

Description of the Poverty Simulations

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Suggested citation for any figure reproduced using these simulations:

Estimates based on Lakner, Negre and Prydz (2014), Povsim, accessed <date>.

Reference:

Lakner, Christoph, Mario Negre, and Espen Beer Prydz. 2014. “Twinning the Goals: How Can Shared Prosperity Help to Reduce Global Poverty?” Policy Research Working Paper 7106, World Bank, Washington, DC, updated October 2016.

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 poorest 40 percent of the population within every country. This short note describes an online tool that simulates poverty headcount ratios under different assumptions about the growth in average incomes as well as the distributional effects of a given growth rate. The pro-pooriness of growth is captured by the shared prosperity premium, which is the difference in the growth rates of the poorest 40 percent and of the average. A higher shared prosperity premium implies that the poorest 40 percent is growing faster than the rest of the population. These simulations illustrate the interaction and complementarity of the World Bank’s twin goals, and how pro-poor growth is important for the goal of ending extreme poverty. This tool has been created as part of the World Bank’s 2016 Poverty and Shared Prosperity Report (World Bank, 2016), based on the original work by Lakner, Negre and Prydz (2014) (LNP). It is important to stress that these are simulations, not predictions over likely future scenarios.

For every country available, the tool simulates the poverty headcount ratio (at the international extreme poverty line of US\$1.90 2011 PPP) until 2030. The tool requires users to specify the annual growth rate in average incomes and the shared prosperity premium.^{1,2} A positive premium means that the average income of the poorest 40 percent grows faster than the average income of the population. For example, choosing a growth rate of 3 percent and a premium of 2 percentage points implies that average incomes are growing at 3 percent per year, while the average income among the poorest 40 percent is growing at 5 percent per year. In a recent dataset, the shared

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¹ Growth rates and shared prosperity premiums can be chosen with a decimal precision.

² In many developing countries, consumption expenditure is used instead of income. For simplicity, we refer to them interchangeably here.

prosperity premium ranges from -2.4 to 4.2 percentage points, with an average of 0.5 percentage points.³

Full methodological details are provided in LNP. The simulations begin with the most recent survey available in PovcalNet.⁴ To reduce computational demand of the simulations, the income distribution of each country is represented by 1000 points. While consumption expenditure is used for most countries, some countries use income as their welfare aggregate, mostly in Eastern Europe and in Latin America. Due to the presence of zero incomes, poverty does not drop to zero in these countries, even in the very long-run.⁵ It is important to stress that the simulations assume a linear growth incidence curve (GIC). As explained in LNP, this is only one possible functional form of the GIC. For a given shared prosperity premium, there exist an infinite number of functional forms, which capture how growth is distributed within the poorest 40 percent and the rest of the distribution.

The simulations can be displayed in four ways (shown as different “tabs”):

- 1) *One country, one scenario*: Shows the poverty headcount ratio from the year of the most recent survey to 2030, for a given value of the growth rate in the mean and the shared prosperity premium.
- 2) *Multiple countries, one scenario*: Shows one scenario (i.e. a growth rate and a shared prosperity premium) for more than one country at a time.
- 3) *One country, multiple scenarios*: Shows multiple scenarios for one country at a time. This can be used to understand how a country’s poverty trajectory varies with different assumptions on the shared prosperity premium, and/or growth in the mean.
- 4) *Multiple countries, multiple scenarios*: Shows multiple scenarios for more than one country at a time. Users might be interested in which combinations of growth and shared prosperity premium different countries need to reach the same poverty headcount.

After making the selections within each tab, users can directly download the graph shown on the screen. It is also possible to download the raw data (in .csv format) for the graph. For example, these can then be combined with population estimates to obtain the number of poor. Note that the tool only provides the share of population that is poor *at the country level*. Aggregations to regional and global poverty trends are available in LNP (2014), which has been updated with 2013 data.

A Stata program (povsim.ado) that implements these simulations is also made available on the web.⁶ This program can be used with both grouped information and microdata, and accommodates a number of functional forms of the GIC. Users can thus run their own simulations on any dataset.

³ These statistics are calculated over a set of 83 countries that have comparable surveys covering the period 2008 to 2013. Full results are given in Chapter 3 of World Bank (2016). It is important to point out that these data cover an approximate five year period, while the simulations cover a much longer time period.

⁴ PovcalNet (online analysis tool), World Bank, Washington, DC, <http://iresearch.worldbank.org/PovcalNet/>. We include as many countries as possible, and only those countries for which microdata are available.

⁵ This simply reflects the fact that any growth rate applied to a zero income results in a zero income.

⁶ <http://www.worldbank.org/en/data/interactive/2016/10/02/poverty-and-shared-prosperity-2016-poverty-simulations>

References

Lakner, Christoph, Mario Negre, and Espen Beer Prydz. 2014. "Twinning the Goals: How Can Shared Prosperity Help to Reduce Global Poverty?" Policy Research Working Paper 7106, World Bank, Washington, DC, updated October 2016.

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