

Towards More Sensible Poverty Measurement¹

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Abstract

Almost three years before the year of Millennium Development Goals (2015), the World is concerned about the reduction of the poverty rate. The developing countries are concerned about their position on the track of reducing their poverty rate by 50 percent. This paper presents a new way of measurement of the poverty rate inspired from the World Bank's methodology. However, the new measurement takes into consideration the development level of each country. According to the new method; the poverty rate in the developing region, during the period of 2000-2009, is 31.8 percent instead of 23.6 percent according to the USD1 per day

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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 (often referred to as a poverty line) which reflects the cost of meeting this 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, these money proxies 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 discussed in the previous chapter.

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 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 behavior 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" bound of the poverty line, while the latter yields a "lower" bound, 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 specialized literature dealing with global poverty comparisons conducted by the World Bank and UN (e.g. the famous one and two dollars a day per person PPP poverty lines). As argued in this paper, if, for a variety of reasons, PPPs do not equate purchasing power, a more sensible approach for international comparisons would allow the poverty line to be related to changes in the standard of living.⁵

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 also present an often insurmountable obstacle to poverty and inequality

⁵ For the vast literature on the calculation of the poverty line see, for example, M. Ravallion, S. Chen and P. Sangraula, (2008), "Dollar a Day Revisited"; WPS4620, www.worldbank.org, and the references cited therein.

assessments. Hence, it should not come by as a surprise that there is little agreement 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?

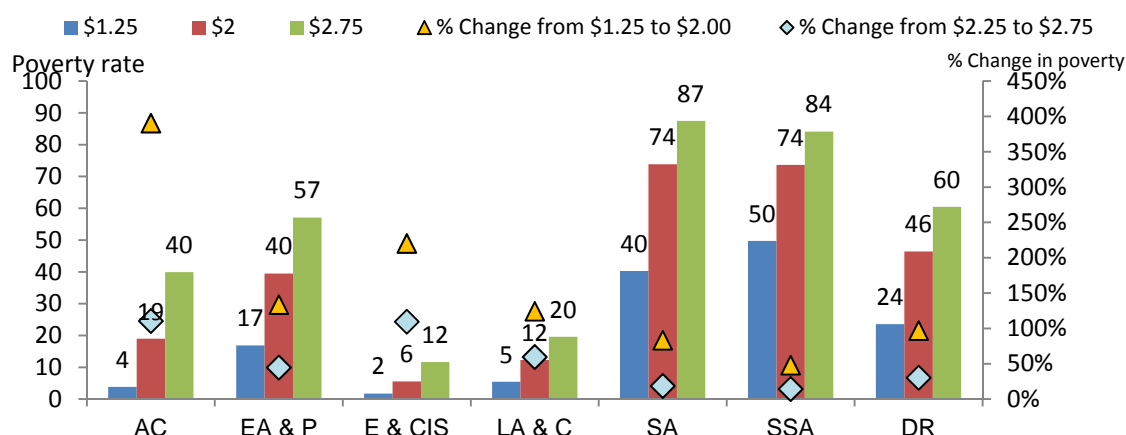
This paper addresses these questions by estimating new poverty lines based on the development level of each country. The paper is organized as follows; the first section reviews the conventional story-line on poverty as purported by the \$1.25 poverty line. Section two describes the data. Section three is divided into two subsections, first we resort the national poverty lines, which do indeed plot a more sensible picture but there is a serious comparability problem with other developing regions since some countries with large demographic weight, such as China, also underestimate their national poverty lines considerably. The second subsection describes the methodology used for estimating appropriate poverty line for international comparisons. The fourth section presents the estimation results for fifty nine developing countries based on a significant number of survey results (over 350 surveys) and report the poverty rates based on these 'new' poverty lines. Finally section five concludes.

The poverty story based on fixed poverty lines

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 poverty is remarkably less widespread in Arab countries (less than 5 per cent in 2005-2009) compared to other developing regions. However, the magnitude of poverty and the ranking of the different regions changes considerably with higher poverty lines. Take for instance the example of the Arab countries; in 2008, based on the \$1.25 line, the Arab region has almost the same headcount poverty rate of the far richer Latin America and the Caribbean region, yet based on the \$2.75 line its poverty rate is double that of Latin America and the Caribbean. Similarly, Figure 1 shows that with the \$2.00 and \$2.75 poverty lines, the gap between the headcount poverty for the Arab region and the global average narrows more rapidly than in any other region. As a result, as we increase the value of the poverty line from \$1.25 to \$2.00 to \$2.75, poverty rates increase by a considerably higher margin.

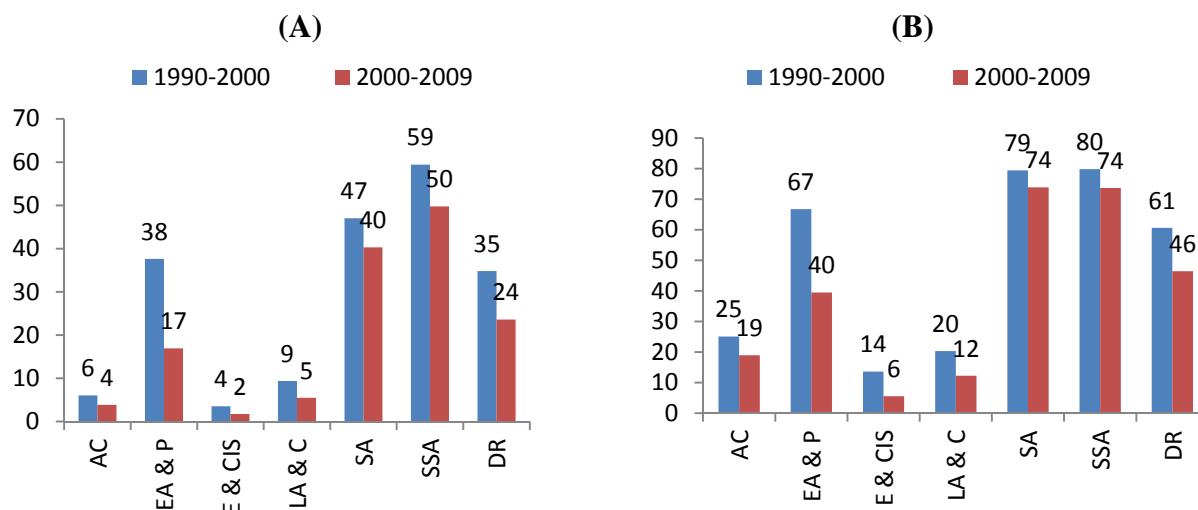
Poverty trends for the \$1.25 and \$2.00 lines are shown in Figures 2a and 2b, respectively. Both graphs indicate the bulk of the progress world-wide was achieved by East Asia. This is understandable given the relatively high economic growth of China since 1990. For the eight Arab countries in the sample, poverty rates according to the \$1.25 declined by 5% which implies the region is on track to halve extreme poverty by 2015. However, poverty reduction according to the \$2.00 was far more subdued for developing regions and Arab countries, but also with the notable exception of East Asia.

Figure 1: Proportion of people living on less than \$1.25, \$2.00 and \$2.75 a day in Arab Countries and other Developing Regions and change in poverty rates, 2000-2009 (Percent)



Source: UNDP calculations based on World Bank POVCAL datasets (in 2005 PPP).

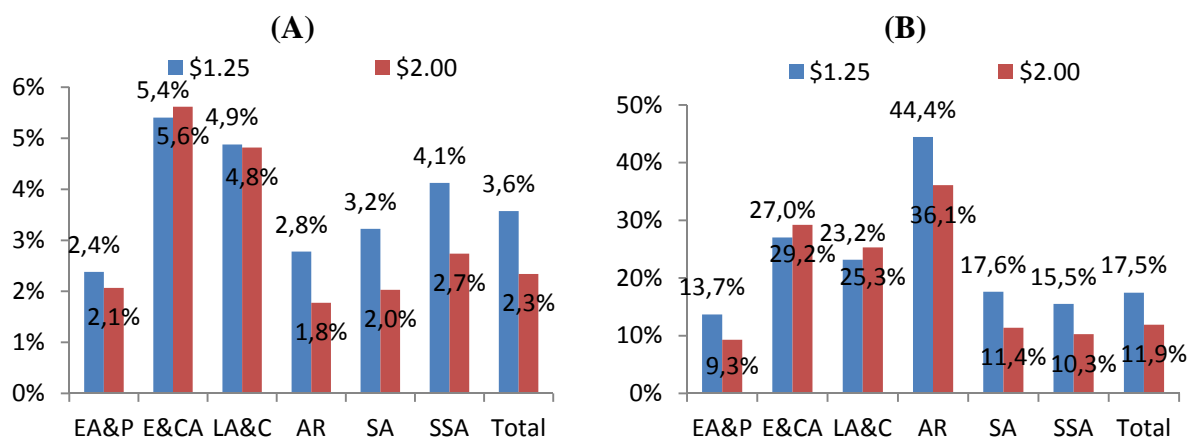
Figure 2: Poverty rates for the \$1.25 (a) and \$2.00 (b) lines in 2005 PPP, 1990-2008



Source: World Bank POVCAL datasets (in 2005 PPP) and UNDP estimates derived from HIES unit record data.

One conclusion which can be easily derived from Figures 1 and 2 is that poverty -as measured by the international poverty lines- is very shallow in Arab countries (i.e. a significant proportion of the population is clustered between the \$1.25 and \$2.75 lines). Hence, any small shock to disposable income or income distribution can produce a significant impact on poverty in this region. This is also confirmed by the 2010 Global Monitoring Report by the World Bank and the IMF which projects that the Arab region, whilst thus far being the lowest affected by the global financial crisis (Figure 3a), may suffer more than any other region if growth falters (Figure 3b). It is also confirmed by other regional poverty studies which report high poverty-growth elasticity for most Arab countries (see for example, El Laithy and Abu-Ismaïl, 2009)

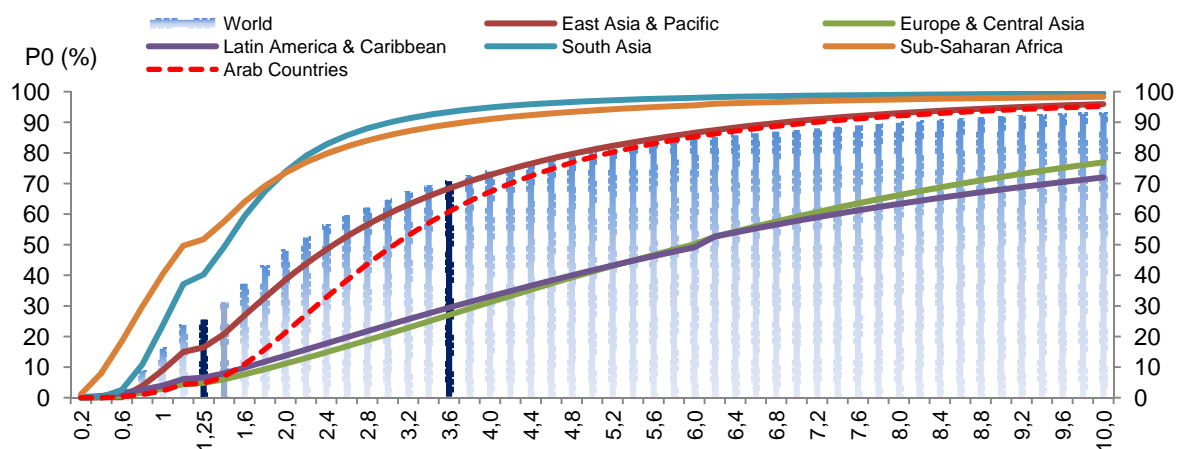
Figure 3: Poverty reduction forecasts under \$1.25 and \$2.00 poverty lines (% change from pre-crisis to post-crisis trends (A) and % change from pre-crisis to low growth scenario (B)) for Arab countries and developing regions (2005-2015)



Source: UNDP estimates based on data in the Global Monitoring Report (IMF and WB, 2010).

Notes: The pre-crisis trend gives the forecast path assuming historical growth performance achieved during 2000–2007. The impact of the crisis on the MDGs can thus be measured by comparing the post-crisis trend with this one. The post-crisis trend assumes a relatively rapid economic recovery in 2010, with strong growth continuing into the future. The low-growth scenario assumes little or no growth for about five years, and then a slow recovery.

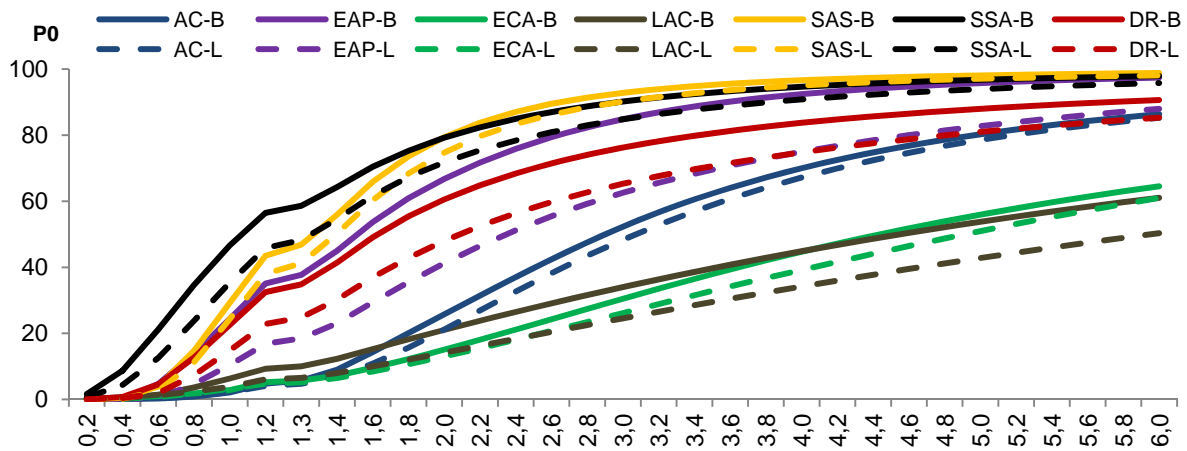
Figure 4: Poverty rates for Arab Countries and Developing Regions across a range of poverty lines (in 2005 PPP based on most recent surveys)



Source: World Bank POVCAL datasets (in 2005 PPP) and UNDP estimates derived from HIES unit record data.

A second conclusion which emerges from the figures is that the choice of a poverty line, while clearly affecting poverty rates in all regions. This is quite clear in Figure 4 which plots poverty incidence curves over a range of poverty lines (ranging from 0.2 to 10\$ PPP). At any value which is lower than 1.25, the Arab region displays a very low poverty incidence (at par with Europe & Central Asia and lower than Latin America). However, poverty rates for the Arab region jump sharply at higher poverty lines so that, at a poverty line of approximately three dollars a day, the region's poverty rate is far closer to that of the average for all developing regions. Interestingly, this is not the case for other regions. South Asia and Sub-Saharan Africa are consistently poorer than other regions, East Asia is consistently within close range of the global average and Latin America and Europe is consistently below other regions.

Figure 5: Poverty rates for Arab Countries and Developing Regions across a range of poverty lines (in 2005 PPP) for 1990s (solid line) and most recent surveys (dashed line)



Source: Authors estimates based on World Bank online datasets (POVCAL) and UNDP-led poverty assessment reports for Arab countries.

Figure 5 shows the poverty-rate-sweep over time. Clearly there is a shift downwards for all developing regions indicating 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. 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 both 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.

The main question however is not which of these fixed poverty lines is more relevant, but rather whether fixing a poverty line across countries will lead to a meaningful comparison. 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 perils⁶. 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 differs. It should also be adjusted to capture the ‘economies of scale’ within households – 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, and 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 (HIECS) and elsewhere (often nutritional surveys by WHO) 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.

⁶ See for example Reddy and Minoiu (2007) and Reddy (2009).

The estimated poverty lines should also account for regional differences in relative prices, expenditure patterns, activity levels, as well as the size and age composition of poor households. This leads to a variation in poverty lines depending upon household location and composition.

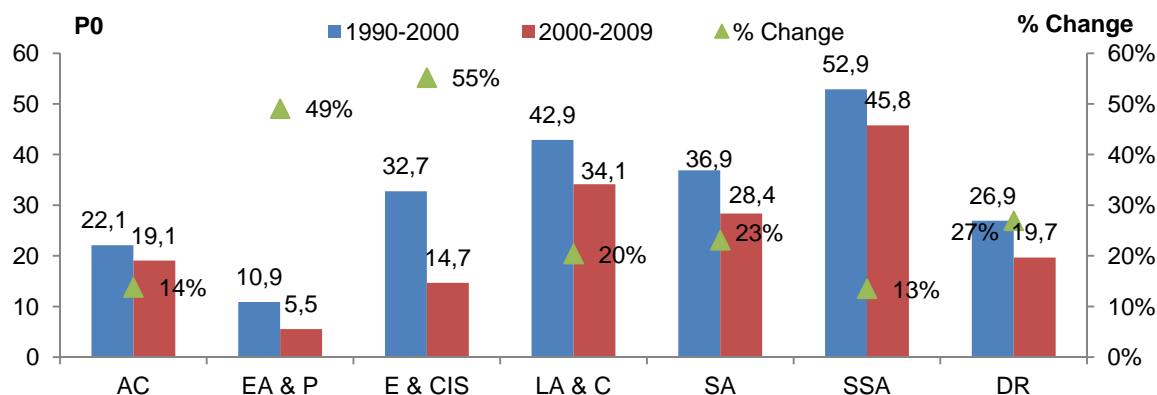
However, while the cost of the minimum food bundle is derived from estimated physiological needs, there is no equivalent methodology for determining the minimum non-food bundle. The non-food allowance for each household can be estimated in two ways; (i) regressing the food share against total expenditures 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’ (LPL), 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. The poverty rate derived from applying the LPL will yield what we refer to in this report as extreme poverty. Obviously, this approach which takes into account location, age and gender composition, as well as economies of scale, and food shares yields a more superior measure of poverty.

One important question arises: to what extent are these national poverty rates comparable? Although all these studies were conducted by the World Bank or UNDP using similar surveying techniques and an almost identical poverty assessment methodology (particularly for UNDP-led assessments in Yemen, Syria and Lebanon and for the World Bank led assessment in Egypt, hence for over 60 percent of the total population of the Arab countries in the table), there are still many inconsistencies.⁷ These 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.⁸ Such inconsistencies should be taken into account when interpreting the results of Table 3 and indeed the remainder of this section since 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.

⁷ See poverty assessment reports by El Laithy (2005 and 2009 for Egypt) and El Laithy and Abu-Ismaïl (2006, 2007, 2008, and 2009 for Syria, Yemen, Lebanon, and Syria, respectively)

⁸ For a recent an extensive account of these problems see Bibi and Nabli (2010)

Figure 6: 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 Arab countries for 61 developing countries.

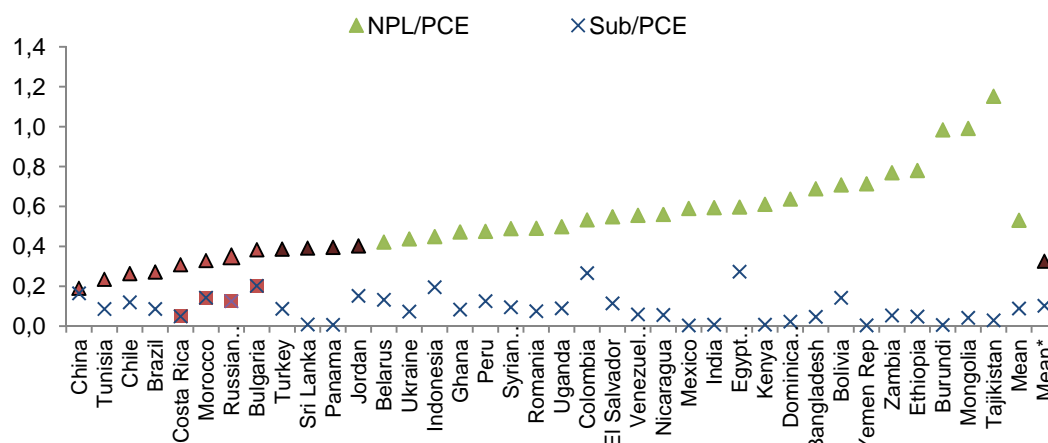
These comparability problems are quite apparent in Figure 6 which plots global and regional poverty rates based on national poverty lines of 61 surveys for developing countries which are spread over two periods: from 1990 to 1999 and from 2000 to 2009. One striking observation is that national poverty rates for the East Asia region is far below what one would expect. Since China⁹ holds the most significant share of the population of East Asia, 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 the Chinese official poverty line is low relative to both international measurement standards and rising incomes within China.¹⁰ 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 percent in 1990s and 13.1 percent 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? This is a central question which we aim to address in the following section.

Other than political reasons, what are the other possible factors that would explain why countries like China may have 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 subsidies and 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 7. Countries with excessively low ratio of national poverty line to mean consumption (less than 0.4) are shown not to have higher subsidy ratios. It is worthy to note three Arab countries (Morocco, Tunisia and Jordan) belong to this category. 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.

⁹ See appendix for the calculation of china,

¹⁰ World Bank: Report No. 47349-CN. March 2009.

Figure 7: Ratio of national poverty lines and total subsidies to mean consumption (in 2005 PPP per capita), 2000-2008



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 and World Bank WDI and IMF GFS for subsidies.

Notes:

- (1) Total Subsidies (calculated in per capita PPP 2005) include social benefits, public grants and subsidies to public and private enterprises)
- (2) 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 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 and other developing regions such as South Asia, where human development and deprivation is significantly higher as illustrated in Chapter Two. Yet whereas it is understandable that developing country national poverty experts may sometimes have a political incentive to reduce poverty lines, the case for a higher poverty line is more perplexing. However, it can easily 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 and Europe suggest they are applying the upper poverty line threshold, which allows for a more generous portion of 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 programs that would target all the poor population and not only the extremely poor.

To conclude, by international standards, it would seem that most Arab countries with the exception of Tunisia and Morocco get their poverty lines 'right'. By this we mean that the methodology used to derive national poverty lines generally adheres to lower poverty lines described earlier. The same, it would be safe to assume, applies to other developing regions. There are a few countries which set the bar too low (China, 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 deals a

severe blow to the objectivity of any global comparison based on national poverty lines as it will lead to a strong bias in regional and global poverty lines and hence regional and global poverty rates.

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. The Bank 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 nonmarket goods. Moreover, PPP exchange rates, such as those from the International Comparison Program or the Penn World Tables, although take into account the local prices of goods and services that are not traded internationally, 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 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.

There is as well the discussion about the choice of the reference group (the poorest countries) to get the average of their NPLs and use it as international one. Such a group is crucial for deriving the number of the poor in the World. There are always the questions why just these countries are considered as the poorest? what is the threshold for decision? Greb et al (2011) shows that the international PL will be higher than the \$1.25 a day if they extend the number of countries included in the reference group. They tried to find the threshold level of consumption at which the reference group is defined using Ravallion et al (2009) approach in addition to a non parametric approach to avoid the prior assumption about the functional form of the regression line. The main difference between the two approaches is that Greb et al (2011) uses the log of the per capita consumption instead of the per capita consumption. Their estimates show larger reference group as well as an international PL of \$1.45 a day.

Data

The data used come mainly from World Development Indicators database (WDI) published annually by the World Bank, National Accounts (UNSD) and POVCAL (Table 2). For some Arab states, the poverty rates based on NPL were extracted from the Arab MDG report (Table 3).

Table 1: Data Sources by variables

World Development Indicators	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Mean\$ (PCE): the average monthly per capita income/consumption expenditure from survey in 2005 PPP (used as the explanatory variable). • Poverty Gap (PG): • 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	<ul style="list-style-type: none"> • Household consumption expenditure (including Non-profit institutions serving households)

Table 2: Data sources for some Arab states

Country	Survey year	Poverty incidence ¹	Number of poor in 1995 (millions)	Survey year	Poverty incidence	Number of poor in 2005 (millions)
Lebanon	1997 ³	10.0%	0.4	2005	8.0%	0.3
Egypt	1990	24.1%	15.3	2009	21.6%	16.6
Jordan	1990	15.0%	0.6	2006	13.0%	0.7
Syria	1997	14.3%	2.1	2007	12.3%	2.3
Palestine	1998	20.3%	0.6	2007	34.5%	1.2
Algeria	1994	14.1%	4.1	2006 ⁴	5.6%	1.8
Morocco	1990	13.1%	3.5	2007	9.0%	2.7
Tunisia	1990	7.0%	0.7	2005	3.8%	0.4
Mauritania	1996	50.0%	1.1	2004	46.7%	1.4
Yemen	1998	40.0%	6.2	2006	34.8%	7.3
Djibouti	1996	34.5%	0.2	2002	42.2%	0.3
Comoros	1995	47.0%	0.2	2004	37.0%	0.2
Arab Region		20.3%	34.9		17.1%	35.4

Database; World Bank and UNDP poverty assessment reports, and National Statistical Offices.

Notes:

¹For all countries, the cost of basic needs approach to the estimation of food poverty lines is used, where the food baskets reflects the consumption pattern of the poor. The estimation of the non-food component by Engel curves gave rise to lower and upper poverty lines. However, it was not possible to verify whether the poverty studies for Algeria and Morocco in 2006 and 2007, respectively, had applied poverty estimation methodologies that are consistent with those used in other countries.

²Average annual growth in real per capita household consumption calculated over the period between surveys based on \$US constant 1990 prices.

³UNDP estimate based on 1997 income survey.

⁴Estimates based on simulations undertaken by the Algerian Planning Commission.

For **Algeria** and **Tunisia**, to get the PR and the PCE in 2008, we used the PR elasticity with respect to PCE (ϵ), the annual change of PCE (ΔPCE) and the annual change in the PPP conversion factor (ΔPPP) in the following formula as follows:

$$PCE_{2008} = PCE_{base\ year} (1 + \Delta PPP)^n,$$

$$PR_{2008} = PR_{base\ year} (1 + \Delta PCE \cdot \epsilon)^n$$

where the base year was 1995 and 2000 for Algeria and Tunisia respectively, n is the number of years between the base year and 2008.

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 NPL was available at the urban and rural levels. The NPL at the country level is computed as weighted average as follows:

$$NPL_c = NPL_U W_U + NPL_R W_R,$$

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

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

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 3: The NPL and 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	45.10	30.22	71.34	161.83	107.90	35.85	34.8	35.21
India 1994	32.00	33.56	32.41	43.76	54.91	46.70	28.59	34.34	30.37
India 2005	31.80	31.78	31.79	49.93	62.43	53.52	30.46	37.59	32.85
Indonesia 1996	27.40	24.50	26.33	46.06	60.95	51.55	27.56	37.54	31.91
Indonesia 2005	35.85	32.80	34.38	62.79	89.10	75.45	29.52	39.93	35.43

Source: WDI and Povcal

The average annual changes in PCE, GINI and PR (Table 5) were used for sensitivity check. Where theoretically speaking if per capita consumption increases, other things remaining constant, poverty rates declines. Similarly, as inequality in the distribution of consumption

expenditure declines, other things remaining the same, poverty rates decline. The following countries were excluded (Mexico, Tanzania, Thailand and Yemen) as the directions of changes were not consistent. Therefore, we replace the base year of Mexico by 2002 instead of 1992. For Thailand, we replace its base year by the data used in Ravallion, Chen and Sangraula (2008). While we drop Tanzania as we could not find other data sources. Finally 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 4: Annual Change in Gini, PCE and HCE by regions and sub-regions

Region	Total Change Gini	Total Change PCE	Total Change Poverty Rate
LDCs	28.74%	0.57%	-14.7%
Magreb	-1.73%	13.89%	-44.4%
Mashreq	-6.35%	14.97%	-17.4%
Arab Countries	-1.99%	12.95%	-24.4%
East Asia & Pacific	10.31%	69.19%	-31.7%
Eastern Europe and	-17.79%	-7.97%	-27.3%
Latin America &	-1.83%	7.46%	-7.2%
South Asia	8.19%	11.48%	-14.8%
Sub-Saharan Africa	0.21%	19.57%	-7.5%
Developing Regions	-2.74%	20.22%	-15.9%

Source: Computed by the authors.

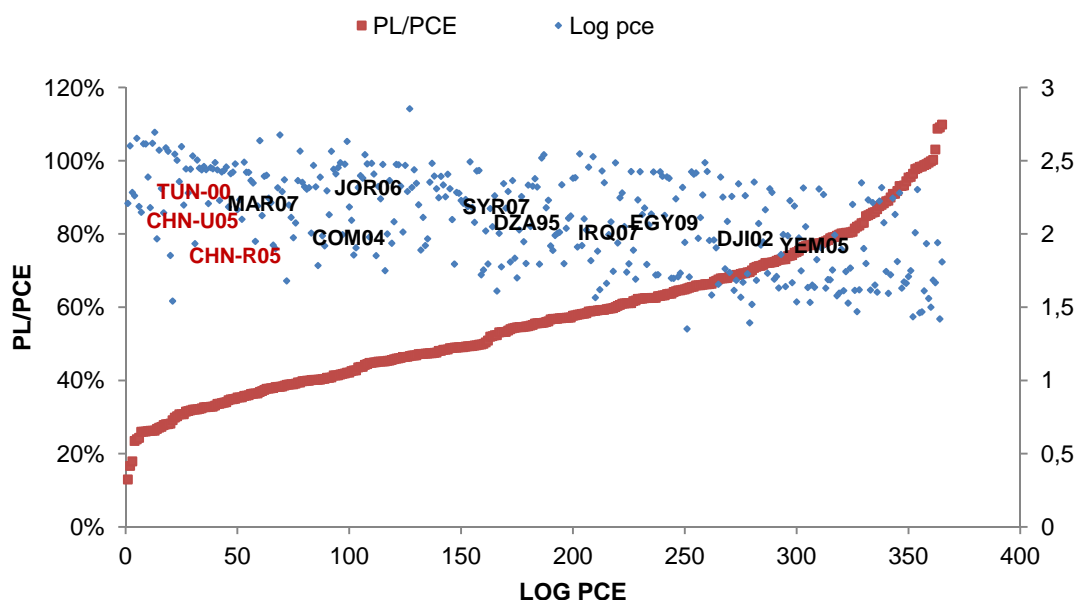
Methodology

In this section, we suggest an alternative method to construct 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 already well established stylized facts regarding the relationship between national poverty lines and the average per capita expenditure (in 2005 PPP). Fortunately, the recent spur 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.8. The upper-located cluster of blue points in the figure measures per capita consumption expenditure (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 it 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 Engle'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.

Figure 8: Ratio of national poverty line (PL) to mean consumption expenditure (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.

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 of the poorest African countries such as Burundi, which recorded an average per capita expenditure of less than one dollar per day. Conversely, the ratio of the \$1.25 poverty line to average per capita expenditure in Brazil will be approximately 0.1, which is less than half of the ratio of its national poverty line to per capita consumption. Thus, it would make more sense to anchor international poverty lines to average per capita expenditure, rather than to a fixed and pre-specified value.

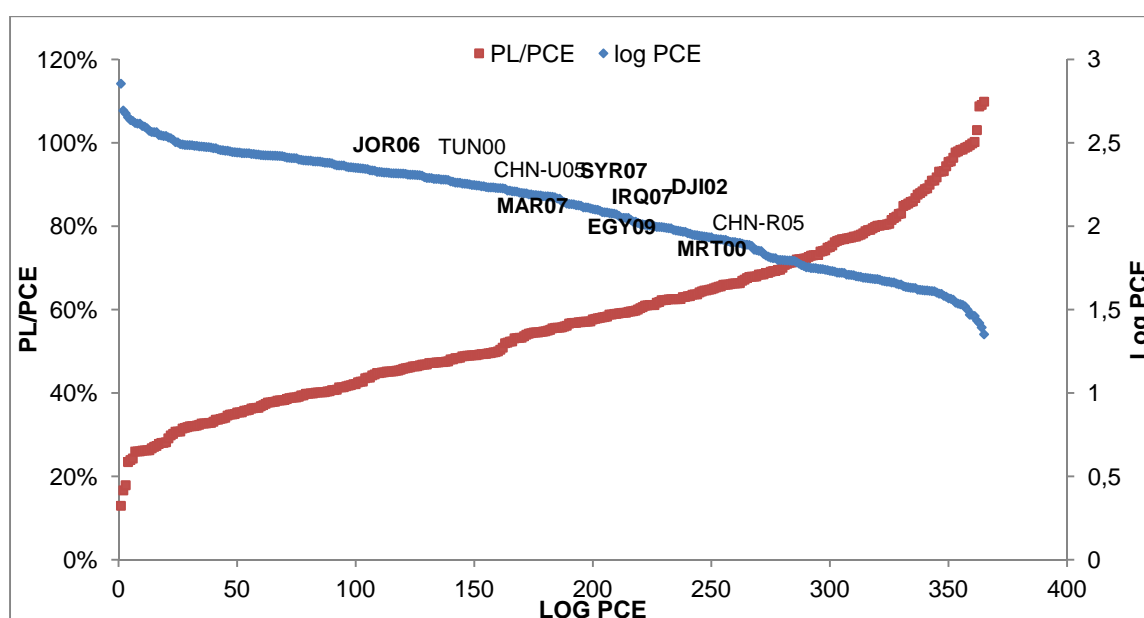
To give a concrete example, consider the case of China and Tunisia. As discussed earlier, both countries have very low national poverty lines relative to their per capita expenditure. This is easily discernable from their clustering along with mainly higher income countries in Figure 3.8. One can easily conclude that both countries should be moved westward 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 per capita expenditure and how should it be derived? Answering this question is at the heart of reaching a more sensible methodology for global poverty comparisons.

The simple and most intuitively appealing option, one might think, is to re-rank developing countries in such a way so as to let the PL/PCE ratio decline as countries becomes richer. In other words, we can de facto accept the validity of the dotted red line in figure 3.8 as the

trajectory of the evolution of this ratio as countries become more affluent (i.e. that the PL/PCE ratio will have an upper limit of approximately 1.1 for the poorest countries and it will decline in a non-linear fashion to reach approximately 0.13 for the richest countries).

Figure 9 plots the now neatly rearranged countries where over-shooters of the PL/PCE ratio relative to their expenditure (for example, Ukraine and Venezuela) were re-located to the left of the horizontal axis at a position which is more commensurate to their level of per capita expenditure (relative to their position in Figure 3.8) while countries that underestimated their ratios were positioned at the opposite end of the Figure. This re-ranking will then yield a new set of PL/PCE ratios which we can use to derive a new set of poverty lines that are still based on national poverty lines, but more consistent with stylized facts regarding the share of cost of basic needs in expenditure and expenditure per capita.

Figure 9: Rearranging countries according to their mean per capita consumption expenditure (PCE) in 2005 PPP across fixed PL/PCE ratios (richest to poorest)



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.

While this method for correcting major deviations in national poverty lines is intuitively appealing, it lacks in statistical rigor. 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 expenditure per capita and the value of the national poverty line. This will yield results with significantly higher confidence interval (see Annex 3 for regression results and other technical details).

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 spur 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.

As in the case with human poverty, we do not expect a linear cross country relationship between poverty line (PL) and mean consumption per capita (PCE). The reason being, as shown in Figure 4A, poorer countries tend to have higher PL/PCE ratios. This makes sense since the cost of basic needs in 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 estimated the cross-country equation between PL and PCE based on a non-linear regression. The results shown in Figure 1.B are based on the full sample of developing country surveys for which we have national poverty lines. Yet we take into consideration only a small sample of 61 countries and 122 surveys; that is countries for which we have one survey in the 1990s and one in the 2000s in order to report poverty dynamics. It is clear from the graphs that the cross-country relationship between NPL and PCE is very strong for both samples. Hence, we can proceed to estimate our “variable” international poverty lines and re-estimate global poverty rates accordingly.

Given the non linear relationship between the NPL and the PCE (Figure 4), the regression is based on polynomial function. Several specifications have been used, we kept the one with the highest goodness of fit. The estimated regression takes the following form

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

The estimated results are presented in table. The model explains 77% of the variation in NPL. The estimated parameters are significant and of the expected sign. The PL increases with the average consumption until a certain level where the impact starts becoming negative.

Figure 10: NPL versus the average PCE

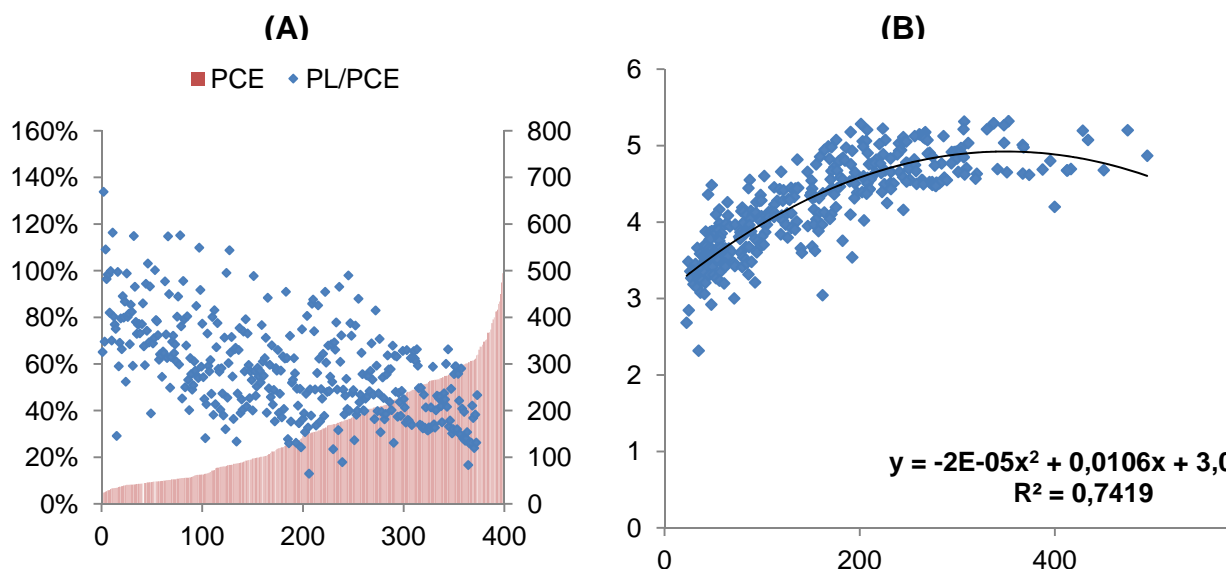


Table 5: Estimated parameters of the polynomial regression

VARIABLES	Poverty Line	Poverty Line
Average per capita consumption (PCE)	0.0106*** (0.000544)	0.00662*** (0.000660)
PCE squared	-1.52e-05*** (1.35e-06)	-9.51e-06*** (1.36e-06)
Regions Dummy:		
LAC		0.639*** (0.0563)
SA		0.109 (0.0662)
SSA		0.195*** (0.0474)
AS		0.242*** (0.0612)
ECA		0.637*** (0.0562)
Constant	3.066*** (0.0455)	3.108*** (0.0586)
Observations	363	363
R-squared	0.736	0.820

Standard errors in parentheses

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

Table 7 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 per capita expenditure (see Annex Table 1 for detailed country-level estimates). The poorest group contains countries which have a per capita expenditure of \$60 per month or below. The most affluent group contains countries which have a per capita expenditure of \$200 per month or above.

Table 6: National poverty lines and UNDP estimated (RPL) poverty lines (2005 PPP per capita per day) for Developing countries by expenditure groups, 1990-2000 and 2000-2009

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

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.

The main story emerging from the table is one that is consistent with earlier described stylized facts. The poorest category of developing countries will typically have national poverty lines that are approximately two thirds the value of average per capita expenditure 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 expenditure per capita. This is clear from the (population weighted) value of the national poverty line for the lower middle expenditure per capita group that has a value higher than the lowest expenditure per capita group. Likewise, in the 2000s, the national poverty line for the group of countries in the upper middle expenditure bracket is lower than that for countries in the middle expenditure bracket. The same inconsistency applies to the respective ratios of the national poverty line to the per capita expenditure. These distortions are quite expected however due to the presence of rural China in the low expenditure group and urban China in the lower middle group during the 1990s. With the phenomenal growth in per capita expenditure witnessed during the past two decades, both rural and urban China graduated to higher expenditure groups during the subsequent period.

Despite the distorting impact of China, the table shows 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 where China is present.

Table 8 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. Our poverty lines are also slightly higher for South Asia, Arab

countries and, in the 2000s, Eastern Europe. The results for Arab countries are expected given the already mentioned significantly underestimated national poverty lines of Tunisia and Morocco (\$2.9 versus \$1.4 and \$2.8 versus \$1.7, respectively). The opposite is true for the Arab LDCs whose national poverty lines are slightly over-estimated compared to what one might expect given their real PCE per capita. However, the national poverty line for Egypt, the largest country in the sample, is close to that predicted by the regression results (Figure 3.10). For Latin America, Sub-Saharan Africa and Eastern Europe in the 1990s, our estimates are also within close range of the national poverty lines.

Table 7: National poverty lines and UNDP estimated regression based poverty lines (RPL) (2005 PPP per capita per day) for Developing Regions and Arab Sub-regions, 1990-2000 and 2000-2009

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

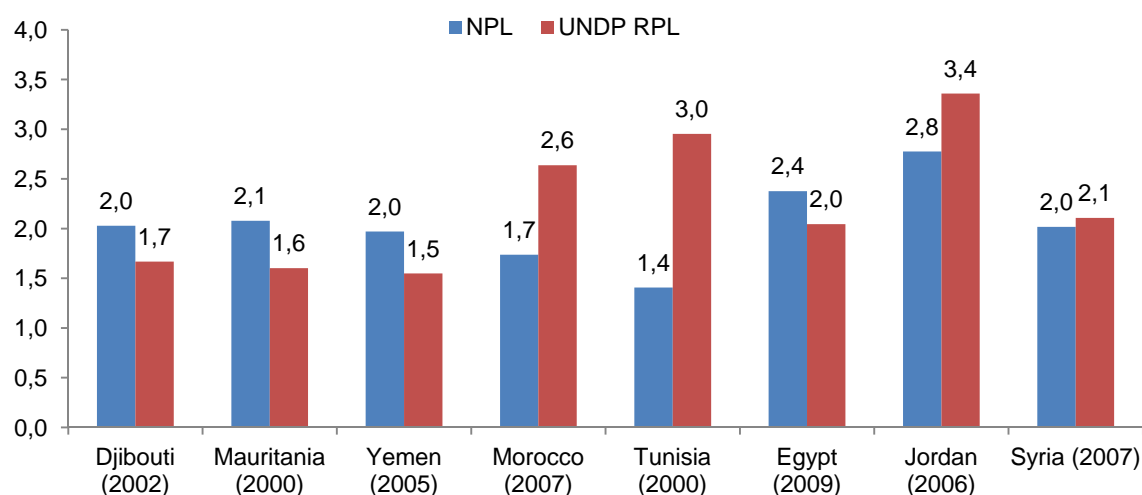
Source: Ibid

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 two dollars per day line would be more consistent with the national poverty lines of all developing regions.

We now turn to the poverty rates based on applying these estimated poverty lines. Table 9 summarizes these results and -for ease of comparison- earlier reported rates based on the fixed World Bank poverty lines. The table sends an unambiguous message. Having achieved only half the rate of progress under the common \$1.25 poverty line, Developing countries may be significantly poorer than conventionally thought with hundreds of millions more

people living under conditions of extreme money-metric poverty. More alarmingly, the World may be far less successful in its fight against poverty.

Figure 11: National poverty lines and UNDP estimated poverty lines (2005 PPP per capita per day) for Arab countries, 2000-2009



Source: Ibid

Table 8: Poverty Rates in 2000-2009 and percentage change in headcount poverty rates based on \$1.25 and UNDP estimated poverty lines (RPL) for Developing Regions, 1990-1999 and 2000-2009

	Estimates Based on World Bank Poverty Lines						UNDP Estimates			
	\$1.25		\$2.00		\$2.75		NP	RP		
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 &	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 Regions	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	-	5	-8	5
East Asia & Pacific	-55.1	1	-40.8	2	-30	3	-	2	-	2
Europe & Central Asia	-50.5	2	-59.1	1	-56.1	1	-	1	-	4
Latin America &	-41.6	3	-39.5	3	-35.1	2	-	4	-	1
South Asia	-14.3	6	-7.1	6	-3.8	6	-	3	-6.1	6
Sub-Saharan Africa	-16.3	5	-7.7	5	-5.1	5	-	6	-	3
Developing Regions	-32.3		-23.4		-17.9		-		-	

Source: Authors estimates based on poverty lines reported in Tables 3.3.

The Arab region, whilst significantly poorer than suggested by the conventional \$1.25 poverty line, has the least poverty incidence world-wide along with Eastern Europe. It is also interesting to observe that, at 21.5%, our estimated poverty rate for the region is within close range to the average poverty rate based on the national poverty lines. East Asia ranks third at 28.1% followed by Latin America, South Asia and Sub-Saharan Africa at 32.4%, 37% and

47.3%, respectively. In terms of success at poverty reduction, however, the region lags behind all developing regions except South Asia. Latin America and East Asia take the lead role in global poverty reduction.

Concluding Remarks

These analyses suggest that harvesting any conclusive evidence on poverty levels and trends in the Arab region and developing regions would require a complete overhaul to existing surveying techniques and assessment 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.

These constraints are particularly serious for the Arab region. While some measure of poverty are available in a number of countries, data are completely nonexistent and or unavailable for a significant part of the region and access to primary data when possible tends to lag behind. In addition, the quality of data collection is not consistent across countries. Hence, as Bibi and Nabli (2010) conclude, the available knowledge in the region is not adequate to contribute in a meaningful way to the policy discussions at the regional-level.

Resorting to international comparisons based on existing parameters as a means to fill this gap is equally problematic since the World Bank's extreme poverty line makes little sense as a measure of extreme poverty in the Arab region. This is clearly demonstrated by gap between national poverty lines and their resultant headcount poverty rates and those derived from the former. 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 \$1.25 poverty line makes no sense to the rest of the developing world if it grossly misrepresents the poverty reduction achieved by countries such as China with large demographic weight.

But while it is rather easy to point out the flaws in the Bank's measurement paradigm, it is far more difficult to offer a viable alternative. Still, we can easily claim that the method we propose as an alternative, retaining the same fundamental principles which the World Bank applied to establish its \$1.25 poverty line, is also a better basis for global poverty comparisons. Our central assumption is that the PPPs are more akin to a common currency, rather than a common measure of purchasing power (hence the cost of the same bundle of goods and services will generally be higher in richer countries in nominal PPP terms). Hence, more accurate poverty lines for the purpose of global comparison can be derived from the cross-country relation 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 and still obey Engels Law (which is the major drawback in 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, *ceteris paribus*, a higher cost of living due to monopolies, labor 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 the \$1.25 as a benchmark for global poverty measurement. The case for the Arab region clearly substantiates this hypothesis.

Taking all this into account, we can readily identify four stylized facts that pertain to poverty in the Arab region.

First, regardless of the methodology used to compute the poverty line, Arab countries generally have a low rate of poverty compared to their level of per capita expenditure. As such the region can be classified in the same category as Eastern Europe, a region with significantly higher per capita expenditure.

Second, as a result of the shallowness of poverty, the region is far more vulnerable to suffer from even the slightest rise in poverty lines. As the gap in poverty rates between Arab countries and other developing regions is quite narrow for poverty lines above the \$1.25, this implies that minor economic shocks could have far reaching negative implications on the region's favorable rankings. This implies that the poverty measures reviewed here are underestimated since many of the surveys predate the FFF crises. Moreover, the on-going social and political unrest is expected to have produced a heavy toll on extreme poverty rates in the region, in particular Yemen, Egypt and Syria which host a significant proportion of the Arab poor.

Third, poverty lines (and hence poverty rates) for some Arab countries, particularly Tunis and Morocco, appear to be grossly underestimated relative to their level of expenditure per capita. When our estimated poverty lines are applied, poverty rates in both countries are significantly higher than reported based on their national poverty lines. Conversely, Yemen's national poverty line would appear to be slightly overvalued relative to its per capita expenditure.

Fourth, setting aside the results for the \$1.25, poverty reduction in the Arab region since 1990 has been quite disappointing not only relative to the objective of halving extreme poverty by 2015, but also relative to other developing regions.

ANNEX TABLES

Table 1: National poverty lines, poverty lines based on re-ranking of share of PL to PCE and regression poverty lines

Country Name	YR	Base Year					YR	Base Year				
		PCE mean\$	NPL per day	RPL per day	APL/PCE	RPL/PCE		PCE mean\$	NPL per day	RPL per day	APL/PCE	RPL/PCE
Djibouti	1996	150.53	3.09	2.47	62.5%	50.0%	2002	93.50	2.03	1.67	66.0%	54.3%
Mauritania	1996	78.65	2.07	1.48	80.1%	57.3%	2000	88.33	2.08	1.60	71.6%	55.2%
Yemen Rep	1998	90.34	1.97	1.63	66.3%	54.8%	2005	84.02	1.97	1.55	71.3%	56.0%
Morocco	1991	155.43	1.86	2.55	36.5%	49.9%	2007	161.42	1.74	2.64	32.7%	49.7%
Tunisia	1990	151.28	1.31	2.49	26.3%	50.0%	2000	182.41	1.41	2.95	23.5%	49.2%
Egypt Arab Rep	1991	100.88	1.89	1.77	56.8%	53.2%	2009	121.11	2.38	2.04	59.7%	51.3%
Jordan	1997	151.56	2.46	2.49	49.4%	50.0%	2006	210.05	2.78	3.36	40.2%	48.6%
Syrian Arab Republic	1997	129.84	2.02	2.17	47.2%	50.8%	2007	125.53	2.02	2.11	48.9%	51.1%
China-Rural	1996	47.87	0.61	1.13	38.8%	72.1%	2005	71.34	0.66	1.39	28.2%	59.4%
China-Urban	1996	85.96	0.91	1.57	32.1%	55.6%	2005	161.83	0.69	2.64	13.0%	49.7%
Indonesia-Rural	1996	46.06	0.90	1.12	59.5%	73.6%	2009	68.37	1.22	1.36	54.4%	60.5%
Indonesia-Urban	1996	60.95	0.81	1.27	40.2%	63.6%	2009	83.96	1.05	1.55	37.9%	56.1%
Cambodia	1994	53.50	1.22	1.19	69.5%	67.8%	2007	83.46	1.30	1.54	47.3%	56.2%
Lao PDR	1992	43.30	1.10	1.09	77.2%	76.4%	2008	62.93	1.13	1.30	54.8%	62.7%
Mongolia	1995	80.53	1.78	1.50	67.2%	56.8%	2002	85.97	2.80	1.57	99.1%	55.6%
Philippines	1994	83.45	1.60	1.54	58.2%	56.2%	2006	98.99	1.36	1.74	41.8%	53.5%
Vietnam	1998	49.79	1.05	1.15	64.1%	70.5%	2008	97.22	1.29	1.72	40.4%	53.7%
China	1996	60.17	0.71	1.27	35.7%	64.0%	2005	107.90	0.67	1.86	19.0%	52.4%
Indonesia	1996	51.55	0.87	1.17	51.1%	69.2%	2009	76.57	1.13	1.46	44.9%	57.9%
Azerbaijan	1995	87.21	3.12	1.59	108.7%	55.4%	2008	158.27	2.46	2.59	47.2%	49.8%
Belarus	2000	206.42	5.19	3.31	76.5%	48.7%	2008	428.52	5.94	4.10	42.1%	29.1%
Bulgaria	1997	155.31	3.82	2.55	74.9%	49.9%	2001	206.97	2.60	3.31	38.3%	48.7%
Kazakhstan	1996	136.85	2.81	2.27	62.6%	50.5%	2002	124.10	1.74	2.09	42.6%	51.1%
Romania	1994	99.16	1.94	1.74	59.6%	53.5%	2005	189.66	3.06	3.06	49.1%	49.1%
Russian Federation	1999	188.00	3.50	3.04	56.6%	49.1%	2005	300.95	3.46	4.35	35.0%	44.0%
Tajikistan	1999	48.26	2.91	1.14	183.6%	71.7%	2003	56.00	2.12	1.22	115.2%	66.3%
Turkey	1994	203.80	3.27	3.27	48.8%	48.8%	2005	234.60	2.98	3.69	38.6%	47.9%
Ukraine	1999	121.86	2.72	2.05	68.0%	51.3%	2005	250.21	3.60	3.88	43.7%	47.2%
Bolivia	1997	202.95	5.17	3.26	77.5%	48.8%	2007	226.21	5.26	3.58	70.8%	48.2%
Brazil	1998	277.25	2.90	4.17	31.8%	45.7%	2009	373.65	3.33	4.47	27.1%	36.4%
Chile	1996	387.42	3.57	4.41	28.1%	34.6%	2009	494.68	4.28	3.27	26.3%	20.1%
Colombia	1995	220.17	4.98	3.50	68.8%	48.3%	2006	220.93	3.87	3.51	53.3%	48.3%
Costa Rica	1992	203.80	3.19	3.27	47.6%	48.8%	2009	395.28	4.00	4.36	30.8%	33.6%
Dominican Republic	2000	303.70	4.74	4.37	47.4%	43.7%	2007	240.17	5.03	3.76	63.7%	47.6%

Country Name	YR	Base Year					YR	Base Year				
		PCE mean\$	NPL per day	RPL per day	APL/PCE	RPL/PCE		PCE mean\$	NPL per day	RPL per day	APL/PCE	RPL/PCE
Ecuador	1994	169.43	2.74	2.76	49.1%	49.5%	2009	247.58	3.91	3.85	48.1%	47.3%
El Salvador	1995	171.00	3.50	2.78	62.3%	49.5%	2008	215.62	3.89	3.44	54.8%	48.5%
Guyana	1993	209.40	3.83	3.35	55.6%	48.6%	1998	180.14	3.23	2.92	54.6%	49.3%
Honduras	1999	175.81	5.26	2.85	91.0%	49.4%	2007	168.89	4.11	2.75	74.1%	49.5%
Jamaica	1996	192.41	3.10	3.10	49.0%	49.0%	2004	274.33	2.92	4.14	32.4%	45.9%
Mexico	1992	256.32	5.53	3.95	65.6%	46.9%	2008	337.19	6.54	4.50	59.0%	40.6%
Nicaragua	1998	132.77	2.50	2.21	57.2%	50.7%	2005	151.18	2.78	2.48	56.0%	50.0%
Panama	1997	269.65	4.40	4.09	49.6%	46.2%	2009	367.92	4.77	4.48	39.5%	37.1%
Peru	2001	178.55	3.99	2.90	67.9%	49.3%	2009	248.72	3.89	3.87	47.5%	47.3%
Venezuela RB	1989	255.81	4.08	3.95	48.5%	46.9%	2006	238.49	4.36	3.74	55.5%	47.7%
India-Rural	1994	43.76	1.05	1.09	73.1%	75.9%	2005	49.93	1.05	1.16	63.7%	70.4%
India-Urban	1994	54.91	1.10	1.21	61.1%	66.9%	2005	62.43	1.04	1.29	50.9%	62.9%
Bangladesh	1996	48.86	1.26	1.14	78.3%	71.2%	2005	48.27	1.09	1.14	68.8%	71.7%
Nepal	1996	38.32	0.84	1.04	66.4%	82.4%	2004	56.18	0.84	1.22	45.2%	66.2%
Pakistan	1999	62.00	1.27	1.29	62.5%	63.1%	2005	65.76	1.27	1.33	58.9%	61.5%
Sri Lanka	1991	76.30	1.48	1.45	59.1%	57.9%	2007	119.03	1.53	2.01	39.1%	51.5%
India	1994	46.70	1.07	1.12	69.4%	73.1%	2005	53.52	1.05	1.19	59.4%	67.8%
Burkina Faso	1998	41.70	0.81	1.07	59.2%	78.1%	2003	46.85	1.07	1.12	69.3%	72.9%
Burundi	1998	24.32	1.07	0.91	133.8%	113.3%	2006	28.96	0.94	0.95	98.3%	99.6%
Cameroon	1996	57.85	1.29	1.24	67.9%	65.2%	2001	77.28	1.44	1.47	56.8%	57.7%
Ethiopia	1995	45.35	1.01	1.11	67.6%	74.3%	2000	42.71	1.10	1.08	78.0%	77.0%
Ghana	1998	62.66	1.26	1.29	61.1%	62.8%	2006	77.70	1.21	1.47	47.2%	57.6%
Kenya	1994	77.55	1.57	1.47	61.7%	57.6%	2005	112.42	2.26	1.92	61.0%	52.0%
Madagascar	1997	33.53	1.28	0.99	116.3%	89.9%	2005	44.82	1.27	1.10	86.0%	74.8%
Malawi	1998	29.51	0.80	0.95	82.0%	98.3%	2004	34.12	0.86	1.00	76.9%	88.9%
Mozambique	1997	29.39	0.95	0.95	98.4%	98.6%	2008	46.53	1.14	1.12	74.2%	73.2%
Uganda	1992	37.88	0.99	1.03	79.5%	83.0%	2006	52.68	0.86	1.18	49.8%	68.4%
Zambia	1998	55.50	1.62	1.21	88.9%	66.6%	2004	43.11	1.09	1.09	76.9%	76.6%
LDCs		90.90	2.02	1.64	67.5%	54.8%		84.78	1.98	1.56	71.2%	55.9%
Maghreb		154.42	1.73	2.53	34.0%	49.9%		166.34	1.66	2.71	30.4%	49.6%
Mashreq		109.37	1.94	1.89	54.0%	52.4%		126.47	2.33	2.12	56.0%	51.1%
Arab Countries		117.94	1.90	2.01	49.0%	51.9%		129.97	2.12	2.18	49.7%	51.1%
East Asia & Pacific		59.55	0.79	1.27	40.2%	64.8%		102.36	0.81	1.82	24.0%	54.0%
Eastern Europe and CIS		166.98	3.24	2.73	59.0%	49.7%		257.22	3.27	3.82	38.7%	45.1%
Latin America & Caribbean		254.32	3.93	3.85	47.0%	46.0%		323.23	4.33	4.15	40.8%	39.1%
South Asia		48.89	1.11	1.15	69.1%	71.3%		55.23	1.08	1.21	59.3%	66.9%
Sub-Saharan Africa		47.97	1.15	1.14	72.7%	72.4%		58.80	1.26	1.27	65.2%	65.6%
Developing Regions		87.11	1.48	1.64	51.8%	57.4%		121.05	1.54	2.01	38.7%	50.4%

Table 2: Poverty Rates according to International poverty Lines (\$1, \$2, \$2.75), National and regression based poverty lines

Country Name	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	4.76	15.11	28.48	34.50	23.46	2002	18.84	41.20	59.83	42.00	31.77
Mauritania	1996	23.40	48.30	67.73	50.50	31.22	2000	21.16	44.13	62.15	46.30	32.36
Yemen Rep	1998	13.60	43.00	65.00	40.10	33.14	2005	10.00	37.80	57.00	34.80	27.35
Morocco	1991	2.45	15.90	31.29	13.10	27.24	2007	2.50	13.97	29.64	9.00	27.30
Tunisia	1990	5.87	19.04	33.05	6.70	28.20	2000	2.55	12.82	25.19	4.20	28.47
Egypt Arab Rep	1991	4.46	27.64	51.74	24.10	19.98	2009	3.40	18.46	43.70	21.56	18.55
Jordan	1997	2.77	11.50	27.71	21.30	21.93	2006	0.38	3.46	12.62	13.00	22.26
Syrian Arab Republic	1997	7.90	14.30	33.20	14.30	15.38	2007	0.30	12.30	33.60	12.30	12.85
China-Rural	1996	49.48	79.62	90.52	7.90	42.32	2005	26.11	55.62	75.03	2.50	31.88
China-Urban	1996	8.87	34.52	59.87	2.00	19.44	2005	1.71	9.38	22.45	0.30	20.46
Indonesia-Rural	1996	46.73	82.61	93.08	19.80	36.73	2009	18.78	54.90	77.97	17.40	24.50
Indonesia-Urban	1996	37.60	67.41	82.41	13.60	38.89	2009	18.69	46.64	66.95	10.70	30.52
Cambodia	1994	48.55	77.85	88.80	47.00	45.20	2007	28.27	56.46	72.61	30.10	40.97
Lao PDR	1992	55.68	84.82	93.38	45.00	44.13	2008	33.88	66.00	82.24	27.60	36.39
Mongolia	1995	18.79	43.51	64.23	36.30	27.03	2002	15.47	38.87	59.92	61.10	25.36
Philippines	1994	28.11	52.63	68.54	40.60	38.74	2006	22.62	45.04	60.67	26.40	38.13
Vietnam	1998	49.65	78.25	89.23	37.40	44.02	2008	13.07	38.45	58.66	14.50	29.17
China	1996	36.37	65.06	80.63	6.00	34.93	2005	16.25	36.94	53.79	2.80	27.27
Indonesia	1996	43.36	77.00	89.14	17.60	37.53	2009	18.73	50.56	72.18	14.20	27.67
Azerbaijan	1995	15.55	39.36	60.11	68.10	26.17	2008	1.04	7.75	21.69	15.80	18.44
Belarus	2000	0.33	1.89	7.40	41.90	14.24	2008	0.00	0.00	0.38	6.10	1.34
Bulgaria	1997	0.32	2.35	11.65	36.00	8.14	2001	2.64	7.79	14.15	12.80	19.78
Kazakhstan	1996	4.98	18.76	33.35	34.60	23.92	2002	5.15	21.53	38.51	15.40	23.57
Romania	1994	4.97	23.25	46.51	21.50	15.71	2005	0.75	3.41	10.76	15.10	15.13
Russian Federation	1999	2.28	10.54	21.08	31.40	24.94	2005	0.16	1.49	5.88	11.90	20.18
Tajikistan	1999	44.53	78.53	90.97	92.30	37.04	2003	36.25	68.84	84.85	72.40	34.73
Turkey	1994	2.10	9.84	20.63	28.30	28.25	2005	2.72	9.05	17.73	20.50	29.20
Ukraine	1999	2.03	13.48	32.17	31.50	14.73	2005	0.10	0.48	2.22	7.90	10.71
Bolivia	1997	18.94	29.87	39.85	63.20	45.81	2007	13.97	24.74	35.31	60.10	45.01
Brazil	1998	11.03	22.55	32.24	34.00	46.62	2009	3.80	9.87	16.41	21.40	30.60
Chile	1996	0.43	7.80	15.42	23.20	30.85	2009	0.83	2.43	5.53	15.10	8.06
Colombia	1995	11.23	23.26	34.69	60.00	44.96	2006	16.01	27.88	38.03	50.30	46.71
Costa Rica	1992	8.44	17.85	27.60	33.10	34.10	2009	0.65	5.42	11.56	21.70	24.51
Dominican Republic	2000	4.41	12.37	20.36	39.50	36.22	2007	4.29	13.63	23.32	48.80	35.47

Country Name	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
Ecuador	1994	15.87	28.18	39.52	39.30	39.63	2009	5.14	13.36	22.42	36.00	35.32
El Salvador	1995	12.68	25.20	37.05	47.50	37.54	2008	5.11	15.22	25.35	39.90	34.37
Guyana	1993	5.76	14.98	27.88	43.20	36.52	1998	7.68	16.83	27.83	35.00	30.61
Honduras	1999	14.44	26.84	38.19	65.90	39.67	2007	23.25	35.37	45.72	60.20	45.72
Jamaica	1996	1.74	8.62	20.25	26.10	26.16	2004	0.24	5.85	14.82	16.90	31.14
Mexico	1992	4.48	14.61	24.24	53.10	38.22	2008	3.44	8.11	14.41	47.40	31.12
Nicaragua	1998	21.76	38.47	52.16	47.90	42.66	2005	15.81	31.86	45.66	46.20	41.07
Panama	1997	7.17	15.17	21.86	37.30	34.59	2009	2.37	9.48	16.34	32.70	30.43
Peru	2001	15.13	27.89	39.37	54.80	41.41	2009	5.90	14.68	22.81	34.80	34.59
Venezuela RB	1989	2.91	9.24	17.14	31.30	29.97	2006	3.46	10.13	18.46	36.30	29.64
India-Rural	1994	52.46	85.13	94.45	37.30	40.51	2005	43.83	79.52	91.58	28.30	36.90
India-Urban	1994	40.77	72.14	86.08	32.40	38.48	2005	36.16	65.84	81.31	25.70	38.23
Bangladesh	1996	49.55	79.45	90.18	50.10	42.86	2005	50.47	80.32	90.69	40.00	43.21
Nepal	1996	68.44	88.12	94.22	41.80	56.77	2004	55.12	77.57	87.28	30.90	53.88
Pakistan	1999	29.05	66.54	84.68	30.60	31.37	2005	22.59	60.31	81.29	23.90	27.17
Sri Lanka	1991	15.01	49.50	72.70	26.10	24.65	2007	7.04	29.13	48.81	15.20	29.56
India	1994	49.38	81.70	92.24	36.01	39.97	2005	41.63	75.59	88.63	27.55	37.28
Burkina Faso	1998	70.03	87.60	93.75	45.30	61.94	2003	56.54	81.21	90.49	46.40	49.73
Burundi	1998	86.43	95.41	97.80	81.00	73.48	2006	81.32	93.45	96.92	66.90	72.63
Cameroon	1996	51.46	74.46	85.18	53.30	51.09	2001	32.81	57.68	73.13	40.20	40.99
Ethiopia	1995	60.52	84.59	92.79	45.50	52.29	2000	55.58	86.41	94.48	44.20	43.06
Ghana	1998	39.12	63.34	77.76	39.50	40.86	2006	29.99	53.61	70.40	28.50	37.35
Kenya	1994	28.55	53.74	70.94	40.30	36.32	2005	19.72	39.92	55.92	45.90	38.01
Madagascar	1997	72.04	89.38	94.91	73.30	59.24	2005	67.83	89.61	96.38	68.70	59.65
Malawi	1998	83.07	93.50	96.83	65.30	73.46	2004	73.86	90.45	95.33	52.40	61.35
Mozambique	1997	81.34	92.89	96.44	69.40	69.47	2008	59.99	81.58	90.57	54.70	53.43
Uganda	1992	70.01	88.63	94.52	56.40	59.00	2006	51.53	75.60	86.47	31.10	48.50
Zambia	1998	55.40	74.84	84.63	66.80	54.45	2004	64.29	81.52	89.25	58.40	58.21
LDCs		14.45	42.72	64.15	41.13	32.61		11.47	38.58	57.64	36.25	28.02
Maghreb		3.28	16.67	31.72	11.54	27.47		2.51	13.70	28.60	7.87	27.57
Mashreq		5.03	24.13	46.78	22.04	19.20		2.67	16.56	40.25	19.41	17.69
Arab Countries		6.02	25.07	45.62	22.29	23.32		3.87	18.98	39.95	19.07	21.46
East Asia & Pacific		37.63	66.75	81.64	10.89	35.95		16.91	39.50	57.09	5.55	28.10
Eastern Europe and CIS		3.52	13.61	26.60	32.75	22.80		1.74	5.57	11.67	14.67	20.27
Latin America & Caribbean		9.39	20.29	30.20	42.88	41.95		5.48	12.28	19.59	34.14	32.43
South Asia		47.01	79.45	90.94	36.88	39.42		40.29	73.85	87.49	28.37	37.02
Sub-Saharan Africa		59.44	79.82	88.68	52.89	54.02		49.76	73.64	84.12	45.75	47.26
Developing Regions		34.82	60.65	73.66	26.92	37.09		23.58	46.44	60.48	19.67	31.76

Source: Authors estimates based on Povcal database

Table 3: Average annual changes for Gini Coefficient, Private consumption expenditure (PCE), and household consumption expenditure (HCE)

Country Name	Annual Change Poverty Rate	Annual Change Gini	Annual Change PCE	Annual Change HCE
Djibouti	3.33%	1.40%	-7.63%	4.72%
Mauritania	-2.15%	1.15%	2.94%	-0.38%
Yemen Rep	-2.00%	1.72%	-1.03%	-2.18%
Morocco	-2.32%	0.26%	0.24%	1.18%
Tunisia	-4.56%	0.14%	1.89%	2.67%
Egypt Arab Rep	-0.62%	-0.34%	1.02%	2.00%
Jordan	-5.34%	0.39%	3.69%	3.50%
Syrian Arab	-1.50%	-0.60%	-0.34%	0.58%
China-Rural	-12.00%	0.72%	4.53%	0.00%
China-Urban	-19.01%	2.01%	7.28%	0.00%
Indonesia-Rural	-0.99%	0.53%	3.09%	0.00%
Indonesia-Urban	-1.83%	-0.09%	2.49%	0.00%
Cambodia	-3.37%	1.14%	3.48%	4.77%
Lao PDR	-3.01%	1.18%	2.36%	3.34%
Mongolia	7.72%	-0.16%	0.94%	-1.69%
Philippines	-3.52%	0.22%	1.43%	2.08%
Vietnam	-9.04%	0.56%	6.92%	5.15%
China	-8.12%	1.24%	6.71%	6.03%
Indonesia	-1.64%	0.47%	3.09%	2.44%
Azerbaijan	-10.63%	-0.28%	4.69%	9.32%
Belarus	-21.41%	-1.38%	9.56%	11.59%
Bulgaria	-22.78%	6.81%	7.44%	7.34%
Kazakhstan	-12.62%	-0.18%	-1.62%	3.18%
Romania	-3.16%	1.01%	6.07%	4.98%
Russian	-14.93%	0.01%	8.16%	7.97%
Tajikistan	-5.89%	0.86%	3.79%	15.40%
Turkey	-2.89%	0.37%	1.29%	2.84%
Ukraine	-20.59%	-0.44%	12.74%	8.28%
Bolivia	-0.50%	-0.21%	1.09%	1.08%
Brazil	-4.12%	-0.85%	2.75%	1.41%
Chile	-3.25%	-0.43%	1.90%	2.45%
Colombia	-1.59%	0.20%	0.03%	0.60%
Costa Rica	-2.45%	0.41%	3.97%	2.06%
Dominican	3.07%	-1.04%	-3.30%	4.44%
Ecuador	-0.58%	-0.40%	2.56%	2.42%
El Salvador	-1.33%	-0.52%	1.80%	2.55%
Guyana	-4.12%	-2.86%	-2.97%	4.96%
Honduras	-1.12%	1.43%	-0.50%	3.51%
Jamaica	-5.29%	1.48%	4.53%	0.16%
Mexico	-0.71%	0.07%	1.73%	1.44%
Nicaragua	-0.51%	-0.41%	1.87%	2.35%
Panama	-1.09%	0.63%	2.62%	4.88%
Peru	-5.52%	-1.24%	4.23%	4.12%
Venezuela RB	0.88%	-0.08%	-0.41%	0.17%
India-Rural	-2.48%	0.58%	1.21%	0.00%
India-Urban	-2.08%	0.83%	1.17%	0.00%
Bangladesh	-2.47%	-0.08%	-0.13%	1.66%
Nepal	-3.71%	2.89%	4.90%	1.90%
Pakistan	-4.04%	-0.95%	0.99%	1.18%
Sri Lanka	-3.32%	1.35%	2.82%	4.88%
India	-2.40%	0.71%	1.25%	3.91%
Burkina Faso	0.48%	-3.31%	2.36%	2.84%
Burundi	-2.36%	-2.98%	2.21%	-0.59%
Cameroon	-5.49%	-0.98%	5.96%	2.10%
Ethiopia	-0.58%	-5.57%	-1.19%	-1.98%
Ghana	-4.00%	0.60%	2.73%	3.07%
Kenya	1.19%	1.14%	3.43%	0.52%
Madagascar	-0.81%	2.37%	3.69%	0.29%

Country Name	Annual Change Poverty Rate	Annual Change Gini	Annual Change PCE	Annual Change HCE
Malawi	-3.60%	-4.15%	2.45%	0.96%
Mozambique	-2.14%	0.23%	4.27%	4.85%
Uganda	-4.16%	0.00%	2.38%	4.52%
Zambia	-2.21%	-0.86%	-4.12%	8.46%
LDCs	-11.85%	11.52%	-6.74%	-11.97%
Maghreb	-31.75%	3.58%	7.72%	23.11%
Mashreq	-11.91%	-5.22%	15.63%	36.15%
Arab Countries	-14.45%	-1.39%	10.21%	30.47%
East Asia & Pacific	-49.07%	9.91%	71.90%	60.71%
Eastern Europe and CIS	-55.20%	-0.08%	54.04%	56.96%
Latin America & Caribbean	-20.38%	-4.94%	27.09%	21.75%
South Asia	-23.09%	6.20%	12.97%	42.18%
Sub-Saharan Africa	-13.49%	-1.81%	22.56%	16.97%
Developing Regions	-26.93%	0.33%	38.95%	40.69%

Source: for poverty rates (World Development indicators (WDI), for Gini and PCE (Povcal database) and for household consumption expenditure (National Accounts UNSD)

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