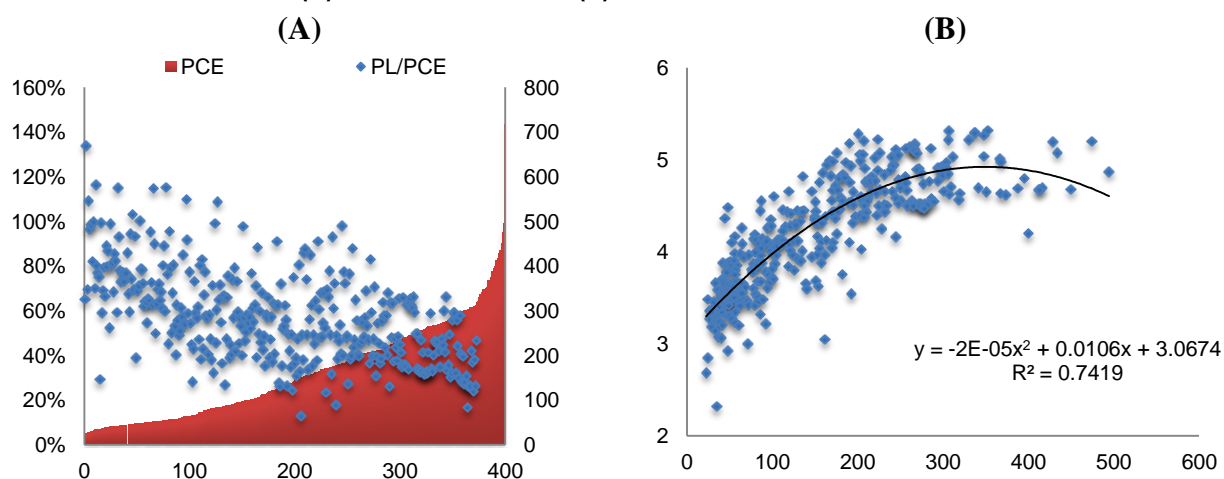
Source: Authors' estimates based on data from POVCAL.

The estimated results are presented in Table 8. The model explains 74 per cent of the variation in national poverty lines. The estimated parameters are significant and of the expected sign. The poverty line increases with the average consumption until a certain level where the impact starts becoming negative (Figure 9B).

TABLE 8

Estimated Parameters of the Polynomial Regression

Variables	L_PL	L_PL2
PCE	0.0106***	0.00662***
	(0.000544)	(0.000660)
PCE_2	-1.52e-05***	-9.51e-06***
	(1.35e-06)	(1.36e-06)
LAC		0.639***
		(0.0563)
SAS		0.109
		(0.0662)
SSA		0.195***
		(0.0474)
AC		0.242***
		(0.0612)
ECA		0.637***
		(0.0562)
Constant	3.066***	3.108***
	(0.0455)	(0.0586)
Observations	363	363
R-squared	0.736	0.820

Source: STATA output based on data from the World Bank (POVCAL).

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Key: AC – Arab countries; ECA – Europe & Central Asia; LAC – Latin America & Caribbean; SAS – South Asia; SSA – Sub-Saharan Africa.

ANNEX TABLES

TABLE 1

National Poverty Lines, Poverty Lines Based on Re-ranking of Share of PL to PCE and Regression-Based Poverty Lines

Country Name	Year	Base Year				Year	Latest Year			
		PCE mean$	NPL per day	RPL per day	RPL/ PCE		PCE mean$	NPL per day	RPL per day	RPL/ PCE
Azerbaijan	1995	87.2	3.1	1.6	0.6	2008	158.3	2.5	2.6	0.5
Bangladesh	1996	48.9	1.3	1.1	0.7	2005	48.3	1.1	1.1	0.7
Belarus	2000	206.4	5.2	3.3	0.5	2008	428.5	5.9	4.1	0.3
Bolivia	1997	203.0	5.2	3.3	0.5	2007	226.2	5.3	3.6	0.5
Brazil	1998	277.3	2.9	4.2	0.5	2009	373.7	3.3	4.5	0.4
Bulgaria	1997	155.3	3.8	2.6	0.5	2001	207.0	2.6	3.3	0.5
Burkina Faso	1998	41.7	0.8	1.1	0.8	2003	46.9	1.1	1.1	0.7
Burundi	1998	24.3	1.1	0.9	1.1	2006	29.0	0.9	1.0	1.0
Cambodia	1994	53.5	1.2	1.2	0.7	2007	83.5	1.3	1.5	0.6
Cameroon	1996	57.9	1.3	1.2	0.7	2001	77.3	1.4	1.5	0.6
Chile	1996	387.4	3.6	4.4	0.3	2009	494.7	4.3	3.3	0.2
China	1996	60.2	0.7	1.3	0.6	2005	107.9	0.7	1.9	0.5
China-Rural	1996	47.9	0.6	1.1	0.7	2005	71.3	0.7	1.4	0.6
China-Urban	1996	86.0	0.9	1.6	0.6	2005	161.8	0.7	2.6	0.5
Colombia	1995	220.2	5.0	3.5	0.5	2006	220.9	3.9	3.5	0.5
Costa Rica	1992	203.8	3.2	3.3	0.5	2009	395.3	4.0	4.4	0.3
Djibouti	1996	150.5	3.1	2.5	0.5	2002	93.5	2.0	1.7	0.5
Dominican Republic	2000	303.7	4.7	4.4	0.4	2007	240.2	5.0	3.8	0.5
Ecuador	1994	169.4	2.7	2.8	0.5	2009	247.6	3.9	3.9	0.5
Egypt	1991	100.9	1.9	1.8	0.5	2009	121.1	2.4	2.0	0.5
El Salvador	1995	171.0	3.5	2.8	0.5	2008	215.6	3.9	3.4	0.5
Ethiopia	1995	45.4	1.0	1.1	0.7	2000	42.7	1.1	1.1	0.8
Ghana	1998	62.7	1.3	1.3	0.6	2006	77.7	1.2	1.5	0.6
Guyana	1993	209.4	3.8	3.4	0.5	1998	180.1	3.2	2.9	0.5
Honduras	1999	175.8	5.3	2.9	0.5	2007	168.9	4.1	2.8	0.5
India	1994	46.7	1.1	1.1	0.7	2005	53.5	1.1	1.2	0.7
India-Rural	1994	43.8	1.1	1.1	0.8	2005	49.9	1.1	1.2	0.7
India-Urban	1994	54.9	1.1	1.2	0.7	2005	62.4	1.0	1.3	0.6
Indonesia	1996	51.6	0.9	1.2	0.7	2009	76.6	1.1	1.5	0.6
Indonesia-Rural	1996	46.1	0.9	1.1	0.7	2009	68.4	1.2	1.4	0.6
Indonesia-Urban	1996	61.0	0.8	1.3	0.6	2009	84.0	1.1	1.6	0.6
Jamaica	1996	192.4	3.1	3.1	0.5	2004	274.3	2.9	4.1	0.5
Jordan	1997	151.6	2.5	2.5	0.5	2006	210.1	2.8	3.4	0.5
Kazakhstan	1996	136.9	2.8	2.3	0.5	2002	124.1	1.7	2.1	0.5
Kenya	1994	77.6	1.6	1.5	0.6	2005	112.4	2.3	1.9	0.5
Lao PDR	1992	43.3	1.1	1.1	0.8	2008	62.9	1.1	1.3	0.6
Madagascar	1997	33.5	1.3	1.0	0.9	2005	44.8	1.3	1.1	0.7
Malawi	1998	29.5	0.8	1.0	1.0	2004	34.1	0.9	1.0	0.9
Mauritania	1996	78.7	2.1	1.5	0.6	2000	88.3	2.1	1.6	0.6
Mexico	1992	256.3	5.5	4.0	0.5	2008	337.2	6.5	4.5	0.4
Mongolia	1995	80.5	1.8	1.5	0.6	2002	86.0	2.8	1.6	0.6
Morocco	1991	155.4	1.9	2.6	0.5	2007	161.4	1.7	2.6	0.5
Mozambique	1997	29.4	1.0	1.0	1.0	2008	46.5	1.1	1.1	0.7
Nepal	1996	38.3	0.8	1.0	0.8	2004	56.2	0.8	1.2	0.7
Nicaragua	1998	132.8	2.5	2.2	0.5	2005	151.2	2.8	2.5	0.5
Pakistan	1999	62.0	1.3	1.3	0.6	2005	65.8	1.3	1.3	0.6

Country Name	Year	Base Year				Year	Latest Year			
		PCE mean$	NPL per day	RPL per day	RPL/ PCE		PCE mean$	NPL per day	RPL per day	RPL/ PCE
Panama	1997	269.7	4.4	4.1	0.5	2009	367.9	4.8	4.5	0.4
Peru	2001	178.6	4.0	2.9	0.5	2009	248.7	3.9	3.9	0.5
Philippines	1994	83.5	1.6	1.5	0.6	2006	99.0	1.4	1.7	0.5
Romania	1994	99.2	1.9	1.7	0.5	2005	189.7	3.1	3.1	0.5
Russian Federation	1999	188.0	3.5	3.0	0.5	2005	301.0	3.5	4.4	0.4
Sri Lanka	1991	76.3	1.5	1.5	0.6	2007	119.0	1.5	2.0	0.5
Syria	1997	129.8	2.0	2.2	0.5	2007	125.5	2.0	2.1	0.5
Tajikistan	1999	48.3	2.9	1.1	0.7	2003	56.0	2.1	1.2	0.7
Tunisia	1990	151.3	1.3	2.5	0.5	2000	182.4	1.4	3.0	0.5
Turkey	1994	203.8	3.3	3.3	0.5	2005	234.6	3.0	3.7	0.5
Uganda	1992	37.9	1.0	1.0	0.8	2006	52.7	0.9	1.2	0.7
Ukraine	1999	121.9	2.7	2.1	0.5	2005	250.2	3.6	3.9	0.5
Venezuela RB	1989	255.8	4.1	4.0	0.5	2006	238.5	4.4	3.7	0.5
Vietnam	1998	49.8	1.1	1.2	0.7	2008	97.2	1.3	1.7	0.5
Yemen Rep	1998	90.3	2.0	1.6	0.5	2005	84.0	2.0	1.6	0.6
Zambia	1998	55.5	1.6	1.2	0.7	2004	43.1	1.1	1.1	0.8
Least Developed Countries		**90.9**	**2.0**	**1.6**	**0.5**		**84.8**	**2.0**	**1.6**	**0.6**
Arab countries		**117.9**	**1.9**	**2.0**	**0.5**		**130.0**	**2.1**	**2.2**	**0.5**
East Asia & Pacific		**59.6**	**0.8**	**1.3**	**0.6**		**102.4**	**0.8**	**1.8**	**0.5**
Europe & Central Asia		**167.0**	**3.2**	**2.7**	**0.5**		**257.2**	**3.3**	**3.8**	**0.5**
Latin America & Caribbean		**254.3**	**3.9**	**3.9**	**0.5**		**323.2**	**4.3**	**4.2**	**0.4**
South Asia		**48.9**	**1.1**	**1.2**	**0.7**		**55.2**	**1.1**	**1.2**	**0.7**
Sub-Saharan Africa		**48.0**	**1.2**	**1.1**	**0.7**		**58.8**	**1.3**	**1.3**	**0.7**
Developing Region		**87.1**	**1.5**	**1.6**	**0.6**		**121.1**	**1.5**	**2.0**	**0.5**

Source: Authors' estimates based on data from POVCAL and national reports.

Notes: This table shows national poverty line per day (NPL per day) that is the actual national poverty line reported by the country concerned versus author's line which is the resulted poverty line from the cross-country regression of national poverty lines on private consumption expenditure (PCE) (RPL per day).

TABLE 2

Poverty Rates According to International Poverty Lines ($1, $2, $2.75), National and Regression-based Poverty Lines

Country/ Region	Yr	Base year					Yr	Latest year				
		$1.25 PR	$2 PR	$2.75 PR	National Poverty Rate	Regression PR		$1.25 PR	$2 PR	$2.75 PR	National Poverty Rate	Regression PR
Djibouti	1996	4.8	15.1	28.5	34.5	23.5	2002	18.8	41.2	59.8	42.0	31.8
Mauritania	1996	23.4	48.3	67.7	50.5	31.2	2000	21.2	44.1	62.1	46.3	32.4
Yemen Rep	1998	13.6	43.0	65.0	40.1	33.1	2005	10.0	37.8	57.0	34.8	27.4
Morocco	1991	2.4	15.9	31.3	13.1	27.2	2007	2.5	13.9	29.6	9.0	27.3
Tunisia	1990	5.9	19.0	33.0	6.7	28.2	2000	2.5	12.8	25.2	4.2	28.5
Egypt	1991	4.5	27.6	51.7	24.1	19.9	2009	3.4	18.5	43.7	21.6	18.6
Jordan	1997	2.5	11.5	27.7	21.3	21.9	2006	0.4	3.5	12.6	13.0	22.3
Syria	1997	7.9	14.3	33.2	14.3	15.4	2007	0.3	12.3	33.6	12.3	12.9
China-Rural	1996	49.5	79.6	90.5	7.9	42.3	2005	26.1	55.6	75.0	2.5	31.9
China-Urban	1996	8.9	34.5	59.9	2.0	19.4	2005	1.7	9.4	22.4	0.3	20.5
Indonesia-Rural	1996	46.7	82.6	93.1	19.8	36.7	2009	18.9	54.9	77.9	17.4	24.5
Indonesia-Urban	1996	37.6	67.4	82.4	13.6	38.9	2009	18.7	46.6	66.9	10.7	30.5
Cambodia	1994	48.5	77.8	88.8	47.0	45.2	2007	28.3	56.5	72.6	30.1	41.0
Lao PDR	1992	55.7	84.8	93.9	45.0	44.1	2008	33.9	66.0	82.2	27.6	36.4
Mongolia	1995	18.8	43.5	64.2	36.3	27.0	2002	15.5	38.9	59.9	61.1	25.4
Philippines	1994	28.1	52.6	68.5	40.6	38.7	2006	22.6	45.0	60.7	26.4	38.1
Vietnam	1998	49.6	78.2	89.2	37.4	44.0	2008	13.1	38.4	58.7	14.5	29.2
China	1996	36.4	65.1	80.6	6.0	34.9	2005	16.2	36.9	53.8	2.8	27.3
Indonesia	1996	43.4	77.0	89.1	17.6	37.5	2009	18.7	50.5	72.2	14.2	27.7
Azerbaijan	1995	15.5	39.4	60.1	68.1	26.2	2008	1.0	7.7	21.7	15.8	18.4
Belarus	2000	0.3	1.9	7.4	41.9	14.2	2008	0.0	0.0	0.4	6.1	1.3
Bulgaria	1997	0.3	2.3	11.6	36.0	8.1	2001	2.6	7.8	14.1	12.8	19.8
Kazakhstan	1996	5.0	18.8	33.3	34.6	23.9	2002	5.1	21.5	38.5	15.4	23.6
Romania	1994	5.0	23.2	46.5	21.5	15.7	2005	0.7	3.4	10.8	15.1	15.1
Russian Federation	1999	2.3	10.5	21.1	31.4	24.9	2005	0.2	1.5	5.9	11.9	20.2
Tajikistan	1999	44.5	78.5	90.9	92.3	37.0	2003	36.2	68.8	84.8	72.4	34.7
Turkey	1994	2.1	9.8	20.6	28.3	28.2	2005	2.7	9.0	17.7	20.5	29.2
Ukraine	1999	2.0	13.5	32.2	31.5	14.7	2005	0.1	0.5	2.2	7.9	10.7
Bolivia	1997	18.9	29.9	39.9	63.2	45.8	2007	13.9	24.7	35.3	60.1	45.0
Brazil	1998	11.0	22.5	32.2	34.0	46.6	2009	3.8	9.9	16.4	21.4	30.6
Chile	1996	0.4	7.8	15.4	23.2	30.8	2009	0.8	2.4	5.5	15.1	8.1
Colombia	1995	11.2	23.3	34.7	60.0	44.9	2006	16.0	27.9	38.0	50.3	46.7
Costa Rica	1992	8.4	17.8	27.6	33.1	34.1	2009	0.6	5.4	11.6	21.7	24.5
Dominican Republic	2000	4.4	12.4	20.4	39.5	36.2	2007	4.3	13.6	23.3	48.8	35.5
Ecuador	1994	15.9	28.2	39.5	39.3	39.6	2009	5.1	13.4	22.4	36.0	35.3
El Salvador	1995	12.7	25.2	37.1	47.5	37.5	2008	5.1	15.2	25.4	39.9	34.4
Guyana	1993	5.8	15.0	27.9	43.2	36.5	1998	7.7	16.8	27.8	35.0	30.6
Honduras	1999	14.4	26.8	38.2	65.9	39.7	2007	23.3	35.4	45.7	60.2	45.7
Jamaica	1996	1.7	8.6	20.3	26.1	26.2	2004	0.2	5.9	14.8	16.9	31.1
Mexico	1992	4.5	14.6	24.2	53.1	38.2	2008	3.4	8.1	14.4	47.4	31.1
Nicaragua	1998	21.8	38.5	52.2	47.9	42.7	2005	15.8	31.9	45.7	46.2	41.1
Panama	1997	7.2	15.2	21.9	37.3	34.6	2009	2.4	9.5	16.3	32.7	30.4
Peru	2001	15.1	27.9	39.4	54.8	41.4	2009	5.9	14.7	22.8	34.8	34.6
Venezuela	1989	2.9	9.2	17.1	31.3	30.0	2006	3.5	10.1	18.5	36.3	29.6
India-Rural	1994	52.5	85.1	94.5	37.3	40.5	2005	43.8	79.5	91.6	28.3	36.9
India-Urban	1994	40.8	72.1	86.1	32.4	38.5	2005	36.2	65.8	81.3	25.7	38.2

Country/ Region	Yr	Base year					Yr	Latest year				
		$1.25 PR	$2 PR	$2.75 PR	National Poverty Rate	Regression PR		$1.25 PR	$2 PR	$2.75 PR	National Poverty Rate	Regression PR
Bangladesh	1996	49.6	79.5	90.2	50.1	42.9	2005	50.5	80.3	90.7	40.0	43.2
Nepal	1996	68.4	88.1	94.2	41.8	56.8	2004	55.1	77.6	87.3	30.9	53.9
Pakistan	1999	29.1	66.5	84.7	30.6	31.4	2005	22.6	60.3	81.3	23.9	27.2
Sri Lanka	1991	15.0	49.5	72.7	26.1	24.7	2007	7.0	29.1	48.8	15.2	29.6
India	1994	49.4	81.7	92.2	36.0	40.0	2005	41.6	75.6	88.6	27.6	37.3
Burkina Faso	1998	70.0	87.6	93.8	45.3	61.9	2003	56.5	81.2	90.5	46.4	49.7
Burundi	1998	86.4	95.4	97.8	81.0	73.5	2006	81.3	93.5	96.9	66.9	72.6
Cameroon	1996	51.5	74.5	85.2	53.3	51.1	2001	32.8	57.7	73.1	40.2	41.0
Ethiopia	1995	60.5	84.6	92.8	45.5	52.3	2000	55.6	86.4	94.5	44.2	43.1
Ghana	1998	39.1	63.3	77.8	39.5	40.9	2006	30.0	53.6	70.4	28.5	37.4
Kenya	1994	28.6	53.7	70.9	40.3	36.3	2005	19.7	39.9	55.9	45.9	38.0
Madagascar	1997	72.0	89.4	94.9	73.3	59.2	2005	67.8	89.6	96.4	68.7	59.7
Malawi	1998	83.1	93.5	96.8	65.3	73.5	2004	73.9	90.5	95.3	52.4	61.4
Mozambique	1997	81.3	92.9	96.4	69.4	69.5	2008	60.0	81.6	90.6	54.7	53.4
Uganda	1992	70.0	88.6	94.5	56.4	59.0	2006	51.5	75.6	86.5	31.1	48.5
Zambia	1998	55.4	74.8	84.6	66.8	54.5	2004	64.3	81.5	89.3	58.4	58.2
LDCs		14.5	42.7	64.2	41.1	32.6		11.5	38.6	57.6	36.3	28.0
AC		6.0	25.1	45.6	22.3	23.3		3.9	19.0	40.0	19.1	21.5
EAP		37.6	66.8	81.6	10.9	36.0		16.9	39.5	57.1	5.6	28.1
ECA		3.5	13.6	26.6	32.8	22.8		1.7	5.6	11.7	14.7	20.3
LAC		9.4	20.3	30.2	42.9	42.0		5.5	12.3	19.6	34.1	32.4
SAS		47.0	79.5	90.9	36.9	39.4		40.3	73.9	87.5	28.4	37.0
SSA		59.4	79.8	88.7	52.9	54.0		49.8	73.6	84.1	45.8	47.3
DR		34.8	60.7	73.7	26.9	37.1		23.6	46.4	60.5	19.7	31.8

Source: ibid.

Key: AC – Arab countries; EAP – East Asia & Pacific; ECA – Europe & Central Asia; LAC – Latin America & Caribbean; LDCs – Least Developed Countries; SAS – South Asia; SSA – Sub-Saharan Africa; DR – Developing region.

TABLE 3

**Average Annual Changes for Gini Coefficient, Private Consumption Expenditure (PCE)
and Household Consumption Expenditure (HCE)**

Country/ Region	Annual Change Poverty Rate	Annual Change Gini	Annual Change PCE	Annual Change HCE	Country/ Region	Annual Change Poverty Rate	Annual Change Gini	Annual Change PCE	Annual Change HCE
Djibouti	3.3%	1.4%	-7.6%	4.7%	Morocco	**-2.3%**	0.3%	0.2%	1.2%
Egypt	-0.6%	-0.3%	1.0%	2.0%	Syria	**-1.5%**	-0.6%	-0.3%	0.6%
Jordan	-5.3%	0.4%	3.7%	3.5%	Tunisia	**-4.6%**	0.1%	1.9%	2.7%
Mauritania	-2.2%	1.2%	2.9%	-0.4%	Yemen Rep	**-2.0%**	1.7%	-1.0%	-2.2%
China-Rural	-12.0%	0.7%	4.5%	0.0%	Guyana	**-4.1%**	-2.9%	-3.0%	5.0%
China-Urban	-19.0%	2.0%	7.3%	0.0%	Honduras	**-1.1%**	1.4%	-0.5%	3.5%
Indonesia-Rural	-1.0%	0.5%	3.1%	0.0%	Jamaica	**-5.3%**	1.5%	4.5%	0.2%
Indonesia-Urban	-1.8%	-0.1%	2.5%	0.0%	Mexico	**-0.7%**	0.1%	1.7%	1.4%
Cambodia	-3.4%	1.1%	3.5%	4.8%	Nicaragua	**-0.5%**	-0.4%	1.9%	2.4%
Lao PDR	-3.0%	1.2%	2.4%	3.3%	Panama	**-1.1%**	0.6%	2.6%	4.9%
Mongolia	7.7%	-0.2%	0.9%	-1.7%	Peru	**-5.5%**	-1.2%	4.2%	4.1%
Philippines	-3.5%	0.2%	1.4%	2.1%	Venezuela RB	**0.9%**	-0.1%	-0.4%	0.2%
Vietnam	-9.0%	0.6%	6.9%	5.2%	India-Rural	**-2.5%**	0.6%	1.2%	0.0%
China	-8.1%	1.2%	6.7%	6.0%	India-Urban	**-2.1%**	0.8%	1.2%	0.0%
Indonesia	-1.6%	0.5%	3.1%	2.4%	Bangladesh	**-2.5%**	-0.1%	-0.1%	1.7%
Azerbaijan	-10.6%	-0.3%	4.7%	9.3%	Nepal	**-3.7%**	2.9%	4.9%	1.9%
Belarus	-21.4%	-1.4%	9.6%	11.6%	Pakistan	**-4.0%**	-1.0%	1.0%	1.2%
Bulgaria	-22.8%	6.8%	7.4%	7.3%	Sri Lanka	**-3.3%**	1.4%	2.8%	4.9%
Kazakhstan	-12.6%	-0.2%	-1.6%	3.2%	India	**-2.4%**	0.7%	1.3%	3.9%
Romania	-3.2%	1.0%	6.1%	5.0%	Burkina Faso	**0.5%**	-3.3%	2.4%	2.8%
Russian Federation	-14.9%	0.0%	8.2%	8.0%	Burundi	**-2.4%**	-3.0%	2.2%	-0.6%
Tajikistan	-5.9%	0.9%	3.8%	15.4%	Cameroon	**-5.5%**	-1.0%	6.0%	2.1%
Turkey	-2.9%	0.4%	1.3%	2.8%	Ethiopia	**-0.6%**	-5.6%	-1.2%	-2.0%
Ukraine	-20.6%	-0.4%	12.7%	8.3%	Ghana	**-4.0%**	0.6%	2.7%	3.1%
Colombia	-1.6%	0.2%	0.0%	0.6%	Kenya	**1.2%**	1.1%	3.4%	0.5%
Costa Rica	-2.5%	0.4%	4.0%	2.1%	Madagascar	**-0.8%**	2.4%	3.7%	0.3%
Dominican	3.1%	-1.0%	-3.3%	4.4%	Malawi	**-3.6%**	-4.2%	2.5%	1.0%
Ecuador	-0.6%	-0.4%	2.6%	2.4%	Mozambique	**-2.1%**	0.2%	4.3%	4.9%
Bolivia	-0.5%	-0.2%	1.1%	1.1%	Uganda	**-4.2%**	0.0%	2.4%	4.5%
Brazil	-4.1%	-0.9%	2.8%	1.4%	Zambia	-2.2%	-0.9%	-4.1%	8.5%
Chile	-3.3%	-0.4%	1.9%	2.5%					
El Salvador	-1.3%	-0.5%	1.8%	2.6%					
LDCs	-11.9%	11.5%	-6.7%	-12.0%	**LAC**	-20.4%	-4.9%	27.1%	21.8%
AC	-14.5%	-1.4%	10.2%	30.5%	**SAS**	-23.1%	6.2%	13.0%	42.2%
EAP	-49.1%	9.9%	71.9%	60.7%	SSA	-13.5%	-1.8%	22.6%	17.0%
ECA	-55.2%	-0.1%	54.0%	57.0%	DR	-26.9%	0.3%	39.0%	40.7%

Source: ibid.

Key: AC – Arab countries; EAP – East Asia & Pacific; ECA – Europe & Central Asia; LAC – Latin America & Caribbean;
LDCs – Least Developed Countries; SAS – South Asia; SSA – Sub-Saharan Africa; DR – Developing region.

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NOTES

1. See for example Abu-Ismail et al. (2011).

2. For the vast literature on the calculation of the poverty line, see, for example, Ravallion, Chen and Sangraula (2008).

3. See, for example, Reddy and Minoiu (2007) and Reddy (2009).

4. See poverty assessment reports by El Laithy (2005 and 2009 for Egypt) and El Laithy and Abu-Ismail.
(2006, 2007, 2008 2009 for Syria, Yemen, Lebanon Syria, respectively).

5. For a recent and extensive account of these problems, see Bibi and Nabli (2010).

6. See appendix for the calculation of China.

7. World Bank (2009).

8. See Abu-Ismail et al. (2011).

9. See Table 8 for regression results and other technical details.

10. See Annex Table 1 for detailed country-level estimates.

11. There is a good deal of debate on whether national accounts-based estimates of private consumption are more reliable than survey-based estimates. See Deaton (2002) for a persuasive attempt to resolve this debate. The author argues that the proposition that the national accounts consumption data are superior to survey-based estimates represents a presumption rather than a proven hypothesis. Nevertheless, Deaton contends that it is important to reconcile conspicuous discrepancies between the national accounts consumption data and survey-based estimates, provided such reconciliation is feasible.

12. We also have serious reservations about the methodology of estimating applied (both by the World Bank and UNDP) in estimating the national poverty lines, which does not factor in the need to have a minimum degree of nutritional balance in the diets of the poor. For example, if, as arguably the case of many countries in the region recently, as a result of a food price shock, the poor substitute meat, dairy products and fruits and vegetables for subsidised bread, then we are essentially costing very different food baskets.