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ABSTRACT

The traditional approach to poverty measurement puts no explicit weight on success at increasing the typical level of living of the poorest—raising the consumption floor. To address this deficiency, the paper defines and measures the expected value of the floor, allowing for transient effects and measurement errors in survey data. On using all suitable and available surveys for the developing world over 1981-2011, the expected value of the floor is about half the $1.25 a day poverty line. There has been only modest progress in raising the floor, despite much progress in reducing the number living near the floor.

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1. Introduction

At the launch of the 2011 *Millennium Goals Report*, U.N. Secretary-General Ban Ki-moon said that:

> "The poorest of the world are being left behind. We need to reach out and lift them into our lifeboat."

This view that the developing world's poorest have been left behind is heard quite often.[2] Yet other observers appear to tell a very different story. They use aphorisms such as "a rising tide lifts all boats" or they point to evidence that the poor are "breaking through from the bottom."[3]

This paper tries to make sense of these seemingly conflicting views on this important question. The central issue is how we should assess progress against poverty. The approach of economists and statisticians has been to count the poor in some way. One might track the proportion of the population living below some deliberately low poverty line or use a more sophisticated measure giving higher weight to poorer people. A prominent early advocate of this approach was Arthur Bowley (the first Professor of Statistics at the London School of Economics) who wrote 100 years ago that: [4]

> "There is perhaps, no better test of the progress of a nation than that which shows what proportion are in poverty; and for watching the progress the exact standard selected as critical is not of great importance, if it is kept rigidly unchanged from time to time." Bowley (1915, p.213)

I dub this the counting approach. The theoretical foundations of the approach are found in a large literature on poverty measurement, in which various axioms have been proposed.[5]

This approach has found evidence of falling incidence and depth of absolute poverty in the developing world over recent decades, when judged by poverty lines typical of developing countries.[6] However, Ban Ki-moon's view could still be right if the past applications of the

[2] To give another example, a press release by the International Food Policy Research Institute carried the headline: "The world's poorest people not being reached." The press release was for an IFPRI report Ahmed et al. (2007).
[3] The former is attributed to John F. Kennedy, while the latter expression is due to Radelet (2015). Another version is the claim that "growth is good for the poor" (the title of an influential paper by Dollar and Kraay, 2002).
[4] There are antecedents in the literature. On the history of thought on measuring poverty see Ravallion (2015).
[5] The most commonly used axioms are: (i) focus: that the measure of poverty should be unaffected by any changes in the incomes (or consumptions) of those who are not deemed to be poor ; (ii) monotonicity: that, holding all else constant, the measure of poverty must rise if a poor person experiences a drop in her income; (iii) scale invariance: that the measure is unchanged when all incomes and the poverty line increase by the same proportion; (iv) transfers: this holds if the measure of poverty rises whenever a given sum of money is transferred from a poor person to someone who is richer. Other axioms have been proposed; for a recent overview see Foster et al. (2013), which identifies 12 axioms, including those above.
[6] See Chen and Ravallion (2010) and Ravallion and Chen (2013).

counting approach have essentially missed the poorest. The poorest subset of the poor can be called the "ultra-poor."[7] In principle, progress against poverty can be achieved in large part by lifting people near the poverty line out of poverty, with little gain to the ultra-poor.

That is not what this paper finds. Using various definitions of ultra-poverty, the progress we have seen over the last 30 years in reducing the number of people living under $1.25 a day has come with roughly similar progress in lifting people out of ultra-poverty. By this approach the poorest as a whole have not been left behind.

However, the paper also argues that the counting approach is not the only defensible way of assessing whether the poorest have been reached. If overall economic progress is not to "leave the poorest behind" then logically it must, in due course, raise the lower bound to the distribution of permanent consumption levels in society. That lower bound can be called the consumption floor. Human physiology makes the existence of a positive floor plausible, given the nutritional requirements for basal metabolism. This can be called the "the biological floor." In practice, however, we would hope that the actual consumption floor rises above the biological floor. Private social interactions can probably provide some degree of protection. A consumption floor above the biological minimum may also stem from a policy-supported minimum income.

Figure 1 illustrates the difference between this perspective and the counting approach. Each panel gives two cumulative distribution functions (CDFs). In each case, the upper CDF is the initial one and the lower CDF is for some later date. The drop in the incidence of poverty (which could be for an ultra-poverty line) is similar in panels (a) and (b). In panel (a), the counting approach might reasonably claim that many of the poorest have been reached even though the floor has not risen, so some people still remain living at the same very low level. In panel (b), the same reduction in the poverty rate has come with a rising floor—implying that none of the poorest are left behind.

The idea that we should judge progress in part at least by success in raising the floor is missing from all standard poverty measures. The concept of the consumption floor is conceptually distinct from existing poverty lines.[8] Naturally, any poverty line aims to reflect what "poverty" means in a specific society, on the understanding that (potentially many) people live below that level. The poverty line is a normative concept, while the consumption floor is a

[7] This term was introduced by Lipton (1988).
[8] For further discussion of poverty lines in theory and practice see Ravallion (2012).

positive one. Nor do standard poverty measures necessarily reflect any progress in raising the floor. Although a higher consumption floor (*ceteris paribus*) automatically reduces any measure of consumption poverty satisfying the monotonicity axiom, none of the standard axioms of poverty measurement attach any explicit weight to the level of the floor. This is due, at least in part, to the difficulties in identifying the floor.[9] Given the current interest in assuring that no one is left behind, this is surely a gap in the current "dashboard" of development indicators.

Focusing on the floor can also draw support from a literature, though largely outside economics. An important school of moral philosophy has argued that we should judge a society's progress by its ability to enhance the welfare of the least advantaged, following the principles of justice proposed by John Rawls (1971).[10] By this view, a higher floor (as in Figure 1(b)) is not only preferred, but is the main criterion of distributive justice (subject to other criteria of liberty, as identified by Rawls).[11] While Rawls's "difference principle" is often interpreted as "maximin" (to maximize the minimum level of welfare), Rawls insisted that some degree of averaging was required in defining the "least advantaged":

> "I assume that it is possible to assign an *expectation* of well-being to representative individuals holding these positions." (Rawls, 1971, p. 56, my emphasis.)

I call the idea of focusing on the expected welfare of the poorest stratum in assessing social progress the Rawlsian approach.

The difference between the two approaches illustrated by Figure 1 begs some questions for which we currently have little idea of the answers: The consumption floor plausibly exists, but at what level? What is the relationship between the two approaches? Has success judged by the counting approach also come with success in raising the floor, such as through new social protection policies in developing countries?

The task of addressing these questions calls for a method of estimating the level of the consumption floor. This is a difficult task, as the floor is the lower bound of the distribution, and could well be subject to sizeable measurement errors, and also idiosyncratic transient effects in

[9] See, for example, Freiman's (2012) comments on Rawls's difference principle.

[10] Rawls proposed two principles of distributive justice. First, each person should have equal right to the most extensive set of liberties compatible with the same rights for all. Second, subject to the constraint of liberty, social choices should only permit inequality if it is efficient to do so—that a difference is only allowed if both parties are better off as a result; this is what Rawls called the "difference principle."

[11] While popularity need not guide ethical judgments it is at least notable in the context of understanding debates about distributive justice that there is experimental evidence indicating that a non-negligible number of people make distributional judgments consistently with a Rawlsian "maximin" criterion (Michelbach et al., 2003).

consumption or income. The paper proposes two methods for the task both of which can be implemented with readily available data sources. Both methods use data from national poverty lines in poor countries, but otherwise they make very different assumptions. The first method aims to identify an expected consumption floor amongst those who are identified as poor in absolute terms by the standards of poor countries. It would not be sensible to simply measure the lowest observed consumption level in the available data. Echoing above quote from Rawls (1971), it makes more sense to form an expectation over a stratum of people with low observed consumption levels, where the expectation is based on an assumed distribution of measurement errors and transient effects. The lowest observed consumption is assumed to have the highest probability of being at the floor, but that probability is less than one. The probability declines linearly as consumption rises above the lowest observed value up to some critical point, above which there is zero probability of being the poorest. The second method assumes that national poverty lines comprise the expected value of the consumption floor plus a relative component proportional to actual mean consumption. Both methods of quantifying the floor suggest a consumption floor today that is about half of the international poverty line of $1.25 a day. This is probably close to the consumption of essential foods for those living around $1.25 a day.

The paper's principal empirical finding is that, while the counting approach shows huge progress for the poorest, the Rawlsian approach does not. The distribution of the gains amongst the poor has meant that the consumption floor has risen little over those 30 years. While there has been marked progress in reducing the numbers of the ultra-poor, and the poorest have not been left behind, the expected value of the lowest level of living amongst those who are considered poor by developing country standards has advanced rather little.

In demonstrating the difference between the counting and Rawlsian approaches, the paper also throws new light on how the idea of the consumption floor can be interpreted in terms of standard poverty measures. This permits straightforward applications to the task of monitoring progress in raising the level of living of the world's poorest.

After discussing the literature and policy discussions related to the idea of a consumption floor (Section 2), the paper describes the data to be used in this study (Section 3). Then it turns to the two proposed methods of estimating the floor and their results (Sections 4 and 5). Next the paper presents recent evidence using the counting method (Section 6). Section 7 looks at the empirical relationships with rates of growth in average living standards. Section 8 concludes.

2. The consumption floor in theory and policy

While the Rawlsian approach of using success in raising the consumption floor as an indicator of social progress has not been favored by economists, it has deep roots in development and social-policy thinking. Versions of the approach thrive today in policy discussions.

In a famous example, in 1948 (shortly before his assassination) Mahatma Gandhi was asked "How can I know that the decisions I am making are the best I can make?" He answered:

> "I will give you a talisman. Whenever you are in doubt, or when the self becomes too much with you, apply the following test. Recall the face of the poorest and the weakest man whom you may have seen, and ask yourself if the step you contemplate is going to be of any use to him. Will he gain anything by it?" (Gandhi, 1958, p.65)

The spirit of Gandhi's talisman was echoed (in somewhat dryer terms) 65 years later in a report initiated by the U.N. on setting new development goals, which argued that:

> "The indicators that track them should be disaggregated to ensure *no one is left behind* and targets should only be considered 'achieved' if they are met for all relevant income and social groups." (United Nations, 2013, Executive Summary; my emphasis)

Endorsing this view, Kevin Watkins (2013, p.1) refers explicitly to Gandhi's talisman, and argues that "As a guide to international cooperation on development, that's tough to top."

If the poorest person sees a gain in permanent consumption then (by definition) the consumption floor must rise. Social policies aim in part to support consumption levels at a point well above the biological minimum. Indeed, something close to the Rawlsian approach and Gandhi's talisman has long been proposed as a guiding principle for thinking about antipoverty policy in rich and poor countries alike. One motivation for the laws establishing statutory minimum wage rates that first appeared in the late 19th century is that they help raise the consumption floor.[12] From the 1970s, we started to see arguments being made in support of the idea of a "basic-income guarantee"—a fixed cash transfer to every adult person.[13] The idea is that the basic income would provide a firm floor to living standards. This idea gained momentum since in the 1990s in both rich and poor countries.[14] When financing through a progressive income tax, the idea becomes formally similar to Milton Friedman's (1962) Negative Income

[12] There are also well-known efficiency arguments, notably in non-competitive labor markets. The first minimum wage law was introduced by New Zealand in 1894.

[13] This too is an old idea, with antecedents going back to at least Thomas Paine's (1797) pamphlet *Agrarian Justice* recommending the all agrarian land should be subject to taxation—a "ground rent," the revenue from which should be allocated equally to all adults in society, as all have a claim to that property.

[14] See, for example, Van Parijs (1995), Raventós (2007) and Bardhan (2011).

Tax. The International Labor Organization (2012) has recommended a comprehensive "Social Protection Floor," comprising "nationally defined sets of basic social security guarantees" spanning health, schooling and income security.

While economists measuring poverty have not attached any special significance to the level of the consumption floor, the concept has long played a role in positive economics. Indeed, the idea goes back to the first economists. Early ideas of the "subsistence wage" can be interpreted as the wage rate required to assure that the biological floor is reached for a typical family. The idea of a consumption floor played a key role in classical economics.[15] Famously, the Reverend Thomas Malthus (1806) argued that the economic dynamics of population growth assures that the unskilled wage rate stays at the subsistence level; any temporary increase (decrease) in the consumption of working-class families in a neighborhood of the floor would induce population growth (contraction). The idea of a floor has been a feature of development models for dualistic economies since Arthur Lewis's (1954) model postulated a perfectly elastic supply of labor to the developing modern sector at the subsistence wage.

The idea has continued to play a role in modern economics. It has been built into demand models, such as the widely-used linear expenditure system. The idea is found in modern theoretical treatments of the problem of determining the optimal population size.[16] It has also been incorporated in modern dynamic models.[17] For example, some theoretical models have postulated an instantaneous utility function of the Stone–Geary form; consumers then maximize the present value of the utility stream subject to their consumption not falling below the floor (in addition to other standard constraints).[18] There are also arguments on the production side, whereby the existence of a floor generates a low-level non-convexity in production possibility sets. Various theoretical arguments have been made in the literature that can generate such non-convexities. The essential argument is that worker productivity and/or access to credit (given default likelihoods) suffer when a person's consumption is close to the floor.[19]

Such arguments suggest an efficiency case for policy effort to raise the floor, in addition to the equity case. In response to both efficiency and equity concerns, the new millennium has

[15] See Blaug's (1962) discussion of the classical model of wage determination.
[16] See Dasgupta (1993, Chapter 13).
[17] See, for example, Azariadis (1996), Ben-David (1998) and Kraay and Raddatz (2007).
[18] An example is found in Lopez and Servén (2009), who add a subsistence consumption parameter to the type of model discussed in Aghion et al. (1999).
[19] Examples include Mirrlees (1975), Stiglitz (1976), Dasgupta and Ray (1986), Lipton (1988) and Banerjee and Newman (1994).

seen a significant change in the set of development policies, which have come to embrace a range of direct interventions, variously called "antipoverty programs," "social safety nets," and "social assistance;" here I call them social safety nets (SSN's).[20] Their common feature is the use of direct income transfers to poor families. This was rare in the developing world prior to the mid-1990s, but today almost every country has at least one SSN program (World Bank, 2014). The only estimate made to date (to my knowledge) indicates that 0.75-1 billion people in developing countries currently receive social assistance (Barrientos, 2013). The new SSN programs have mainly in the form of conditional cash transfers and workfare schemes (World Bank, 2014). The compilation of survey-based estimates of SSN coverage spanning 2000-2010 in the World Bank's ASPIRE database suggests that the proportion of the population receiving help from SSN programs is growing rapidly, although there are probably selection biases in the data.[21] The term "safety net" evokes the idea of a floor, and some of the programs can be interpreted as efforts to raise the floor, including the two largest programs to date in terms of population coverage, namely China's *Di Bao* program and India's *National Rural Employment Guarantee Scheme*, which is interpretable as an attempt to enforce the minimum wage rate in an informal economy.[22] Raise the consumption floor is a common motivation for SSN programs.

The fact that SSN coverage is expanding so much raises the hope that the consumption floor is rising. Of course, whether this is happening in practice is another matter. Despite the expansion of SSN programs, the majority of the poor are still not covered; the ASPIRE data indicate that only about one-third of the poorest quintile in the developing world receives any help from SSNs.[23] To assess whether economic growth and expanding SSN coverage is achieving progress against poverty consistently with the Rawlsian approach, one needs to define and measure the consumption floor. No such definition and measure is currently available.

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[20] A good working definition is: "Social safety nets are non-contributory transfers designed to provide regular and predictable support to targeted poor and vulnerable people." (World Bank, 2014, p.xii.)

[21] Comparing the latest and earliest surveys for the 25 countries with more than one observation in the ASPIRE database (with observations spanning 2000-2010) I find that the overall coverage rate (percentage of the population as a whole receiving help from the SSN) is increasing at an average proportionate rate of 9.1% per annum (standard error of 2.8%); in levels the rate is 3.5% points per year (standard error of 1.1% points). However, there may well be selection bias in this sample, whereby the introduction of a SSN program stimulates survey data collection.

[22] The *Di Bao* program makes transfers to bring urban residents up to locally determined "*Di Bao* lines" (see, for example, Ravallion, 2014b). The *Rural Employment Guarantee Scheme* in India aims to guarantee up to 100 days of work per household per year doing unskilled manual labor at stipulated minimum wage rates; see Dutta et al. (2014).

[23] These are data for around 2008-2011. The one-third calculation uses the latest estimates in ASPIRE at October 2014 and is population-weighted.

3. Data and descriptive statistics

The primary data source is the World Bank's *PovcalNet* website. Here only a brief summary is provided.[24] The database draws on distributional data from 900 surveys spanning 125 developing countries. Using the most recent survey for each country, 2.1 million households were interviewed. All poverty measures in *PovcalNet* are estimated from the primary (unit record or tabulated) sample survey data rather than relying on pre-existing estimates. Prior truncations of the data (trimming the bottom or top) are avoided as far as possible, and appear to be rare at the bottom of the distribution (though are known at the top). Past estimates are updated to ensure internal consistency with new data.[25] Households are ranked by either consumption or income per person, with consumption being preferred when both are available. About 70% of the surveys allow a consumption-based measure. The measures of consumption (or income, when consumption is unavailable) are reasonably comprehensive, including both cash spending and imputed values for consumption from own production. All distributions are weighted by household size and sample weights. The poverty count is the number of people living in households with per capita consumption or income below the international poverty line. All currency conversions are at purchasing power parities using the results of the 2005 round of the International Comparison Program.[26]

The surveys were mostly done by governmental statistics offices as part of their routine operations. Not all available surveys are included in *PovcalNet*. A survey was dropped if there were known to be serious comparability problems with the rest of the data set. Obvious comparability problems were addressed by either re-estimating the consumption/income aggregates or by dropping a survey. Of course, there are data problems that cannot be dealt with, and differences in survey methods can create differences in the estimates obtained.

The latest results from these data confirm past findings that the developing world has seen impressive progress against absolute poverty over the last 30 years, with signs of

[24] The sources and estimation methods are described in greater detail in Chen and Ravallion (2010).
[25] The version of the data set used here is for November 2014.
[26] Adjusting this line consistently with the new PPPs available 2011, the equivalent line in PPP $'s for India (say) is about $2.00 a day in 2011 prices. (This is calculated by converting the $1.25 a day line for 2005 to Indian rupees and then converting to 2011 local prices using the CPI for India, and finally converting back to 2011 $'s using the 2011 PPP.) This line gives a poverty measure for India very close to the measure using $1.25 a day at 2005 PPP.

acceleration since 2000. The proportion of the developing world's population living below $1.25 a day fell from 53% to 17% over this 30-year period.

In implementing the second method of estimating the consumption floor, the paper uses the compilation of national poverty lines in Ravallion et al. (2009).

4. Estimating the consumption floor: Method 1

With a sound sampling design and large enough sample we can be confident about our estimate of the overall mean from a survey. But it is less clear how reliably we can estimate the consumption floor—the lower bound of the distribution of consumption. If we knew the true consumptions we could confidently estimate the floor directly from a sufficiently large sample. However, there are measurement errors and transient consumption shortfalls, whereby observed consumption in a survey falls temporarily below the floor (such as due to illness), but recovers soon after the survey is done. How then might we estimate the floor?

The expected value of the lowest consumption: There is a non-negligible chance that anyone within some stratum of low observed consumption levels in survey data is in fact living at the floor. The first task is to define that stratum. Let its upper-bound in terms of observed consumption y be denoted y^*. By assumption, there is no chance of someone living above y^* being in fact the poorest if we knew their true permanent consumption.

Let x_i denote the true level of permanent consumption of the i'th person, with i=1,…,n. The consumptions are ordered from the poorest, so the lowest level is x_1, which is the consumption floor. We have an n-vector of observed consumptions or incomes, y, with $y_i = x_i + \varepsilon_i$, where ε_i is the measurement error or latent transient effect. Here measurement errors can be taken to include both statistical errors (reporting errors, selective non-response) and mistakes in measurement, such as in calibrating price indices. The task is to estimate $E(x_1|y)$.

There is a positive probability that a person with a given observed consumption less than y^* is in fact living at the floor. The probability distribution of the underlying errors is not data, of course. But there are some defensible assumptions we can make. It is reasonable to assume that the probability of being the poorest person is highest for the person who appears to be worst off in the data. It is also reasonable to assume that the probability of any observed consumption

being the true lower bound falls as observed consumption rises until y^*. These assumptions guarantee that the expected value of the floor cannot exceed the mean of observed consumptions for those living under y^*, which is a logically defensible property.

Intuitively, the extent of inequality observed amongst those living below y^* plays a role in determining the expected value of the floor. Imagine first that all those living below y^* had the same observed consumption, the mean $\bar{y}^*$ for the *q* persons with $y_i \leq y^*$. Then the floor is of course $\bar{y}^*$. Now introduce inequality amongst the poor. Then $E(x_1|y) < y^*$. Intuitively, higher observed inequality amongst the poor implies a larger spread of *y*'s below the mean and hence a lower $E(x_1|y)$ relative to $\bar{y}^*$.

Inequality amongst the poor is reflected in various distribution-sensitive poverty measures, satisfying the standard transfer axiom in poverty measurement. The most widely-used distribution-sensitive measure is the squared-poverty gap, $SPG = \sum_{y_i \leq z} (1 - y_i / Z)^2 / n$ where *Z* is the poverty line; this measure was introduced by Foster, Greer and Thorbecke (FGT) (1984). If we set $Z = y^*$ then, intuitively, we expect a higher value of such a measure to be associated with a lower expected floor for any given $\bar{y}^*$. The precise relationship between the floor and measures of poverty also depends on the distribution of the errors in estimating the lowest consumption level, to which we now turn.

The probability that person *i*, with the observed y_i, is in fact the worst off person is denoted $\phi(y_i) = Prob(y_i = x_1)$. It is assumed that:

$$\phi(y_i) = k(1 - y_i / y^*) \text{ for } y_i \leq y^* \qquad (1)$$

$$= 0 \text{ for } y_i > y^*$$

To assure that the probabilities sum to unity one sets $k = 1/(nPG)$ where $PG = \sum_{y_i \leq z} (1 - y_i / y^*) / n$ is the poverty gap index for a poverty line of y^*. Thus $\phi(y_i)$ is person *i*'s share of the aggregate poverty gap using y^* as the poverty line.

The expected value of the floor is a weighted mean of the values of the y_i / y^* (for $y_i \le y^*$) with weights given by each person's share of the aggregate gap:

$$E(x_1 | y) / y^* = \sum_{y_i \le z} \phi(y_i) y_i / y^* \quad (2)$$

Now consider the value of *SPG/PG*. By construction, this is a weighted mean of the values of $1 - y_i / y^*$ conditional on $y_i \le y^*$, also with weights given by the shares of the poverty gap:

$$SPG / PG = \sum_{y_i \le y^*} \phi(y_i)(1 - y_i / y^*) \quad (3)$$

Comparing (2) and (3) we immediately have the following formula for the expected value of the consumption floor (in $'s per person per day):

$$E(x_1 | y) = y^*(1 - SPG / PG) \quad (4)$$

It is plain that the poverty measures can suggest progress even when the expected value of the floor is falling. For example, if y = (0.50, 0.50, 1.00, 1.25, 2.5, 5) and $y^* = 1.25$ then *PG*=0.233 and *SPG*=0.127; the expected value of the floor is 0.57. Suppose that the distribution changes to (0.50, 0.50, 1.25, 1.25, 2.5, 5). Then both *PG* and *SPG* show an improvement (the indices falling to 0.200 and 0.120 respectively) but the floor has fallen to 0.50.

It is plain from (4) that the necessary and sufficient condition for a rising floor is that the proportionate rate of decline in *PG* exceeds that for *SPG* when using y^* as the poverty line. Intuitively, a rising floor requires faster progress against the distribution-sensitive poverty gap measure, *SPG*, when based on the observed consumptions. If both poverty measures are falling then one requires that *SPG* is falling faster than *PG* for the expected value of the floor to rise.

The formula in (4) makes the relationship between the expected floor and poverty measures clear, but it is still not obvious what role is played by inequality amongst the poor. With some straightforward algebra, the following alternative formula can be derived:[27]

$$E(x_1 | y) = \bar{y}^* - \frac{\sigma^{*2}}{y^* - \bar{y}^*} \quad (5)$$

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[27] This formula is derived by first noting that $SPG = \sum_{y_i \le y^*} (1 - y_i / y^*)^2 / n = (q/n)\left[(1 - y_i / y^*)^2 + \sigma^{*2} / y^{*2}\right]$ and that $PG = (q/n)(1 - y_i / y^*)$ and then substituting into (4).

where $\sigma^{*2} = \sum_{y_i \le y^*} (y_i - \bar{y}^*)^2 / q$ is the sample variance amongst those for whom $y_i \le y^*$. This makes clear how the gap between $\bar{y}^*$ and $E(x_1 | y)$ reflects the inequality amongst those with $y_i \le y^*$, as measured by their variance of consumption normalized by the mean gap, $y^* - \bar{y}^*$.

The formula in (4) can be generalized by setting $\phi_\alpha(y_i) = k(1 - y_i / y^*)^\alpha$ ($\alpha \ge 1$), giving:

$$E_\alpha(x_1 | y) = y^*(1 - P_{\alpha+1} / P_\alpha) \quad (6)$$

where P_α is the FGT class of poverty measures:

$$P_\alpha = \frac{1}{n} \sum_{y_i \le y^*} (1 - y_i / y^*)^\alpha$$

(Note that $PG = P_1$ and $SPG = P_2$.) However, in this context the parameter α determines how fast the probability of being the poorest person falls as observed consumption increases, rather than the degree of aversion to inequality amongst the poor, as in the FGT index.

Note that $\alpha = 0$ can be ruled out; the probability must fall as consumption increases. To put the point another way, if one uses $\alpha = 0$ then every consumption below y^* is equally likely to be the lowest value, so $y^*(1 - P_1 / P_0)$ is the mean consumption of the poor ($\bar{y}^*$). However, values of $\alpha > 1$ can be defended, to allow the probability to decline non-linearly. The choice of $\alpha = 1$ (rather than 2 or higher) is made for a practical reason, namely that *PovcalNet* only gives values of P_α for $\alpha = 0, 1, 2$.

Estimates of the consumption floor: One can take either an absolute or relative approach to setting y^*. The former approach sets y^* at a constant value in real terms, while the latter fixes instead the proportion of the population who could be living at the floor. However, it does not seem plausible that the same proportion of the population could be living at the floor in a poor society as a rich one; it is more believable that the poorer the society the larger the set of people who could be living at the floor if we knew their true permanent consumption.

Using the absolute approach, a plausible assumption for y^* is to set it according to poverty lines found in the poorest countries. This is how the international poverty line of $1.25 a day at 2005 purchasing power parity was set (Ravallion et al., 2009), namely by finding the average of the national lines of the poorest 20 or so countries. So the first key assumption made

here is that there is no chance that any observed consumption level above \$1.25 a day corresponds to a true level of consumption that is in fact the floor. The \$1.25 line corresponds closely to the 20th percentile in 2010. So this is a wide range. I test sensitivity to using a lower value for y^* of \$1.00 a day and using a relative definition, such that a constant percentage of the population is identified as the group of people who may be living at the true floor.

Table 1 gives my estimates of the expected value of the floor from the data described in Section 2. The table gives the estimated floor for z=\$1.00 as well as \$1.25, although the discussion will focus on the latter case. Figure 2 plots the estimated consumption floor over 1981-2011, as well as the mean consumptions of both the poor and the overall population of the developing world. Panel (b) gives a "blow-up" of the lower portion, also identifying the contribution of inequality amongst the poor, i.e., $\sigma^{*2}/(y^* - \bar{y}^*)$ (recalling equation (5)).

The estimate of the expected value of the lowest consumption level is \$0.67 per day.[28] The main source of statistical imprecision in this estimate is the cut-off point z. The global sample sizes for estimating *SPG* and *PG* are huge (over 2 million sampled households from over 900 surveys for the recent years, though less as one goes back in time). Using the Ravallion et al. (2009) estimate of the standard error of the \$1.25 a day poverty line, the implied standard error of the present estimate of the floor is \$0.10 per day.[29] The 95% confidence interval for the consumption floor is thus \$0.47 to \$0.87 per day.

It should be emphasized that this assumes that there is zero probability of an observed consumption above \$1.25 a day corresponding to the consumption floor. Naturally, a higher (lower) y^* will raise (lower) the estimated floor. If anything, I suspect that \$1.25 is on the high side. Alternatively, if one sets y^*=\$1.00 then the time mean of the floor falls to \$0.55.[30] The second method of determining the floor discussed below will be found to be consistent with the assumption that y^* is about \$1.25.

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[28] This is the un-weighted mean over time. The inter-temporal variance is so low that it is unlikely that population weighting would make any detectable difference.

[29] Ravallion et al. (2009) used Hansen's (2002) estimator for a piece-wise linear ("threshold") model in estimating the standard error of the lower (flat) segment of the relationship between national poverty lines and private consumption per person.

[30] For an upper bound on y^* one might assume instead that nobody above the median consumption for the developing world could be living at the floor. This would entail y^*=\$2.00 per day (the median for 2005), in which case the time-mean of the estimated floor rises to \$0.90 a day. However, the median is surely an implausibly high value of for z.

Also notice that this estimation method does not insist that nobody should be found living below the expected consumption floor. That would be too stringent. Even putting measurement errors aside, at any one survey date there will invariably be some people temporarily living below any consumption floor. For 2011, *PovcalNet* indicates that 3.7% of the population of the developing world lived below \$0.67 a day. The proportion living below the lower bound of the 95% confidence interval for this estimate of the floor is 1.8%.[31]

It is evident from Figure 2 that the estimated floor has proved to be quite stable over time; indeed, the inter-temporal standard error is less than \$0.01 per day (although this does not factor in all the sources of variance as reflected in the "full" standard error of \$0.10). The estimated consumption floor rose by only 9 cents per day over 30 years, from \$0.59 to \$0.68, reflecting a (slightly) steeper pace of decline in *SPG* than *PG.* The contribution of inequality amongst those living below \$1.25 rose from \$0.14 to \$0.20 over the period (Table 1, Column 5), representing 19% and 23% of $\bar{y}^*$ respectively.

The growth rate (regression coefficient of the log on time) in the floor is 0.34% per annum, with a standard error of 0.08%. There is divergence between the poor as a whole and the poorest, with a growth rate for the poor population of 0.46% per annum (s.e.=0.06). (And the divergence is statistically significant; t-test=4.39; prob.=0.14%.) Using an upper bound of \$1.00 a day there is even less sign of a positive trend over time in the implied floor; the estimate of the floor rises from \$0.52 to \$0.53 over the period, although it rises then falls (Table 1).[32]

However, the divergence between the mean for the poor and the consumption floor is minor compared to the expanding gap between both and the overall mean of household consumption per person (Figure 2), which grew at an annual (per capita) rate of 2.1% over this period (s.e.=0.24%) and the rate of growth roughly doubled from the turn of the century. Strikingly, there is no sign that the upsurge in average living standards in the developing world since 2000 has put upward pressure on the consumption floor (Figure 7). In relative terms, the consumption floor has fallen from 22% of the mean in 1981 to 13% in 2011.

The above results have used a fixed absolute standard for defining the upper bound of consumption above which there is no chance of being the poorest person (setting y^* to either

[31] This is probably an overestimate given that *PovcalNet* uses grouped data for many countries, which require curve fitting; the software uses parameterized Lorenz curves fitted to the grouped data. These will give non-zero estimates to very low levels, even when the micro data do not indicate any observations.
[32] The trend coefficient is very close to zero (a coefficient of 0.0002, with a standard error of 0.0009).

$1.25 or $1.00 a day in 2005 prices). It was argued that this is more plausible than a relative approach to defining the stratum of people who could be living at the floor. However, it should be noted that using a relative standard implies a rising absolute floor over time. For example, suppose one focuses instead on the poorest 20%, corresponding closely to the absolute standard of $1.25 a day in 2010. If one defines the group of people who are potentially living at the floor in 1981 as the poorest 20% then the estimate of $E(x_1|y)$ falls to $0.37 a day, with a value of y^* for that year of $0.63 (only slightly higher than the estimate of $E(x_1|y)$ using y^*=$1.25). This suggests far greater progress in raising the floor than the absolute approach, with its value almost doubling over 30 years. The "relative floor" has remained a fairly constant % of the overall mean (14% in 1981 and 13% in 2011). The bulk of the drop in the floor for 1981 using the relative definition for the upper bound is due to the fact that the relative bound has almost halved; the value of *SPG/PG* is not much different between the two approaches (0.53 in 1981 using the absolute approach versus 0.42 using the relative approach).

5. Estimating the consumption floor: Method 2

A national poverty line can be thought of as the sum of two components: an absolute consumption floor plus a relative component that depends positively on the country's mean consumption. This suggests an alternative method of estimating the floor as the expected value of the national poverty line at zero mean.

Figure 3 plots data on national poverty lines for developing countries. Regressing the national line (*Z*) on the mean (*M*) from the closest available household survey one obtains:[33]

$$Z_i = \underset{(0.288)}{0.647} + \underset{(0.064)}{0.530}\, M_i + \hat{\varepsilon}_i \quad R^2=0.709,\ n=73 \qquad (7)$$

The implied consumption floor of $0.65 per day is not significantly different from the prior estimate of $0.67 in Section 3, based on very different data.[34] This level of agreement can be interpreted as largely independent support for the assumption that y^*=$1.25 in the first method of estimating the consumption floor.

[33] White standard errors in parentheses. I also tested an augmented model with a cubic function of the mean, but the higher-order terms were individually and jointly insignificant.
[34] The mean national line at the lowest national consumption is $1.22 a day.

The national lines were set at different dates. On adding a time trend to the above regression one finds no significant drift in the consumption floor.[35] However, with only one observation of the poverty line per country this can only be considered a weak test. The results in Table 1 are clearly more convincing on this point.

Another implication of (7) is notable. Given that the floor is found to be positive, the national lines are weakly relative, as defined by Ravallion and Chen (2011). By implication, when all incomes rise by a fixed proportion, the poverty rate falls, as distinct from the strongly relative lines set at a constant proportion of the mean or median, as used in Western Europe.[36]

6. The counting approach

The counting approach suggests that the gains to the poor of the developing world over the last 30 years have reached many of the poorest. Figure 4 gives the cumulative distribution functions (CDF's) for 1981 and 2011.[37] We see that there is first-order dominance, implying an unambiguous reduction in poverty for all possible lines and all additive measures.[38]

There is a feature of Figure 4 that immediately suggests that there has been little gain in the level of the floor. Figure 5 makes this clearer by giving the monetary gain at each percentile implied by Figure 4, i.e., the absolute difference between the quantile functions, obtained by inverting the CDFs.[39] (These gains are simply the horizontal differences between the CDFs in Figure 4.) Consistently with the lack of progress in raising the floor we see that the gains are close to zero for the poorest, but rising to quite high levels. This is also consistent with what we know about rising absolute inequality in the developing world (Ravallion, 2014).

A further insight form Figure 5 is that there are larger absolute gains for the second decile from the bottom (though fairly flat between the 10^{th} and 20^{th} percentiles). Using the 20^{th} percentile as the cut-off point in the relative approach is thus picking up these gains. At a sufficiently low cut-off, even the relative approach will show little gain in the floor.

[35] The coefficient on the year in which the poverty line was set is 0.0008 (s.e.=0.0005).
[36] Eurostat (2005) has produced such relative poverty measures across European countries and over time, as has the influential Luxembourg Income Study (LIS), which started in the mid-1980s and uses poverty lines set at 40-60% of the median in its summary statistics at country level.
[37] The CDF is truncated above $20 a day to give greater detail at the lower end; however, there is dominance all the way to the top.
[38] On the implications of first-order dominance in this context see Atkinson (1987).
[39] The empirical quantile function is used for 1981. For the purpose of creating the graph, the quantile function for 2011 was based on a 10^{th} degree polynomial, which fitted extremely well (R^2=0.998), although the top 2% were trimmed from the GIC as these are considered less reliable.

To provide a simple measure of the incidence of ultra-poverty using the counting approach, it is defined here as the share of the population living below $0.87 a day. This is the upper bound of the 95% confidence interval for the estimated consumption floor in the developing world, as described in Section 4. The use of the 95% confidence interval is essentially arbitrary. I also give the main results for a line of $0.77 a day, one standard error above the point estimate, and for a measure of poverty that gives higher weight to those living closer to the floor. However, it should not be forgotten that the claim that poverty has fallen is robust to the poverty line (Figure 4).

In the earliest survey rounds in *PovcalNet*, the incidence of ultra-poverty by the $0.87 line varies from zero to 89%. It has declined steadily over time in the developing world as a whole (Figure 6) and for most countries; see Figure 7, comparing the earliest and latest surveys for those countries in *PovcalNet* with two or more surveys. In the latest surveys the proportion varies from zero to 75%. The number of people living in ultra-poverty fell from 1,317 (35.4%) million to 423 million (7.1%) over this period. (Using the more stringent definition of $0.77 a day, the percentage declined from 1,098 million (29.6%) to 308 million (5.2%) in 2011.) For the developing world as a whole, the share of total poverty represented by the ultra-poor fell from 67% in 1981 to 42% in 2011.

Table 2 gives a regional breakdown for 2010 of the number of people living in ultra-poverty.[40] Over half are in Sub-Saharan Africa (SSA), with a further 30% in South Asia. Almost all (96%) are in Africa and Asia. Almost one third of the population of SSA lives below $0.87 a day. There are six countries where a majority of the population is ultra-poor, namely (with % of the population living below $0.87 in parentheses): Burundi (59%), Democratic Republic of the Congo (75%), Liberia (64%), Madagascar (76%), Malawi (55%), and Zambia (62%). Outside Africa, the country with the highest proportion of ultra-poor is Haiti (39%).

The bulk of the reduction in overall poverty rates (for $1.25 a day or $2.00) is accountable to a lower incidence of ultra-poverty. Between 1981 and 2011 the $1.25 a day poverty rate fell by 35.8% points; almost 80% of this decline (28.4% points) is accountable to the decline in the ultra-poverty rate.

[40] While the survey coverage is adequate for a "global" aggregate in 2011, the regional breakdown is more questionable. 2010 is safer for this purpose.

The trend (regression coefficient on time) over 1981-2011 for the percentage of ultra-poor is -0.83% points per annum (with a standard error of 0.07%).[41] This is lower than the trend for the percentage below $1.25 a day of -1.13% (s.e.=0.04%), but the difference is not large, with the implication that the bulk of the inter-temporal variance in the overall poverty rate is accountable to progress against ultra-poverty; the R^2 for the regression of the overall poverty rate for $1.25 and the ultra-poverty rate for $0.87 is 0.97. Even more strikingly, progress against ultra-poverty also accounts for the bulk of the progress against poverty judged by the $2.00 line. The poverty rate for the latter line has an annual trend of -1.12% (s.e.=0.09%), almost identical to that for the $1.25 line. For the $2.00 line, the R^2 for the regression of the overall poverty rate on the ultra-poverty rate for $0.87 is 0.91.

This pattern is also evident at country level. Over three-quarters (77.4%) of the variance in annualized rates of poverty reduction using the $1.25 line is accountable to rates of progress against ultra-poverty. Only 13.6% is accountable to changes in the density of those who were poor but not ultra-poor; the covariance term accounts for 9.0%. Figure 8 plots the rate of change in P_0 for $1.25 a day across countries against the corresponding change in the ultra-poverty rate. There is close to a 1-to-1 relationship; as the number of ultra-poor in a country falls, we also see roughly similar exit rates from the ranks of the poor population as a whole. This pattern is suggestive of a process of what can be called rank-preserving lifting out of poverty. It is as though as one of the group of "poor but not ultra-poor" is lifted out of poverty this frees up space for one of the ultra-poor, who moves up to take that spot on the ladder.

7. Growth and the poorest

A stylized fact that has emerged from the literature on developing countries is that growth in average living standards tends to come with lower incidence of absolute poverty.[42] Typically this has been demonstrated in the past by focusing on prevailing poverty lines for low income countries, such as represented by the $1.25 a day line. However, the incidence of ultra-poverty is no less responsive to growth in the mean. This is demonstrated in Table 3, which gives the "least-squares elasticity"—the regression coefficient of the annualized proportionate rates of poverty reduction between the earliest and latest survey rounds on the corresponding growth

[41] For the $0.77 line the annual trend is -0.69% (s.e.=0.05).
[42] See Ravallion (1995, 2001) and Dollar and Kraay (2002). Ferreira and Ravallion (2009) review the literature.

rates in the mean.[43] Results are given for three estimators of the growth rate in the mean: that based on the same surveys, the growth rate of private consumption from the national accounts (NAS), and the simple mean of these. There are arguments one can make for and against each estimator. The survey mean has the advantage that it is automatically for exactly the same time as the survey used to measure poverty, while the NAS consumption is annual (for the year in which the survey was done). However, there is a concern that measurement errors may bias the estimate based on the survey mean growth rates; if the growth rate in the survey mean is over-estimated then the reduction in the poverty rate will also tend to be underestimated. (The direction of total bias is theoretically ambiguous given that there is also the usual attenuation bias due to measurement error in a regressor.) Private consumption in the NAS for developing countries is typically calculated as a residual at the commodity level (after deducting other measured sources of domestic absorption) rather than being calibrated to surveys. Different price indices are also typically relevant to the two series, although a correlation between the errors in the price indices cannot be ruled out. So the problem of correlated measurement errors is less severe using NAS growth rates, but it does not vanish. The third estimate simply splits the difference between the two growth rates.

The main lesson from Table 3 is that it cannot be claimed that the growth elasticities are lower (in absolute value) for the ultra-poor. Indeed, the NAS growth rates suggest even higher elasticities for the ultra-poverty poverty rates.

By contrast, the consumption floor using the absolute approach has responded little to economic growth. The least-squares elasticity of the country-specific consumption floors to the survey mean is 0.254, with a standard error of 0.190 (n=78); the elasticity is not significantly different from zero at the 10% level. Using instead the growth rates based on NAS consumption, the least-squares elasticity is even lower at 0.041 (s.e.=0.207; n=69). As can be seen from Table 4, a significant relationship with the growth rate in the survey mean emerges when one controls for the change in overall inequality as measured by the annualized change in the Gini index. However, this is not robust to using the NAS growth rate instead (comparing columns 3 and 4 of Table 4). Rising inequality remains a robust covariate of changes in the floor.

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[43] More precisely, this is the regression coefficient of $\ln(P_{it}/P_{it-\tau_i})/\tau_i$ (where P_{it} is the poverty measure for country *i at* date *t* and τ_i is the time interval since the previous survey) on $\ln(M_{it}/M_{it-\tau_i})/\tau_i$ (where M_{it} is the mean for country *i* at date *t*).

8. Conclusions

A clue to understanding why we hear very different answers to the question posed in the title of this paper can be found in the difference between focusing on the counts of poor people (following in the footsteps of Bowley and others) versus focusing on the level of living of the poorest, in the spirit of Gandhi's talisman or the Rawlsian difference principle. Both perspectives are evident in past thinking and policy discussions. Both have been advocated as development goals, although the counting approach, as implemented in various poverty measures, has long monopolized the attention of economists and statisticians monitoring progress against poverty.

Drawing on the results from household surveys for developing countries spanning 1981-2011, the paper finds considerable progress against ultra-poverty using the counting approach; indeed, the bulk of either the inter-temporal or the cross-country variance in rates of poverty reduction for either $1.25 or $2.00 a day is accountable to progress for those living under $0.87 or even $0.77 a day. There is first-order dominance over the 30 years, implying an unambiguous reduction in absolute poverty by the counting approach over all lines and all additive measures.

However, there has been very little absolute gain for the poorest. Using an absolute approach to identifying the floor, the increase in the level of the floor seen over the last 30 years or so has been small—far less than the growth in mean consumption. The modest rise in the mean consumption of the poor has come with rising inequality (specifically, a rising variance normalized by the mean poverty gap), leaving room for only a small gain in the level of living of the poorest. The bulk of the developing world's progress against poverty has been in reducing the number of people living close to the consumption floor, rather than raising the level of that floor. Growth in mean consumption has been far more effective in reducing the incidence of poverty than raising the consumption floor. In this sense, it can be said that the poorest have indeed been left behind.

Stronger indications of a rising floor are found if one adopts a relative approach to defining the upper bound on consumption for those people who could conceivably be living at the floor, and one sets the fixed percentage at a sufficiently high level. For example, focusing on the poorest 20% suggests considerable progress in raising the expected value of the floor. However, the paper has argued that an absolute approach makes more sense on the grounds that

one expects a poorer society to have more people living near the floor, as is found to be the case empirically using the counting approach.

To anticipate one response, it might be argued that progress in lifting the floor is a second-order issue, as long as fewer people live near the floor. That is implicit in the traditional counting methods used to assess progress against poverty. However, proponents of this view must surely take pause when one notes that for a long time, and across countries at very different levels of development, social policies have often claimed that they aim to ensure a minimum level of living above any biological consumption floor required for mere survival. Negative income tax schemes and (formally-equivalent) basic-income guarantees financed by progressive income taxes aim to raise society's consumption floor above the biological minimum. And such efforts are not confined to rich countries; indeed, the two largest anti-poverty programs in the world today (in China and India) aim to raise the floor. While it may well be ill-advised to look solely at the level of the floor in a given society, it can be acknowledged that this has normative significance independently of attainments in reducing the numbers of people living near that floor. The thesis of this paper is not that progress against poverty should be judged solely by the level of the consumption floor, but only that the latter should no longer be ignored.

As a byproduct of addressing the empirical question posed in the title, the paper has shown how the Rawlsian idea of assessing social progress according to the expected value of the lowest level of living can be interpreted in terms of standard poverty measures. This approach recognizes that there is both measurement error and transient consumption effects in the observed data. If the probability of any observed consumption being the floor falls linearly up to some critical value then the ratio of the corresponding squared poverty gap to the poverty gap—two readily-available poverty measures—emerges as a key (inverse) indicator for assessing progress. Our success in assuring that no-one is left behind is thus readily monitored from existing data sources.

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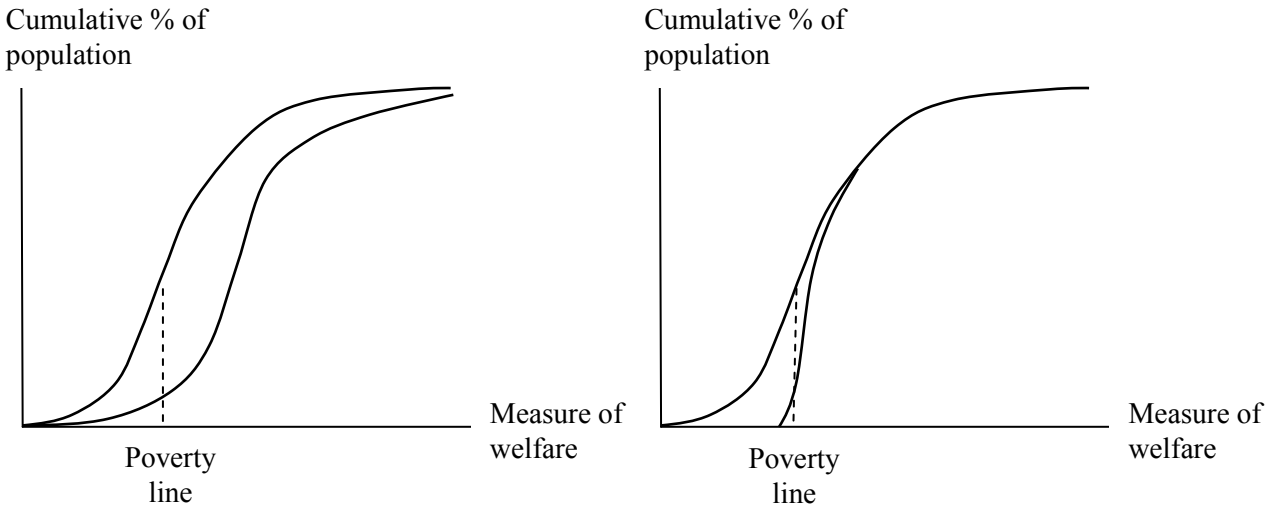
Figure 1: Same reduction in the poverty count but different implications for the poorest

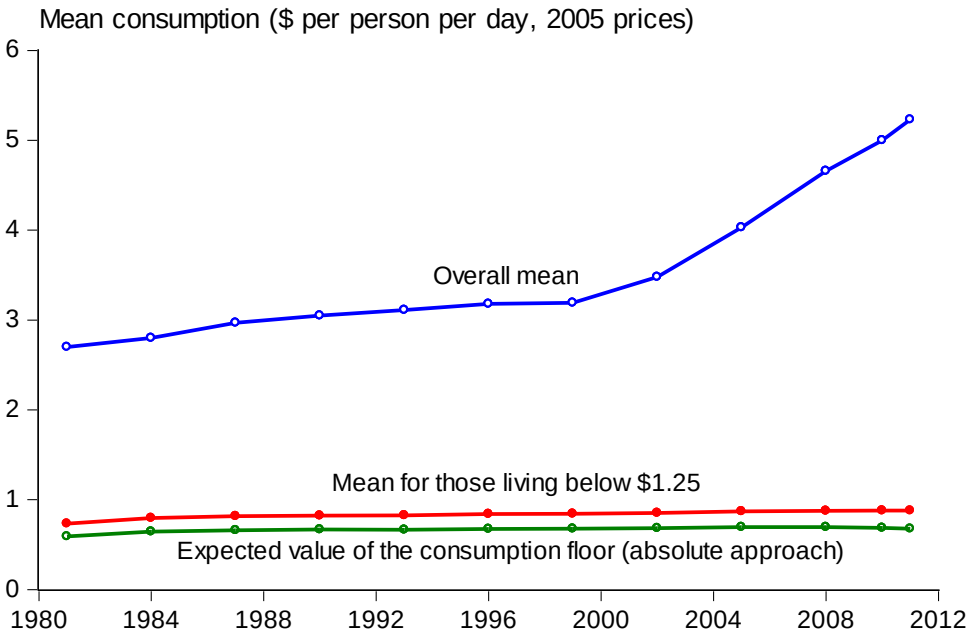


(a) Poorest left behind

(b) Same reduction in the incidence of poverty but without leaving the poorest behind

Figure 2: Mean consumptions for the developing world

(a) Including overall mean



(b) Blow up lower segment of panel (a)

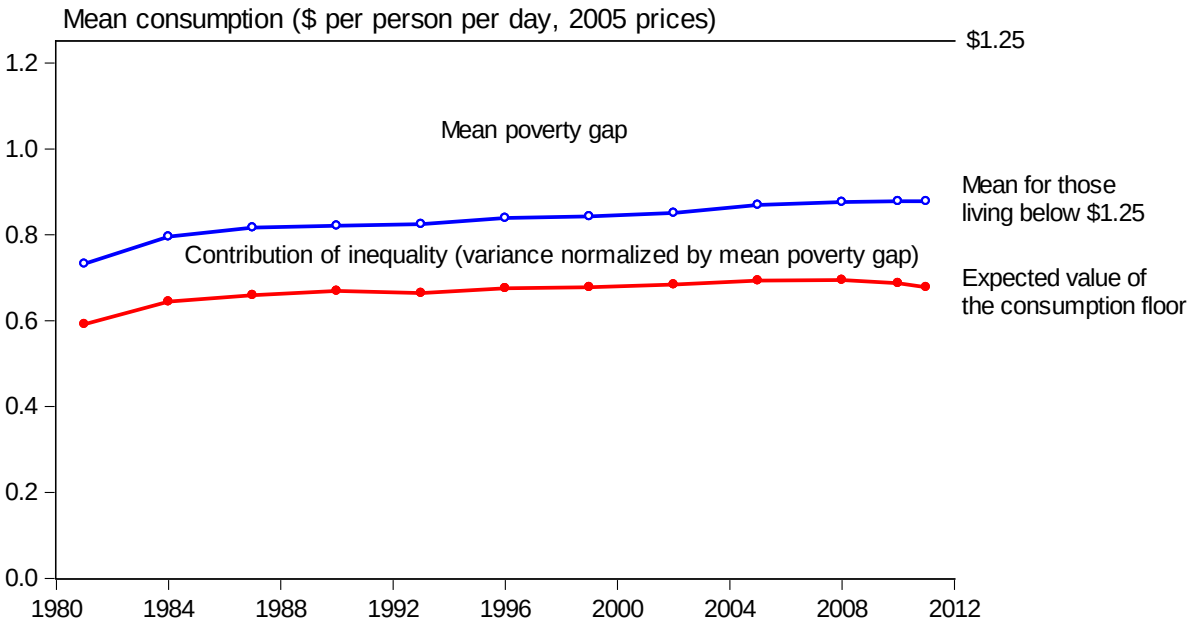


Figure 3: National poverty lines plotted against the closest survey mean

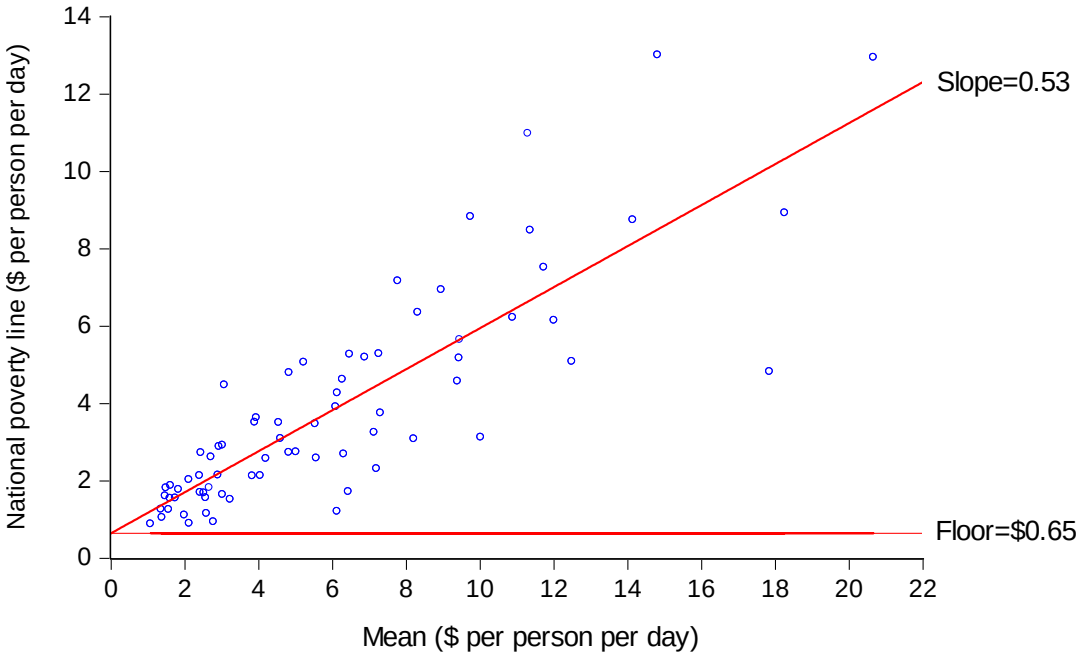


Figure 4: Cumulative distribution functions for the developing world 1981-2011

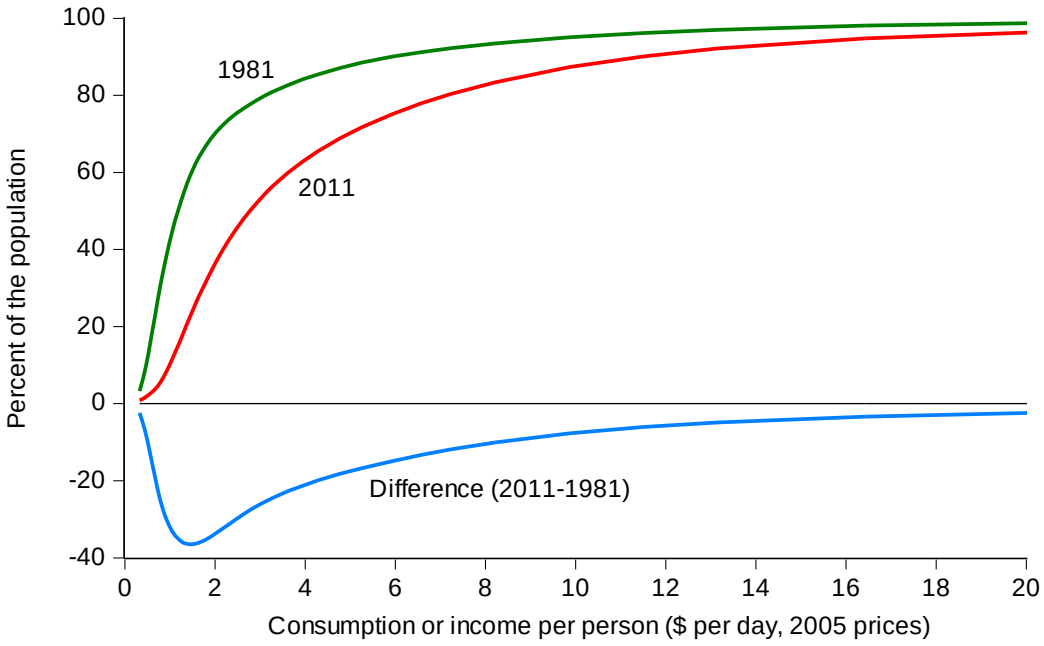


Figure 5: Absolute gains by percentile 1981-2011

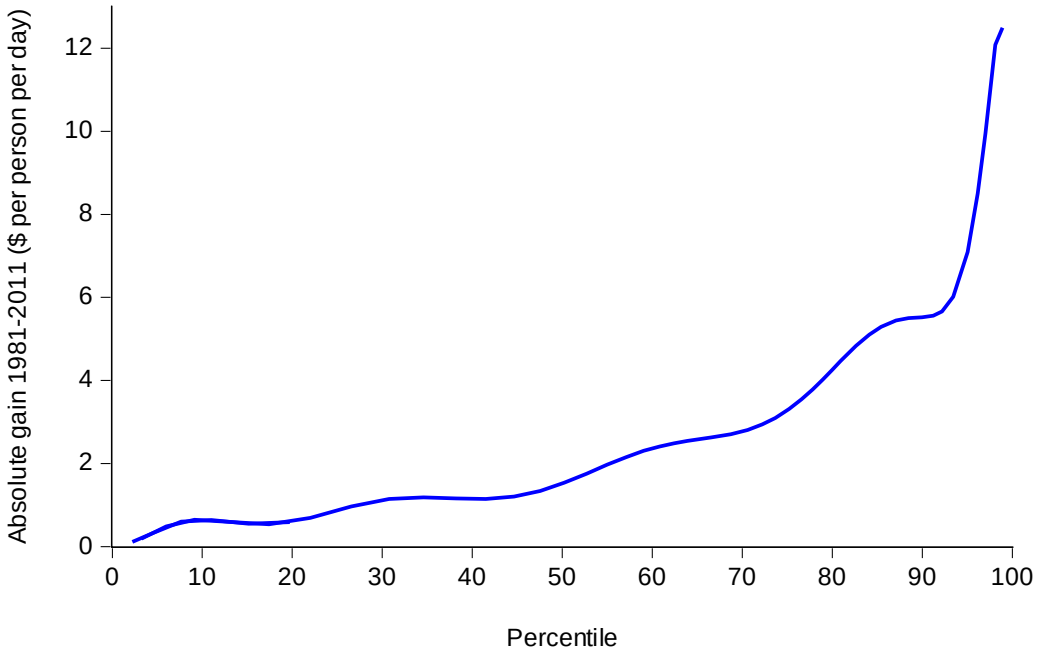


Figure 6: Percentage of the population of the developing world living below each line

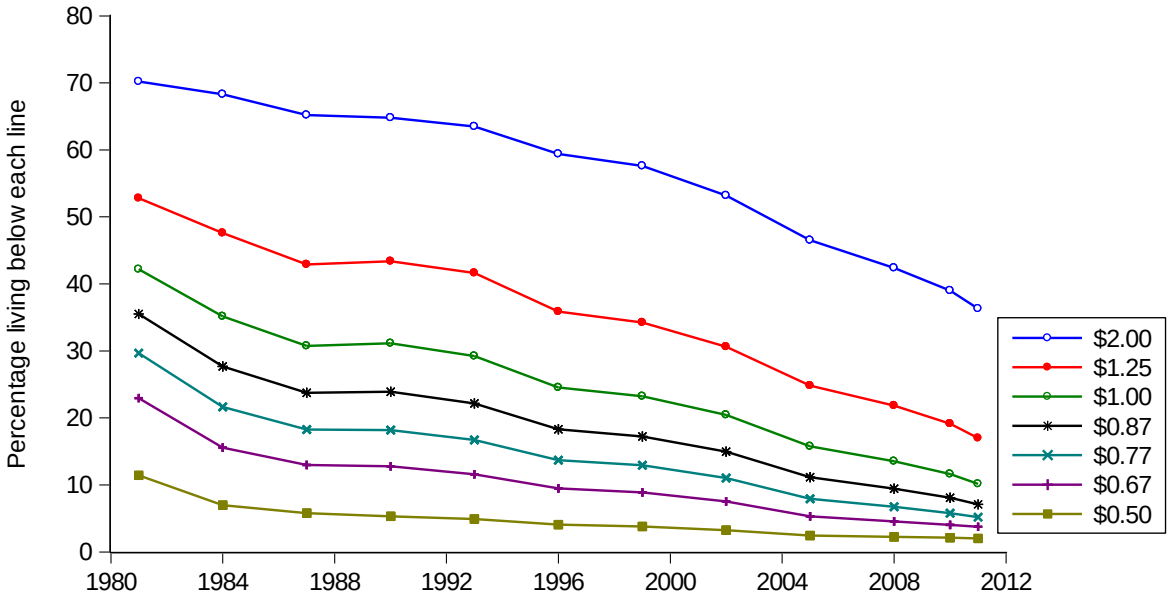


Figure 7: Changes in the incidence of ultra-poverty at country level

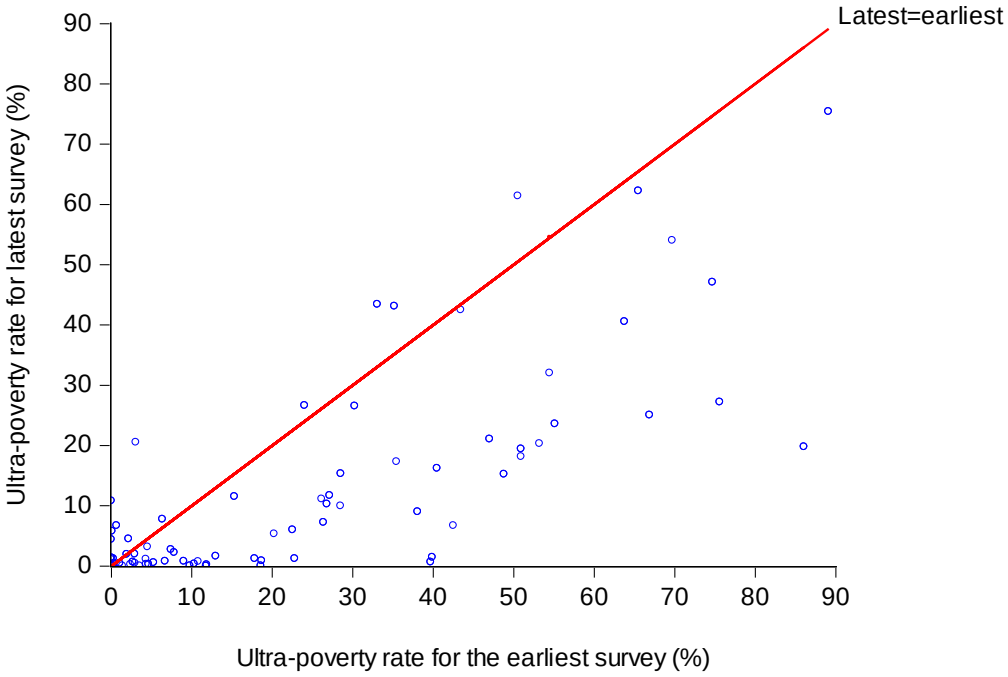


Figure 8: Progress against ultra-poverty at country level translated into progress against total poverty

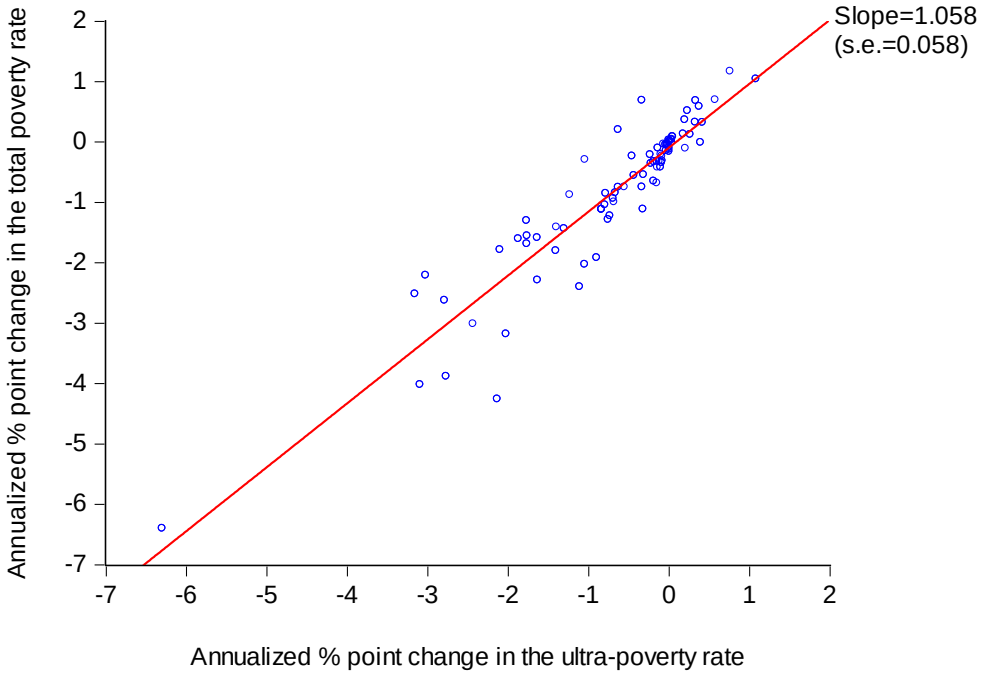


Table 1: Estimated consumption floors the developing world

	(1) Estimated consumption floor	(2)	(3) Means	(4)	(5)
	y^* =\$1.25	y^* =\$1.00	Mean consumption	Mean consumption of those living below \$1.25 a day	Contribution of inequality (variance normalized by the mean gap)
1981	0.59	0.52	2.70	0.73	0.14
1984	0.64	0.56	2.80	0.80	0.15
1987	0.66	0.56	2.97	0.82	0.16
1990	0.67	0.57	3.05	0.82	0.15
1993	0.66	0.56	3.11	0.83	0.16
1996	0.68	0.56	3.18	0.84	0.16
1999	0.68	0.57	3.19	0.84	0.16
2002	0.68	0.57	3.48	0.85	0.17
2005	0.69	0.56	4.03	0.87	0.18
2008	0.69	0.56	4.66	0.88	0.18
2010	0.69	0.54	5.00	0.88	0.19
2011	0.68	0.53	5.23	0.88	0.20

Notes: All numbers are \$ per person per day in 2005 prices using purchasing power parity rates for private consumption. Source: Author's calculations. Columns (1) and (2) use the estimates of PG and SPG from *PovcalNet* and equation (4).

Table 2: Regional breakdown of the 500 million ultra-poor in 2010

Region	Number (millions)	% of total	% of regional population
East Asia and Pacific	59.71	11.82	2.97
Eastern Europe and Central Asia	0.95	0.19	0.20
Latin America and the Caribbean	17.63	3.49	3.02
Middle East and North Africa	1.39	0.28	0.42
South Asia	152.37	30.15	9.33
Sub-Saharan Africa	273.48	54.12	32.04
Total	505.31	100.00	8.58

Source: Author's calculations.

Table 3: Growth elasticities of poverty reduction for various poverty lines

Poverty line	Growth rate based on survey mean	Growth rate based on NAS consumption	Average of survey mean and NAS growth rates
$2.00	-1.681	-1.494	-1.817
	(0.433; 98)	(0.427; 87)	(0.333; 87)
$1.25	-2.345	-1.961	-2.588
	(0.628; 91)	(0.494; 80)	(0.402; 80)
$0.87	-2.072	-2.332	-3.247
	(0.841: 77)	(0.541; 68)	(0.481; 68)
$0.77	-2.115	-2.549	-3.480
	(0.881; 76)	(0.565; 67)	(0.520; 67)

Note: White standard errors in parentheses, followed by the number of observations. All coefficients are significantly different from zero at the 1% level.
Source: Author's calculations.

Table 4: Regressions for the rate of growth in the consumption floor across countries

	(1)	(2)	(3)	(4)
Intercept	0.003	0.005	-0.010**	-0.001
	(0.006)	(0.006)	(0.004)	(0.006)
Growth rate in the survey mean (annualized)	0.254	n.a.	0.444***	n.a.
	(0.190)		(0.132)	
Growth rate in NAS consumption (annualized)	n.a.	0.041	n.a.	0.104
		(0.207)		(0.214)
Annualized change in the Gini index	n.a.	n.a.	-0.033***	-0.020**
			(0.006)	(0.010)
R^2	0.006	0.001	0.517	0.092
SEE	0.031	0.027	0.022	0.026
Mean dep. var.	0.007	0.006	0.006	0.005
N	78	69	75	67

Note: White standard errors in parentheses. *** indicates significance at the 1% level; ** at 5%.
Source: Author's calculations.