Abstract

Against what standards should we judge the developing world’s overall performance against poverty going forward? The paper proposes two measures, each with both “optimistic” and “ambitious” targets for 2022, 10 years from the time of writing. The first measure is absolute consumption poverty, as judged by what “poverty” means in the poorest countries. The second is a new measure of global poverty combining absolute poverty with country-specific social inclusion needs, consistently with national poverty lines. The optimistic benchmark would entail an absolute poverty rate of 9 percent in 2022, and a combined poverty rate of 40 percent, including the allowance for social inclusion. The more ambitious targets would bring the absolute rate down to 3 percent and the combined rate to 33 percent. The optimistic target would maintain the (impressive) progress against poverty of the last 20 years, without global crises to stall that progress. The ambitious target would require about a 1 percentage point higher growth rate for the gross domestic product of the developing world, as long as this did not come with a reduction in the household sector’s share or any further increase in overall inequality beyond its level in 2008. Alternatively, the 3 percent target could be reached at currently expected growth rates but at the lower level of inequality found in 1999.
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International development institutions and almost all developing countries track poverty measures, and the results are watched keenly. But how do we judge performance? When do we say it is “good” or “bad”? Little attention has been given to these questions. A closely related issue is how to set goals for future performance. Setting goals can motivate achieving them. The Millennium Development Goals were clearly conceived with that aim in mind. The first Millennium Development Goal (MDG1) was to halve the developing world’s 1990 “extreme poverty rate” by 2015. Using the $1.25 a day poverty line for defining “extreme poverty,” MDG1 was attained in 2010, five year ahead of the goal (Chen and Ravallion, 2012). Yet, it is not clear exactly how the MDGs were determined. At the time MDG1 was set, there were very few time series observations to draw on for benchmarking performance. That has changed dramatically.

This paper draws on recent research on the measurement of poverty and on global economic prospects to try to identify measures and seemingly defensible benchmarks for judging progress going forward. The measures proposed span both absolute and relative poverty. The benchmarks for each rest on explicit assumptions about future growth and distributional change, though they are assumptions that are informed by knowledge of recent past performance against poverty and current expectations about growth prospects across the developing world. While there must (inevitably) be a large dose of optimistic conjecture in setting such targets, it is hoped that this effort will help inform public discussions on development goals, guide assessments of performance over the coming decade, and help mobilize efforts against poverty.

Two benchmarks over the next 10 years are proposed. The first is dubbed the “optimistic” target. This assumes that the recent trajectory of success against poverty can be maintained; this can be thought of as the counterfactual in the absence of extra effort but with a measure of good luck. The second is an “ambitious trajectory”—a “high case” path that would be a real challenge, requiring substantial extra effort from the whole world. These benchmarks are not (at least now) dreams beyond imaginable reach; they stem from scenarios that are within the

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2 To my knowledge, the only careful attempt to benchmark performance at country level is found in Newman et al. (2010) who draw on time series evidence across developing countries. They use the empirical distribution of absolute changes in the poverty rate as data for informing the setting of performance benchmarks for countries in Latin America and the Caribbean.

3 As Hume (2009, p.4) puts it the MDGs aimed to “stretch ambitions and mobilize political commitment and public support.” The MDGs were not the first such effort at goal setting; Hume identifies a number of antecedents including the UN Declaration of Human Rights.
range of past experience and consistent with seemingly reasonable expectations for the near future in the absence of major global crises.

After reviewing what we know about recent growth, distributional change and absolute poverty reduction in the developing world, the paper discusses the proposed targets for absolute poverty. The discussion then turns to a broader concept of poverty, tailored more closely to the evolving ideas about social inclusion in the developing world. The final section concludes.

**Recent trends in growth, redistribution and poverty reduction**

Roughly speaking, the measure of poverty obtained for a given distribution of consumption (or income) depends on the mean of that distribution (relative to the poverty line) and the extent of “inequality” in the distribution. Consider the mean first. Using nationally representative surveys, the mean will naturally depend in part on national income. As is well known, the developing world as a whole has been maintaining a growth rate for GDP of around 6% over most of the last decade, though dipping substantially (and temporarily) in 2008-09, due to the global financial crisis. This is a full 2% points higher than the average growth rate of about 4% from the 1960s through to the mid-1990s.

The World Bank’s current growth projections assume that a full-blown Euro crisis will be avoided and the annual growth rate of GDP for the developing world will still be 6% in the coming few years (having fallen slightly this year) (World Bank, 2012b). Given current population projections, a 6% growth rate in the GDP over the coming decade would represent a 4.9% rate for GDP per capita. While the recent growth has not been even across all regions, the three regions that account for the bulk of absolute poverty—East Asia, South Asia and Sub-Saharan Africa (SSA)—have also seen strong growth in recent years, namely around 8% in East Asia, 7% in South Asia and 5% in SSA. Current expectations are that these rates will be maintained, though serious risks are faced that further crises emanating in the “rich world” will spill over significantly into growth and poverty reduction in the developing world, as discussed in World Bank (2012a,b).

However, the mean for the distribution of household consumption on which poverty measures are based is not (of course) the same thing as GDP or even the private consumption

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4 Strictly, it is not “inequality” as normally defined, but rather a more complex function of relative distribution (Datt and Ravallion, 1992). However, for the present purposes it is defensible to refer to this as “inequality.”

5 The compound rate of population growth over 2012-17 and 2012-22 is 1.1% per annum.
component of domestic absorption in the national accounts. There has been a systematic gap between mean consumption or income measured from the household surveys used to measure poverty and these national accounts aggregates, and there has also been a gap in the growth rates, such that the share of GDP accountable to consumption by households has tended to fall in many developing countries (Ravallion, 2003; Deaton, 2005). The way national accounts are constructed in practice means that there is nothing exactly corresponding to household consumption as measured in surveys, so the comparison is difficult. Differences in the concepts play a role, but so too do measurement errors (in both sources), differences in accounting periods and sampling problems. (It should not be assumed that national accounts data are more accurate than survey data for developing countries.)

To investigate this further, I have assembled a data file of the longest available spells between two household surveys for developing countries, using the same welfare indicator (consumption or income) for both surveys. This was possible for 95 developing countries, with a mean (and median) of 16 years between the surveys, ranging from 4 to 32 years. Regressing the annualized growth rate in the survey means on the corresponding growth rate in the survey mean the slope coefficient is 0.968 (White s.e.=0.199; n=95) and the intercept is -0.012 (s.e.=0.006). Figure 1 plots the data points. Imposing the restriction that the slope is unity, the average gap is -0.012 (s.e.=0.004), indicating that the survey means give a 1.2 percentage point lower growth rate on average. This is significantly different from zero, but there is still a wide variation (Figure 1), with a standard deviation of 4.0 percentage points, and a range from -20.7 to 8.1 points. Some of this is clearly due to measurement errors in both the surveys and national accounts. On top of the errors in both data sources, there are errors in matching survey periods to national accounting periods. Dropping just three (large-negative) outliers that may well reflect measurement errors in the surveys, the mean gap between growth rates falls to 0.7 points (s.e.=0.3).

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6 For the poverty measures reported here, two-thirds of the surveys used consumption, which is taken to be the preferred welfare metric. When consumption is not available, income is used instead.
7 These are simple un-weighted means across countries, for descriptive purposes. The poverty forecasts based on the World Bank’s current growth rate projections reported later were built up from the country level and are implicitly weighted. These incorporate country specific adjustment factors for gaps.
8 India has been prominent in recent discussions of the gap between survey data aggregates and national accounts aggregates (Ravallion, 2003; Deaton, 2005). Over the longest available spell between surveys for India (1977/78 to 2009/10) the annual growth rate in mean consumption from the surveys has been 1.4%, as compared to 2.0% from the private consumption component of the national accounts. This gap is in line with the average. But it is a sizable gap over such a long period.
What about inequality? The concept of “global inequality” relevant to measuring global poverty pools all residents of all countries, and measures the inequality amongst them as if it was one country. Figure 2 plots such a measure of inequality, using the Mean Log Deviation (MLD), which is a theoretically sound measure with some convenient properties (notably its exact decomposability). The overall inequality measure will naturally depend on the inequality between countries as well as within them. Thus its evolution over time will depend on growth rates in poor countries relative to rich ones (roughly speaking), as well as the things happening within countries—economic changes and policies—that impact on inequality. Figure 2 also gives the breakdown of total inequality into between-country and within-country components.

We see that there has been a trend decrease in total inequality; over the period as a whole there is a small negative trend, at -0.003 per year (with mean MLD of 0.56). However, there was an increase in inequality over 2005-08 due entirely to an increase in between-country inequality.

The between-country component has been driven (in part at least) by the high growth rates in a number of previously low-income countries, especially China and India. As these have graduated to “middle-income” status, they have imparted less influence on overall inequality, and, looking forward, they will contribute to higher between-country inequality.

However, the bigger policy challenge will probably be to halt the steady increase in within-country inequality (Figure 2). It might be conjectured that higher growth will (at least initially) put upward pressure on inequality within low- and possibly middle-income developing countries (as predicted by the famous Kuznets Hypothesis). However, that conjecture is not consistent with the evidence, which indicates that inequality within growing developing countries falls about as often as it rises (Ravallion, 2001; Ferreira and Ravallion, 2009). A number of high-inequality growing developing countries have succeeded in attenuating and even reducing inequality, most notably in Latin America in the 2000s. The evidence leads one to doubt that higher inequality is simply the “price” for higher growth and lower absolute poverty (Ravallion, 2005a).

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9 MLD satisfies the Pigou-Dalton transfer axiom and is also exactly decomposable by population sub-groups (Bourguignon, 1979). The population-weighted MLD gives the contribution of inequality within countries to overall inequality.

10 If we want to track the “inequality performance” of developing countries or some subset of countries (such as a specific region) then we will probably want to isolate the within-country component of inequality. After all, this is what country efforts to reduce inequality are focusing on. For further discussion see Ravallion and Chen (2012).

11 See the regional comparisons of within-country inequality over time in Ravallion and Chen (2008). For further discussion of the decline in inequality in Latin America see Lustig and Lopez-Calva (2010).
Turning now to absolute poverty, following past practice, “extreme poverty” is defined here by the fact of being poor by the standards used to define “poverty” in the poorest countries of the world. On that basis the World Bank’s current international poverty line is $1.25 per person per day at 2005 Purchasing Power Parity (PPP).12

The latest (survey-based) estimate of the proportion of the population of the developing world living below $1.25 a day is 21% for 2010, down from 33% in 2000 and 43% in 1990 (Figure 3).13 The overall poverty rate (‘headcount index’) has been falling at a robust 1% point per year over 1981-2010. The regression coefficient of the poverty rate on the year in Figure 3 is -1.04 with a standard error of 0.05 (n=11). Figure 3 also gives the series for the poverty gap (PG) index. This is the mean gap below the poverty line, as a proportion of the line, expressed as a percentage. Equivalently, the PG index is the product of the headcount index and the income gap-ratio, given by the difference between the poverty line and the mean consumption or income of those living below the line, expressed as a percentage of the line. The PG index fell from 21% to 6% over the period 1981-2010; the regression coefficient of the index on year is -0.46 with a standard error of 0.04 (n=11). The income gap ratio also fell, from 0.41 to 0.31.

Progress has been uneven. Table 1 gives the regional breakdown of the headcount index for selected years. Figure 4 gives the series for three regions accounting for 95% of those living below $1.25 a day (in 2008). For East Asia, the rate of poverty reduction has been about double the average, at slightly over 2% points per year; for South Asia, it has been slightly less than 1%, and for Sub-Saharan Africa it has been about zero.14 However, there are clear signs of a positive trend emerging in Africa in the 2000s, at a similar trend to South Asia. The late 2000s have seen progress against poverty—with both falling incidence and falling numbers of poor—in all six regions of the developing world (Eastern Europe and Central Asia, Latin America and the Caribbean, and the Middle-East and North Africa, in addition to those in Figure 4).

So the developing world as a whole has been maintaining robust progress against extreme poverty, judged by the $1.25 line, and there is clearly cause for optimism. However, as Chen and Ravallion (2012) also show, there has been less progress in getting people over $2 a day. A

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12 This line is derived in Ravallion et al. (2009).
13 The estimates of absolute poverty measures used here are from Chen and Ravallion (2012), which discusses data and methods. (The update for 2010 gives 20.8% below $1.25 a day, representing 1227 million people.) A fuller discussion of the absolute measures (with various tests of robustness) can be found in Chen and Ravallion (2010); on the relative measures see Ravallion and Chen (2011).
14 The coefficients are -2.24% (s.e.=0.14) for East Asia, -0.88% (0.04) for South Asia and -0.09% (0.14) for Africa.
marked “bunching up” is evident just above $1.25 a day, which also points to continuing vulnerability to downward shocks.

As an aside, there is no sign in Figure 3 that the developing world’s trend rate of decline in poverty has been any greater since the MDGs were officially ratified at the *Millennium Summit* of 2000. However, one should not make too much of that observation. For one thing, the pre-2000 trajectory may not the right counterfactual, in the absence of the MDGs. For another, it can be noted that Africa’s turning point in progress against poverty was around 2000, although attribution to the MDGs would clearly be a large and (potentially) contentious step.

**An optimistic trajectory for the next 10 years**

The guiding principle for the proposed optimistic benchmark is that the recent success against extreme poverty is maintained. There are two ways one can extrapolate that success forward over time. The first uses a simple linear projection. This gives a poverty rate for the developing world as a whole in the year of writing (2012) of 19.0% (with a standard error of 0.6%), representing 1.1 billion people. For 2017 the projection is 13.8% (s.e.=0.8%) or 0.9 billion people, while for 2022 it is 8.6% (s.e.=1.0%), or 0.6 billion people. The second method is to apply country-level growth projections to baseline poverty measures under assumed distributional changes, and then aggregate up to the global level. This is a more complicated calculation. But the two methods are in are in close accord, at least in the near term. Trajectories for poverty in 2015 by the second method are reported in the 2012 *Global Monitoring Report* (GMR), drawing on the Bank’s country-specific growth projections. This method gives a poverty rate of 16.3% for 2015 (World Bank, 2012a). This is very close to that implied by the first method, namely 15.9%. Table 1 includes the forecasts by region for 2015 from the GMR.

The proposed “optimistic trajectory” for 10 years ahead is the simple linear projection, implying a benchmark of 9% for 2022. There are a number of points to note about this trajectory.

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15 The Bank’s current population projections in millions for the developing world, as defined in 2012, are 5884 in 2012, 6230 in 2017 and 6561 in 2022. Using the 1990 classification of developing countries (to be consistent with PovcalNet) the numbers are 6009, 6355 and 6687 respectively. This difference does not change the poverty counts reported in this paper at the stated number of significant figures.

16 These forecasts factor in historical gaps between growth rates in the survey means and growth rates in private consumption per capita in the national accounts. For most countries, about 90% of the national accounts growth rate is passed onto the survey means, but for India it was only about half, consistent with the larger gap between the two growth rates for India. In addition an allowance is made for rising inequality in both China and India. For further details see World Bank (2008).
First, it assumes that past the world avoids major crisis with impacts beyond past experience. Second, if the increase in global inequality that we have seen recently (2005-2008) continues then this trajectory would be unattainable without a further acceleration in growth. (Later we will see how much inequality matters to attaining any given target.) Third, a constant annual percentage point decline cannot, of course, continue indefinitely—it must slow down, becoming nonlinear in time. But when? It is worth considering this issue further.

In looking for clues as to when the nonlinearity might emerge, one can study the experiences of places that have seen substantial reductions in poverty to under 10% or so. Figure 5 gives the poverty rate over time in urban and rural China. The nonlinearity only becomes evident below about 5% for urban China, but is not found yet for rural China. By contrast, Figure 6 gives the graphs for Argentina (after the 2001-2 financial crisis) and Brazil. In Argentina, we see the expected nonlinearity emerging around a poverty rate of 4%, while in Brazil a marked nonlinearity emerges below about 8%, but in the opposite direction, with lower poverty rates than one would have expected.

So there is no clear pattern, although these are just a few countries, each with their own special features. To look at this issue more systematically I used the data set described above of the changes in poverty across countries from PovcalNet. Here the focus is on those countries that started out with more than “negligible” poverty, which I define as more than 1% of the population living below $1.25 a day. This gave 82 countries.

Figure 7 plots the annualized change in the $1.25 a day poverty rate against the initial poverty rate across countries. It is striking that no country starting out with a poverty rate under 10% has attained a rate of poverty reduction at the “global” average rate of 1% per annum. A downward “stickiness” at poverty rates under 10% is evident.

Another observation from Figure 7 is that benchmarking progress against poverty in percentage points per annum is unlikely to have universal relevance across countries with different initial levels of poverty. As is plain from Figure 7, the variance in rates of poverty reduction tends to be higher at higher initial levels of poverty. While it might be reasonable to

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17 World Bank (2012b) discusses alternative scenarios for a global crisis emanating from sovereign debt defaults in Europe, which would entail appreciable short-term impacts on the growth rates for the developing world.
18 There are two types of nonlinearity relevant here, nonlinearity of progress in reducing poverty over time and nonlinearity with respect to the poverty line relative to the mean. The text will make clear which is being discussed.
19 For rural China I use a lower poverty line, at $0.75 a day, since the $1.25 a day poverty rate does not fall below 20%. Also, I only use consumption-based estimates for rural China.
20 On the use of such country level data for benchmarking performance against poverty see Newman et al. (2010).
identify a rate of poverty reduction of (say) 2% per annum as “good performance” for countries with poverty rates over (say) 20%, this is not so for less poor countries.

A simple corrective is to use instead the proportionate rate of poverty reduction as the criterion for judging country performance.\textsuperscript{21} Thus one controls for the initial level of poverty.\textsuperscript{22} Figure 8 gives the corresponding graph for proportionate rates of poverty reduction.\textsuperscript{23} If we identify the “good performers” as those countries with a proportionate rate greater than 5% per annum (less than -0.05 in the annualized log difference) then this applies to 27 countries—roughly the top third. These are found at most levels of poverty, including amongst the least poor countries. Using a 5% per annum proportionate rate of poverty reduction as the benchmark also implies that a continuation of the 1% point per annum rate of decline in the overall poverty rate starting from a poverty rate today of slightly less than 20% also qualifies as “good performance.” This would seem reasonable, as most would agree that the developing world as a whole has been doing well against extreme poverty.

Whether the 1% per annum rate can be maintained over the next 10 years is more contentious, given the uncertainty about when the nonlinearity will kick in. Based on the above observations, it would seem reasonable to assume that, for the headcount index, the nonlinearity will become evident once the “global” poverty rates falls below about 10%, but probably not before that. The 9% projection for 10 years from now would then hold as a defensible benchmark, though still an optimistic one.

So far the discussion has focused on the headcount index. For the PG index, the linear projection is an implausible specification.\textsuperscript{24} While we might not expect the nonlinearity to emerge for the headcount index until the index is in the single digits, a more marked nonlinearity can be expected over a wider range for the income-gap ratio (recall that this is the ratio of the PG index to the headcount index). A log specification for projecting the income gap-ratio clearly

\begin{footnotesize}
\textsuperscript{21} The literature on explaining why some countries have done better than others in reducing poverty has focused more on the proportionate rate of change rather than the absolute change; see the analysis in Ravallion (2012).
\textsuperscript{22} Alternatively one can use a regression control (the regression line in Figure 6) and base the performance benchmark for each country on the absolute change as if it had a reference level of poverty, fixed across countries. One can take this idea further and imagine a set of controls to be used in setting performance standards at country level. Newman et al. (2010) also control for GDP per capita, inequality, rural population share and the age dependency ratio. (Newman et al. use quantile regressions, which adds flexibility to the estimation compared to ordinary regressions, through the means.) The basis for choosing these controls warrants further consideration.
\textsuperscript{23} Note that we do not see convergence in the poverty measures; proportionate rates of poverty reduction are higher for countries starting out poorer. On why this is so see Ravallion (2012).
\textsuperscript{24} The linear projection implies that the PG index goes to virtually zero by 2022; the projected value is 0.3%, which is not significantly different from zero (s.e.=0.97%).
\end{footnotesize}
performs better and this gives a projected PG index of 3.9% for 2017 and 2.3% for 2022.\textsuperscript{25} Notice that these projections (allowing for non-linearity) imply only a modest decline in the income gap ratio under the optimistic trajectory, from 0.31 in 2010 to 0.27 in 2022; the main driving force for the lower PG index is the decline in the headcount index.

**An ambitious trajectory**

An ambitious trajectory has to do better than that in Figure 3. This would clearly require that the developing world is successful along all relevant dimensions, notably in assuring continued, reasonably rapid, pro-poor growth and in avoiding major crises (whether financial and agro-climatic)—in short, pro-poor policies (including protection from shocks) plus a measure of good luck in avoiding further crises. And, as is plain from Table 1, success in fighting poverty in South Asia and Sub-Saharan Africa will be crucial; 80% of the projected extreme poverty count for 2015, consistent with the optimistic scenario, is in these two regions (about equally).

Faster progress against poverty with the growth rates currently expected will, of course, require that poor people share more in that growth. Suppose that the mean consumption of all households grows in line with the overall GDP growth rates at the country level (i.e., no decrease in the household share) and there is no increase in inequality within any developing country (though still increasing between countries). This combination would entail a significant change in how the benefits of macroeconomic growth are distributed. As already noted, past growth, as measured in the national accounts, has not been fully reflected in average household living standards as measured in surveys, and inequality has been increasing on average (population-weighted). Of course, we could also get to any given target poverty rate without these conditions, as long as we achieve sufficiently higher growth rates in average household consumption.

Applying the same World Bank growth forecasts used in Table 1 under these more ambitious assumptions about the distribution of the gains from growth I find that this scenario would get us to a poverty rate of 11% by 2017 and 8% by 2022.\textsuperscript{26} Table 2 gives the calculations. Notice that this would generate a marked concentration of extreme poverty in Sub-Saharan Africa, which will account for 72% of the poor by 2022.

\textsuperscript{25} Regressing the log of the income-gap ratio (PG index divided by headcount index) on the year one obtains projections of 0.282 for 2017 and 0.271 for 2022. The projected PG indices are then obtained by applying these projections to the prior linear projections for the headcount index.

\textsuperscript{26} This is based on the same forecasts for growth rates underlying Table 1, but extended for an extra two years, but under the more ambitious distributional assumptions.
This scenario suggests a deceleration in the period 2017-2022, with a lower (annualized) proportionate rate of poverty reduction than seen over the period 2008-17. This stickiness is coming mainly from Africa’s weaker progress against poverty, coming from the lower growth rates in this region—a full 1 percentage point lower than for the developing world as a whole.

Arguably a better characterization of the ambitious target is to assume instead that Africa enjoys the same rate of growth as the developing world as a whole. Consider a growth process in which all income levels grow at the same rate—maintaining overall inequality (between and within countries). To quantify such an ambitious target one can use the baseline distribution and project this forward with a higher mean until any given poverty rate is met, and then see what growth rate is required. This automatically takes account of the nonlinearity in how the cumulative distribution function of consumption varies with the poverty line relative to the mean.

The results of this exercise are found in Table 3, Column (1), which gives the growth rate in household consumption per capita needed to bring the $1.25 a day poverty rate down to various levels assuming no increase (or decrease) in inequality within the developing world. The calculations in column (1) are anchored to the 2008 distribution—the last year for which the whole distribution can reliably be constructed from survey data.27 (The discussion will return shortly to column (2).) A 5% growth rate in mean household consumption per capita without any increase in inequality would get us close to a 4% poverty rate in 2022. However, the required growth rates more than double to get the target down from 4% to 1%. Without lower inequality in 2008, the developing world as a whole would need to achieve China’s growth rate over the last 20 years or so (but without the rise in inequality that China has seen) to get the poverty rate much below 2% within 10 years.

This suggests that a 2% poverty rate by 2022 would be very difficult and could reasonably be seen as close to impossible. A poverty rate of 4.5%—half what we expect to be the poverty rate under the current trajectory—would require a growth rate in mean household consumption per capita of 4.8%, which is almost exactly the expected rate of growth in GDP per capita of 4.9%. But (again) this would require no fall in the household sector share (based on the surveys used to measure poverty) and no increase in inequality within the developing world as a whole.

27 For each target poverty rate, I solved backwards to find the growth rate needed to reach that target, holding constant the 2008 Lorenz curve. The accuracy of poverty estimates at low levels is questionable for those countries that use income (rather than consumption) as the welfare indicator. The data base in PovcalNet prefers consumption when it is available, which is for about two-thirds of the surveys. The only region that still uses income surveys extensively is Latin America.
whole. If this trajectory could be maintained, then a poverty rate of 2% would take a further
seven years using the 2008 level of inequality; the $1.25 a day poverty rate would reach 2% in
2029. The 3% target would be met in 2026.

There are many combinations of growth and inequality reduction that would get to a 3%
poverty rate by 2022. Here are three:

Scenario 1: This sets a more ambitious growth target 1 percentage point higher over the
period than for the optimistic trajectory. That is not an outlandish idea. After all, this is still only
half of the increase in trend growth rates that we saw in the 2000s relative to previous decades.
As noted above, the developing world went from a growth rate of around 4% in the 1980s and up
to the mid 1990s to of 6% in the 2000s. With a growth rate of slightly more than 1% point
higher, the 3% target would be reached in 10 years as long as there was no increase in overall
inequality in the developing world beyond its level in 2008.

Scenario 2: What if the 1% extra growth is not feasible? The 3% target could also be
achieved with lower inequality. And the drop in overall inequality would be within the range of
recent experience. To illustrate the magnitudes, Column (2) of Table 3 gives the growth rates
needed to attain each target poverty rate in 2022 but this time using the relative distribution of
1999, which was the year of lowest total inequality in the series in Figure 2, with an inequality
index of 0.52, as compared to 0.57 in 2008. This lower level of inequality will entail lower
poverty but also allow a more pro-poor growth path. We now see that if mean consumption grew
at 4.6% (with no other change in inequality) then we would reach a 3% poverty rate by 2022.

Scenario 3: Suppose instead that the currently expected “pattern of growth” (which gave
the projections in Table 2) is maintained, but at a higher overall level. Again, inequality is held
constant within developing countries, and the household share of national income does not fall.
However, rising inequality continues between countries. On redoing the calculations in Table 2
at scaled up growth rates I find that if all positive growth rates currently expected at country
level were increased by a factor of 1.5 (a 50% higher growth rate) then we would reach a poverty
rate of 3% by 2022.28 Similarly to Table 2, a large share (87%) the remaining poverty under this
scenario would be in Africa. Also note that if the survey-based household share of national

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28 Strictly it is 3.2%. Note also that some countries have negative growth rates; I have set these to zero for the
purpose of this calculation.
income falls in line with past experience then the GDP growth rates will need to be about 1 percentage point higher.

As all of these scenarios make clear, the 3% target for 2022 is definitely ambitious. Without rising inequality, the extra growth needed to reach that target is not too farfetched, but it would start to become so if inequality rises further.

**Broadening the targets to embrace social inclusion**

While extreme absolute poverty will probably (and justifiably) take priority, there is a case for also considering benchmarks more appropriate to what poverty means in middle-income countries. (Recall that 95% of those people who live below $1.25 a day live in Asia and Sub-Saharan Africa.) Ideas about poverty are evolving in rapidly growing developing countries, with higher poverty lines emerging. (For example, China recently doubled its own national line, from a low value of $0.90 a day to $1.80 a day. Other recent examples include Colombia, India, Mexico, Peru and Vietnam.)

This is broadly consistent with what we see across countries. Figure 9 shows how national poverty lines vary amongst developing countries. (The $1.25 a day line is the average line of the poorest 20 or so countries.) Richer countries use higher poverty lines; this can be called the “relativist gradient” in national poverty lines. This gradient is evident even amongst countries that favour absolute lines. While absolute lines are typically anchored to nutritional requirements for good health and normal activities—which vary little across countries—that does not mean that different developing countries use the same real monetary line. There are infinitely many food bundles that can attain any given nutritional intake.

The relativist gradient in national poverty lines seen in Figure 9 offers a clue for identifying how much higher poverty lines need to be in richer societies to assure social inclusion, the cost of which can be taken to depend on overall living standards at the time.29 This may sound like the prevailing approaches to measuring “relative poverty” using a fixed proportion of the mean or median as the poverty line. However, this approach is subject to a number of objections (Ravallion and Chen, 2011). As a characterization of the national lines in

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29 That is not the only way one can interpret the relativist gradient. Another possibility is that the higher lines reflect higher welfare “norms” used by countries in deciding who is poor, rather than differences in the costs of attaining the same level of welfare; for further discussion see Chen and Ravallion (2012). These two interpretations are hard to distinguish empirically.
Figure 9, setting a poverty line as a constant proportion of the mean will underestimate the national poverty lines found in poor countries, which are clearly bounded below. An alternative, operational, approach is proposed in Ravallion and Chen (2011) and implemented in Chen and Ravallion (2012). Technically, this is called “weakly relative poverty.” It can be thought of as a measure of “total poverty,” combining absolute poverty with purely relative, “social inclusion,” needs that rise with the average income of the country of residence.

Two key features of this new measure can be noted. First, the elasticity of the poverty line to the mean rises with mean consumption, from zero at low levels towards (but never reaching) unity. This property is consistent with the data on national lines (Ravallion, 2012b). By contrast, the strongly relative lines have an elasticity of unity everywhere. Second, a growth process that increases all consumption levels by the same proportion (leaving relative inequality unchanged) will reduce poverty incidence; by contrast, such a growth process will have no effect on strongly relative poverty. The Box explains this approach further.

**Box: A better measure of poverty**

A long-standing principle for poverty measurement is that the poverty line should be interpreted as the monetary cost of a fixed reference level of “welfare” needed to avoid being poor. (Differences in practice stem from how one defines “welfare.”) The difference here is that a higher real income is deemed to be necessary to attain the same level of welfare in richer societies. Weakly relative measures allow for country-specific social inclusion needs, and they do so in a more plausible way than strongly relative measures in which the poverty line is set at (say) half the mean. In particular, unlike strongly relative measures, the Ravallion and Chen (2011) weakly relative measure allows for a positive lower bound to the cost of social inclusion. (For example, in the famous example from Adam Smith, in *The Wealth of Nations*, of a linen shirt as essential for avoiding shame in 18th century Europe, the cost of that linen shirt cannot go toward zero.) Also, while both strongly and weakly relative measures allow for relative deprivation (feeling poorer in richer countries at a given level of own consumption), strongly relative measures implicitly assume that higher own consumption does not increase welfare at given relative consumption; weakly relative measures avoid this implausible assumption.

A person is deemed to be poor if she is either absolutely poor (living below $1.25 a day) or she does not attain a country-specific minimum consumption needed for social inclusion. This is determined with reference to national poverty lines, which rise with mean consumption. In calibrating the social inclusion lines to data on national poverty lines across countries one is assuming that the national lines reflect a

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30 This generalizes the approach proposed by Atkinson and Bourguignon (2001); the generalization is to allow for a positive lower bound to their relative poverty line, to allow for costs of social inclusion in very poor societies; see Ravallion and Chen (2011) for details.

31 Foster (1998) proposed a “hybrid line” given by the weighted geometric mean of an absolute and a (strongly) relative line. While this is also weakly relative, it has a constant elasticity, whereas the data suggest that the elasticity rises from zero (for the poorest country) toward unity (the richest), as in the Ravallion and Chen lines.
common level of welfare (allowing for idiosyncratic differences and measurement errors). By interpretation it is the various “social effects”—social exclusion, shame and relative deprivation—that create the relativist gradient in national lines as seen in Figure 9. However, there are also measurement errors in the national lines. An important source is the (more or less inevitable) political frictions in adjusting national poverty lines to rising overall living standards (Ravallion and Chen, 2011).

Figure 10 explains the difference between these measures and the “strongly relative” measures that have been used in the past. The poverty line for any country cannot be below the absolute line of $1.25 a day, but rises with the mean when this is above $1.25 a day, by $1 for every $2. The lower bound to the cost of social inclusion is set at $1.25/2. Thus the combined poverty line for place \( i \) at date \( t \) is:

\[
Z_\mu = 1.25 + \max(M_\mu - 1.25, 0)/2
\]

Here \( M_\mu \) denotes the survey mean for place \( i \) at date \( t \). (These can be countries or sub-national, such as urban and rural areas.) These parameters fit well how national poverty lines vary across countries. Indeed, very similar parameter values were obtained using an econometric threshold estimator that allows for the piece-wise linear form of the inclusion lines; for details see Chen and Ravallion (2012).

The corresponding strongly relative line is one half of the survey mean. This does not fit the data on national lines nearly as well, in that it gives lines that are far too low to be credible in poor countries. By interpretation, the strongly relative lines would not be sufficient for social inclusion in poor countries. The implied poverty line for the country with the lowest mean would be $0.38 per day; the average line for the poorest 15 countries would be $0.64 a day, only half of the $1.25 a day line proposed by Ravallion, et al. (2009). While strongly relative lines might make sense in very rich countries they do not plausibly capture the social inclusion needs of the world’s poorest.

The proposed new combined measure of poverty implies a different trade-off between growth and redistribution than the standard absolute poverty measures. The relationship between poverty reduction and economic growth is complex, as it is known that both depend on initial distribution (including poverty) and that there are important interaction effects between growth and distribution in how they impact on poverty (Ravallion, 2012a). However, here the focus is on the purely statistical differences between the measures. Intuitively, one expects that growth in the mean will be less effective in reducing relative poverty, given that the poverty line rises with the mean above a critical level. This is confirmed by the evidence reported in Chen and Ravallion (2012). The latter paper also studies the difference in the implied trade-off between growth and redistribution and shows that only about one third of the increase in inequality that would be acceptable when using an absolute measure would be tolerated if one switched to the weakly relative poverty measure (all else held constant).

Notice that, while this measure can reasonably claim to capture country-specific “social inclusion needs”—at least as reflected in national lines—it does not allow for vulnerability, i.e.,
the fact that those just above the poverty line are vulnerable to downside shocks, including falling into extreme poverty. This would require a higher line. How much higher is unclear.\footnote{López-Calva and Ortiz-Juarez (2011) offer a way of setting a dividing line between vulnerability and “economic security” using panel data to quantify the probability of falling into poverty at various income levels. Also see the discussion of this approach and alternatives in Ferreira et al. (2012). The issue remains open as to what probability is deemed acceptable and for what poverty line.}

Table 4 gives the average lines by region for 1990 and 2008.\footnote{Note that these average lines do not play any role in the calculations of the poverty measures, which are built up from the country-level estimates. The averages given in Table 3 are for purely expository purposes. Note also that the poverty rate in this table can be below 50% even though the mean poverty line is above the median; see, for example, the total for 2008. This stems from the nonlinearities and heterogeneity in the underlying cumulative distribution functions. The implicit global relative line (that yields the global poverty rate) is $2.18, closer to the median.} Over this period, the average line rose from a little over $2 to almost $3 a day. Across regions, the average lines in 2008 vary from $1.28 a day in South Asia to $6.71 a day in Eastern Europe and Central Asia.

What do the data suggest on the evolution of poverty, by this combined measure?\footnote{For the remainder of the paper, the discussion of “relative poverty” refers to the weakly relative measures.} Figure 11 gives the poverty rates (headcount indices), as well as the absolute poverty rates (from Figure 3). We find that 47%—slightly less than one half—of the developing world’s population are either absolutely poor or relatively poor. To put this in perspective, the corresponding number for high-income countries (calculated on a consistent basis) is 24% in 2008 (Ravallion and Chen, 2012b). (As best we can determine, almost nobody lives below $1.25 a day in the high-income countries.\footnote{Note, however, that some of the homeless in rich countries may well be this poor, but that they are under-represented in standard household surveys.}) The total poverty rate fell from 63% in 1981 to 46% in 2010.

Figure 12 gives the corresponding poverty gap indices. The combined PG index fell from 26% in 1981 to 16% in 2010. Notice that the proportionate decline is greater using the PG index than the headcount index. This reflects the fact that the income-gap ratio for total (absolute plus relative) poverty also fell, from 0.41 in 1981 to 0.35 in 2010.

The decline in the incidence of total poverty was not sufficient to assure falling numbers of poor over the period as a whole. The number of people who are “purely relatively poor” (poor by this new measure but not absolutely poor) has been rising, as can be seen from Figure 13. Roughly two-thirds of the increase in the number of people who whose poverty is purely relative is due to the fall in the number of absolutely poor (Chen and Ravallion, 2012).

Extrapolating the rate of progress forward under the optimistic scenario, the combined poverty rate is 45% in 2012, and will be 43% in 2017 and 40% in 2022. The number of poor
people is about 2.7 billion over this period; this trajectory implies no progress in reducing the number of poor over the coming decade; the rate of progress in reducing the poverty rate is only sufficient to compensate for population growth. The corresponding projections for the PG index are 14% in 2017 and 13% in 2022. (Again, these incorporate the nonlinearity in how the income-gap ratio evolves over time.)

Note that the slower rate of progress against poverty by this new measure reflects in part the success against absolute poverty. Economic growth has generally come with a lower absolute poverty rate but it has also meant that many developing countries have moved into the region in which relative considerations become more important. And, as already noted, the new poverty index is naturally less responsive to economic growth, and puts a higher relative weight on inequality.

In setting more ambitious targets for social inclusion, we have to realize that success against extreme absolute poverty will undoubtedly swell the ranks of the relatively poor. Except in the poorest countries, it can be safely assumed that those who will escape absolute poverty under this trajectory will still be relatively poor by the above definition. And the inclusion line will rise with the overall growth. So success against absolute poverty will add to the challenge of fighting relative poverty.

Consider again the World Bank’s current growth projections at country level, and assume again that the mean consumption of all households grows in line with the overall growth rates at country level and there was no increase in inequality. That scenario would get the relative poverty rate down to 41% in 2017.

What poverty target for 2022 for this new measure is consistent with the absolute targets above? One way to address this question is to use the poverty measures across regions and over time in Chen and Ravallion (2012) to estimate the mean relative poverty index when the absolute measure reaches its target holding inequality constant. This gave a mean relative poverty rate of 33% when the absolute rate is 3%, and a combined poverty rate of 42% when the absolute rate is 10%.\textsuperscript{36} (The corresponding values for the total PG index are 11% and 13%.) These estimates

\textsuperscript{36} This calculation used a regression of the log relative poverty rate on a cubic function of the log absolute rate and a cubic function of inequality, measured by the population-weighted mean log deviation for the region and year. The predicted relative poverty rate was then calculated for each absolute poverty target, fixing inequality at its overall mean for the developing world in 2008. The data were for the six regions over 30 years (at three-yearly intervals; n=60) in Chen and Ravallion (2012).
suggest that these two targets—one for absolute poverty and one incorporating social inclusion—are reasonably consistent.

Alternatively, one can ask what reduction in the new poverty measure is implied by the expected 5% (per capita) growth rate with no change in inequality under a seemingly reasonable assumption about the elasticity. Based on the aforementioned country data for the longest available spells between surveys, and controlling for changes in inequality, the empirical elasticity of the combined poverty measure to the mean has been 0.44. This would also get us to a poverty rate of 33% in 2022. The empirical elasticity will tend to fall over time with growth, so some extra redistributive effort or higher growth would probably be needed. Nonetheless, a target of two-thirds of the population deemed to be social included appears to be reasonably consistent with the scenario underlying the absolute target of 3% by 2022.

Reaching this ambitious target would still leave 2.2 billion socially excluded people 10 years from now—though 0.5 billion less than current projections. But remember that half of these 2.2 billion people can be accounted for by those who are absolutely poor this year. So this goal would actually entail a substantial reduction in the number of people who are currently relatively, but not absolutely, poor. That number is 1.7 billion in 2012, but (under this target for relative poverty) it would fall to 1.1 billion by 2022.

Conclusions

To set goals that can motivate extra effort, they must represent real progress but not be impossible! For absolute poverty, the proposed optimistic benchmark for the $1.25 poverty rate in 10 years time is 9%. This would clearly be a very good performance—maintaining an impressive trajectory of poverty reduction going back to the early 1980s when the corresponding poverty rate was over 50%. In the 20 years from 1990 to 2010 the developing world halved its overall poverty rate, from 43% to 21%. The optimistic trajectory would entail halving it again in a further 10 years.

37 This is based on a regression of the growth rate (annualized log difference) in the relative poverty measure on the growth rate in the survey means and the annualized difference in the mean log deviation, as the measure of inequality. The same data set was used as described earlier. The regression coefficients were -0.44 (with a robust standard error of 0.05) for the growth rate in the mean and 0.60 (s.e.=0.06) for the change in inequality; R²=0.85.
38 At the Bank’s current population growth projections, a relative poverty rate of 48% in 2012 implies that 2.8 billion people are poor of whom 1.1 billion are absolutely poor.
A very ambitious but still imaginable benchmark for even better performance than this would be a 3% poverty rate by 2022. This could be achieved by a 1% higher growth rate than we have seen recently, but (very importantly) that would also require that there be no further deterioration in either overall inequality or in the household sector’s (survey-based) share of national income. Alternatively, moderately lower inequality (bringing the level of overall inequality back to its value in 1999) could attain the ambitious target without higher growth. While the 3% target for 2022 is clearly ambitious, it appears to be within the range of experience for what is possible with a concerted effort toward equitable growth.

On also allowing for social inclusion, the optimistic target for 2022 implied by the past trajectory is to assure that no more than 40% of the developing world’s population is either absolutely poor or poor by standards typical of the country they live in. The ambitious target corresponding to the 3% target for absolute poverty would be to assure that at least two-thirds of the population of the developing world is neither absolutely poor nor relatively poor in 10 years.

In choosing amongst the multiple solutions for reaching such targets, the sustainability of poverty reduction efforts is clearly important. We do not, of course, want to reach the 10-year target only to fall back in the subsequent years. A growth path that consumed all of a country’s natural resources in 10 years may well attain the ambitious target, but the poverty rate will soon bounce back.

How exactly we get there will then matter, and the best sustainable route will vary from country to country. The growth projections underlying these targets are grounded in the economic realities in the countries concerned and the global economy. However, the policy challenges in assuring that poor households share sufficiently and sustainably in that growth at country level will need to be addressed in depth.

The bulk of the work that would be needed to reach such global targets will be done at country level. A similar benchmarking exercise for individual countries would be desirable. Naturally this would reflect the specifics of each country. One should be cautious in trying to infer what any one country can do by cross-country comparisons, even when these control for observable exogenous differences. It should ideally also come with a reasonably clear plan of how the targets would be achieved. Various tools of economic analysis exist that can inform such

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39 For a critical review of alternative methods of making such comparisons in the context of measuring “social efficiency” see Ravallion (2005b).
plans, ranging from computable general equilibrium models to micro-simulations tools, all with both their strengths and weaknesses.  

Monitoring performance against these benchmarks poses a number of serious data challenges. There has been huge progress in collecting the primary household survey data. When the World Bank’s current global poverty monitoring effort began in 1990 the estimates used 22 surveys for 22 countries (Ravallion, et al., 1991). Today we use over 850 surveys for 125 countries—over six per country; the latest estimates use a “global” sample of 2.1 million households. However, many problems remain. There are persistent lags and uneven coverage. The surveys used here cover 90% of the population of the developing world as a whole in 2008, but this varies from 94% in East Asia to only 50% in Middle-East and North Africa. There are continuing concerns about the comparability of the surveys over time and across countries. And there are continuing concerns about under-reporting and selective compliance in household surveys; the rich are hard to interview, and that task is not getting any easier. The weak integration of “macro” and “micro” data is also a long-standing concern, warranting far more attention than it has received. Our collective success in addressing these and other data problems will determine how confident we are about both these benchmarks and how close we are getting to reaching them in the future.

40 A useful compendium of the tools available can be found in Bourguignon et al. (2008). On microeconomic simulation methods see Ferreira and Leite (2003).
References


Table 1: Regional breakdown of absolute poverty incidence and the “optimistic projection for 2015

<table>
<thead>
<tr>
<th></th>
<th>1990</th>
<th>1999</th>
<th>2008</th>
<th>2015 (Forecast)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Poverty rate</strong> (% of the population living below $1.25 a day)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Asia and Pacific</td>
<td>56.2</td>
<td>35.6</td>
<td>14.3</td>
<td>7.7</td>
</tr>
<tr>
<td>Europe and Central Asia</td>
<td>1.9</td>
<td>3.8</td>
<td>0.5</td>
<td>0.3</td>
</tr>
<tr>
<td>Latin America and Caribbean</td>
<td>12.2</td>
<td>11.9</td>
<td>6.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>5.8</td>
<td>5.0</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>South Asia</td>
<td>53.8</td>
<td>45.1</td>
<td>36.0</td>
<td>23.9</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>56.5</td>
<td>58.0</td>
<td>47.5</td>
<td>41.2</td>
</tr>
<tr>
<td>Total</td>
<td>43.1</td>
<td>34.1</td>
<td>22.4</td>
<td>16.3</td>
</tr>
</tbody>
</table>

| **Number of poor** (millions living below $1.25 a day) |       |       |       |                 |
| East Asia and Pacific | 926.4 | 655.6 | 284.4 | 159.3          |
| Europe and Central Asia | 8.9   | 17.8  | 2.2   | 1.4            |
| Latin America and Caribbean | 53.4  | 60.1  | 36.8  | 33.6           |
| Middle East and North Africa | 13.0  | 13.6  | 8.6   | 9.7            |
| South Asia          | 617.3 | 619.5 | 570.9 | 418.7          |
| Sub-Saharan Africa  | 289.7 | 376.8 | 386.0 | 397.2          |
| Total               | 1908.6| 1743.4| 1289.0| 1019.9         |

*Source: Chen and Ravallion (2010) and World Bank (2012a).*
Table 2: Regional breakdown of absolute poverty reduction for 2017 and 2022 if the current expected pattern of growth is maintained but without rising inequality within countries and no deterioration in household sector’s share

<table>
<thead>
<tr>
<th>Region</th>
<th>2008</th>
<th>2017</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Poverty rate</strong> (% of the population living below $1.25 a day)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Asia and Pacific</td>
<td>14.3</td>
<td>3.0</td>
<td>1.1</td>
</tr>
<tr>
<td>Europe and Central Asia</td>
<td>0.5</td>
<td>0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>Latin America and Caribbean</td>
<td>6.5</td>
<td>5.1</td>
<td>4.8</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>2.7</td>
<td>2.6</td>
<td>2.2</td>
</tr>
<tr>
<td>South Asia</td>
<td>36.0</td>
<td>11.5</td>
<td>4.8</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>47.5</td>
<td>38.7</td>
<td>35.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>22.4</td>
<td>11.0</td>
<td>8.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>2008</th>
<th>2017</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of poor</strong> (millions living below $1.25 a day)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Asia and Pacific</td>
<td>284.4</td>
<td>62.4</td>
<td>23.1</td>
</tr>
<tr>
<td>Europe and Central Asia</td>
<td>2.2</td>
<td>0.8</td>
<td>0.4</td>
</tr>
<tr>
<td>Latin America and Caribbean</td>
<td>36.8</td>
<td>31.3</td>
<td>30.6</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>8.6</td>
<td>9.5</td>
<td>8.9</td>
</tr>
<tr>
<td>South Asia</td>
<td>570.9</td>
<td>205.7</td>
<td>92.0</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>386.0</td>
<td>390.7</td>
<td>400.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1289.0</td>
<td>700.4</td>
<td>555.1</td>
</tr>
</tbody>
</table>

*Source:* Author’s calculations using the same country level growth forecasts as used in Table 1.
<table>
<thead>
<tr>
<th>Target poverty rate for 2022 ($1.25 a day)</th>
<th>(1) Required annual growth rate in household consumption per capita at 2008 level of inequality</th>
<th>(2) Required annual growth rate in household consumption per capita at 1999 level of inequality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1%</td>
<td>10.5%</td>
<td>8.4%</td>
</tr>
<tr>
<td>2%</td>
<td>7.6%</td>
<td>5.5%</td>
</tr>
<tr>
<td>3%</td>
<td>6.1%</td>
<td>4.6%</td>
</tr>
<tr>
<td>4%</td>
<td>5.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>5%</td>
<td>4.5%</td>
<td>3.2%</td>
</tr>
<tr>
<td>6%</td>
<td>4.0%</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

Note: These are the required growth rates for survey means over the period 2008-2022. The calculations in Col. (1) are based on the distribution of consumption for the developing world in 2008, while those in Col. (2) use anchored to the 2008 mean but using the Lorenz curve for 1999, which gave the lowest overall inequality during the period 1981-2008. For each target poverty rate, I solved backwards to find the growth rate needed to reach that target holding constant the Lorenz curve at that of either 2008 or 1999. Source: Author’s calculations using PovcalNet.
Table 4: Mean, median, average poverty lines and combined poverty rates by region for 1990 and 2008

<table>
<thead>
<tr>
<th>Region</th>
<th>1990 Mean ($/day)</th>
<th>1990 Median ($/day)</th>
<th>1990 Mean poverty line ($/day)</th>
<th>1990 Poverty rate (%)</th>
<th>2008 Mean ($/day)</th>
<th>2008 Median ($/day)</th>
<th>2008 Mean poverty line ($/day)</th>
<th>2008 Poverty rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Asia and Pacific</td>
<td>1.57</td>
<td>1.14</td>
<td>1.45</td>
<td>63.6</td>
<td>4.19</td>
<td>2.82</td>
<td>2.72</td>
<td>42.4</td>
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<tr>
<td>Eastern Europe and Central Asia</td>
<td>8.33</td>
<td>6.15</td>
<td>4.27</td>
<td>25.4</td>
<td>12.18</td>
<td>9.06</td>
<td>6.71</td>
<td>28.2</td>
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<tr>
<td>Latin America and Caribbean</td>
<td>7.49</td>
<td>4.62</td>
<td>4.42</td>
<td>46.8</td>
<td>10.61</td>
<td>6.33</td>
<td>5.93</td>
<td>45.9</td>
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<td>Middle East and North Africa</td>
<td>4.52</td>
<td>3.17</td>
<td>2.85</td>
<td>39.3</td>
<td>5.23</td>
<td>3.78</td>
<td>3.24</td>
<td>35.0</td>
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<tr>
<td>South Asia</td>
<td>1.47</td>
<td>1.19</td>
<td>1.37</td>
<td>60.3</td>
<td>1.92</td>
<td>1.49</td>
<td>1.58</td>
<td>53.5</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>1.92</td>
<td>1.09</td>
<td>1.60</td>
<td>65.1</td>
<td>2.25</td>
<td>1.32</td>
<td>1.78</td>
<td>61.1</td>
</tr>
<tr>
<td>Total</td>
<td>3.03</td>
<td>1.43</td>
<td>2.11</td>
<td>56.0</td>
<td>4.64</td>
<td>2.36</td>
<td>2.94</td>
<td>46.9</td>
</tr>
</tbody>
</table>

Note: Units are $ per person per day at 2005 purchasing power parity. Source: Chen and Ravallion (2012).
Figure 1: Scatter plot of growth rates from surveys against national accounts

Source: Author’s calculations

Figure 2: Inequality in the developing world

Source: Ravallion and Chen (2012a)
Figure 3: Poverty measures for the developing world 1981-2010

Note: Both measures use a poverty line of $1.25 a day at 2005 PPP
Source: Chen and Ravallion (2012) and author’s calculations

Figure 4: Absolute poverty rates for the three poorest regions

Headcount index (% below $1.25 a day)

Source: Chen and Ravallion (2012)
Figure 5: Poverty decline in urban and rural China

Source: Author’s calculations using PovcalNet.

Figure 6: Poverty decline in Argentina and Brazil

Source: Author’s calculations using PovcalNet.
Figure 7: Rates of poverty reduction across 80 developing countries

Source: Author’s calculations using PovcalNet

Figure 8: Proportionate rates of poverty reduction

Source: Author’s calculations using PovcalNet
Figure 9: National poverty lines across developing countries

Source: Ravallion et al. (2009).

Figure 10: Weakly vs. strongly relative poverty lines

Social inclusion cost for poorest; e.g., Adam Smith’s linen shirt, which costs just as much for the poorest.
Figure 11: Poverty measures for the developing world

[Graph showing poverty measures over time, with the following details:
- Headcount index for total poverty
- Headcount index for absolute poverty only
- Poverty gap index for total poverty
- Poverty gap index for absolute poverty only

Source: Chen and Ravallion (2012) and author’s calculations.]

Figure 12: Counts of the absolutely and relatively poor in the developing world

[Graph showing the number of poor in millions from 1981 to 2008, with the following categories:
- Absolutely poor
- Socially excluded but not absolutely poor

Source: Chen and Ravallion (2012).]