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Twinning the Goals

How Can Promoting Shared Prosperity Help to Reduce Global Poverty?

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Abstract

In 2013, the World Bank adopted two goals: First, reduce global extreme poverty to 3 percent by 2030. Second, promote shared prosperity defined as the income growth of the bottom 40 percent of the population within a country. This paper simulates the global poverty headcount under three growth scenarios for the bottom 40 percent up to 2030. The analysis deploys a set of "shared prosperity premiums," in which the bottom 40 percent in each country grows at a differential rate from the projected growth in the mean. With no distributional change, the global headcount reaches between 6.7 and 4.7 percent in 2030, depending on the average growth scenario used for the simulations. However, if the incomes of the bottom 40 percent grow 2 percentage points faster than the mean, the World Bank's poverty goal is achieved with the global poverty falling to below 3 percent in 2030 in the scenarios which average growth rates are extrapolated from the early 2000s. While such a "shared prosperity premium" is not unprecedented in recent growth spells, maintaining it over 20 years in every country is optimistic. The paper shows that in the baseline growth scenario, the global poverty rate could either reach the 3 percent target, or be close to 10 percent, depending on the "shared prosperity premium."

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Twinning the Goals

How Can Promoting Shared Prosperity Help to Reduce Global Poverty?

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1 Introduction

In late 2013, the World Bank set out two goals for the institution: ending extreme global poverty and promoting shared prosperity. The two goals are often referred to as the 'twin goals'. The poverty goal is defined as "reducing to no more than 3 percent the fraction of the world's population living on less than $1.25 per day" by 2030 (World Bank, 2014). Meanwhile, the shared prosperity goal is defined as "fostering income growth of the bottom 40 percent of the population in every country", without a particular target value. The choice of a distributionally sensitive growth measure, in addition to poverty, constitutes a shift away from a past focus on economic growth, and reflects a broader change in development policy and research towards increasing attention to inequality.[2]

The latest estimates from World Bank (2015) suggest that 14.5% of the world's population lived below the $1.25 threshold in 2011, showing a rapid decline over the past two decades. However, despite impressive progress, reaching the 3% goal by 2030 remains ambitious. The 2015 Policy Research Report (World Bank, 2015) shows that even under a relatively optimistic distribution-neutral growth scenario where countries grow at their 2001-11 historic growth rate, the global poverty target will not be reached. The global poverty headcount would decline from 14.5% in 2011 to 4.8% in 2030.[3] In this paper, we ask how different scenarios for shared prosperity affect the feasibility of reaching the 3% global poverty by 2030, thus 'twinning the goals'. We simulate the income distribution for all developing countries for which there is at least one survey in PovcalNet, up to 2030 based on assumptions about growth in the mean and growth incidence, i.e. the distribution of growth. Specifically, we simulate a set of growth incidences where the bottom 40% of the population grows at a different rate than the mean.

While sustained growth in the mean remains a necessary condition for the eradication of poverty, our paper highlights the potential additional effects of making this growth more pro-poor. Our main findings are that: First, as shown in World Bank (2015) we confirm that the poverty goal will not be reached with distribution-neutral growth, anchored to the observed growth rates over the last decade. Second, relaxing the assumption of distribution-neutral growth and boosting the growth of the bottom 40% (while maintaining growth in the mean) makes the poverty goal much more viable. If the mean of the

[2] Arguably, World Bank (2006), International Monetary Fund (2014), and Kanbur and Lustig (1999), inter alia, can be seen as reflecting this shift. Also see Berg et al. (2012) and Ravallion (2001).

[3] This projection assumes that each country's mean per capita household income or consumption expenditure grows at the country-specific national accounts growth rates achieved in the past 10 years, keeping country-specific distributions constant. For further details, see Table 1.4 in World Bank (2015).

bottom 40% grows at a rate which is 1pp above the growth in the mean and we assume mean growth rates similar to those for the first decade of the 2000s, the global poverty headcount declines to 3.6% in 2030, just short of the target. With a growth premium for the bottom 40% of 2pp above the mean, this number falls to 2.7%. Third, and not surprisingly, such pro-poor growth will dramatically reduce inequality within countries. Fourth, even under the most optimistic growth and shared prosperity scenarios, Sub-Saharan Africa's poverty headcount will remain above 15% in 2030. Fifth, we study the implications of alternative mean growth scenarios. If every country grows at its 20 year historic growth rate, which is less optimistic than the 10 year historic growth rates, the global poverty headcount reaches 3.7% in 2030 even under the most pro-poor shared prosperity scenario of 2pp above the mean. Finally, we consider a simulation with zero per capita growth in the mean, which is equivalent to a pure redistribution scenario. In this case, shared prosperity has an even bigger effect. For instance, a 2pp growth premium for the bottom 40% would reduce the global headcount from 14.5% to 7.9% in 2030.

Our scenarios are simulations, or thought experiments, not predictions and should be treated with some caution for several reasons. First, the baseline mean growth scenario underlying our simulations, which relies on extrapolating countries' growth rates from the first decade in the 2000s, is optimistic. Second, we show that a 2pp (and above) growth premium for the bottom 40% has been observed in some countries during some periods. However, achieving this systematically in every country in the world and in every year over a 20 year period is certainly unprecedented, and most likely unrealistic.[4]

This paper is structured in five sections. The conceptual framework (Section 2) discusses our proposed concept of a shared prosperity premium and corresponding formulations of the growth incidence curve (GIC). In Section 3, we describe the data and our method for implementing the simulations. Section 4 presents the results on global and regional poverty headcounts for different growth and shared prosperity scenarios, as well as the implications for within-country inequality. The final section concludes.

[4] On the other hand, by assuming that all incomes within the bottom 40% grow at the same rate, we do not assume that the growth incidence is pro-poor within the bottom 40%. In Section 2 we discuss GICs which are more pro-poor.

2 Conceptual framework

Although it is the first time that the World Bank tracks an inequality-sensitive growth indicator (based on surveys), the idea of focusing attention on how the poorer segments of every society fare in terms of growth is not new.[5] Basu (2001) proposes to use 'quintile income' defined as the growth of the bottom 20% and argues that it is more closely correlated with non-income welfare indicators than growth in the mean. Taking the cutoff at 40%, instead, avoids the measurement problems associated with the lowest percentiles (Basu, 2013). Also, the share of the global poor who live in their respective countries' bottom 40% is larger than it is at the bottom 20% cutoff.

The degree of overlap between the populations classified as bottom 40% and the extreme poor varies across countries. Figure 1 illustrates how the extreme poor, bottom 40% and top 60% are distributed in 2011 and 2030.[6] The full area represents the world population. In 2011, the extreme poor (areas A1 and A2) cover about 14.5% of the total area. Of this group (the extreme poor), 90.3% are within the bottom 40% of their respective countries (A1) while 9.7% are in the top 60% (A2). In 2011, the bottom 40% in each country amounted to 2.78 billion people (area A1 and B). Of this group, 37% (A1) are classified as extreme poor and 63% (B) are not. This illustrates how the extreme poor are mostly situated within the bottom 40% of their countries' population. However, it also shows how a large share of the national bottom 40% in the world is not classified as extreme poor. The corresponding illustration for our projected distribution of incomes in 2030 shows a much smaller share of the bottom 40% also being extreme poor.

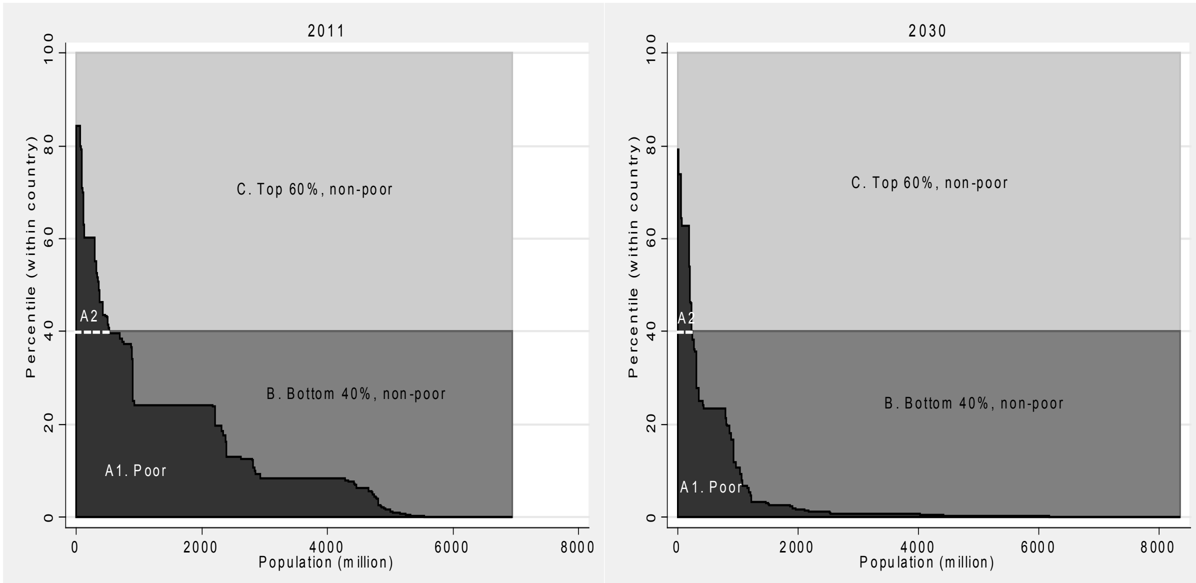
In contrast to the poverty goal of 3% by 2030, the World Bank Group's shared prosperity goal does not provide a benchmark (or set a target) in terms of fostering the growth of the bottom 40% of the population. However, a natural and intuitive assessment of progress in this indicator is to compare the growth rate of the bottom 40% to that of the mean in each country (e.g. Basu, 2013). In fact, the World Bank Group's Corporate Score Card, tracks the share of countries with "growth concentrated in the bottom 40 percent", measured as the share of countries for which growth in mean real per capita income of the bottom 40 percent is positive and greater than growth in mean real per capita income.[7]

[5] As pointed out in World Bank (2015), then World Bank President McNamara proposed to use growth in the bottom 40% as an indicator some 40 years ago.

[6] This illustration is an adaptation of Beegle et al. (2014), updated with data used in this paper.

[7] The World Bank Group Corporate Scorecard helps to assess the World Bank Group's performance toward achieving the two goals. Its indicators cascade into the monitoring frameworks of the three World Bank Group institutions (WB, IFC and MIGA). In: http://siteresources.worldbank.org/CSCARDEXT/Resources/2014_WBG_corporate_scorecard_e-version.pdf, accessed on Oct 3, 2014.

Figure 1: Distribution of extreme poor, non-poor bottom 40% and non-poor top 60% (2011, 2030)



Note: This chart is inspired by Beegle et al (2014), updated with our data for 2011 and 2030 (baseline, distribution-neutral growth). The area of the figure represents the total world population (in millions). The horizontal axis is the cumulative population of the world (from poorest to richest) and the vertical axes shows the percentiles within each country. The three shaded areas represent three groups in the world. Area A (A1 and A2) represents the World's extreme poor, 14.5% of the total area. Area B represents the total population which is in the bottom 40% of their respective countries but not classified as extreme poor. Area C represents the total population which is in neither in the bottom 40%, nor among the extreme poor. The graphs assume zero extreme poverty in high income countries.

In this paper, we use a similar comparison to explore different scenarios for growth in the bottom 40%. We define the shared prosperity premium m as the difference between the growth in the mean (γ) and growth in the bottom 40% (γ_{40}). This premium can be negative or positive, and can be expressed as

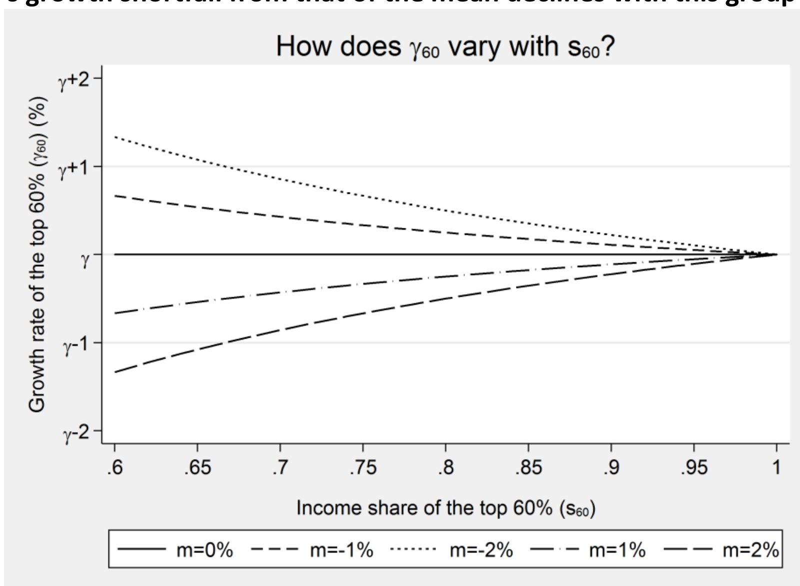
$$m = \gamma_{40} - \gamma \qquad (1)$$

Growth in the mean (γ) can be written as a weighted sum of growth among the bottom 40% (γ_{40}) and growth of the top 60% (γ_{60}), where the weights are the respective income shares in the initial period (s_{40},s_{60}):

$$\gamma = s_{40} * \gamma_{40} + s_{60} * \gamma_{60} \qquad (2)$$

Using the fact that $s_{40} = 1 - s_{60}$ and the definition for m (1), we can rewrite (2) to obtain an expression for γ_{60}: $\gamma_{60} = \gamma + m\left(1 - \frac{1}{s_{60}}\right)$ (also see Equation 4). Figure 2 shows how the growth rate of the top 60% varies with their income share for a given value of m. It is clear that as a result of fixing the growth rate of the bottom 40% above the growth rate of the mean (i.e. $m > 0$), we impose a lower growth rate on the top 60%. As can be seen in Figure 2, this growth shortfall by the top 60% declines with their income share. In other words, the more unequal the distribution, the closer γ_{60} will be to γ. In our sample, the top 60% receive on average 83.5% of total income (Table 2). Hence, even with $m = 2\%$, γ_{60} would be within 0.5pp of γ. Thus, the proposed shared prosperity premium simulated in this paper does not impose a heavy burden on the rest of the distribution in terms of growth because a small relative reduction in income gains of the top 60% suffices to bring about larger relative gains in the bottom 40%.

Figure 2: Top 60%'s growth shortfall from that of the mean declines with this group's income share



For a given shared prosperity premium m, there are infinite ways of how that growth can be distributed within the bottom 40% and the top 60%.[8] To conceptualize this, we define a variant of the GIC.[9] Let y_i be the mean income of fractile group i (e.g. the bottom 10%) in the initial period. Final mean income y_i^* can be expressed as

$$y_i^* = y_i(1 + g_i) \qquad (3)$$

where g_i is the growth rate associated with this fractile group. We define the GIC as the plot of g_i against the percentile group (p_i) in the initial period. In Figure 3, we present three stylized growth incidence curves that could all represent the same shared prosperity premium (in this case $m = 2\%$).[10]

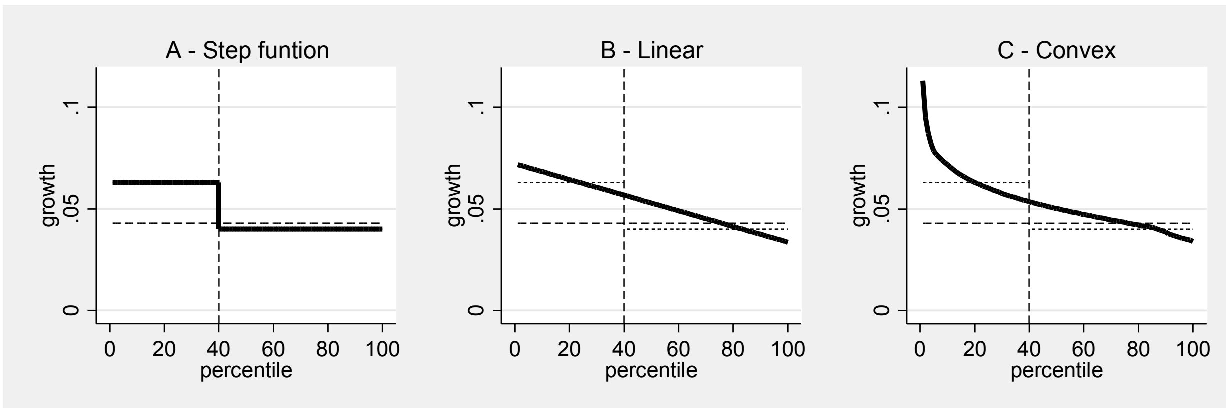
[8] As pointed out by Basu (2013) and Rosenblatt and McGavock (2013), for two distributions with the same mean, average income of the bottom 40% is the same as long as their total income share is the same, regardless of the inequality within the bottom 40%. In other words, the shared prosperity indicator is a function only of the overall mean and the share going to the bottom 40%.

[9] In Ravallion and Chen (2003), the GIC shows the growth rate of the income at a given percentile (e.g. the 10th percentile) between the initial and final period. On the other hand, we compute the growth rate in the mean of a particular percentile *group*.

[10] To draw this figure we fitted a parametric Lorenz curve with 10,000 points on the distribution for Rwanda in 2010, as described in the methodological framework. Note that the GICs displayed in panels B and C rely on the income-space as opposed to percentile groups. For this reason we needed an income distribution to plot these two GICs.

Panel A shows a situation where everyone in the first four decile groups grows at the same rate, while the rest grow at a different rate. Panel C is the result of an equiproportional tax together with a per capita transfer. The intermediate case (panel B) is simply a linear GIC, where the slope and the intercept depend on the income share of the bottom 40%. We explain each GIC in turn, however, in the estimation we exploit only the step function which is arguably the simplest way to define the shared prosperity premium.

Figure 3: Different growth incidence curves compatible with same shared prosperity premium



Note: These GICs are drawn using data from Rwanda from 2010 available in PovcalNet, $m = 2\%$, evaluated at percentile groups.

The step function GIC can be expressed as

$$g_i = \begin{cases} \gamma_{40}; & p_i \leq 0.4N \\ \gamma_{60}; & p_i > 0.4N \end{cases} \quad \text{which is equal to:} \quad g_i = \begin{cases} \gamma + m; & p_i \leq 0.4N \\ \gamma + m\left(1 - \frac{1}{s_{60}}\right); & p_i > 0.4N \end{cases} \qquad (4)$$

This can be thought of as a tax rate of $-m\left(1 - \frac{1}{s_{60}}\right)$ on the top 60% combined with an equiproportional transfer to the bottom 40% of m. Note that within the bottom 40%, those quantiles just below the 40th percentile would benefit most in absolute terms from this GIC.

Compared with the step function, the declining linear GIC (panel B of Figure 3) represents a more pro-poor way of stimulating shared prosperity, as growth is highest for the poorest percentiles. Such a GIC takes the following form

$$g_i = \delta - \theta p_i \qquad (5)$$

Substituting (5) into (3), we can obtain the following expression for the income of fractile group i in the final period

$$y_i{}^* = (1+\delta)y_i - \theta y_i p_i \quad (6)$$

This linear GIC can be obtained by taxing everyone in proportion to both their income and rank – the poorest person is taxed a rate of θ of her income and the tax increases proportionally with the rank – combined with a transfer where every person receives share δ of their income. In the first part of Appendix 1, we derive the values of the parameters δ and θ for a given vector of incomes.

Perhaps a more intuitive tax and transfer scheme is the one introduced by Kakwani (1993) and further discussed by Ferreira and Leite (2003). This transformation involves an increase of everyone's income at a rate γ (i.e. by the overall rate of income growth) together with a tax and transfer scheme which taxes everyone at a rate α and gives everyone an equal absolute transfer.[11] The vector of final incomes can be written as

$$y_i{}^* = (1+\gamma)[(1-\alpha)y_i + \alpha\mu], \quad (7)$$

where μ is the mean income in the initial period. Using (7) and (3), it can be easily shown that the corresponding GIC takes the following form[12]

$$g_i = (1-\alpha)(1+\gamma) - 1 + [\alpha(1+\gamma)\mu]\frac{1}{y_i}, \qquad \text{with } 0 < \alpha < 1,\ \ \gamma > 0 \quad (8)$$

In the Appendix, we show that α is a function of m, γ and s_{40}. This GIC is a convex, rapidly decreasing function along the percentile groups (panel C of Figure 3). It attributes high growth rates at lower percentiles, while it becomes flatter at higher percentiles. However, like the linear GIC, it is decreasing throughout, i.e. the growth rate will be lowest for the richest percentile groups.

[11] As pointed out by Ferreira and Leite (2003), this is a type of Lorenz-convex transformation. They show that the transformed Lorenz curve is given by $L(p)^* = L(p) + \alpha(p - L(p))$. This transformation can be obtained by moving every point on the Lorenz curve upwards by an amount proportional to its vertical distance to the equidistribution (45-degree) line. Furthermore, the transformed Gini coefficient can be readily obtained as $Gini(y)^* = (1-\alpha)Gini(y)$.

[12] Note that Equation 8 is defined over the income and not the percentile space. The linear GIC (Equation 5) is defined over the percentiles space but the incomes enter through the parameters as shown in the Appendix.

3 Methodological framework and data

In our simulations we deploy the simplest implementation of the shared prosperity premium, where everyone in the bottom 40% grows at the same rate, corresponding to the step-function in panel A of Figure 3. This is less pro-poor than the other two GICs discussed in the previous section, and therefore our assumption on shared prosperity is perhaps not overly optimistic. However, it is unrealistic to induce such a growth incidence in real life and sustain such a pattern of growth over almost 20 years, as is done in our simulations. The interest of this exercise, nonetheless, does not lie in producing a 'plausible' transformation but rather simulating one stylized version of 'shared prosperity'. This allows us to provide, *ceteris paribus*, estimates of the changes in poverty headcounts due exclusively to a specific pattern of economic growth imposed per country.

The three scenarios for the growth rate of mean income or consumption are as follows: (1) Each country's annualized growth rate from national accounts for the last 10 years for which we have poverty data (2001-2011), taken from World Bank (2015)[13]; (2) each country's annualized growth rate for the latest 20 years using the same database and methods; and (3) a scenario which assumes zero growth of per capita income or consumption to isolate the pure redistributive effects of our shared prosperity premiums. The objective of this paper is not to assess the impact of different average growth scenarios on poverty, but rather focus on the effect of differential growth across the distribution. We therefore stick to the average growth scenarios used by the projections in World Bank (2015). The projections relying on the 10 year historic growth rates (2001-2011) may be optimistic as the rapid growth experienced in the early 2000s is showing signs of slowing down. Furthermore, Pritchett and Summers (2014) make the point that "the single most robust empirical finding about economic growth is low persistence of growth rates" and that "extrapolation of current growth rates into the future is at odds with all empirical evidence about the strength of regression to the mean in growth rates". Rodrik (2014) also suggests that the rapid growth experienced by emerging economies in recent decades is unlikely to persist indefinitely and that convergence will slow down in coming decades. Following World Bank (2015), we focus on the growth scenario based on average growth rates for the period 2001 to 2011.

We consider five scenarios for m – the growth rate differential of the bottom 40% relative to the mean. Our baseline scenario is a distribution-neutral growth where each percentile group grows at the same

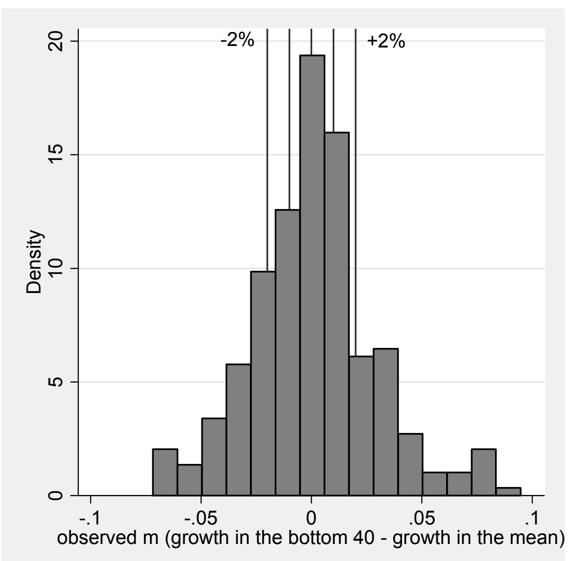
[13] The growth rates from World Bank (2015) have been calculated in the following way. They are based on annualized growth rates of real GDP per capita (countries in Sub-Saharan Africa) or national accounts real household final consumption per capita (all other countries). They are adjusted by a factor based on observed differences between national accounts growth and survey growth, as explained on p. 68 (endnote 14) in World Bank (2015).

annualized rate over the entire period ($m = 0\%$). We have two scenarios with a positive shared prosperity: $m = 1\%$ ($m = 2\%$) implies that the mean of the bottom 40% grows 1pp (2pp) faster than the mean. Similarly, we have two scenarios with a negative shared prosperity premium, where the bottom 40% grows slower than the mean ($m = -1\%$ and $m = -2\%$).

Figure 4 compares these values of m against the observed differences in household survey growth rates for the bottom 40% and the mean. Over 271 comparable growth spells observed in PovcalNet, for all years (Panel A), the median value of m observed is practically zero. For the sample of 72 official shared prosperity spells from approximately 2006-2011 (Panel B), released in October 2014, the median value of m is 0.7pp. More than a quarter of the most recent spells show $m > 2\%$. However, only time will tell whether this change in the shared prosperity premiums is a one-off event or the beginning of a trend and, if so, how widespread a phenomenon it is. While we clearly impose an optimistic shared prosperity scenario, our maximum premium of $m = 2\%$ is not unprecedented in past spells.

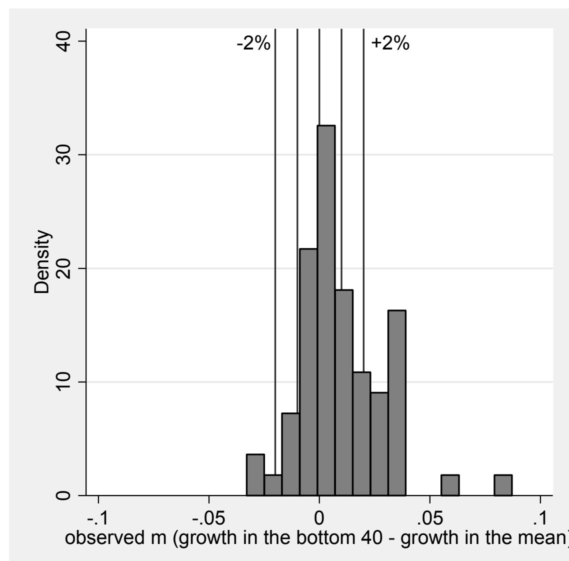
Figure 4: Observed shared prosperity premiums (m) compared with shared prosperity premiums (m) used in simulations

(A) Historical spells in PovcalNet of 5 years or more



Source: PovcalNet. Based on 271 non-overlapping spells of five years or longer between 1978 and 2012. Six outliers are excluded.

(B) Official shared prosperity spells for most recent period of approximately 5 years



Source: Global Database of Shared Prosperity, circa 2006-2011[14]

Our simulations start with the 'line-up' for 2011, which are the World Bank's most recent estimates of mean income or consumption and its distribution within the developing countries for which there exist

[14] Global Database of Shared Prosperity, circa 2006-2011, available at: http://www.worldbank.org/en/topic/poverty/brief/global-database-of-shared-prosperity

data.[15] Each country-level distribution is summarized by the average income of the ten decile groups. We first use a parametric Lorenz curve to obtain a continuous within-country distribution of 10,000 points. Second, we simulate these base year distributions until 2030 under four different growth scenarios and five shared prosperity premiums m. We will now explain each of these steps in more detail.

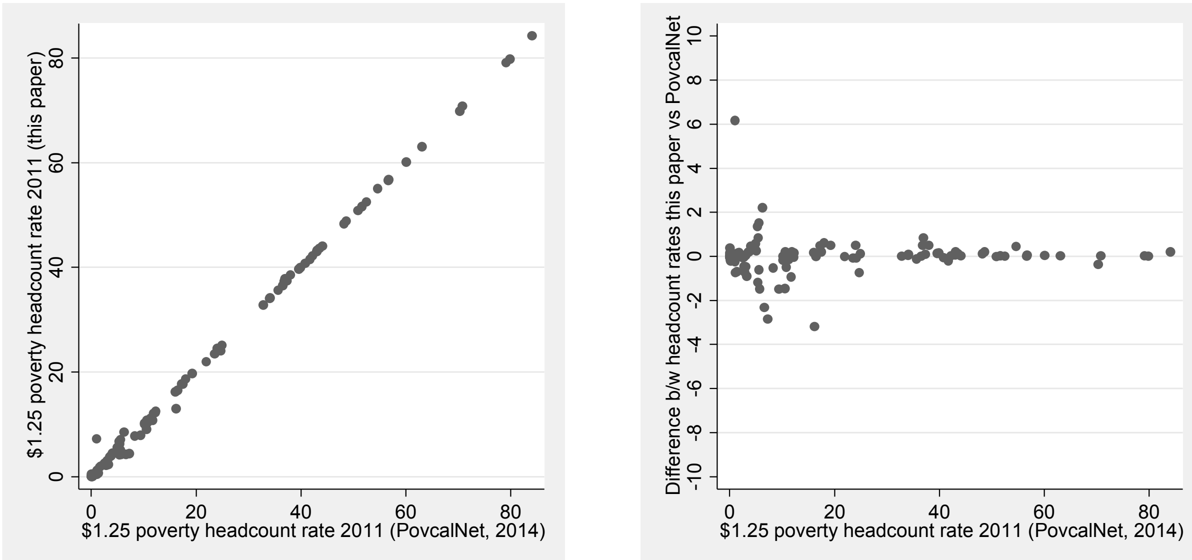
The latest line-up data consist of the income or consumptions shares of the ten decile groups and the overall mean in 2011. We use a lognormal Lorenz curve to generate a distribution of 10,000 points, or 'myriantiles', for each country. The use of a parametric Lorenz curve is very similar to what is done in PovcalNet to calculate poverty when microdata are not directly available.[16] Figure 5 compares our poverty estimates at the $1.25 poverty line against those from PovcalNet. The difference has a median of 0pp and standard deviation of 0.78pp. For more than half of the observations, the modeled estimates fall within +/- 0.2pp of the PovcalNet estimates. Our estimate of global poverty in 2011 is 14.7%, compared with 14.5% in PovcalNet. The differences are largest for countries where PovcalNet relies on microdata for estimating poverty (mostly LAC region) and the cases where PovcalNet uses separate distributions for rural and urban (China, India and Indonesia), but where our method relies on the national distribution. Furthermore, our simulated headcounts for 2030 under distribution-neutral growth are very similar to World Bank (2015), which used the same line-up and growth scenarios but the PovcalNet method.

The income distribution in the base year is simulated forward in the following way. In the first year (from 2011 to 2012), we apply a growth rate to each of our 10,000 fractile groups, following the step-function GIC where the bottom 4000 groups (bottom 40 percentile groups) grow at a rate that is m pp above the growth rate of the mean. This implies that the top 60% grow at a somewhat lower rate depending on their income share, as discussed in detail in the conceptual framework.

[15] See World Bank (2015, box 6.4) for an explanation of the line-up method and estimating poverty rates for countries for which there is no or little survey coverage. Following World Bank (2015) we assume the headcount ratio in rich countries to be zero at the $1.25 a day poverty line. We mix income and consumption surveys to construct the global headcount as done in PovcalNet.

[16] From two parametric Lorenz curves – the General Quadratic and the Beta Lorenz – PovcalNet chooses the one with the best fit. Instead, Shorrocks and Wan (2008) suggest that a lognormal functional form fits better. Minoiu and Reddy (2012) show that for global poverty estimates a parametric Lorenz curve should be preferred to estimating kernel densities. We use the ungroup command included in the DASP Stata Package (Abdelkrim and Duclos, 2007) to fit a separate lognormal Lorenz curve for every country. This command implements the Shorrocks and Wan (2008) approach which ensures that the fitted Lorenz curve matches the observed shares.

Figure 5: Differences in poverty estimates calculated in this paper vs. PovcalNet estimates

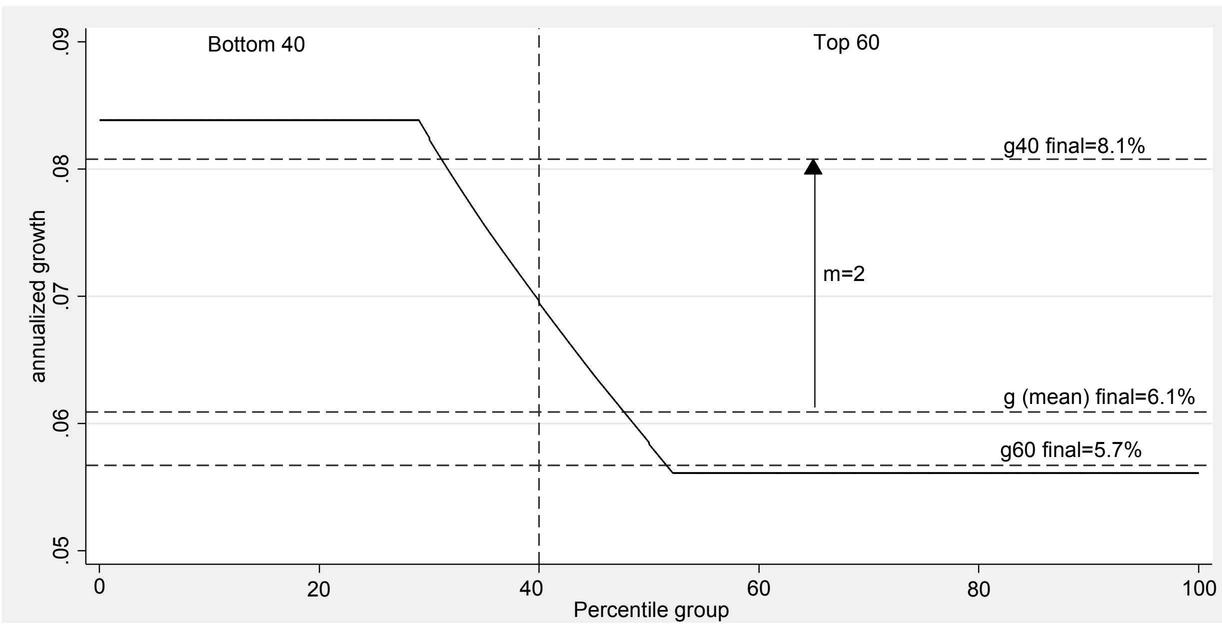


Imposing higher growth rates for lower percentiles means that some of them may end up with a final income above that of percentiles that were originally richer. It is then necessary to re-rank fractile groups before simulating another year of growth. The need to re-rank stems from the fact that we are not estimating the actual GIC between two re-ranked distributions of the same population over time. Instead, we impose growth in a 'pseudo non-anonymous' way by growing those groups *initially* in the bottom 40% by a particular growth rate. Once the re-ranking is carried out, anonymity is restored and as a result some of the shared prosperity growth premium will have 'leaked' to the top 60% along with the fractile groups that were re-ranked upward. This also implies that the actual GICs we apply will look different from those plotted in the conceptual framework (Figure 3).

After the re-ranking, the same process is repeated over consecutive years until 2030, the point at which the annualized growth rate of the bottom 40% for the entire period is calculated (in an anonymous way). Precisely because of the re-ranking and the 'leakage' to the top 60%, this annualized growth rate is below the value of m that was originally aimed at. In order to correct this we apply a slightly higher growth rate for the bottom 40% at every annual interval. We repeat this until the difference between the overall annualized growth rate of the bottom 40% and that of the mean equals the shared prosperity premium m we report.

Figure 6 shows the final simulated GIC for China from 2011 to 2030 under the shared prosperity premium of $\mathrm{m} = 2\%$ and 10 year historic growth. While the step function is clearly reflected in the shape of the GIC, a segment of the curve around the 40th percentile is sloped. This is a result of the necessary re-ranking. Some individuals who started in the bottom 40% will move into the top 60%, while others will fall into the bottom 40. The difference in the annualized growth rates of the bottom 40% and the mean is 2pp, with the bottom 40% growing at 8.1% and the mean growing at 6.1%, the 10 year historical growth rate of national accounts. Interestingly, the reduction in the annualized growth rate of the top 60% necessary to ensure that the bottom 40% grow 2pp above the mean is relatively small (see Figure 2). The top 60% grows at an annualized rate of 5.7%, just 0.4pp below the growth in the mean, or what would have been the case in a distribution-neutral scenario ($m = 0$).

Figure 6: 2011-2030 final growth incidence curve for China



The re-ranking process also leads to a strong concentration of the distribution around the 40th percentile. The simulations, and particularly the re-ranking process, produce a density function with incomes bunched around the 40th percentile. Such a distribution shape seems quite unrealistic. However, it stems from the imposition of a certain pattern of growth based on a step function over almost 20 years, which is obviously an artificial assumption.

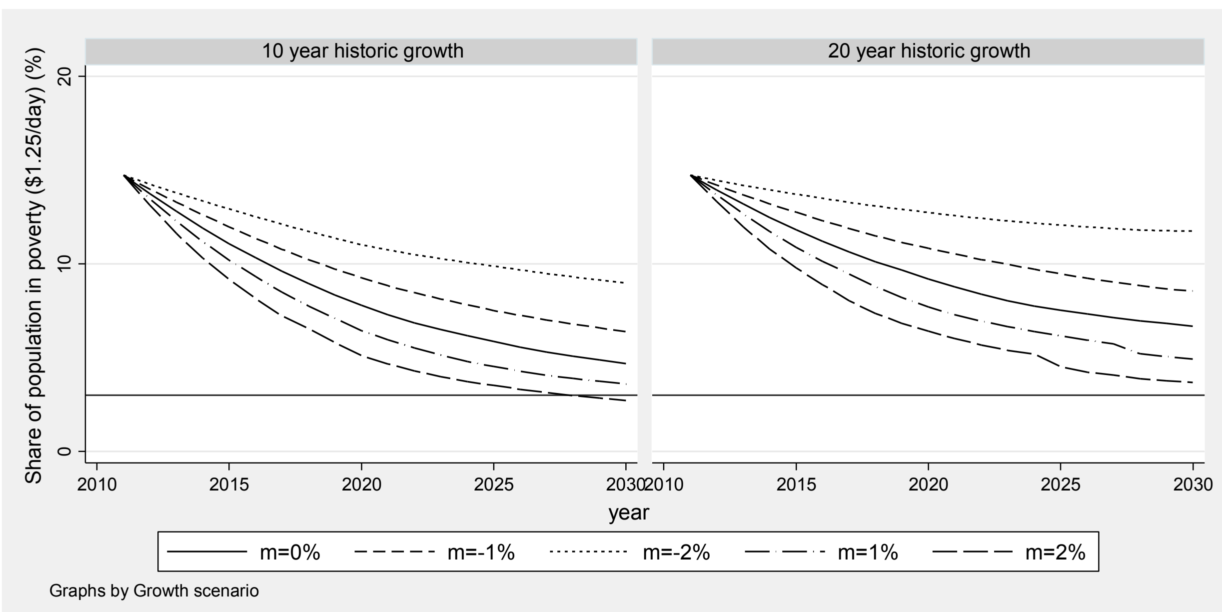
4 Results

This section presents the results from the simulations described above. First, we simulate the poverty trajectory towards 2030, both at the global and regional level, focusing on the poverty rate measured at \$1.25/day. More detailed results, including for other poverty lines, are presented in Appendix 2.[17] Second, we explore some of the dynamic aspects of our simulations and the mechanics of the effect on poverty reduction. Third, we explore the distributional impacts of our simulations.

4.1 Impacts on poverty: Global and regional trajectories to 2030

Figure 7 presents the trajectories for the global poverty headcount up to 2030 for the three different growth scenarios. In neither of the baseline simulations with distribution-neutral growth ($m = 0\%$) do we reach the World Bank's first goal of reducing extreme poverty to 3% by 2030. The global poverty rate reaches between 4.7% and 6.7% in 2030, depending on the growth scenario (10 year historic growth, 20 year historic growth). This confirms the findings of World Bank (2015) that the poverty goal is unlikely to be achieved under distribution-neutral growth.

Figure 7: Projections of poverty under different scenarios for shared prosperity



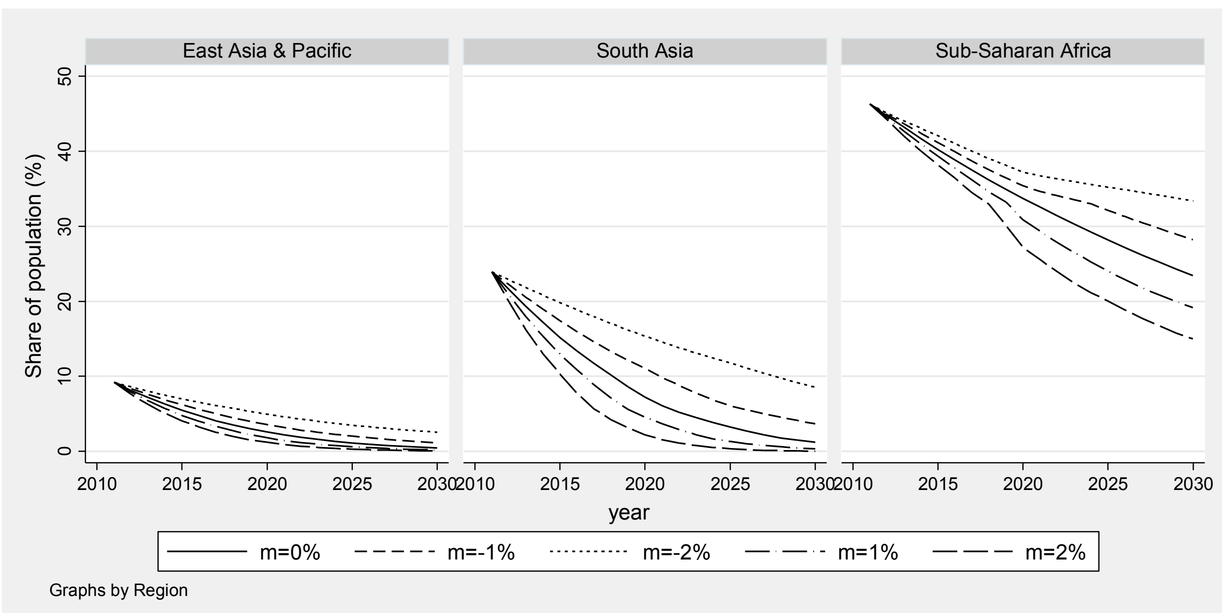
The 3% poverty target looks much more achievable in simulations where growth of the bottom 40% is "boosted" to grow faster than the mean of the distribution (i.e. $m = 1\%$ or $m = 2\%$). With $m = 2\%$ and the 10 year historic growth scenario, the 3% target is reached ahead of the 2030 deadline. With

[17] Chen and Ravallion (2010) use \$1.25, \$1.45, \$2.0 and \$2.5. Global headcount figures are reported only for these poverty lines. The assumption of zero poverty in rich countries may not apply for higher poverty lines. Hence the Appendix presents results for higher poverty lines only for the regions available in PovcalNet.

$m = 2\%$, the global poverty rate also comes close under the 20 year historic growth scenario. In contrast, in scenarios with a negative shared prosperity premium ($m = -1\%$, $m = -2\%$), where the bottom 40% grows slower than the mean, the global poverty rate in 2030 is far off the target. It reaches 9% under the 10 year historic growth scenario and $m = -2\%$; and 7% with $m = -1\%$. Overall, this shows how sensitive the global poverty headcount is to changes in the growth rate of the bottom 40%. Under the same average growth scenario, the global poverty rate could either reach the 3% target, or be close to 10%, depending on the distributional nature of that growth.

The full results on regional headcount rates for multiple poverty lines are presented in Appendix 2. In the discussion we focus on those regions which drive the results for the global headcount and where shared prosperity has the greatest effects. The Middle East and North Africa (MENA) and Europe and Central Asia (ECA) regions both start with a low headcount below 3% and have small populations compared to the other regions.

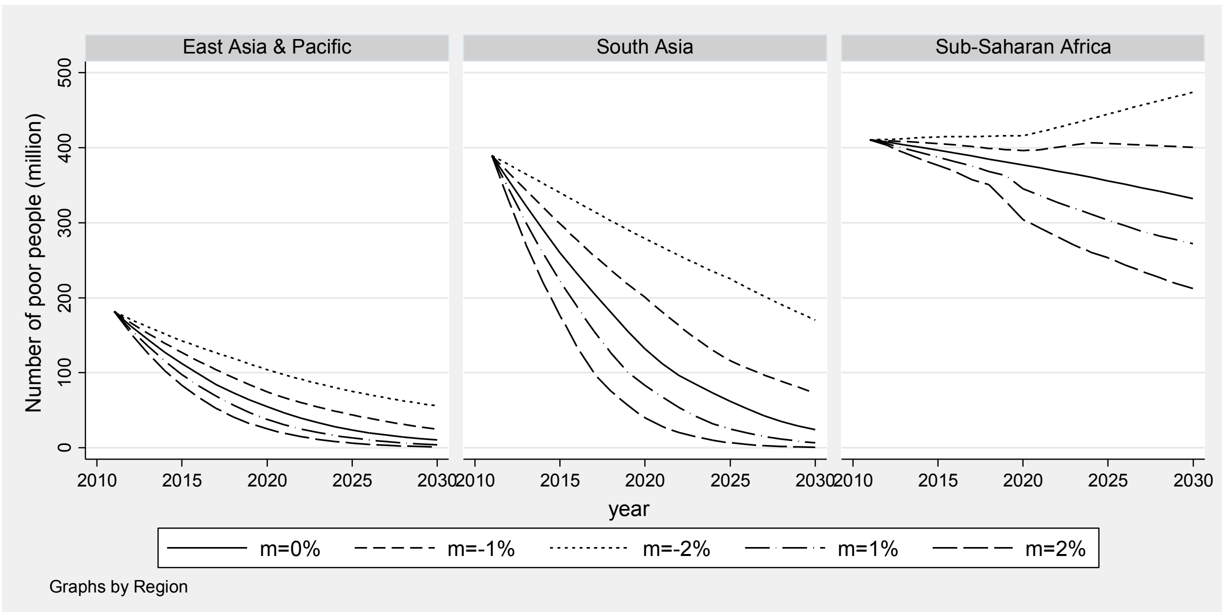
Figure 8: Share of poor people for selected regions (at $1.25, 2005 PPPs, 10 year historic growth rates)



Note: Results are from simulations using 10 year historic growth rates.

For East Asia & Pacific, South Asia and Sub-Saharan Africa, we show the simulated trajectories for the headcount rate (Figure 8) and absolute number of poor (Figure 9). We use the 10 year historic growth scenario and allow for different values of the shared prosperity premium m. In East Asia, we see relatively small differences across the different shared prosperity premiums, because poverty is already low and growth is projected to be fast. In South Asia, the end point of the simulations for 2030 differs little between $m = 0\%$, $m = 1\%$ and $m = 2\%$ (ranging from 0.03% under $m = 2\%$ to 1.2% under $m = 0\%$). However, negative shared prosperity would increase the number of poor substantially in South Asia. For Sub-Saharan Africa, the differences between the shared prosperity premiums are large, with the 2030 poverty rate ranging from 15% to 33.4%.

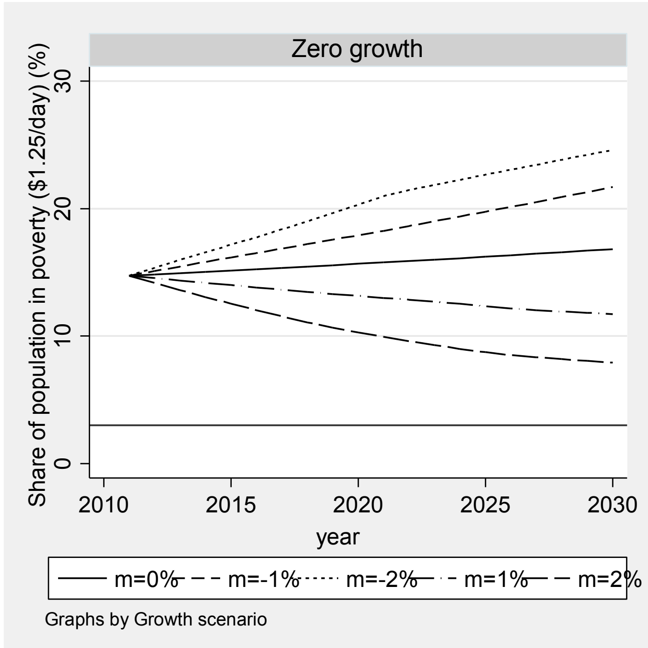
Figure 9: Number of poor people for selected regions (at $1.25, 2005 PPPs, 10 year historic growth rates)



Note: Results are from simulations using 10 year historic growth rates.

Figure 10 presents the results from a pure redistribution scenario in which we allow for different shared prosperity premiums while holding mean per capita income fixed. It shows that even without any growth in the mean, substantial progress in poverty reduction would be possible, under $m = 1\%$ and $m = 2\%$. Under the most positive shared prosperity premium, global poverty is estimated at less than 8% in 2030. However, with negative growth among the bottom 40%, we see a substantial increase in global poverty, with a headcount rate close to 25% in 2030 (for $m = -2\%$). Of course, zero growth in the mean is an unlikely scenario. However, the results from this scenario illustrate the effects of differential growth incidence for the bottom 40%, abstracting from growth in the mean. It highlights the importance of boosting shared prosperity for the welfare of the poorest, independent from growth.

Figure 10: Effect of shared prosperity premium on the world's headcount under a zero growth scenario



4.2 The dynamics of shared prosperity and poverty reduction

It should be noted that although some of the simulated estimates for poverty in 2030 are similar across shared prosperity scenarios, their trajectories differ. In other words, although the 2030 endpoints may look similar, the number of poor is reduced sooner under scenarios with a higher shared prosperity premium. This is illustrated well by comparing the trajectories of $m = 1\%$ and $m = 2\%$ for South Asia in Figure 8 and Figure 9. Both simulations result in a low regional headcount in 2030, however they follow different trajectories up to this point. For example, in 2020, the $m = 2\%$ scenario is already at 39 million people, while the $m = 1\%$ scenario has more than twice the number of poor people at 84 million. Given this seemingly asymptotic shape of the trajectories, it might be more appropriate to compare the average number of poor people over any period, rather than comparing only the endpoints. A steeper poverty trajectory implies that fewer people live fewer years in poverty up to 2030, even if the final headcount in 2030 may appear similar.

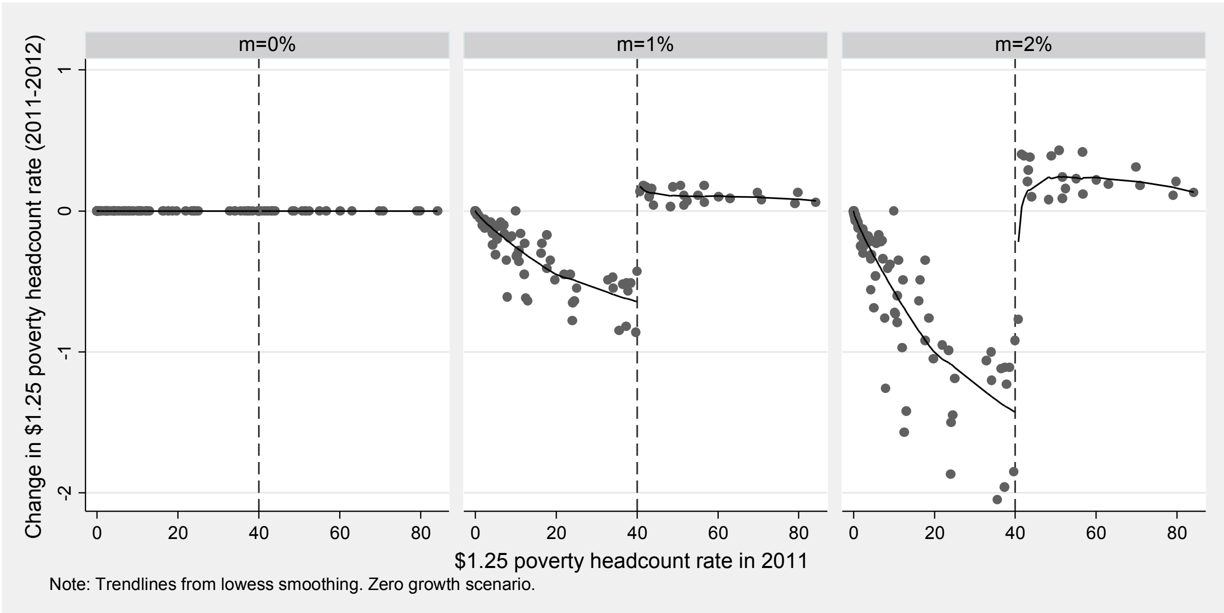
In several cases, our method of redistributing growth for the purpose of 'boosting shared prosperity' leads to an increase in the poverty rate (or a slowdown in poverty reduction) in the medium term. In countries where the initial poverty headcount is above 40%, boosting shared prosperity through a positive growth premium for the bottom 40%, while maintaining growth in the mean, would slow down the reduction in the headcount in comparison to a distribution-neutral scenario. This is true for 23 countries, mostly in Sub-Saharan Africa, where the 2011 poverty rate is above 40%. As explained above, increasing the growth of the bottom 40% reduces the growth rate of the top 60% compared with a distribution-neutral scenario. When people at the poverty line are in the top 60% and well above 40%, this may lead to a slower reduction of the poverty rate than otherwise would have been the case. However, it is important to bear in mind that $m = 2\%$ would still reduce the poverty gap and leads to faster poverty reduction in the long term.

Take for example the case of Nigeria, which has around 60% poverty in 2011. Up until 2018, $m = 2\%$ implies a slower rate of poverty reduction compared with $m = 0\%$ (the distribution-neutral scenario). However, poverty drops sharply once the poverty rate falls to below 40%. With $m = -2\%$, poverty falls fast until it reaches 40% (in 2020). This poverty reduction comes entirely from the top 60%, who in this scenario are growing faster than the mean. This special case highlights the point that in the medium term, poverty reduction is slower with a shared prosperity premium compared with the distribution-neutral growth scenario.

Figure 11 offers a more systematic assessment of how the change in the headcount rate depends on the initial headcount. This figure is drawn for the change in the first year (thus abstracting from re-ranking) and the zero-growth scenario (to abstract from differences in growth rates across countries).[18] It is clear that the initial level of poverty matters for the poverty impact of boosting shared prosperity. With an initial headcount below 40%, the amount of poverty reduction increases with the initial headcount. This comes from the fact the density at the poverty line is greater when the line is at the 40th percentile than when it is at a lower percentile.[19] Thus in the former case, the same amount of growth moves more people out of poverty leading to a faster decline in the headcount rate. This effect is stronger, the higher m. Above the 40% threshold, poverty may increase because the top 60% are losing income in a scenario where the mean does not grow.[20] As a result, some of them would drop below the poverty line.[21] Again, the effect is stronger for higher values of m. The precise effect depends on the country-specific shape and density of the distribution around the 40th percentile.

[18] Another reason for focusing on one-year changes is that over time, the higher the poverty headcount, the higher the potential total reduction in poverty simply because poverty cannot be reduced below zero.
[19] See the discussion in World Bank (2015) and especially Figure 1.4 in that report. Bourguignon (2003) offers a more formal treatment.
[20] This is similar to what we observed for Nigeria when growth in the mean was positive not zero. In that case we saw a slower reduction in poverty, instead of an increase as in the zero-growth scenario.
[21] Of course, the net effect would depend on how many of the bottom 40% become rich enough to cross the poverty line. From the figure, it seems that in most cases with a headcount above 60% there is a net increase in poverty. This is because the mode of the distribution is to the right of the 40% cut-off.

Figure 11: Boosting shared prosperity has largest effect where the poverty rate is close to 40%.



4.3 Impacts on distribution and inequality

So far, the paper has focused on the poverty impacts of various growth and shared prosperity scenarios. Naturally, imposing a higher or lower growth rate on the bottom 40% of the distribution also has substantial impacts on inequality within countries, which we briefly summarize.

Under the scenarios with the highest shared prosperity premium, in which the bottom 40% grow 2pp faster than the mean, inequality falls rapidly, as can be seen in Table 1. The mean Gini in our sample of 124 countries falls 10 points, from 40.8 to 31.2 (around the level of inequality experienced in Albania and Pakistan in the most recent available data). A 10 point fall in the within-country Gini over a 20 year period represents a fast decline in inequality when compared to historical data, however it is not unprecedented. For example, Brazil's Gini fell from a peak of 63.3 percent in 1989 to 53.9 in 2009. For countries that are less unequal today, inequality falls to a level which is extremely low. In fact, in the simulated results for 2030, more than 25% of countries have a Gini which is lower than the lowest Gini we observe in our dataset in 2011 (24.8% for Ukraine). Meanwhile, with $m = 1\%$ the decline in the within-country Gini is around 4pp, which is more realistic when compared to historic rates of change.

An alternative measure of inequality which is particularly relevant to shared prosperity is the share of total income received by the bottom 40%. It is directly relevant to the World Bank's Corporate Scorecard which compares the growth in the bottom 40% to that of the mean. Of course, a positive shared prosperity premium implies that this income share increases. In 2011, the mean income share of the bottom 40% in the 124 countries for which we have data was 16.5%, with as standard deviation of 4.2pp. Table 2 shows the evolution of the income share across different shared prosperity scenarios for the 10 year growth scenario. Under $m = 2\%$, the mean income share of the bottom 40% increases to 23.7% and declines to 11.4% with $m = -2\%$.

Table 1: Mean Gini under various shared prosperity scenarios (with 10 year historic growth in the mean)

	m=0%	m=1%	m=2%	m=-1%	m=-2%
2011	40.8%	40.8%	40.8%	40.8%	40.8%
2020	40.8%	39.0%	36.5%	42.4%	43.8%
2030	40.8%	36.9%	31.2%	44.0%	46.6%

It should be noted that the changes in inequality implied by our simulations are rather exceptional when compared to what has been experienced in the past. In particular, countries with already low levels of inequality become even less unequal at a very rapid rate. For countries which start with high inequality, the level of inequality simulated for 2030 is not unprecedented, however. In our simulations, the bottom 40% at any point are helped to catch up with the rest of the population, so this would lead to a perfectly equal society if repeated infinitely. Therefore, it is not surprising that we obtain such low levels of inequality.

Table 2: Mean income share of the bottom 40% for various shared prosperity scenarios (with 10 year historic growth in mean)

	m=0%	m=1%	m=2%	m=-1%	m=-2%
2011	16.5%	16.5%	16.5%	16.5%	16.5%
2020	16.5%	18.1%	20.0%	15.1%	13.8%
2030	16.5%	19.8%	23.7%	13.7%	11.4%

Indeed, inequality-reducing transformations of the distribution are by definition bounded to the limit imposed by the equidistribution. The bottom 40%'s income share cannot exceed 40% of income by construction. Hence achieving any shared prosperity premium is more difficult for more egalitarian countries and as countries become more so. This implies that the performance of a country in terms of shared prosperity depends not only on its premium m but also on the initial level of inequality and the growth rate in the mean – the higher the latter the easier it may be to obtain a given premium.

5 Conclusions

Along the same lines as World Bank (2015), this paper has established that under assumptions of distribution-neutral growth, the World Bank's poverty goal of less that 3% of the world's population living on less than a $1.25/day will be difficult to reach. This paper has shown that growth patterns which 'boost' growth of the bottom 40% of populations, while maintaining growth in the mean, make the goal much more viable. We therefore conclude that boosting shared prosperity can contribute significantly to reaching the goal of ending global poverty by 2030.

The proposed shared prosperity premium simulated in this paper does not impose a large 'cost' on the rest of the distribution. Because of the large income share of the top 60%, the reduction in the annualized growth rate of the top 60% necessary to ensure that the bottom 40% grows m pp above the mean is relatively small. For example, in the case of China, a growth incidence such that the bottom 40% grows 2pp above the mean (8.1% vs 6.1%), implies that the top 60% grows at an annualized rate of 5.7%, just 0.4pp below the growth in the mean, or what would have been the case without a shared prosperity premium ($m = 0$).

The impact on poverty of boosting shared prosperity is different across countries, and depends on the initial level of poverty, the shape of the distribution and the growth rate. When the poverty headcount is close to, but below 40%, the effect of the shared prosperity premium is greatest, due to the high density of the distribution at this point. At high levels of initial poverty (above 40%), boosting the growth of the bottom 40% in the manner done in this paper and assuming that mean growth is unchanged, will lead to a decrease in the pace of poverty reduction in the short term in comparison with a distribution-neutral growth scenario. This highlights a certain tradeoff between the two goals of extreme poverty reduction and focus on the bottom 40%. Nevertheless, in such cases the effect may still be positive on the poverty gap, thus helping the poorest of the poor.

Inequality falls rapidly across all countries if we assume a positive shared prosperity premium. While the model used in this paper uses an artificially imposed growth incidence curve, the resulting difference between the growth of the bottom 40% and the mean is not unprecedented. Our discussion indicates that similar shared prosperity premiums can imply very different performances in terms of how growth is accrued throughout the income distribution. Similarly, the distributional changes implied by these premiums should be assessed relative to the country-specific initial level of inequality as this affects their feasibility. This is something that may well merit attention in assessing a country's performance in terms of shared prosperity.

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7 Appendix 1: Derivation of alternative GICs

7.1 Derivation of the linear GIC (panel B, Figure 3)

The growth in the overall mean can be written as[22]

$$\gamma = \frac{\sum_i^N {y_i}^*}{\sum_i^N y_i} - 1 \quad (9)$$

We can rewrite this using the GIC definition (Equation 3) and its linear functional form (Equation 5)

$$\gamma = \frac{\sum_i^N y_i(1+g_i)}{\sum_i^N y_i} - 1 = \frac{\sum_i^N y_i(1+\delta-\theta p_i)}{\sum_i^N y_i} - 1 = \delta - \theta \frac{\sum_i^N p_i y_i}{\sum_i^N y_i} \quad (10)$$

Similarly, the growth in the mean income of the bottom 40% can be written as

$$\gamma_{40} = \frac{\sum_i^{0.4N} {y_i}^*}{\sum_i^{0.4N} y_i} - 1 = \delta - \theta \frac{\sum_i^{0.4N} p_i y_i}{\sum_i^{0.4N} y_i} \quad (11)$$

Substituting (10) and (11) into the shared prosperity premium (Equation 1) yields

$$m = \gamma_{40} - \gamma = \theta \left(\frac{\sum_i^N p_i y_i}{\sum_i^N y_i} - \frac{\sum_i^{0.4N} p_i y_i}{\sum_i^{0.4N} y_i} \right) \quad (12)$$

Rearranging gives the expression for θ given below. δ is derived by substituting for θ in (10). In sum, the parameters of the linear GIC are defined as

$$\theta = \frac{m}{\Theta - \Gamma} \qquad and \qquad \delta = \gamma + \Theta \left(\frac{m}{\Theta - \Gamma} \right) \quad (13)$$

where,

$$\Theta \equiv \frac{\sum_i^N p_i y_i}{\sum_i^N y_i} \qquad and \qquad \Gamma \equiv \frac{\sum_i^{0.4N} p_i y_i}{\sum_i^{0.4N} y_i} \quad (14)$$

[22] Note that in our definition of the GIC, i denotes a fractile group. y_i is the average income of that fractile group. In Equations 9 and 10, we used the fact that the mean over the fractile group means equals the overall mean.

7.2 Derivation of the convex GIC (panel C, Figure 3)

We can denote the total transformed income of the bottom 40% as

$$\sum_i^{0.4N} y_i^* = \sum_i^{0.4N} (1+\gamma)[(1-\alpha)y_i + \alpha\mu] = (1+\gamma)(1-\alpha)\sum_i^{0.4N} y_i + (1+\gamma)\alpha 0.4N\mu \qquad (15)$$

Using the definition of the growth rate in mean income of the bottom 40% (Equation 11), this can be written as

$$1+\gamma_{40} = \frac{(1+\gamma)(1-\alpha)\sum_i^{0.4N} y_i + (1+\gamma)\alpha 0.4N\mu}{\sum_i^{0.4N} y_i} \qquad (16)$$

This in turn can be expressed in terms of the income share of the bottom 40% by making use of the fact that $N\mu = \sum_i^N y_i$

$$\frac{1+\gamma_{40}}{1+\gamma} = 1-\alpha+\frac{0.4\alpha}{s_{40}} \qquad (17)$$

Using $\gamma_{40} = \gamma + m$ (Equation 1), we can solve the expression for α

$$\alpha = \frac{m}{(1+\gamma)\left(\frac{0.4}{s_{40}}-1\right)} \qquad (18)$$

8 Appendix 2: Additional tables

Table 3: Global poverty rates in 2030

Scenario		Poverty rate in 2030 at poverty lines (USD per capita per day, 2005 PPPs)			
Growth	**m**	**1.25**	**1.45**	**2**	**2.5**
10 year historic	-2	9.0%	12.0%	20.2%	24.8%
	-1	6.4%	8.6%	15.9%	22.6%
	0	4.7%	6.3%	12.1%	18.4%
	1	3.6%	4.7%	9.1%	14.6%
	2	2.7%	3.5%	6.1%	10.4%
20 year historic	-2	11.8%	15.1%	23.2%	27.0%
	-1	8.6%	11.5%	19.9%	25.3%
	0	6.7%	8.6%	15.8%	22.8%
	1	4.9%	6.9%	12.6%	18.2%
	2	3.7%	5.1%	9.1%	14.1%
Zero growth	-2	24.6%	27.2%	36.6%	44.8%
	-1	21.7%	25.2%	35.1%	43.5%
	0	16.8%	22.0%	34.1%	42.3%
	1	11.7%	17.3%	32.9%	41.2%
	2	7.9%	11.3%	31.0%	41.0%
2011 Estimate		14.7%	19.5%	31.1%	38.9%

Table 4: Regional poverty rates in 2030

	Scenario		Poverty rate in 2030 at poverty lines (USD per capita per day, 2005 PPPs)							
Region	**Growth**	**m**	**1.25**	**1.45**	**2**	**2.5**	**4**	**6**	**8**	**10**
East Asia & Pacific	10 year	-2	2.6%	4.6%	10.1%	14.2%	25.0%	39.6%	49.2%	51.9%
		-1	1.1%	2.2%	6.7%	10.9%	21.2%	35.3%	46.1%	52.0%
		0	0.5%	0.9%	3.9%	7.3%	18.3%	31.5%	41.6%	50.1%
		1	0.2%	0.4%	1.7%	4.2%	16.2%	27.6%	37.3%	45.3%
		2	0.1%	0.1%	0.6%	1.7%	13.6%	23.9%	33.5%	40.7%
	20 year	-2	2.5%	4.2%	9.9%	14.6%	25.1%	40.1%	49.2%	52.0%
		-1	1.3%	2.3%	6.5%	10.6%	21.3%	35.8%	46.9%	52.2%
		0	0.5%	1.1%	3.5%	7.2%	18.3%	31.9%	42.4%	51.1%
		1	0.2%	0.4%	1.9%	3.9%	16.1%	28.1%	38.4%	46.0%
		2	0.1%	0.1%	0.6%	1.8%	9.6%	24.7%	34.0%	41.3%
	Zero	-2	20.6%	24.8%	33.6%	41.2%	51.3%	69.5%	80.2%	86.7%
		-1	14.4%	19.2%	28.3%	36.9%	52.3%	70.4%	81.0%	87.4%
		0	9.4%	13.2%	23.7%	32.1%	53.3%	71.5%	81.9%	88.2%
		1	5.1%	8.1%	17.0%	27.6%	54.7%	73.0%	82.8%	89.2%
		2	2.4%	3.9%	10.1%	23.7%	41.1%	75.1%	84.4%	90.6%
Europe & Central Asia	10 year	-2	0.2%	0.3%	0.8%	1.7%	7.0%	15.8%	24.0%	29.5%
		-1	0.1%	0.1%	0.4%	0.9%	4.1%	11.4%	18.7%	26.8%
		0	0.0%	0.1%	0.2%	0.5%	2.4%	7.6%	14.3%	21.8%
		1	0.0%	0.0%	0.1%	0.2%	1.2%	4.4%	10.3%	17.1%
		2	0.0%	0.0%	0.0%	0.1%	0.5%	2.1%	5.2%	13.4%
	20 year	-2	0.9%	1.5%	3.8%	6.1%	12.7%	27.1%	36.1%	40.2%
		-1	0.5%	0.8%	2.2%	4.1%	9.7%	20.9%	32.0%	38.6%

Region	Scenario		Poverty rate in 2030 at poverty lines (USD per capita per day, 2005 PPPs)							
	Growth	m	1.25	1.45	2	2.5	4	6	8	10
		0	0.3%	0.4%	1.2%	2.4%	7.7%	16.3%	26.1%	35.8%
		1	0.1%	0.2%	0.6%	1.3%	6.4%	13.2%	20.3%	31.7%
		2	0.0%	0.1%	0.3%	0.6%	3.6%	10.4%	15.7%	21.6%
	Zero	-2	2.5%	3.8%	8.1%	12.3%	28.7%	41.5%	51.5%	61.4%
		-1	1.4%	2.2%	5.4%	8.6%	22.4%	38.9%	51.9%	62.3%
		0	0.7%	1.2%	3.2%	5.9%	16.5%	33.9%	50.3%	63.4%
		1	0.4%	0.6%	1.8%	3.6%	12.0%	28.7%	49.5%	61.4%
		2	0.2%	0.3%	0.8%	1.6%	8.7%	19.5%	39.1%	60.5%
Latin America & Caribbean	10 year	-2	5.1%	6.4%	10.2%	13.2%	24.5%	36.8%	43.5%	48.3%
		-1	3.9%	5.0%	7.9%	10.9%	19.2%	32.9%	40.7%	48.6%
		0	3.0%	3.8%	6.2%	8.4%	15.4%	26.7%	37.8%	47.0%
		1	2.3%	2.9%	4.8%	6.5%	12.6%	21.1%	30.8%	43.4%
		2	1.8%	2.2%	3.5%	4.9%	9.9%	16.3%	23.7%	40.1%
	20 year	-2	5.7%	7.0%	11.0%	14.6%	27.8%	39.7%	44.9%	51.0%
		-1	4.4%	5.4%	8.5%	11.5%	21.9%	35.3%	44.5%	51.8%
		0	3.3%	4.2%	6.8%	9.1%	17.2%	30.1%	41.3%	52.4%
		1	2.3%	3.0%	5.2%	7.1%	13.5%	23.8%	36.4%	48.1%
		2	1.4%	1.9%	3.9%	5.4%	10.8%	18.1%	30.3%	45.4%
	Zero	-2	9.3%	11.0%	17.6%	24.1%	39.6%	44.8%	56.3%	65.4%
		-1	7.2%	8.9%	13.4%	18.5%	34.0%	44.9%	56.8%	66.2%
		0	5.6%	6.9%	10.5%	14.2%	28.1%	44.7%	57.4%	67.3%
		1	4.4%	5.3%	8.4%	10.9%	22.0%	38.4%	58.1%	68.4%
		2	3.2%	4.0%	6.2%	8.4%	16.2%	32.7%	59.0%	68.9%
Middle East & North Africa	10 year	-2	3.5%	5.2%	11.3%	19.7%	37.5%	51.5%	63.2%	72.7%
		-1	2.0%	3.1%	6.9%	13.1%	33.7%	51.0%	64.4%	74.0%
		0	1.1%	1.8%	4.6%	8.6%	26.7%	49.7%	65.4%	75.6%
		1	0.5%	0.9%	2.5%	6.3%	18.4%	47.7%	64.6%	77.5%
		2	0.2%	0.3%	1.1%	5.5%	11.3%	45.7%	64.4%	79.5%
	20 year	-2	6.3%	9.1%	15.6%	23.7%	43.1%	57.2%	68.0%	77.4%
		-1	3.7%	5.7%	11.5%	17.4%	40.4%	58.1%	69.5%	78.6%
		0	1.9%	3.3%	7.9%	13.5%	34.9%	57.0%	71.3%	79.7%
		1	0.7%	1.4%	4.6%	10.6%	27.3%	56.9%	72.7%	81.4%
		2	0.2%	0.4%	1.8%	4.0%	20.9%	54.1%	68.5%	84.2%
	Zero	-2	10.6%	16.5%	29.1%	35.2%	53.0%	70.1%	81.2%	87.9%
		-1	5.3%	9.2%	22.4%	30.5%	53.7%	71.4%	82.3%	88.7%
		0	2.4%	4.5%	13.8%	24.8%	52.4%	73.0%	83.6%	89.5%
		1	1.0%	1.9%	7.0%	15.8%	51.0%	75.0%	85.2%	90.7%
		2	0.3%	0.5%	2.3%	6.3%	44.9%	77.3%	87.6%	92.4%
South Asia	10 year	-2	8.6%	15.7%	34.8%	39.8%	56.9%	81.2%	89.8%	92.6%
		-1	3.7%	7.1%	23.5%	37.6%	59.4%	82.6%	90.4%	93.1%
		0	1.2%	3.0%	13.1%	26.8%	62.3%	84.4%	90.6%	93.7%
		1	0.3%	0.9%	5.3%	16.4%	66.4%	86.3%	91.3%	94.4%
		2	0.0%	0.1%	1.1%	4.1%	73.1%	88.5%	92.4%	95.6%
	20 year	-2	15.0%	23.0%	39.5%	41.3%	66.3%	86.3%	91.2%	94.3%
		-1	6.7%	13.1%	31.9%	41.5%	68.4%	87.1%	91.8%	94.7%
		0	3.0%	5.7%	20.6%	36.7%	70.9%	88.1%	92.4%	95.2%
		1	0.8%	2.2%	11.7%	23.7%	74.3%	89.2%	93.2%	95.8%
		2	0.1%	0.3%	2.7%	11.7%	79.6%	90.2%	94.6%	96.8%

	Scenario		Poverty rate in 2030 at poverty lines (USD per capita per day, 2005 PPPs)							
Region	**Growth**	**m**	**1.25**	**1.45**	**2**	**2.5**	**4**	**6**	**8**	**10**
	Zero	-2	39.7%	40.3%	53.9%	69.6%	89.4%	94.7%	97.6%	99.0%
		-1	36.8%	40.2%	56.5%	71.9%	89.8%	95.1%	97.9%	99.1%
		0	23.8%	34.8%	59.8%	74.5%	90.1%	95.6%	98.2%	99.3%
		1	11.6%	21.7%	64.3%	77.7%	91.0%	96.2%	98.6%	99.4%
		2	2.6%	6.6%	64.6%	83.3%	92.8%	97.4%	99.1%	99.7%
Sub-Saharan Africa	10 year	-2	33.4%	37.1%	45.7%	55.3%	70.7%	84.0%	90.0%	93.1%
		-1	28.2%	33.9%	44.2%	53.7%	71.7%	84.7%	90.5%	93.4%
		0	23.4%	29.0%	42.5%	52.5%	72.6%	85.5%	90.9%	93.7%
		1	19.2%	24.3%	40.0%	51.5%	73.5%	86.5%	91.5%	94.1%
		2	15.0%	19.1%	31.3%	48.8%	69.4%	87.8%	92.3%	94.7%
	20 year	-2	39.2%	43.7%	54.9%	62.8%	78.8%	89.0%	93.1%	95.3%
		-1	35.6%	40.9%	54.1%	62.9%	79.6%	89.5%	93.4%	95.6%
		0	32.2%	38.0%	52.5%	62.7%	80.7%	90.0%	93.8%	95.8%
		1	26.2%	34.9%	50.5%	61.1%	81.6%	90.6%	94.2%	96.1%
		2	20.6%	28.1%	46.5%	59.6%	82.4%	91.5%	94.7%	96.5%
	Zero	-2	48.8%	54.3%	68.6%	77.0%	88.8%	94.3%	96.6%	97.8%
		-1	48.4%	54.7%	69.3%	78.0%	89.2%	94.5%	96.8%	97.9%
		0	47.4%	55.1%	70.3%	78.8%	89.7%	94.8%	97.0%	98.0%
		1	42.4%	55.5%	70.9%	79.9%	90.4%	95.2%	97.2%	98.1%
		2	37.7%	48.8%	72.2%	81.2%	91.4%	95.7%	97.4%	98.3%