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# ON THE RELEVANCE OF RELATIVE POVERTY FOR DEVELOPING COUNTRIES

by

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# PREFACE

The process of shifting wealth has altered the way we think about poverty reduction, social development and the measurement of progress. The decade of the 2000s was the first to witness unconditional convergence across countries in a generation as poor countries, led by China and India grew faster than the advanced economies of the OECD. Rapid growth in the developing world has reduced extreme poverty dramatically: there are 620 million fewer extremely poor people in the world now than in 1990; the world is on track to achieving the goal of halving the number of people living on a dollar a day as it set out to do in the Millennium Declaration. But rapid growth in the developing world has also underlined the futility of thinking about the world economy as a dichotomous entity divided between a prosperous North and an underdeveloped South.

Many of those who have escaped absolute poverty in the developing world remain vulnerable and in need of public action in the form of service provision and social protection. Knowledge sharing and peer learning on the efficiency of public intervention would be facilitated by the use of common poverty measurement frameworks across countries. However, today advanced and developing economies tend to measure poverty in different ways. While absolute measures are favoured in developing countries, many advanced economies use relative poverty lines.

This paper bridges this gap by proposing a set of relative poverty lines for developing countries; it proposes that poverty measures based on relative poverty lines be used alongside those based on absolute poverty lines, so that a clearer and more comparable picture of poverty can be painted. This approach shows that on top of the 25% of people who lived on less than a dollar a day in developing countries in the mid-2000s, a further 8% lived under their countries' specific relative poverty line. For them, physical survival is not necessarily at risk, but their incomes are not sufficient to guarantee social inclusion. Moreover, the relative poverty lines proposed by the authors mirror the pattern of absolute poverty lines used by different countries themselves, which tend to be higher the more prosperous the country.

This paper builds on background work done for the OECD Development Centre's *Perspectives on Global Development*. It is part of an effort to explore the consequences of the major changes the world economy has known in the past 20 years for economic thinking and policy. Along with the recently published volume *Can we still achieve the Millennium Development Goals?* and regional and international conferences on *Measuring Well-Being and Fostering the Progress of Societies*, this work intends to provide the basis of an informed debate about what progress is, how it can be achieved and how it can be measured.

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# RÉSUMÉ

Les pays développés et les pays en développement mesurent en général la pauvreté de façon différente. La plupart des pays en développement utilise des mesures absolues de la pauvreté, à l'aide d'un seuil de pauvreté défini par la valeur monétaire d'un panier de biens prédéterminé. Par contre, la plupart des analyses de la pauvreté dans des pays développés, y compris dans la plupart des pays de l'OCDE et des institutions telles que Eurostat utilisent des mesures relatives de la pauvreté, avec un seuil de pauvreté définie par une proportion fixe du niveau de vie moyen ou médian dans un pays. Ces différences de mesure rendent plus difficile le partage d'expériences en formulation et mise en œuvre de politiques sociales. Ce document soutient que l'analyse des politiques publiques devrait reposer sur en même temps sur des mesures absolues et relatives, ces dernières se rapportant à une proportion du niveau de vie médian. Les questions d'inclusion sociale, qui sont mieux prises en compte par des lignes de pauvreté relatives, voient leur importance croitre au fur et à mesure que les pays réduisent la pauvreté absolue. Du fait de l'ancrage du seuil de pauvreté à la médiane de la mesure de bien-être, le seuil de pauvreté dépend de paramètres de la distribution au-delà du niveau de vie moyen, ce qui permet aux seuils de pauvreté d'être différents pour des pays avec le même revenu par habitant. Le document présente des taux de pauvreté relative calculés à partir de données disponibles au public pour 114 pays. Une analyse des tendances des mesures absolue et relative de la pauvreté pour le Brésil, la Chine et les États-Unis relève des points communs qui demeurent cachés si l'analyse se concentre uniquement sur les seuils de pauvreté nationaux ou sur des concepts de mesure propres à chaque pays.

**Classification JEL:** I32, O10, Y10.

**Mots-clés:** pauvreté relative, mesure de la pauvreté, pauvreté et développement.

# ABSTRACT

Poverty is typically measured in different ways in developing and advanced countries. The majority of developing countries measure poverty in absolute terms, using a poverty line determined by the monetary cost of a predetermined basket of goods. In contrast, most analyses of poverty in advanced countries, including the majority of OECD countries and Eurostat, measure poverty in relative terms, setting the poverty line as a share of the average or median standard of living in a country. This difference in how social outcomes are measured makes it difficult to share experiences in social policy design and implementation. This paper argues that policy analysis should rely on both relative poverty – measured as a share of the median standard of living – and absolute measures. As countries reduce extreme absolute poverty, concerns of social inclusion, better represented by relative poverty lines, become increasingly relevant. Anchoring the poverty line to median welfare makes the poverty line dependent on distributional parameters beyond the mean, thus allowing for poverty lines that differ across countries with the same level of income per capita. The paper derives and presents relative poverty headcount ratios from publicly available grouped data for 114 countries. An examination of the trends in absolute and relative poverty in Brazil, China and the United States uncovers commonalities that are not apparent if the analysis focuses on national poverty lines or different concepts across countries.

**JEL classification:** I32, O10, Y10.

**Keywords:** relative poverty, poverty measurement, poverty in developing countries.

# I. INTRODUCTION

Advanced countries and developing countries typically measure poverty in different ways. Most developing countries define the poverty line in absolute terms – that is, it represents the cost of purchasing a basket of goods assumed to satisfy an arbitrary set of minimum or basic needs. The international poverty lines (set at one and two dollars a day) used as the basis for international commitments in the Millennium Declaration are likewise absolute. In contrast, the common practice in the analysis of OECD countries and the official practice in the EU is to rely on a relative definition of poverty. Individuals or households are considered poor if their income falls below a certain proportion of mean or median income (see for example OECD [2008]).

Given the impressive declines in poverty as measured by international poverty lines in a number of developing countries (see Chen and Ravallion, 2010 as well as recent updates to that data), there are both measurement and theoretical reasons to analyse poverty reduction in these countries using the same metric for developing and advanced economies. In particular, shared measurement and conceptual frameworks on what constitutes poverty and how it is measured would allow sharing policy experiences between advanced and developing countries. However, finding common ground between the approaches used in advanced and developing countries to measure poverty faces a number of obstacles, one of which is the systematic variation of the poverty line across time and space.

This paper argues that poverty measures derived using relative poverty lines are useful for poverty analysis in both international comparisons and to track progress in reducing poverty over time in developing economies. Comparisons of poverty levels between OECD and non-OECD countries can be more fruitfully derived with the use of relative poverty lines such as those used typically in OECD countries. If poverty in most OECD countries was measured using the internationally accepted dollar-a-day absolute poverty line it would be nil or very close to nil, partly thanks to welfare state measures that provide sustenance to the extremely deprived. On the contrary, analysing the evolution of relative poverty in the United States and in Brazil shows remarkable similarities, suggesting common distributional challenges.

The use of relative poverty lines in developing economies does not impose a higher standard on most countries than many are already using. Indeed, official poverty lines used in middle-income countries exhibit a relative component in that they are higher in purchasing power parity terms in countries with higher average incomes (Ravallion, 2010). It is therefore reasonable to examine relative poverty, especially for those developing countries who have achieved significant poverty reduction as measured with the international or national absolute poverty lines.

This paper contributes to a strand of research linking how poverty is measured in rich and poor countries. One solution is to identify a schedule of poverty lines that encompasses how poverty lines are set across countries at different levels of development. Atkinson and Bourguignon (2001) and Ravallion and Chen (2011) propose "mixed" poverty schedules that correspond to the dollar a day for poor countries and which increase linearly with mean income or consumption for richer countries. However, while the Atkinson and Bourguignon poverty schedule has unit elasticity with respect to mean income for richer countries, Ravallion and Chen's measure is "weakly relative" in that the elasticity is less than one, implying that poverty will fall with proportional increases in all incomes. Foster's (1998) proposal of a "hybrid" line, constructed as the geometric average of an absolute and a relative line, also fits in this class of poverty schedules.

This paper proposes that a relative poverty line set at a fraction of median income or consumption be used alongside an absolute poverty line – which, for ease of comparison, we take to be the dollar a day line. In this view, a person is deemed not to be poor if she is above an international absolute line and a *national* poverty line which is relative in nature. By setting the national poverty line at a fraction of median income or consumption, poverty lines across countries depend on distributional parameters beyond the mean. This implies that poverty lines can differ between countries at the same level of development, and therefore does not define a schedule of poverty lines that would depend solely on mean incomes. Our proposal follows one of the proposals made by Atkinson and Bourguignon (2001), treating survival and social inclusion as separate dimensions of freedom from poverty. Similar to Atkinson and Bourguignon (2001), the use of both an absolute and relative poverty line permits distinguishing between three types of poverty among the developing world's poor: those who are only absolute poor, those who are both absolute and relative poor, and those who are only relative poor. The latter groups correspond neatly with notions of poverty used in advanced countries.

Our proposal is aimed at international comparisons rather than calculating global poverty. It has the advantage that, assuming that the dollar a day absolute line is an adequate measure of survival, we do not rely on information from other countries to set a given country's poverty line. This cannot be said of proposals to define global poverty schedules since, in practice, because the parameters of hybrid lines such as Ravallion and Chen's (2011) are set to fit the observed official poverty lines, they depend on the behaviour of governments in setting the poverty line. Calibrating international poverty lines to data on national poverty lines does provide important clues, not easily available in another way. However, without a theory of how poverty lines are set, including political economy considerations, one cannot be sure that a cross-country approach identifies all relevant parameters.[1]

By shedding light on the degree to which poverty challenges are shared across income levels, this paper also seeks to inform ongoing debates on the framework for international action

1 Similarly, although we use the absolute USD 1.25 PPP line throughout the paper as convenient benchmark for absolute poverty, like the relative lines in both Ravallion and Chen (2011) and Atkinson and Bourguignon (2001), the dollar-a-day line also depends on government behaviour in setting national poverty lines, as it is estimated based on the poverty lines observed in the poorest countries (Ravallion, Chen, and Sangraula, 2009).

on development that may emerge once the 2015 deadline for the Millennium Development Goals (MDG) has passed. Although the Millennium Declaration originally set global goals for development, which were meant to be tackled by the world as a whole, both advanced and developing countries together, in practice measuring progress on the MDGs has focused primarily on efforts made in developing countries. However, the analysis of relative poverty in developing economies highlights challenges that may be similar in both advanced and developing countries, and reiterates the importance of measurement and international comparisons in tackling common problems and realising common solutions.

The remainder of this paper is organised as follows: Section II looks at the differing poverty measurement practices in developing and advanced countries and at the theories that inform them. Section III presents poverty headcounts based on relative poverty lines for a wide set of countries and argues that, for countries that have significantly reduced dollar-a-day poverty during the recent spell of high growth in the developing world, using a relative poverty line set at a proportion of median standard of living (as measured by income or consumer expenditure) can facilitate comparison with poverty levels in OECD countries. Moreover, we demonstrate that aside from the ease of comparison with OECD country experiences, using a poverty line set at a proportion of the median has additional appeal to national debates on poverty measurement. Section IV compares the proposal with alternative approaches for comparative or global poverty analysis. Section V contrasts the evolution of relative poverty in Brazil, China and the United States to show the relevance of relative poverty measures across levels of development. Section VI concludes.

# II. POVERTY MEASUREMENT: A REVIEW OF THEORY AND PRACTICE

Poverty can be defined as a state where an individual or a household cannot fulfil one or several of their basic needs. Identifying what those basic needs are is both theoretically and empirically complex, although some of these needs, in particular sufficient food to avoid hunger and malnutrition, are as compelling to any analyst as they are to anyone who suffers from them. The most restrictive definition of this type identifies poverty with hunger, so that the poor are those who cannot satisfy basic caloric intake. A more encompassing view focuses on the set of minimum capabilities or functionings that a person is able to achieve (Sen, 1985) and which go beyond mere physical survival.

Standard measures of poverty rely on two key elements: a measure of economic welfare and a poverty line defined in the same space as that welfare measure. Individuals or households falling below the poverty line are considered poor. Once these two elements are set, the most common poverty indicator is the incidence of poverty – or headcount index – that is constructed as the share of the population who is identified as poor.[2]

Theoretical and applied research to investigate poverty in developing countries and advanced countries have differed both in the welfare measure used to measure poverty and in the rationale by which the poverty line itself is set. This section will review the choice between the most common monetary welfare measures, household consumption expenditure or disposable income, and compare the competing rationales for setting the poverty line in either an absolute or relative fashion. The aim is to demonstrate why poverty comparisons between advanced countries have traditionally relied on income-based measures defined in a relative manner, while developing country poverty is most often compared with consumption-based measures defined in an absolute sense.

## Choosing an economic welfare measure: income or consumer expenditure

The choice between income and consumer expenditure is by no means an obvious one. First and foremost, income poverty indicates the inability of a household to fulfil a set of needs in the market given its own resources, while consumption poverty indicates the actual non-

2 Other common measures include the poverty gap, which is the average distance to the poverty line among the poor and the severity of poverty (or squared poverty gap) which also takes into account inequality among the poor.

fulfilment of those needs, so that different objectives may lead to prefer income or consumption as a metric of welfare or indeed suggest that both be used.[3]

From a "welfarist" perspective, which identifies income or consumption with metrics of utility and the poverty line with a reference level of utility, a comprehensive measure of current real consumption would be the preferred metric of household welfare.[4] Whether income or consumer expenditure is used matters for the measured outcomes. Income is typically more volatile than consumption, because households can smooth consumption through saving and dissaving. For that reason, the distribution of income will appear more unequal than that of expenditure, and income poverty higher than consumption poverty. The difference is attributable to whether income variability is accounted for or not.[5] Moreover some of the variation in income is predictable over the life cycle and in the short run – for example in agricultural production – so that current consumer expenditure is a better indicator of current welfare than current income and is also a better indication of long-term welfare because the smoothed level of consumption reveals information about past and future incomes (Lipton and Ravallion, 1995).

International consensus on the collection of household income and expenditure statistics has also recognised that consumer expenditure may be the preferred measure, however a number of practical concerns make the collection of data on income actually easier and more manageable in a wide number of contexts (ILO, 2003). Another rationale for using income measures in many countries stems from the fact that policies aimed at reducing poverty often provide some type of income support. As the report of the Canberra Group, an international expert working group which provided recommendations and proposals to the international community for improving the quality and comparability of welfare data, observed: "Policies to address problems of living standards usually focus on income in some form or other. In other words, income is normally the most objective proxy for economic well-being *for policy purposes*." (Canberra Group, 2001, emphasis added)

In practice, most rich countries use income measures while most poor countries use expenditure measures. Despite the theoretical distinctions, the practical implications of using one or the other dominate. Income is easier to measure when there are few sources of income and when income from those sources is recorded for administrative purposes, such as taxation or payroll contributions. Income information is also cheaper to collect in those settings, allowing for larger sample sizes and more precise measurement. The practical advantages of collecting

3 Eurostat publishes income poverty measures, which are rightly, if unwieldingly, called measures of at-risk-of-poverty rates, see http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_and_social_policy_indicators/omc_social_inclusion_and_social_protection/social_inclusion_strand

4 One can distinguish a standard of living approach from one based on minimum rights to resources. For example, Atkinson, Cantillon, Marlier and Nolan (2002) interpret the US moving from different poverty lines for men and women to a common poverty line as a move from a standard of living to a rights approach.

5 See Blundell and Preston (1998) for further discussion on the use of income or consumption for measuring welfare.

income data disappear, however, when occupations with variable and hard-to-measure income patterns (such as subsistence agriculture) are more common and when the recording of income is less prevalent, both of which are true in countries at lower levels of development.

A further difference in the practice of poverty measurement is whether a correction is made to account for economies of scale in consumption. Whether income or expenditure data are used, if there are economies of scale in consumption, individuals in larger households will have their needs better met by the same level of income or consumption than individuals in smaller households. For this reason, equivalence scales are used, which count the number of "adult equivalents" (often male) in a household. The measure of standard of living used is income per adult equivalent and the poverty line is also expressed in those terms. A wide range of equivalence scales exist (see *e.g.* Atkinson *et al*. [1995]) many of which are country-specific. For example Eurostat uses the so-called "modified OECD" scale that gives a weight of 1 to the first adult, 0.5 to each subsequent adult in the household and 0.3 to each child. Data provided for international comparisons by the World Bank are in per capita terms, assigning equal weights of 1 to all members of the household.

The effect of the use of one equivalence scale or the other on measured poverty does not affect relative poverty headcounts across groups identified by the scale (that is across households with the same composition), because they enter multiplicatively in both the poverty line and the standard of living index (Foster, 1998). Moreover, evidence shows that trends over time and rankings across countries are not very affected by the use of an equivalence scale (Burniaux *et al*., 1998). However, the use of equivalence scales do affect the level of measured poverty and the demographic composition of the poor. An analysis of the impact of equivalence scales is beyond the scope of this paper, but the limitations in comparability of data produced using different equivalence scales should be kept in mind in interpreting the results shown in this paper and comparing them to other sources.

## Setting the poverty line: absolute or relative?

Absolute and relative poverty measurements differ in how the respective poverty lines are set. Absolute poverty lines are fixed in terms of the measure of standard of living used and over the relevant domain: across space and over time. They are usually only adjusted for price inflation so that poverty measures are comparable over time. A relative poverty line, in contrast, depends on some characteristic of the income distribution so that the line evolves with the average (or median) standard of living.[6]

Most poverty lines in the developing world –and some in developed countries– are absolute lines and follow a cost-of-basic needs method. In such a method, a bundle of goods that delivers the minimum capabilities is set and valued: the poverty line is the monetary value of

6 This should not be confused with whether the absolute poverty line claims to determine absolute *needs* or not. For example, a poverty line set at 50% of mean income at a given date in a given country and later updated to reflect changes in price levels – sometimes called a relative poverty line anchored in time – behaves like an absolute poverty line in terms of implications of changes in the distribution of living standards.

those goods.[7] Often, price data on non-food items is not collected or not reliable enough to carry out this exercise. In those cases, the cost of the food element in the poverty bundle is determined, based on caloric or nutrient intake requirements, and divided by the budget share of food. For example, the poverty line in the United States is three times the cost of the minimum food bundle, which is the same as assuming a budget share of food of one third.

The international poverty line of one dollar-a-day (USD 1.25 a day in PPP terms) is an absolute poverty line in the sense that it is fixed across countries and over time – in real terms. It is calculated as the average poverty line among the poorest countries (Ravallion, Chen and Sangraula, 2009) and reflects the cost-of-basic needs methodology.

On the other hand, official poverty lines in most OECD countries are relative lines. Eurostat uses a line set at 60% of median income. Similarly OECD uses multiple relative poverty lines set at 40%, 50% and 60% of median income as a benchmark for international comparisons; other countries and organisations use fixed proportions of mean income. There is some discussion as to whether the mean or the median should be used as a reference. The proportion used to determine the poverty line (typically in the range 0.4 – 0.6) is wholly arbitrary. It has become common practice (*e.g.* in OECD [2008]) to report poverty measures for several values of the proportion.

The most widely accepted argument for the use of relative poverty lines is that they include the cost of social inclusion. Social inclusion in that view is seen as one of the needs (or capabilities, in the words of Sen, 1983) that should be satisfied in order to be free from poverty. However, its cost is either typically omitted or difficult to measure explicitly, and therefore is difficult to include, in the calculation of absolute poverty lines.

The idea that social inclusion is costly because it requires expenditures or command over certain resources is long-standing. Adam Smith (1776) famously wrote that a

> "…linen shirt[8], for example, is, strictly speaking, not a necessary of life. The Greeks and Romans lived, I suppose, very comfortably though they had no linen. But in the present times, through the greater part of Europe, a creditable day-labourer would be ashamed to appear in public without a linen shirt, the want of which would be supposed to denote that disgraceful degree of poverty…"

The cost of social inclusion can also reflect the cost to access or participate in the labour market. Atkinson (1995) looked at how inclusion in the labour force can be thought of as depending on the cost of a specific input, such as transport, the price of which is determined by a monopolist supplier who sets the price according to the willingness of other members of society

7 This methodology extends without practical complications to multidimensional poverty, where non-monetary dimensions are set against corresponding non-monetary poverty lines, although the aggregation method used to then determine who is "multidimensionally" poor poses more difficulties.

8 Unlike Adam Smith's linen shirts, some expenditure items needed for social inclusion or necessary to maintain social networks may also be substantial in terms of a household budget. The social role of celebrations and festivals held either regularly or to mark specific social occasions (births, weddings, funerals) and the costs they impose have been documented by anthropologists, sociologists and economists in a wide set of countries (*e.g:* Platteau [2000], Banerjee and Duflo [2007]).

to pay. The higher average or median welfare of the society, the greater likelihood that individuals at the bottom of the income distribution will be unable to purchase the input needed to participate in the labour market, and therefore be excluded from society. Whether the critical input for participating in the labour market is transport, a mobile telephone, or indeed a linen shirt itself ultimately depends on the organisation of the society in question, so it is conceivable that countries at differing levels of development can manifest similar notions of relative poverty in different ways. The important criterion is that whatever that critical input may be, it leads to economic distance between those who have it and those who do not.

An additional difficulty in accounting for the cost of social inclusion comes from the fact that the resources needed to participate in the activities and have the living conditions customary in a society change over time with economic development. Relative lines are better able to capture changes in these social needs and their costs across countries and over time, precisely because they change as society itself changes. The poor in a society may lack both the capability to survive, as well as the capability to be included in a society, yet once that society has achieved the ability to sufficiently feed and clothe the vast majority of its members, questions of their inclusion relative to one another remain and indeed may become much more important to consider.

An alternative view also supportive of the use of relative poverty lines argues that the welfare metric for measuring poverty is relative deprivation (Townsend, 1979, 1985). If all needs are socially determined or if utility depends on the relative achievement (in terms of income, education or other functionings), then poverty is essentially a relative phenomenon. This view has been applied to policy debates most notably in the concept of poverty used by the European Council of Ministers, which base their definition on participation in customary social activities.

The difference between the two arguments in favour of relative poverty measurement is substantial. On the one hand, the use of relative poverty lines is justified by differences in the cost of achieving a certain (absolute) need or capability. In Amartya Sen's words, "*absolute* deprivation in terms of a person's *capabilities* relates to *relative* deprivation in terms of commodities, incomes and resources" (Sen, 1983). However, Sen (1985) also posits that there are some fundamental absolute needs, such as the freedom from hunger and starvation, the fulfilment of which differs in cost less across countries. On the other hand, if other needs are thought to be relative, then poverty can also be thought of as relative even at very low levels of income.

Whether there is a set of core needs that can be satisfied with a given minimum income is no arcane debate. In one case, it would be unreasonable for any poverty line, however defined to go below such a floor. In the other, the point is moot, as such an absolute need cannot be measured independently of the distribution of welfare. Whether one takes the first or the second view has implications for how relative poverty lines are set in countries where standard relative poverty lines (such as 50% of the median) equate with a standard of living below cost-of-basic-needs defined by absolute poverty lines.

Given that the international USD 1.25 a day poverty lines will be tantamount to physical subsistence minima for a number of developing countries, the case for relative poverty lines reported in this paper to be used alongside the dollar-a-day line, rather than on their own, is

particularly strong in cases where they fall below the dollar-a-day poverty line. This is consistent with recent advances in poverty measurement (see Ravallion and Chen, 2009). One possibility is to use the lower of the two lines so that when the relative poverty threshold falls below the absolute one, the dollar-a-day line is used. However, there may be value in considering poverty measures that account for both types of poverty: for example by giving different weight to those who are both absolutely and relatively poor that those who are only relatively poor.

## Poverty lines across the world

Although most official poverty lines follow variations of one of the two methods outlined above, in practice, even *absolute* poverty lines vary systematically and positively with average income. In fact, they exhibit quite a pronounced positive correlation with average income (Ravallion, Chen and Sangraula, 2009; Ravallion, 2010). If the cross-sectional variation in poverty lines is taken as an indication of the static relationship between average income and absolute poverty lines, this means that even absolute poverty lines exhibit some degree of relativity.

Even with no variation in the basic commodity bundle used to define them or in methodology, absolute poverty lines can move in response to changes in relative prices, in the composition of households or in the expansion factor used to account for non-food expenditure when it is not directly costed. More developed markets or more varieties in non-food commodities can lead to a lower share of food expenditures and therefore require an upward revision of the poverty line for a given real expenditure in food items.

A better explanation for the upward slope in the relationship between poverty lines and average income is that each national poverty line represents that society's judgment of what constitutes poverty. Ravallion (2010) cites the average daily food bundle corresponding to someone living near the poverty line in India in 1993. It comprised 400g of coarse rice and wheat, 200g of vegetables, pulses and fruit and modest amounts of milk, eggs, edible oil, spices and tea. Such a bundle ensures basic caloric intake but would be considered much too frugal in many other countries, especially those where average food intake is much greater and more diverse.

Poverty lines across countries may therefore reflect differences in what is considered poverty across space and levels of development. They will also reflect different forms of aggregation of the populations' preferences over the preferred metric for standards of living, of what constitutes a minimum standard of living as well as preferences for redistribution.

Moreover, the costs of social inclusion differ across countries and over time, as emerges from Adam Smith's remark and has been noted elsewhere (Sen, 1983). While this is due to the emergence of new capabilities, such as the ability to communicate through a mobile telephone, for example, it can also be due to changes and differences in how existing capabilities are realised.

Importantly, the costs of social inclusion vary systematically with the level of development. This can be because meeting basic survival needs is more pressing in poorer societies, and hence commands a larger weight and therefore forms a more significant share of the poverty bundle (Sen, 1983). But it can also be explained, through a more sociological view, by the social definition of obligations and customs themselves, so that the necessary activities and their cost are greater in more affluent societies (Townsend, 1985).

Finally, the poverty lines of different countries have wide dispersion even at similar levels of average income. This is particularly true among middle-income countries, where there is substantial variation in the poverty lines used (in PPP terms) for the same levels of development. For example, Bolivia's mean consumer expenditure per capita in 2001 (USD 216 PPP per month) was quite similar to that of Egypt's in 1999 (USD 225 PPP per month) yet the Bolivian national poverty line, USD 142 PPP per month, was nearly three times as large as the Egyptian national line at USD 53 PPP per month. Similarly, mean consumer expenditure per capita in Russia in 2002 (USD 455 PPP per month) was close to that of Poland in 1993 (USD 465 PPP per month), but the national poverty line in Russia was only USD 132 PPP per month versus USD 203 PPP per month in Poland for the respective time periods.

National political differences can help explain much of the variation in poverty lines among countries at similar levels of development, particularly at the higher levels of national income, where the scope for combatting poverty through redistribution is greater. The possible political economy determinants of how poverty lines are set call for a warning against the use of programme eligibility lines as poverty lines (such as the eligibility criteria for social assistance or cash transfers). Indeed, if poverty lines or their evolution depend on executive rather than technical decisions, perverse effects can result. For example, budgetary restrictions may lead to a desire to better target the reference programme so as to reduce its outlay, thereby lowering the eligibility line and therefore reducing measured poverty, in a situation where standards of living both in absolute and relative terms are likely to fall.

# III. A SET OF RELATIVE POVERTY LINES FOR DEVELOPING COUNTRIES

A well-defined poverty measure is essential for assessing the effect of anti-poverty policy both *ex ante* and *ex post*. In a country where the national poverty line accurately reflects society's views of what is meant by poverty, the poverty line is the natural measure of policy effectiveness and outcomes. As outlined above, it matters how such a poverty line is defined, and it matters even more how such a poverty line is updated: the use of a poverty line that varies systematically at pre-determined intervals with objective and verifiable data is superior to the use of poverty lines whose evolution leaves scope for political influence or methodological changes.

When the objective of policy analysis is to foster dialogue on policy experiences between countries, the choice of a suitable poverty line is a more complex affair. Indeed, there is no guarantee that results on the capacity of a social programme to reduce poverty by a given amount will translate to another country if the poverty line is set in a different way.

## A proposal: relative poverty measures for national and international policy debate

Meaningful comparisons of poverty interventions across countries can be based on a common relative poverty line. We propose that this line be set at a multiple of median income, which makes the poverty line sensitive to the distribution of welfare in the country, rather than being solely determined by the mean of the welfare metric used. This relative poverty line can fruitfully be used alongside an absolute poverty line, which we set at the level of the international dollar-a-day poverty line. Considering that the international 1.25 dollar-a-day poverty line sets a minimum income for fulfilling survival needs, the 1.25 dollar-a-day line may appear more relevant when the relative poverty line falls below this level. Nonetheless, poverty should still be seen as having two important dimensions, captured by the relative and absolute lines respectively, *both* of which matter.[9]

The use of a given relative poverty line along with an absolute poverty line such as the international dollar-a-day poverty line to assess the effect of policy can provide valuable

9 The ramifications of this when compared to using a single line are not unsurprising at the identification phase (you are poor if poor by either poverty line, or by both), but it does allow our understanding of poverty to become less dichotomous and more continuous in nature (rather than simply being poor/non-poor, poor people are either only absolutely poor, only relatively poor, or both). This can lead to significant differences in the measurement phase for measures other than headcount poverty, such as the poverty gap.

information. Simplicity of calculation and the common use of such poverty lines in a number of countries ensure the international legitimacy of such a line. Since most poverty lines can be seen as containing elements of both absolute and relative lines, the use of two polar cases can convey information about policy effectiveness without having to explain the construction of the outcome variable in detail.

The use of a pair of poverty lines, namely the USD 1.25, PPP a day line and a relative line is equivalent, in terms of identifying the poor, to using the maximum of both lines and therefore to a lexicographic ordering (or as the 1990 World Development Report labelled it, a "hierarchy of capabilities") where absolute necessities (capabilities linked to survival) are accounted for first, followed by relative necessities (linked to social inclusion). This is one of the possibilities put forward by Atkinson and Bourguignon (2001) to unify relative and absolute notions of poverty. For exchanging policy lessons across countries, measures based on each of the two lines may be more fruitfully used, as they respond to different forms of poverty.

However, for measures other than the headcount of the poor, using two different poverty lines is different from using a single poverty line set at the maximum of the two. For example, in the calculation of the poverty gap, both gaps to the absolute and relative lines should be taken into account, even when the relative line falls below the absolute line. To account for the fact that those who are relatively and absolutely poor suffer from a double burden, one could add the poverty gaps calculated relative to each of the poverty lines, thus introducing some type of "double counting".[10]

Relative poverty lines, by construction, do not depend on the accuracy of PPP exchange rates,[11] which can have an influence on the accuracy and comparability of absolute poverty measured with international lines (Deaton, 2010). They are sensitive, however, as absolute poverty measurements are, to within-country price differentials both between regions and across income groups, and how these are taken into account, as well as to the quality of source data on the income distribution.

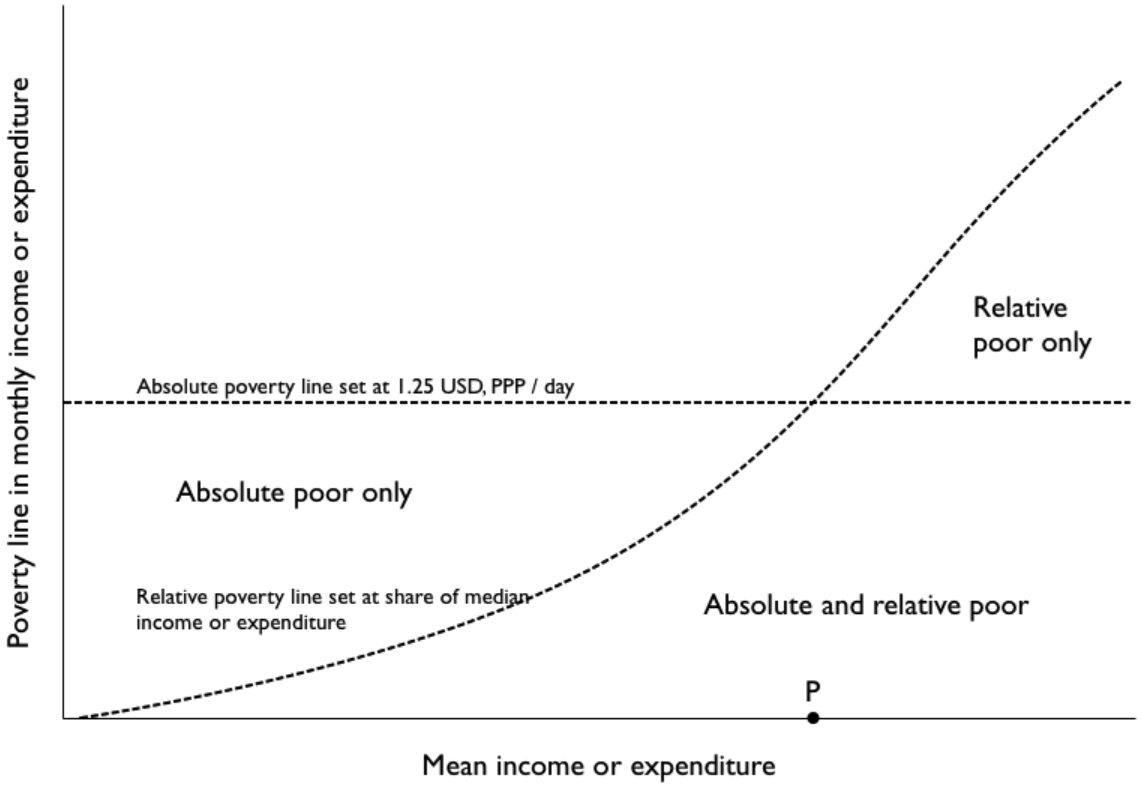
Rising living standards change perceptions about what constitutes a minimum standard of living and therefore what a society deems to be the cut-off below which individuals are considered poor. Using the dollar-a-day poverty line as an international standard is an arbitrary choice that focuses attention on the first of the "hierarchy of capabilities". Treating absolutely poor people in the same way as relatively poor people risks drawing attention away from the first capability of overcoming barriers to physical survival, which is the priority in most international efforts to improve the lives of the poorest (World Bank [1990]; Ravallion, Chen, and Sangraula [2008]). However, once living standards improve beyond the subsistence level

10 Other ways of combining the poverty gaps relative to each of the poverty lines into a single measure can accounts for a degree of substitutability between the two types of poverty (see *e.g.* Atkinson and Bourguignon [2001]).

11 It is important to note however, that due to the data used, the relative poverty lines reported in this paper are in fact denominated in PPP terms. However, theoretically speaking there is no reason why they need to be. Importantly, the headcounts reported do not depend on PPP exchange rates. Other measures would only depend on PPP rates through the level where the absolute poverty line is set, if it is an international line.

approximated by the dollar-a-day line, concerns shift towards individuals' secondary capability, that is their social functioning and their participation in customary social activities. However, there is no reason to think that the relative line (and poverty measures based on it) does not provide important information even in a country where the dollar-a-day absolute line is substantially higher. At the very least, it provides important information about the distribution of welfare of the poor, particularly if it is calculated as a proportion of the median.

Figure 1. **Given the relationship between poverty lines and mean welfare, combining relative and absolute lines defines three possible types of poverty**




*Note*: Point P corresponds to the level of development (defined here in terms of mean income or expenditure) at which the relative line is equal to the absolute line. To the left of this point the country's poor are either only absolute poor or both absolute and relative poor, as explained in the text. To the right of P, the country's poor are either both absolute and relative poor or only relative poor, the latter of which corresponds to advanced country notions of poverty. Importantly, unlike a relative line based on a share of mean income or expenditure, Point P will vary from country to country according to the country-specific differences in the distributional effects of growth.

In fact, as a country develops the distribution of the poor will also change systematically. The relationship between the two types of poverty lines can be used to define three possible types of poverty: *i)* poverty that is absolute but not relative in countries where the relative poverty line falls below the absolute line; *ii)* poverty that is both absolute and relative, which constitutes the lowest end of the absolute poor in countries where the relative line is below the absolute line, but which includes everyone below the absolute line in countries where the relative line is above the absolute line; *iii)* poverty that is relative only, in countries where the relative line is above the dollar-a-day line. This relative-only poverty corresponds directly to the notion of

poverty employed in most advanced countries. Figure 1 shows the three types of poverty for an individual country's growth path, where the relative line is defined as a share of median income or consumption expenditure.

## Methodology: calculating relative poverty in select developing countries

This subsection presents a method for deriving internationally comparable relative poverty lines based on the median welfare measure for a given distribution using grouped distributional data. It draws on the computational tools developed by Datt (1998) using two parameterisations of the Lorenz curve and the grouped distributional data available from the PovcalNet database provided by the World Bank Development Data group. First we describe the methodology; second, we provide relative poverty headcounts for a wide cross-section of countries. Further details of the calculations and the full set of values calculated can be found in the Annex.

The most straightforward way to obtain relative poverty measures for a given population is to analyse a representative sample drawn from a micro dataset based on a household survey. In such a case, the median income of the distribution is easily identifiable and the number of individuals subsisting on less than a certain proportion of the median (*e.g.* 40%, 50%, or 60%) is simple to count directly. However, given the wide variety and uneven coverage of household survey data, a number of tools allow poverty measures to be estimated directly from more aggregated data sources, such as grouped distributional data that can be derived from either household surveys or administrative sources.

Notwithstanding some of the problematic aspects involved with using "secondary" datasets to investigate inequality in a cross-country context (Atkinson and Brandolini [2001]), tools like the World Bank's Povcal software have enabled the compilation of a sizable and more or less comparable cross-country poverty and distributional data set from heterogeneous administrative and household data sources using either grouped distributional data. The benefit of Povcal is that given the mean welfare measure and several points on the Lorenz curve for any dataset, Povcal will estimate the parameters of the entire Lorenz curve, which in turn permits poverty simulations based on any poverty line the analyst chooses (expressed as monthly per capita figures in international PPP dollars.) Povcal is most widely known for allowing national poverty and distributional data to be made comparable at the international level through the use of international absolute poverty lines, such as the dollar-a-day (USD 1.25, PPP) and two-dollar-a-day international standards. However, nothing prevents Povcal from being used to evaluate and simulate poverty at other poverty lines, including relative ones. In fact that was one of the initial stated aims of the software when it was first developed.

PovcalNet is an on-line repository of publicly available distributional data that has been analysed with the Povcal software. It includes detailed output logs of all the Povcal software calculations, including the estimated parameters of the Lorenz curve in each case. To bring OECD notions of poverty to this mostly non-OECD dataset requires extending Povcal's methodological framework in order to derive the median welfare measure directly from the parameters of the Lorenz curve which Povcal estimates from grouped distributional data. Once the median income has been derived for each Povcal observation (representing the welfare distribution for a single year in a single country) it can be used to evaluate relative poverty lines

equal to 60%, 50% and 40% of the median for each of these distributions. Conveniently, the equations underlying the Povcal software provide a convenient way for deriving the median directly from the estimated parameters of the Lorenz curve.

Recall that any Lorenz curve can be described as follows:

$$L(p) = \frac{1}{\mu}\int_0^p x(\rho)d\rho$$

where $L$ is the share of the bottom $p$ percent of the population enjoying the aggregate welfare measure $x$ and $\mu$ is the mean welfare measure (in the case of Povcal either monthly per capita expenditure or income in international PPP dollar terms.) Differentiating, we have the following relationship relating the Lorenz curve to the welfare measure and the mean:

$$L'(p) = \frac{x(p)}{\mu}$$

The median of the welfare measure will therefore be that where $p$ = 50%:

$$L'(0.5) = \frac{x(0.5)}{\mu}$$

We can then manipulate the two functional forms for the Lorenz curve used in Povcal (cf. Datt, 1998) to derive equations for the median as a function of the parameters of the Lorenz curve and the mean welfare measure (see Annex I).

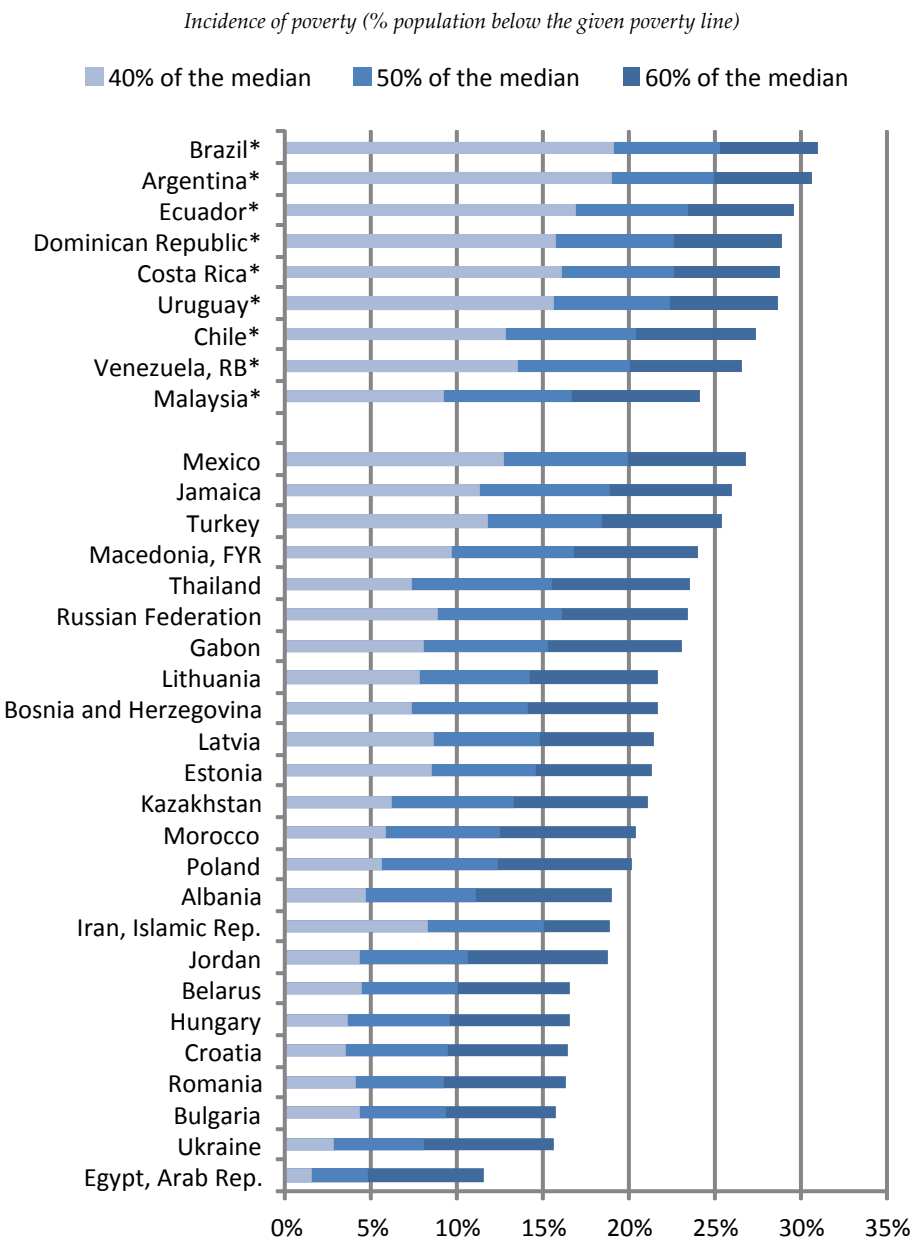
Once the median is calculated from the Lorenz curve parameterisations, we set poverty lines equal to 60%, 50%, and 40% of the median, similar to what is often done for OECD member countries (OECD, 2008) and emerging countries (OECD, 2010). We then used the original PovCal formulas for deriving the poverty headcount directly from the Lorenz curve parameters, the mean, and the given poverty lines. See Annex I for the results obtained for the most recent distributional data available from the PovcalNet database at the time of writing.

## Relative poverty headcounts for select developing countries

Figure 2 presents a cross-section of relative poverty figures from a number of (mostly middle-income) countries from the mid-2000s (2003-07). For a significant sample of countries, especially in the middle-income group, it shows how relative poverty rates provide useful information about the outcomes for the poor, which differs from the picture obtained by examining solely the dollar-a-day poverty line. While all the countries shown in Figure 2 have poverty headcounts below 5% using the dollar-a-day line, they vary dramatically in the share of their populations living in poverty defined by relative lines.[12]

12 These compare favourably to figures obtained directly from other sources. For example figures from EU-SILC find poverty rates (for a poverty line at 60% of median income) of 20% for Lithuania, 23% for Latvia, 18% for Estonia, 16% for Hungary and 18% for Bulgaria for year 2006 (Eurostat/EU-SILC). Similarly OECD (2011) estimates a poverty rate of 18% for Mexico (for a poverty line at 50% of median income).

Figure 2. **Relative poverty in countries where absolute poverty is 0-5% (mid 2000s)**




*Note:* Calculations based on consumption data, except *, based on distributions of income.

*Source:* Authors' calculations based on PovcalNet database.

# IV. ALTERNATIVES FOR COMPARATIVE AND GLOBAL POVERTY ANALYSIS

## Absolute vs relative poverty lines for comparative poverty analysis

International poverty lines, such as the dollar-a-day poverty line, are popular candidates for comparing poverty interventions. Haughton and Khandker (2010) go as far as stating that "legitimate comparisons of poverty rates between one country and another can only be made if the same absolute poverty line is used in both countries". The statement that the same line should be used depends crucially on the validity and legitimacy of that poverty line in both countries, which is likely to hold when both are low-income countries –because below a certain level of income, poverty lines are quite close to the dollar-a-day line—but not among two middle-income countries.[13]

Moreover, the dollar-a-day international poverty line is too low for many middle-income countries. First, because, as explained above, it may provide a much too low standard of living in a country relative to what is considered freedom from poverty in that country. Second, because it may only identify the very poorest, which are not the sole object of anti-poverty policy in countries with substantially higher poverty as measured by national criteria, and with substantially greater potential for the mobilisation of domestic resources through redistribution. That is not to say that a policy maker would not want to know the effect of social policies on the dollar-a-day poverty headcount, but they may not be willing to judge the success or failure of social policy on that count alone.

One alternative would be to use of a poverty line that would be constructed specifically to be suitable for two or more countries. However such a solution is impractical, because it requires the definition, calculation and estimation of poverty depending on the group of countries studied. Moreover, if poverty has an inherent relative component, the necessity of using a common *absolute* poverty line is not borne out by either practice or theory.

The choice of an absolute or relative poverty concept for policy purposes, particularly with respect to international comparisons, also differs according to the objective which the policy maker seeks to pursue. The preference for absolute, rather than relative lines to compare poverty between developing countries is often justified by the lexicographic relationship embodied in the "hierarchy of capabilities" described by Atkinson and Bourguignon (2001) and World Bank (1990). Physical survival embodied in a fixed basket of good encompassing nutrition and shelter

13 The use of a single absolute international line can be seen as particularly useful from the international community's perspective in order to allocate funds across countries based on a common measure of needs.

is considered the "first capability" and is seen to be the main priority and concern of international efforts to assist the disadvantaged, while social functioning that requires a set of goods which varies according income level is only a "second capability". The 1990 World Development Report pragmatically points out: "Physical survival has priority, and this is the first criterion by which policy should be evaluated, but relative poverty legitimately comes next on our list of concerns. (World Bank, 1990)

Work on poverty measurement for policy analysis in OECD countries has recognised that while absolute lines can help quantify effects of social programmes over relatively short-periods of time, they can become problematic when the basket of needs on which they are based changes. (Förster, 1994) Fixing a poverty threshold to an arbitrary basket of goods consumed or purchased in an initial period and then continuing to use that basket of goods to define poverty year after year, becomes ever greater a problem as the country grows and develops. For example, the validity over time of that basket of goods has generated some debate during the recent updating of the Indian poverty lines, which have their origins in a basket of goods first determined in the 1970s (Government of India, 2009). Additionally, the arbitrary nature of what constitutes basic needs in an absolute measure becomes problematic when comparing across countries. A primary virtue of using a relative measure to compare poverty across countries is that is wholly independent of a specific country's definition of basic needs. Relative measures will also change over time as the different levels of well-being within a society change.

## Proposals to estimate global poverty

A related problem is which poverty line (and measure) to use to assess the extent of poverty worldwide. The most popular estimates of global poverty are the headcount ratios using the international poverty line at USD 1.25 a day in PPP terms, regularly updated by the World Bank's research department. The discussion in the previous section highlighted the limits of such a measure for international comparisons. Moreover, given the differences in poverty lines across countries, this is an important problem, especially as the poor at the international USD 1.25 a day line are increasingly concentrated in Africa and a few large lower middle-income countries (especially India and China) (Sumner, 2012). Global poverty at one-dollar-a-day therefore concentrates on a certain form of poverty in certain countries.

An alternative is given by Ravallion and Chen (2011) who build on the work of Atkinson and Bourguignon (2001) to propose a comprehensive "weakly relative" poverty line that is bounded below by the value of the absolute international poverty line (USD1.25 in PPP terms) at low levels of per capita consumer expenditure and then increases with average income at a rate lower than 1. The Ravallion and Chen (2011) line is defined by $Z_{it} = \max [Z^*, a + kM_{it}]$ , where M denotes consumer expenditure per capita in the country and Z*, a and k are parameters, which the authors set at USD 1.25 a day, USD 0.60 a day and 1/3 respectively. This is an "extended Atkinson and Bourguignon" poverty line in that it subsumes one of the proposals by Atkinson and Bourguignon which is equivalent to setting a to zero and k to 0.37.

The proposal by Ravallion and Chen (2011) is therefore a combination of an absolute poverty line (Z*, set at the international dollar-a-day line) and a relative poverty line. The

parameters of the relative poverty line are estimated from the poverty lines used in individual countries.[14]

Similar in spirit is the proposal by Foster (1998) to use a poverty line determined by the geometric mean of an absolute and a relative poverty line – the latter set at a fixed proportion of the median or the mean so that the poverty line is $Z_{it} = z_a^{1-\rho} z_r^{\rho}$ where $z_r$ is a relative poverty line.

Although the present paper primarily aims at arguing that relative poverty lines based on a share of the median are appealing candidates for cross-country comparison, the same set of lines can be easily used to estimate a measure of world poverty combining both relative and absolute lines. Like the simple calculations used to illustrate Atkinson and Bourguignon (2001) and the more sophisticated estimates of global "weakly relative" poverty furnished by Ravallion and Chen (2011), relative lines based on a proportion of the median income or expenditure can be combined with an absolute international line to measure the extent of global poverty, or of poverty in the developing world as a whole. Figure 3 aggregates absolute and relative poverty headcounts from 114 countries to illustrate a simple estimation of the extent of poverty in the developing world in the mid-2000s using the three types of poverty defined by the "hierarchy of capabilities" described in the previous section. It must be stressed that these estimates are rough in the sense that they do not line up country-level estimates by country years, as do other global estimates of poverty that use the PovCal data (Ravallion, Chen, and Sangraula, 2009). Nonetheless these estimates corroborate the well known results that roughly 25% of the developing world was living under a dollar-a-day in 2005. At the same time, augmenting these well-known results with the use of relative poverty lines offers two important additional pieces of information. First, as many as slightly more than one half of those living under a dollar-a-day in the mid-2000s also happen to be relatively poor (using the 60% of median threshold). Secondly, in addition to the 25% of the developing world living on less than a dollar-a-day, an additional 8% of the developing world were not absolute poor, but were relatively poor (again, using the 60% threshold).

When these estimates are disaggregated by region, as Figure 4 does using a relative line set at 60% of median income or expenditure, it also becomes clear that the nature of global poverty varies dramatically between regions. South Asia and sub-Saharan Africa appear to be afflicted primarily by dollar-a-day poverty, which also includes a sizable relative component, reflecting the social exclusion of the extreme poor. Europe and Central Asia, Latin America and Caribbean, and Middle East North Africa in contrast face a poverty problem which is primarily relative in nature, although small but significant levels of absolute poverty persist, particularly in Latin America and Caribbean and Middle East North Africa. East Asia appears to be the only region that has both a sizable absolute poverty problem and a sizable relative poverty problem. While the contrasts between regions are striking, it is important to note that these regional estimates are less precise than the estimates provided in Figure 3, and are not strictly comparable

14 The parameter for the absolute poverty line could also be considered to be estimated on the basis of the poverty lines used by countries, as the 1.25 dollar-a-day line was in fact constructed as the average of the poverty lines used by the poorest countries. However, Ravallion and Chen (2011) prefer to keep the international poverty line for Z* rather than update it with their parametric estimate that best fits the data which is slightly lower.

to the regional estimates made by Ravallion, Chen and Sangraula (2009), since a simpler methodology was used to calculate them.

Figure 3. **Poverty in the developing world in the mid-2000s combining the USD 1.25, PPP line with various relative poverty lines**

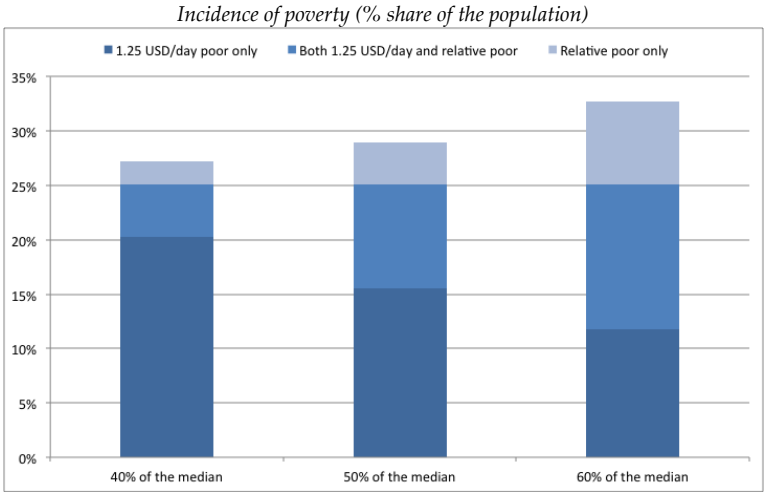
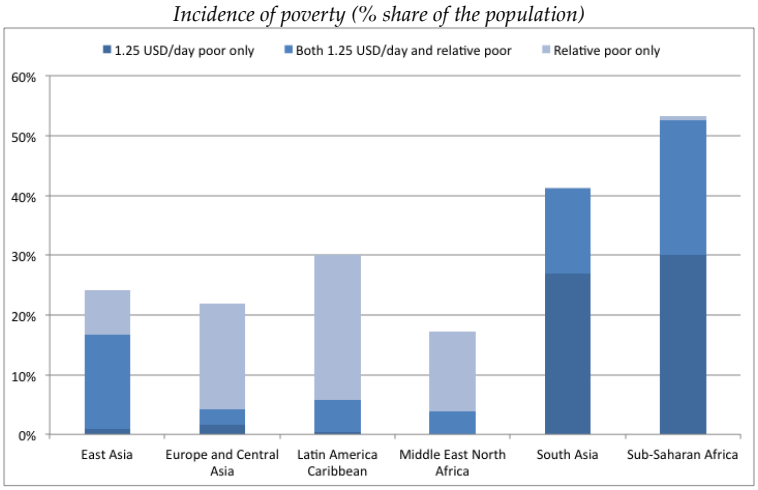



Figure 4. **Regional poverty in the mid-2000s combining the USD 1.25, PPP / day line and a relative line set at 60% of median income or expenditure**




## The income elasticity of the poverty line

The various proposals to combine relative and absolute poverty differ in particular in how the poverty line changes for a country when that country's income distribution changes. Poverty lines defined as a proportion of the mean or median are "strongly relative" in the words of Ravallion (2010), in the sense that the elasticity of the poverty line to mean income is unity. This property implies that a proportional increase in all incomes (or all levels of consumption) in an economy leaves the poverty measure unaltered (Ravallion and Chen, 2011). Ravallion and Chen (2011) propose a Weak Relativity Axiom that excludes this behaviour: it posits that if all

incomes increase (decrease) by the same proportion, then an aggregate poverty measure must fall (rise). Indeed, their proposed poverty schedule has elasticity zero for mean incomes up to USD 1.95 a day and then elasticity rising from 0.5 at USD 1.95 a day up to an asymptotic value of unity. Conversely, Foster's (1998) effort to unite absolute and relative poverty has constant elasticity equal to the parameter $\rho$.

A poverty line defined relative to the median of the welfare measure, rather than to the mean is also "strongly relative" in that it violates Ravallion and Chen's (2011) Weak Relativity Axiom. Indeed, when all incomes increase by a given proportion, the median increases by the same proportion.

The theoretical argument for the Weak Relativity Axiom rests on the fact that none of the theoretical justifications for the use of relative poverty lines argues convincingly for unit elasticity of the poverty line with respect to mean incomes. We find that to be true if the poverty line is based on the importance of relative deprivation in welfare. However, if the poverty line is meant to capture the cost of social inclusion, its elasticity may be high even for low income. Indeed, unit elasticity implies that the income needed to fulfil social inclusion goes to zero at the limit only as the *average* income of the reference group goes to zero. The set of social expenditures that constitute a necessity for social inclusion depends strongly on the characteristics of societies. The cost of some forms of social expenditures – such as mutual gifts – is conceivably proportional to standards of living, as it is relevant to the extent that the social group can partake in it. Other expenditures may impose a lower bound on the cost of social inclusion even at very low levels of income. In the proposal of this paper, such a fixed part of the cost of social inclusion should be included in the absolute poverty line.

The second argument is empirical. Based on poverty line data collected by Ravallion, Chen and Sangraula (2009), the elasticity of national poverty lines with respect to mean consumer expenditure is estimated to be significantly lower than unity (at about 2/3). However, a constant elasticity poverty schedule is not the best fit for actual poverty lines, as shown in Figure 5, which shows a non-parametric regression of national poverty lines with respect to average living standards for developing countries, following Ravallion and Chen (2011). Indeed, elasticities do tend towards unity if the sample is extended to OECD countries, if anything because a number of them explicitly use strongly relative poverty lines.

## Poverty lines and distributional concerns

A different concern is whether the schedule of poverty lines should better reflect the idiosyncrasies of the distribution of welfare across countries. Not only are poverty lines positively related to average welfare, but the dispersion of poverty lines across countries is also greater at higher levels of average income.[15]

Relative poverty lines set at a proportion of the median offer one way of incorporating distributional concerns in the definition of the poverty line while incorporating the dispersion of

15 A quantile regression shows that the interquantile range in the distribution of poverty lines rises significantly with average income.

national poverty lines at higher levels of income. Indeed, the correlation of a relative poverty line defined with respect to the median and national poverty lines is high[16] (0.87).

Linking the poverty line to the median also focuses all of the analysis on the bottom of the income distribution. That is, the poverty line does not depend on the distribution of incomes above the median. By virtue of the focus axiom (Sen, 1976) (that poverty measures only depend on the incomes of the poor once they are identified), poverty measures built on the basis of axiomatic approaches using a relative poverty line anchored on the median are therefore independent of incomes in the top of the distribution.

In practice, using the median as the reference point for the poverty line leads to less volatile poverty measures than using the mean (Saunders and Smeeding, 2002). It also leads to lower poverty headcounts, if the same proportion is used, as the median of the income distribution is typically below the mean. The latter point is secondary as the comparison is not necessarily appropriate.[17]

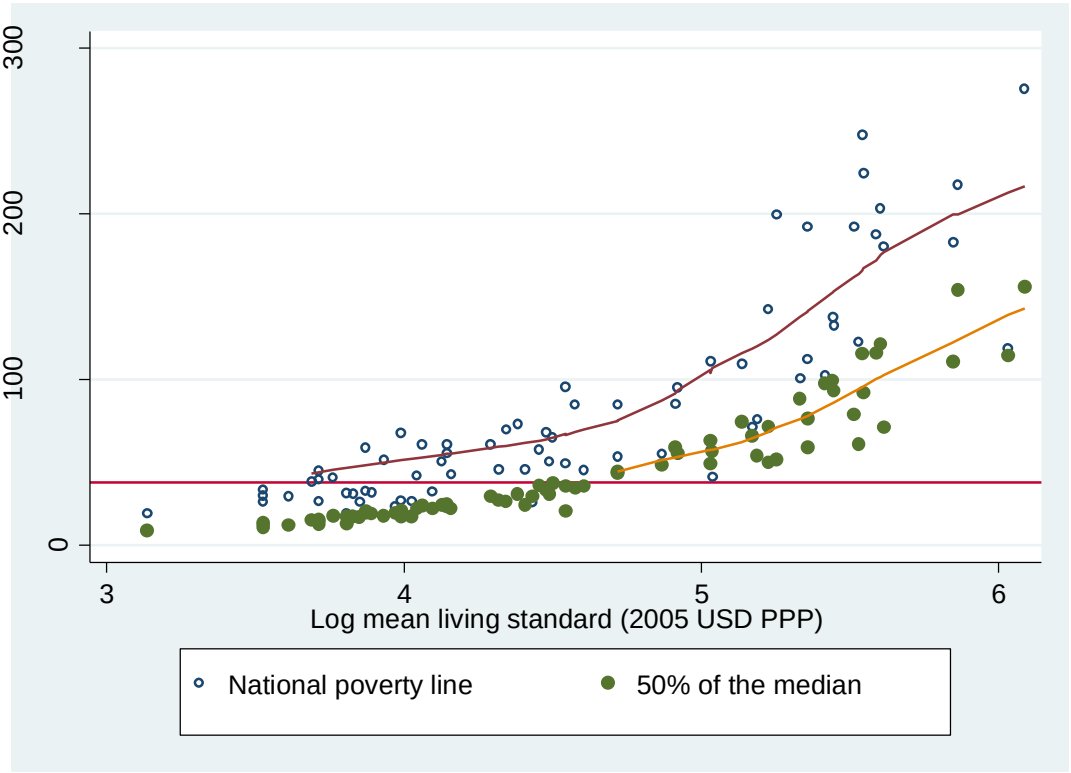
The weak relativity axiom ensures that distributionally neutral growth leads to poverty reduction. Ferreira (2010) summarises work on the so-called "poverty, inequality, and growth triangle" in a number of stylised facts that the research has established with respect to welfare distribution dynamics and reminds us that growth is distribution neutral on average across countries, but he also points to the fact that individual countries vary dramatically in the distributional consequences of their growth path. Following Bourguignon (2003), absolute poverty reduction can be seen to be composed of two parts: one, a growth component and the other, a re-distribution component. Holding the distribution neutral, growth indeed will by definition reduce absolute poverty by raising average living standards in sufficiently "poor", *i.e.* by the dollar-a-day standard, countries. However higher levels of inequality will constrain the effectiveness of poverty reduction by increasing the magnitude of growth needed to reduce poverty. The more unequal the distribution is, the greater the amount of growth needed to decrease the (absolute) poverty headcount by a given amount.

In this way, poverty defined more broadly to encompass both dimensions of the hierarchy of capabilities unites poverty and distributional concerns. Using the median as the reference point for the poverty line is one way of incorporating distributional parameters in poverty measurement. It is a pragmatic way for dealing with the idiosyncrasies of the distributional effects of growth.

16 This is the same order of magnitude as the correlation of Ravallion and Chen's (2011) weakly relative poverty schedule with national poverty lines.

17 A country wishing to set the poverty line at 50% of the mean at a given point in time would probably set it at a higher proportion of the median at the same time, precisely because the median is typically below the mean.

Figure 5. **The economic gradient of national and relative poverty lines for 74 countries**




*Source:* Authors' calculations based on PovcalNet and Ravallion and Chen (2008).

## Relative poverty lines and national debates on poverty

Importantly, as shown in Figure 5, the use of a relative poverty measure based on 50% of the median living standard mimics the shape of Ravallion and Chen's datapoints quite well. Moreover, such a measure can be seen to behave as a lower bound on Chen and Ravallion's weakly relative poverty concept. The greater variation in the data at higher levels of mean living standards can also be seen to reflect greater variation in the social subjectivity of poverty lines at higher levels of development. Indeed, the political nature by which societies choose to set their national lines may become more salient at higher levels of economic (and institutional) development. A tendency for higher income countries to politically decide to choose a higher poverty line than what might otherwise be the most socially salient poverty line would bias upward the regressions on which Ravallion and Chen's income elasticity of the poverty line is based. As Foster (1998) points out: "The subject of public discourse should be (the elasticity of the poverty line to living standards); the choice (...) would then answer the normative question: 'to what extent should the poor share in economic growth?'" Citing Fuchs (1969), he reminds us that it is desirable for the setting of the poverty line to be recognised as "a national value judgement... arrived at through the normal political process". To respect differing national predispositions to this type of debate, a strongly relative line can indeed be very fruitfully used to compare countries and their distributional growth experiences impartially, rather than impose assumptions about the distributional neutral effects of growth.

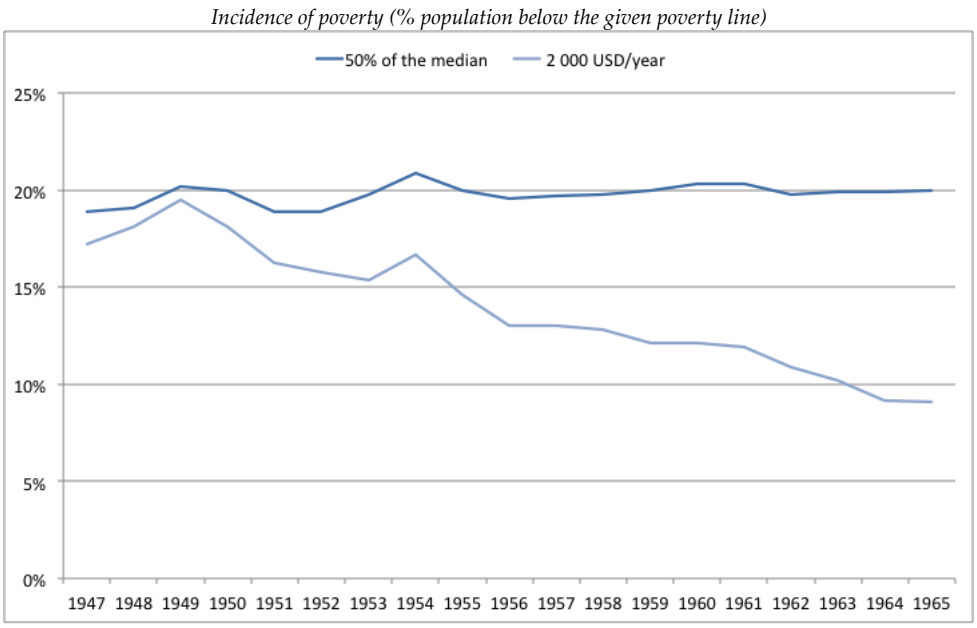
# V. POVERTY MEASUREMENT AND POLICY ANALYSIS IN BRAZIL, CHINA AND THE UNITED STATES

Using measures of poverty based on both absolute and relative poverty lines shows remarkable conformity between the evolution of poverty in Brazil in recent years and the fall of poverty in the United States after the end of World War II. In both cases, while absolute poverty has been on a long downward trend, relative poverty has remained stubbornly high. However, in Brazil, relative poverty has declined slightly since the beginning of the 1990s.

Fuchs (1969) offered one of the first arguments in favour of a relative versus an absolute poverty line for measuring the number of people living on low incomes in the United States.[18] His argument relied on the observation that the official, absolute poverty line showed constant improvement, while a relative line revealed no progress. Using the official absolute poverty line, the United States documented continual reductions in the size of its poor population during the first two decades of post-war growth. When measured with a relative poverty line set at 50% of median income, the share of the American population that could be described as poor stayed relatively constant over the same period. Figure 6 shows how the share of the population who have incomes under the poverty line when it is defined as a fixed standard of 2 000 constant 1965 US dollars per year declined considerably in the two decades of the post-war period. At the same time, however, increases in median income prevented decreases in the share of the population living below 50% of the median income, which stayed roughly constant at approximately one-fifth of the population. In this way, a constant share of the population can be thought of as falling below acceptable minimum standards for participating in American society during the post-war period. Essentially, this share of the population can be thought of as not enjoying the benefits of the post-war economic growth boom, which over the period 1947-65 saw average real GDP growth exceed 4% on an annualised basis, according to statistics available from the U.S. Department of Commerce's Bureau of Economic Analysis. The same data also shows that personal consumption expenditure over this period increased roughly 3.7% annually and durable goods consumption increased 5.2% annually over the period, so clearly some part of the population enjoyed benefits of the post-war economic expansion. It is clear from the stability of relative poverty figures over this period however that this expansion did nothing to bring the poorest fifth of the population closer to the living standard enjoyed by the middle of the income distribution.

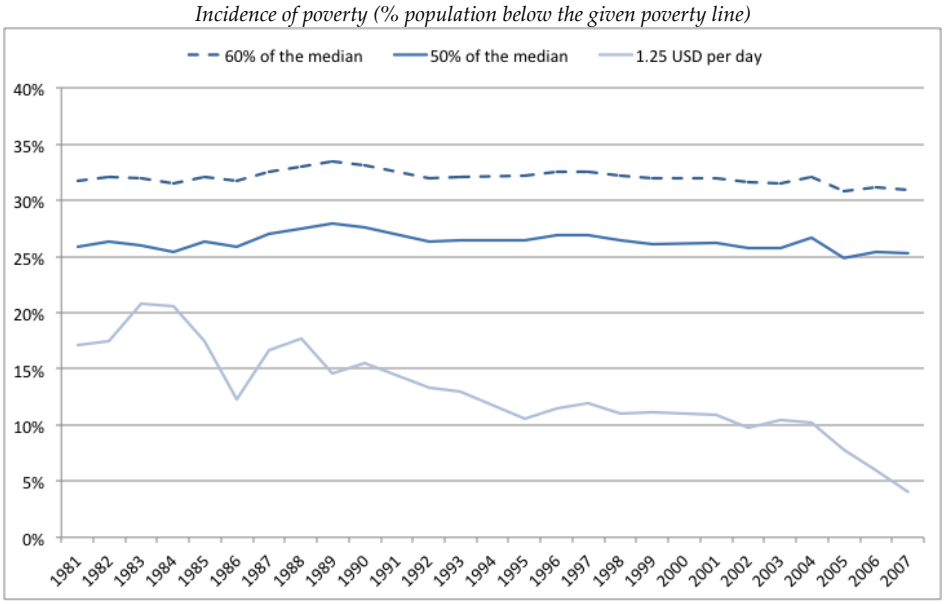
18 Peter Townsend had been arguing for a relative poverty line in the United Kingdom since the early 1960s. His arguments are presented in Townsend (1979).

Figure 6. **Absolute versus relative poverty in the United States, 1947-65**




*Source:* Fuchs (1969) based on United States Census Bureau data.

Figure 7. **Absolute versus relative poverty in Brazil, 1981-2007**




*Note*: Missing data has been interpolated.

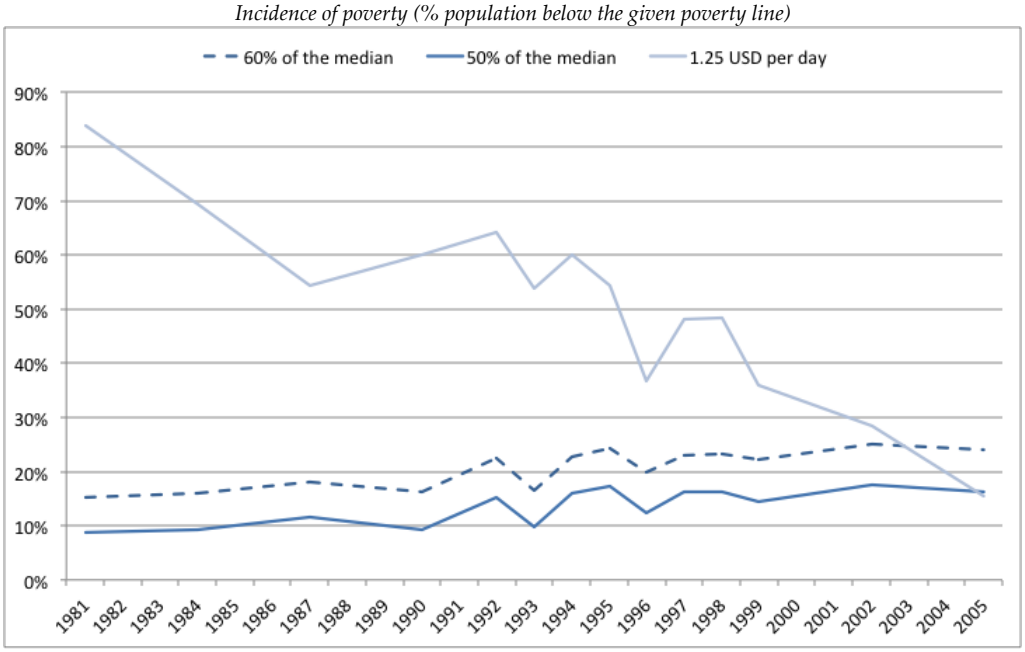
*Source:* Authors' calculations based on PovcalNet (2010).

The trajectory of poverty in Brazil over the last two decades is very similar to that of the United States during the post-war period. As shown by Figure 7, absolute poverty defined by the dollar-a-day standard declined as a share of the population substantially, dropping below 5% in the most recent figures. Over the same period however, the share of the population living on less

than half of the median living standard remained stable at roughly one-quarter of the population, while the share of the population living on less than 60% of the median remained roughly one-third. This state of affairs is illustrative of the fact that in many countries the nature of poverty has changed over the last couple decades as countries grow and develop. The case of China paints an even more extreme picture.

As Figure 8 demonstrates, while China has made enormous inroads in eliminating dollar-a-day absolute poverty, relative poverty based on the share of the population living below half of median consumer expenditure has actually increased. Whereas in the case of the United States and Brazil, relative poverty remained a problem for a large share of the population despite progress against the absolute poverty line, in China we may in fact be seeing the replacement of one problem with another. According to the hierarchy of capabilities, Figure 8 shows that China has only very recently crossed the threshold where a concern with relative poverty only is of greater importance than concerns with dollar-a-day poverty. Moreover the upward trend in the Chinese data reflects that rather than a nagging and persistent problem, relative poverty may be a growing problem in the country. Clearly more and more people are being excluded from the customary activities of Chinese society, despite the fact that fewer run the risk of starving than ever before.

Figure 8. **Absolute versus relative poverty in China, 1981-2005**



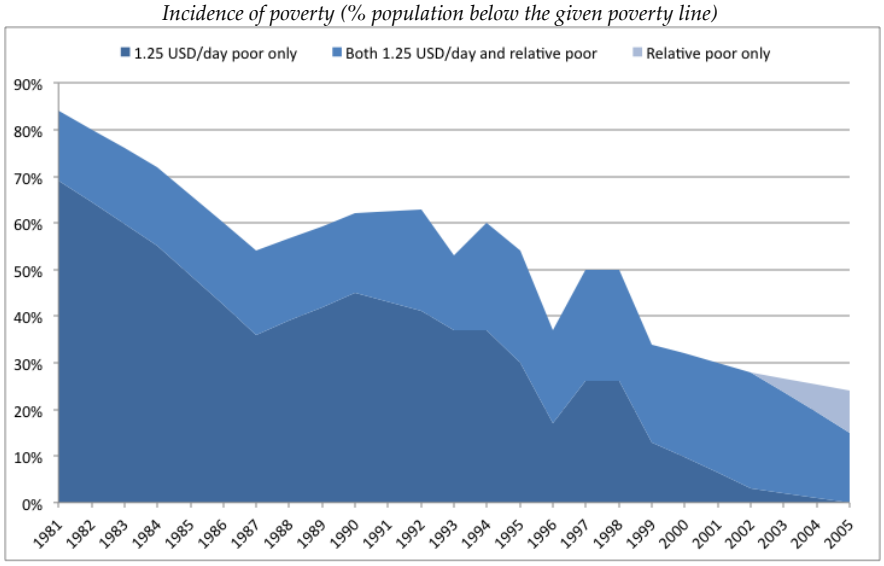

*Note*: Missing data have been interpolated.

*Source:* Authors' calculations based on PovcalNet (2010).

The comparison between Brazil and China can also be used to illustrate the transition from a situation where the relative poverty line is below the absolute poverty line to one where the relative poverty line is above the absolute poverty line. It is instructive to look at the total poverty count in both countries based on the share of people who are only absolute poor, are

both absolute and relative poor, and those who are only relative poor. Figure 9 and Figure 10 demonstrate the evolution of these three groups of poor in China and Brazil, respectively. Figure 9 reveals again the dramatic decline in absolute poverty in China over the last thirty years. It is also noticeable that within the total amount of absolute poor a steady amount are relatively poor as well. Then between 2002 and 2005 it is clear that a new group of relative only poor emerges, as the relative poverty line moves above the dollar-a-day threshold.

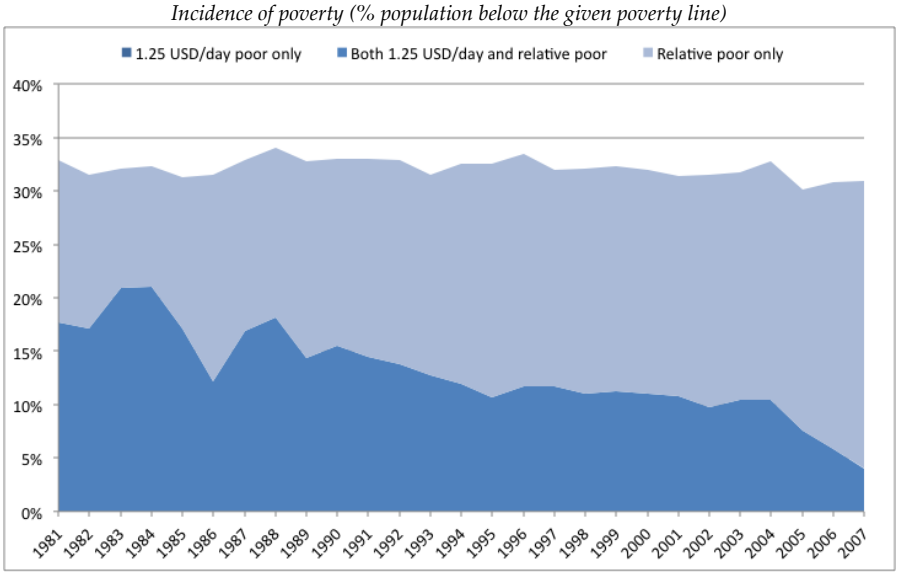
Figure 9. **Total poverty headcount in China, 1981-2005**




*Note*: Missing data have been interpolated.

*Source:* Authors' calculations based on PovcalNet (2010).

Figure 10. **Total poverty headcount in Brazil, 1981-2007**




*Note*: Missing data have been interpolated.

*Source:* Authors' calculations based on PovcalNet (2010).

In contrast, this "emerging" poor population, who are only relative poor, was already well entrenched in Brazil at the beginning of the 1980s, as Figure 10 demonstrates. As absolute poverty reduction continues apace throughout the last thirty years in Brazil, the relative-only component of poverty grows substantially and comes to dominate what is meant by poor in the country. The total share of the population who can be considered as poor under either line stays roughly constant at around one-third of the population.

Does the Brazilian case offer a glimpse of what the future holds for poverty in China? In fact, whereas the total poverty headcount under a combined measure stayed constant in Brazil, if trends continue as they have in the past in China, they may actually increase further in China. In both countries, it is clear that even once dollar-a-day poverty is eliminated, a substantial poverty problem will remain, much as the poor remain socially excluded in many OECD countries.

Absolute and relative poverty can, and often do, move in opposite directions, in particular as incomes become increasingly concentrated in the bottom part of a moving distribution. As in the case of China, this does not dispel the success of falling extreme poverty. However, it highlights that issues linked to relative poverty often require different policies to ensure that incomes among those at the bottom of the income distribution are sufficient to ensure their social inclusion.

# VI. CONCLUSION AND IMPLICATIONS FOR POLICY ANALYSIS AND DESIGN

Poverty is measured differently in developing and advanced countries, which leads to gaps in the understanding of what poverty is across countries and to difficulties in sharing knowledge on how to best address poverty.

This paper suggests that poverty measures based on a relative poverty line are relevant for many developing countries. We propose to use a poverty line at a fixed proportion of the median of the selected welfare metric (income or consumer expenditure), particularly whenever this line is above an international absolute poverty line. Nonetheless, even when this relative line falls below the absolute line, it provides valuable information about the distribution of welfare among the poor. This proposal follows the spirit of Atkinson and Bourguignon's (2002) proposal to operationalise poverty measures that combine absolute and relative measures. It builds on the idea that absolute and relative poverty reflect failings in different capabilities, respectively linked to survival and integration. While the development agenda has largely focused on the first in the past decades, the second should be given its rightful place.

The use of a relative poverty line incorporates concerns about inequality into poverty discussions. It does so by focusing on inequality at the bottom of the income distribution. Indeed, much of the evolution of inequality (especially but not only in advanced economies) has been driven by incomes at the top of the income distribution. The use of the median rather than the mean of income or expenditure to anchor the poverty line ensures this focus.

High growth and the reduction of poverty as measured at the absolute line of USD 1.25 PPP a day in a number of countries has produced a group of middle income countries that can benefit from comparison of their performance in poverty reduction with advanced economies. Relative poverty lines provide a useful benchmark to facilitate such a discussion. Moreover, countries tend to use poverty lines that, although defined in absolute terms, are higher in countries with higher standards of living. Indeed, our proposed relative poverty lines are rather conservative, often falling below the absolute poverty lines used in individual countries.

Rather than rely on a hybrid poverty line, using both the dollar-a-day and the relative line in complement allows sufficient attention to be paid both to the differences between poverty in rich and poor countries, and the social comparisons and political discussions that produce such a wider variety of poverty lines in middle and high income countries. Particularly given the different distributional impacts of growth across countries, the 50% relative poverty line allows relative poverty to remain comparable despite the varying trajectories of inequality levels experienced in different countries.

# ANNEX 1

## Step-by-step calculation of relative poverty based on estimated parametric Lorenz curves

Following Datt (1998), the functional form of the Beta model of the Lorenz curve, which defines the Lorenz curve as a function of the mean and the parameters $\theta$, $\gamma$, $\delta$ estimated by Povcal is as follows:

$$L(p) = p - \theta p^{\gamma}(1-p)^{\delta}$$

Differentiating leads to:

$$L'(p) = 1 - \theta p^{\gamma}(1-p)^{\delta}\left[\frac{\gamma}{p} - \frac{\delta}{1-p}\right]$$

Which evaluated at the median reduces to:

$$L'(0.5) = 1 - \theta(\gamma - \delta)\left(\frac{1}{2}\right)^{\gamma+\delta-1}$$

Giving us the following equation for the median:

$$x(0.5) = \mu\left[1 - \theta(\gamma - \delta)\left(\frac{1}{2}\right)^{\gamma+\delta-1}\right]$$

In a similar fashion also based on Datt (1998), the functional form for the Generalised Quadratic model of the Lorenz cuve, which defines the Lorenz curve as a function of the mean and the parameters $a$, $b$, $c$ estimated by Povcal, is specified as follows:

$$L(p) = -\frac{1}{2}\left[bp + e + (mp^2 + np + e^2)^{1/2}\right]$$

Where $e = -(a + b + c + 1)$, $m = b^2 - 4a$, $n = 2be - 4c$, and $r = (e^2 - 4me^2)^{1/2}$
Differentiating leads to:

$$L'(p) = -\frac{b}{2} - \frac{(2mp + n)(mp^2 + np + e^2)^{-1/2}}{4}$$

Which evaluated at the median reduces to:

$$L'(0.5) = -\frac{b}{2} - \frac{(m + n)(m/4 + n/2 + e^2)^{-1/2}}{4}$$

Giving us the following equation for the median:

$$x(0.5) = \mu\left[-\frac{b}{2} - \frac{(m + n)(m/4 + n/2 + e^2)^{-1/2}}{4}\right]$$

Once the median is extrapolated from the Lorenz curve parameterisations, we set poverty lines equal to 60%, 50%, and 40% of the median, similar to what is often done for OECD member countries (OECD, 2008) and emerging countries (OECD, 2010). We then used the original PovCal

formulas for deriving the poverty headcount directly from the Lorenz curve parameters, the mean, and the given poverty lines.

In practice, calculating the headcount using the Generalized Quadratic model is straight forward as the specified equation is a closed form equation thus permitting an analytical solution. In this case the poverty headcount $H$ is defined as follows:

$$H = -\frac{1}{2m}\left[n + r(b + 2\,z/\mu)\{(b + 2\,z/\mu)^2 - m\}^{-1/2}\right]$$

The equation defining the Beta model on the other hand is an open form expression and requires numerically solving an implicit non-linear equation. While somewhat more time consuming, this only poses a slightly greater challenge in deriving the headcount relative poverty rates for those distributions for which the valid Beta parameterisation was deemed a better fit. Under the Beta model, the poverty headcount $H$ is defined as follows:

$$\theta H^{\gamma}(1-H)^{\delta}\left[\frac{\gamma}{H} - \frac{\delta}{(1-H)}\right] = 1 - \frac{z}{\mu}$$

For each distribution, we used the parameterisation that fits the data best according to the verification procedure built into the Povcal software. The verification procedure performs a simple goodness of fit measure, and then checks the validity of both functional forms of the Lorenz curve. Where both Lorenz curves were valid, we used the the functional form that fit the data better. If the better fitting parameterisation was invalid, we used the valid alternative. In cases were neither was valid, we used the better fitting form. The latter two cases account for only a handful of the more than 500 distributions we analysed.

The only distributions which posed further difficulties for calculation were three of the large BIIICS countries, namely China, India and Indonesia. Povcal's data on these large emerging giants is divided between urban and rural samples. Deriving the headcount absolute dollar-a-day poverty figures is easily populated with the rural/urban population data drawn from the World Development Indicators. Headcount relative poverty is a bit trickier since it requires finding the median from an aggregated combination of the two distributions. For simplicity of computation for these countries, only the Generalized Quadratic parameterisations of the distributions in question were used. To identify the median for each distribution, it was necessary to solve for z in the headcount equation, such that

$$\frac{H_{urban} * Population_{urban} + H_{rural} * Population_{rural}}{Population_{total}} = .5$$

# ANNEX 2

## Relative poverty headcounts and numbers of poor in 114 developing countries

## (Relative poverty calculated using a 60% of the median poverty line)

| Country | Year | Population | Mean (2005 USD-PPP) | Median (2005 USD-PPP) | Poverty headcount with poverty line set at | | | | Numbers of poor (absolute only) | Numbers of poor (both absolute and relative*) | Numbers of poor (relative* only) | Survey type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 60% of the median | 50% of the median | 40% of the median | USD 1.25 / day | | | | |
| Angola | 2000 | 13 926 373 | 63 | 34 | 34% | 29% | 23% | 54% | 2 874 930 | 4 688 484 | | Expenditure |
| Albania | 2005 | 3 141 800 | 162 | 134 | 19% | 11% | 5% | 1% | | 26 705 | 568 236 | Expenditure |
| Argentina | 2006 | 39 023 850 | 393 | 264 | 31% | 25% | 19% | 3% | | 1 092 668 | 10 848 307 | Income |
| Armenia | 2003 | 3 060 554 | 84 | 66 | 13% | 6% | 2% | 11% | | 325 337 | 58 936 | Expenditure |
| Azerbaijan | 2005 | 8 391 850 | 135 | 126 | 2% | 0% | 0% | 0% | | 2 518 | 136 271 | Expenditure |
| Burundi | 2006 | 7 474 363 | 29 | 22 | 12% | 1% | 0% | 81% | 5 187 538 | 890 614 | | Expenditure |
| Benin | 2003 | 7 164 976 | 53 | 39 | 20% | 12% | 5% | 47% | 1 946 241 | 1 444 942 | | Expenditure |
| Burkina Faso | 2003 | 13 395 599 | 47 | 34 | 20% | 12% | 5% | 57% | 4 910 527 | 2 663 345 | | Expenditure |
| Bangladesh | 2005 | 140 587 920 | 48 | 38 | 14% | 4% | 0% | 50% | 51 873 540 | 19 081 184 | | Expenditure |
| Bulgaria | 2003 | 7 823 000 | 206 | 179 | 16% | 9% | 4% | 0% | | | 1 225 006 | Expenditure |
| Bosnia and Herzegovina | 2004 | 3 781 358 | 348 | 279 | 22% | 14% | 7% | 0% | | 6 050 | 810 447 | Expenditure |

| Country | Year | Population | Mean (2005 USD-PPP) | Median (2005 USD-PPP) | Poverty headcount with poverty line set at | | | | Numbers of poor (absolute only) | Numbers of poor (both absolute and relative*) | Numbers of poor (relative* only) | Survey type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 60% of the median | 50% of the median | 40% of the median | USD 1.25 / day | | | | |
| Belarus | 2005 | 9 775 591 | 311 | 277 | 17% | 10% | 4% | 0% | | | 1 617 174 | Expenditure |
| Bolivia | 2005 | 9 146 655 | 204 | 113 | 33% | 28% | 23% | 20% | | 1 794 574 | 1 251 605 | Income |
| Brazil | 2007 | 189 798 070 | 347 | 202 | 31% | 25% | 19% | 4% | | 7 695 628 | 51 119 228 | Income |
| Bhutan | 2003 | 624 431 | 95 | 61 | 25% | 17% | 9% | 26% | 8 739 | 155 050 | | Expenditure |
| Botswana | 1994 | 1 546 414 | 128 | 61 | 30% | 23% | 16% | 31% | 22 736 | 460 209 | | Expenditure |
| Central African Rep. | 2003 | 3 890 075 | 42 | 30 | 26% | 19% | 12% | 62% | 1 400 427 | 1 001 420 | | Expenditure |
| Chile | 2006 | 16 468 677 | 450 | 266 | 27% | 20% | 13% | 0% | | 31 290 | 4 466 277 | Income |
| China | 2005 | 1 303 719 936 | 108 | 78 | 24% | 16% | 9% | 15% | | 201 277 264 | 111 131 968 | |
| Côte d'Ivoire | 2002 | 17 180 648 | 101 | 64 | 24% | 17% | 10% | 23% | | 4 009 963 | 168 839 | Expenditure |
| Cameroon | 2001 | 16 039 737 | 77 | 53 | 24% | 17% | 9% | 33% | 1 378 126 | 3 884 512 | | Expenditure |
| Congo, Dem. Rep. | 2006 | 59 088 415 | 46 | 32 | 25% | 18% | 10% | 59% | 20 143 748 | 14 848 410 | | Expenditure |
| Congo, Rep. | 2005 | 3 533 177 | 54 | 35 | 26% | 19% | 11% | 54% | 976 488 | 934 961 | | Expenditure |
| Colombia | 2006 | 43 696 540 | 221 | 117 | 33% | 28% | 22% | 16% | | 6 995 816 | 7 333 600 | Income |
| Comoros | 2004 | 625 876 | 94 | 42 | 30% | 24% | 17% | 46% | 100 314 | 188 278 | | Expenditure |
| Cape Verde | 2001 | 445 096 | 123 | 75 | 27% | 21% | 13% | 21% | | 91 512 | 30 864 | Expenditure |
| Costa Rica | 2005 | 4 309 413 | 309 | 208 | 29% | 23% | 16% | 2% | | 102 133 | 1 136 700 | Income |
| Czech Republic | 1996 | 10 315 000 | 495 | 435 | 11% | 4% | 0% | 0% | | | 1 095 698 | Income |
| Djibouti | 2002 | 765 283 | 94 | 71 | 24% | 16% | 9% | 19% | | 144 179 | 36 156 | Expenditure |
| Dominican Republic | 2006 | 9 398 285 | 269 | 162 | 29% | 23% | 16% | 4% | | 372 172 | 2 342 593 | Income |
| Algeria | 1995 | 28 291 592 | 120 | 97 | 22% | 14% | 7% | 7% | | 1 920 999 | 4 263 221 | Expenditure |
| Ecuador | 2007 | 13 849 721 | 307 | 175 | 30% | 23% | 17% | 5% | | 649 552 | 3 438 324 | Income |
| Egypt, Arab Rep. | 2005 | 74 203 216 | 113 | 90 | 12% | 5% | 2% | 2% | | 1 476 644 | 7 099 564 | Expenditure |
| Estonia | 2004 | 1 348 999 | 309 | 249 | 21% | 15% | 8% | 0% | | | 287 366 | Expenditure |

| Country | Year | Population | Mean (2005 USD-PPP) | Median (2005 USD-PPP) | Poverty headcount with poverty line set at | | | | Numbers of poor (absolute only) | Numbers of poor (both absolute and relative*) | Numbers of poor (relative* only) | Survey type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 60% of the median | 50% of the median | 40% of the median | USD 1.25 / day | | | | |
| Ethiopia | 2005 | 74 263 864 | 51 | 43 | 13% | 6% | 0% | 39% | 19 260 934 | 9 731 678 | | Expenditure |
| Gabon | 2005 | 1 370 729 | 150 | 109 | 23% | 15% | 8% | 5% | | 66 343 | 248 756 | Expenditure |
| Georgia | 2005 | 4 361 200 | 116 | 89 | 25% | 18% | 12% | 13% | | 586 145 | 505 867 | Expenditure |
| Ghana | 2006 | 22 170 556 | 78 | 57 | 26% | 19% | 12% | 30% | 966 004 | 5 682 945 | | Expenditure |
| Guinea | 2003 | 8 743 954 | 37 | 26 | 24% | 17% | 9% | 70% | 4 037 669 | 2 094 466 | | Expenditure |
| Gambia, The | 2003 | 1 417 818 | 81 | 53 | 27% | 20% | 13% | 34% | 107 414 | 379 465 | | Expenditure |
| Guinea-Bissau | 2002 | 1 289 526 | 48 | 39 | 20% | 12% | 6% | 49% | 375 125 | 254 551 | | Expenditure |
| Guatemala | 2006 | 13 034 904 | 192 | 114 | 38% | 24% | 17% | 13% | | 1 648 915 | 3 296 279 | Income |
| Guyana | 1998 | 730 458 | 180 | 132 | 26% | 19% | 13% | 8% | | 56 099 | 130 416 | Income |
| Honduras | 2006 | 7 017 769 | 184 | 110 | 32% | 27% | 21% | 18% | | 1 276 532 | 985 318 | Income |
| Croatia | 2005 | 4 442 000 | 693 | 602 | 16% | 9% | 3% | 0% | | | 728 643 | Expenditure |
| Haiti | 2001 | 8 791 931 | 64 | 33 | 32% | 26% | 20% | 55% | 2 030 758 | 2 796 013 | | Income |
| Hungary | 2004 | 10 107 146 | 386 | 330 | 16% | 10% | 4% | 0% | | | 1 666 265 | Expenditure |
| Indonesia | 2005 | 227 303 168 | 75 | 58 | 17% | 9% | 1% | 22% | 11 650 949 | 37 897 664 | | Expenditure |
| India | 2005 | 1 094 583 040 | 54 | 42 | 14% | 6% | 0% | 41% | 298 191 360 | 153 437 888 | | |
| Iran, Islamic Rep. | 2005 | 69 732 008 | 198 | 153 | 19% | 15% | 8% | 1% | | 1 011 114 | 12 110 874 | Expenditure |
| Jamaica | 2004 | 2 638 100 | 274 | 184 | 26% | 19% | 11% | 0% | | 6 331 | 679 366 | Expenditure |
| Jordan | 2006 | 5 537 000 | 210 | 159 | 19% | 11% | 4% | 0% | | 21 041 | 1 015 719 | Expenditure |
| Kazakhstan | 2003 | 14 909 019 | 134 | 110 | 21% | 13% | 6% | 3% | | 465 161 | 2 671 342 | Expenditure |
| Kenya | 2005 | 35 614 576 | 112 | 74 | 26% | 19% | 12% | 20% | | 7 023 195 | 2 214 956 | Expenditure |
| Kyrgyz Republic | 2004 | 5 092 802 | 73 | 59 | 18% | 10% | 2% | 22% | 183 827 | 926 913 | | Expenditure |
| Cambodia | 2004 | 13 193 961 | 64 | 44 | 19% | 10% | 1% | 40% | 2 767 667 | 2 534 986 | | Expenditure |
| Lao PDR | 2002 | 5 496 700 | 51 | 41 | 15% | 7% | 2% | 44% | 1 598 866 | 817 484 | | Expenditure |
| St. Lucia | 1995 | 145 437 | 99 | 73 | 27% | 20% | 14% | 21% | | 30 440 | 8 327 | Income |

| Country | Year | Population | Mean (2005 USD-PPP) | Median (2005 USD-PPP) | Poverty headcount with poverty line set at | | | | Numbers of poor (absolute only) | Numbers of poor (both absolute and relative*) | Numbers of poor (relative* only) | Survey type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 60% of the median | 50% of the median | 40% of the median | USD 1.25 / day | | | | |
| Liberia | 2007 | 3 477 197 | 27 | 21 | 20% | 13% | 8% | 84% | 2 225 406 | 695 439 | | Expenditure |
| Sri Lanka | 2002 | 19 134 096 | 100 | 71 | 20% | 11% | 4% | 14% | | 2 669 207 | 1 138 037 | Expenditure |
| Lesotho | 2003 | 2 028 976 | 72 | 45 | 31% | 26% | 20% | 43% | 247 058 | 633 721 | | Expenditure |
| Lithuania | 2004 | 3 435 591 | 308 | 250 | 22% | 14% | 8% | 0% | | 14 773 | 727 436 | Expenditure |
| Latvia | 2004 | 2 312 819 | 351 | 285 | 21% | 15% | 9% | 0% | | | 496 340 | Expenditure |
| Morocco | 2007 | 31 011 199 | 161 | 117 | 20% | 12% | 6% | 3% | | 775 280 | 5 541 916 | Expenditure |
| Moldova | 2004 | 3 603 934 | 107 | 85 | 19% | 12% | 5% | 8% | | 293 360 | 407 896 | Expenditure |
| Madagascar | 2005 | 17 885 968 | 45 | 29 | 19% | 12% | 5% | 68% | 8 669 826 | 3 462 226 | | Expenditure |
| Mexico | 2006 | 107 835 259 | 330 | 216 | 27% | 20% | 13% | 0% | | | 28 823 968 | Expenditure |
| Macedonia, FYR | 2003 | 2 027 819 | 277 | 214 | 24% | 17% | 10% | 0% | | 9 531 | 476 786 | Expenditure |
| Mali | 2006 | 13 592 796 | 49 | 37 | 22% | 15% | 8% | 51% | 3 969 685 | 3 021 090 | | Expenditure |
| Mongolia | 2005 | 2 547 339 | 73 | 62 | 21% | 14% | 8% | 22% | 25 128 | 544 967 | | Expenditure |
| Mozambique | 2003 | 19 721 008 | 37 | 24 | 22% | 14% | 8% | 75% | 10 436 445 | 4 293 177 | | Expenditure |
| Mauritania | 2000 | 2 642 743 | 88 | 67 | 24% | 17% | 10% | 21% | | 559 204 | 69 241 | Expenditure |
| Malawi | 2004 | 12 472 794 | 34 | 25 | 19% | 11% | 5% | 74% | 6 790 104 | 2 422 303 | | Expenditure |
| Malaysia | 2004 | 25 590 452 | 204 | 158 | 24% | 17% | 9% | 1% | | 138 188 | 6 016 334 | Income |
| Namibia | 1993 | 1 558 055 | 147 | 39 | 0% | 0% | 0% | 49% | 765 628 | | | Income |
| Niger | 2005 | 12 993 884 | 41 | 29 | 22% | 14% | 8% | 66% | 5 698 217 | 2 862 154 | | Expenditure |
| Nigeria | 2004 | 136 399 440 | 39 | 29 | 26% | 20% | 13% | 64% | 52 286 516 | 35 568 364 | | Expenditure |
| Nicaragua | 2005 | 5 424 336 | 151 | 92 | 28% | 22% | 15% | 16% | | 857 588 | 663 705 | Expenditure |
| Nepal | 2004 | 26 717 876 | 56 | 35 | 20% | 11% | 1% | 55% | 9 311 238 | 5 415 655 | | Expenditure |
| Pakistan | 2005 | 158 645 456 | 66 | 53 | 12% | 5% | 1% | 23% | 16 530 094 | 19 307 914 | | Expenditure |
| Panama | 2006 | 3 294 583 | 295 | 172 | 32% | 26% | 21% | 9% | | 312 326 | 738 533 | Income |
| Peru | 2006 | 27 866 387 | 217 | 140 | 29% | 23% | 17% | 8% | | 2 212 591 | 6 005 240 | Income |

| Country | Year | Population | Mean (2005 USD-PPP) | Median (2005 USD-PPP) | Poverty headcount with poverty line set at | | | | Numbers of poor (absolute only) | Numbers of poor (both absolute and relative*) | Numbers of poor (relative* only) | Survey type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 60% of the median | 50% of the median | 40% of the median | USD 1.25 / day | | | | |
| Philippines | 2006 | 87 116 275 | 99 | 67 | 25% | 17% | 9% | 23% | | 19 705 702 | 2 269 170 | Expenditure |
| Papua New Guinea | 1996 | 4 840 693 | 86 | 52 | 27% | 20% | 12% | 36% | 424 262 | 1 309 675 | | Expenditure |
| Poland | 2005 | 38 165 444 | 306 | 246 | 20% | 12% | 6% | 0% | | 38 165 | 7 640 974 | Expenditure |
| Paraguay | 2007 | 6 119 295 | 272 | 166 | 29% | 22% | 16% | 6% | | 394 695 | 1 355 034 | Income |
| Romania | 2005 | 21 634 372 | 190 | 160 | 16% | 9% | 4% | 1% | | 162 258 | 3 373 543 | Expenditure |
| Russian Federation | 2005 | 143 150 000 | 301 | 236 | 23% | 16% | 9% | 0% | | 229 040 | 33 307 754 | Expenditure |
| Rwanda | 2000 | 8 098 344 | 34 | 22 | 24% | 17% | 9% | 77% | 4 242 310 | 1 957 783 | | Expenditure |
| Senegal | 2005 | 10 871 908 | 67 | 51 | 23% | 16% | 9% | 34% | 1 112 639 | 2 529 451 | | Expenditure |
| Sierra Leone | 2003 | 4 730 020 | 51 | 36 | 23% | 15% | 7% | 53% | 1 423 213 | 1 101 198 | | Expenditure |
| Slovenia | 2004 | 1 997 000 | 687 | 580 | 18% | 10% | 4% | 0% | | | 359 460 | Expenditure |
| El Salvador | 2005 | 6 050 513 | 208 | 139 | 30% | 24% | 19% | 11% | | 663 741 | 1 156 299 | Income |
| Suriname | 1999 | 460 419 | 186 | 114 | 31% | 26% | 20% | 16% | | 71 549 | 73 084 | Income |
| Slovak Republic | 1996 | 5 373 793 | 348 | 326 | 15% | 10% | 6% | 0% | | 13 972 | 791 816 | Income |
| Swaziland | 2001 | 1 075 083 | 47 | 29 | 27% | 20% | 13% | 63% | 385 336 | 290 354 | | Expenditure |
| Chad | 2003 | 9 153 893 | 41 | 31 | 23% | 16% | 9% | 62% | 3 548 000 | 2 121 922 | | Expenditure |
| Togo | 2006 | 5 529 908 | 56 | 45 | 19% | 12% | 4% | 39% | 1 061 991 | 1 076 978 | | Expenditure |
| Thailand | 2004 | 66 060 384 | 190 | 133 | 23% | 16% | 7% | 0% | | 264 242 | 15 259 942 | Expenditure |
| Tajikistan | 2004 | 6 391 120 | 74 | 60 | 19% | 11% | 5% | 21% | 159 394 | 1 214 058 | | Expenditure |
| Turkmenistan | 1998 | 4 395 293 | 84 | 61 | 24% | 16% | 9% | 25% | 48 917 | 1 041 994 | | Expenditure |
| Trinidad and Tobago | 1992 | 1 233 753 | 186 | 143 | 26% | 19% | 12% | 4% | | 51 324 | 263 786 | Income |
| Tunisia | 2000 | 9 563 500 | 182 | 135 | 24% | 17% | 9% | 3% | | 243 869 | 2 047 415 | Expenditure |
| Turkey | 2005 | 68 143 184 | 235 | 171 | 25% | 18% | 12% | 2% | | 1 616 833 | 15 637 949 | Expenditure |
| Tanzania | 2000 | 34 038 160 | 23 | 18 | 20% | 13% | 6% | 89% | 23 253 200 | 6 877 380 | | Expenditure |

| Country | Year | Population | Mean (2005 USD-PPP) | Median (2005 USD-PPP) | Poverty headcount with poverty line set at | | | | Numbers of poor (absolute only) | Numbers of poor (both absolute and relative*) | Numbers of poor (relative* only) | Survey type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 60% of the median | 50% of the median | 40% of the median | USD 1.25 / day | | | | |
| Uganda | 2005 | 28 431 204 | 53 | 37 | 23% | 15% | 7% | 52% | 8 126 152 | 6 524 447 | | Expenditure |
| Ukraine | 2005 | 47 105 152 | 250 | 218 | 16% | 8% | 3% | 0% | | 47 105 | 7 282 419 | Expenditure |
| Uruguay | 2006 | 3 314 466 | 367 | 251 | 29% | 22% | 16% | 0% | | 663 | 948 208 | Income |
| Uzbekistan | 2003 | 25 567 700 | 51 | 40 | 19% | 11% | 5% | 46% | 7 049 455 | 4 783 277 | | Expenditure |
| Venezuela, RB | 2006 | 27 031 000 | 238 | 174 | 27% | 20% | 13% | 4% | | 954 194 | 6 217 603 | Income |
| Viet Nam | 2006 | 83 313 000 | 83 | 62 | 21% | 13% | 4% | 21% | 602 861 | 17 267 778 | | Expenditure |
| Yemen, Rep. | 2005 | 20 648 644 | 84 | 64 | 18% | 10% | 5% | 18% | | 3 619 707 | 70 490 | Expenditure |
| South Africa | 2000 | 44 000 000 | 153 | 74 | 32% | 25% | 18% | 26% | | 11 528 000 | 2 494 910 | Expenditure |
| Zambia | 2004 | 11 192 422 | 43 | 27 | 30% | 24% | 17% | 64% | 3 890 721 | 3 304 887 | | Expenditure |

*Note:**The 60% of the median poverty line was used to calculate the numbers of relative poor for the purposes of this annex.

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