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The Effect of New PPP Estimates on Global Poverty: A First Look

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Abstract

This paper provides an initial analysis of the impact on the World Bank's global poverty estimates of the revised 2011 and new 2017 PPPs published in May 2020. The revised 2011 PPPs slightly increase poverty in South Asia and Sub-Saharan Africa, causing the extreme poverty headcount ratio for the world to rise by 0.3 percentage points to 10.3% in 2015 (equivalent to 20 million more poor people). The 2017 PPPs have the opposite effect: extreme poverty decreases in Sub-Saharan Africa, reducing the global poverty estimate slightly by 0.6pp to 9.4% in 2015 (equivalent to 46 million fewer poor people). The long-run trends in global and regional poverty remain unchanged.

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1. Introduction

Historically, new estimates of purchasing power parity (PPP) exchange rates produced by the International Comparison Program (ICP) have led to large revisions of global poverty and inequality estimates, spurring debates within the academic community about the validity of the new (and old) numbers. For example, the release of the 2011 PPPs led to a series of papers and blogs arguing for or against their adoption (Deaton and Aten, 2015; Dykstra et al., 2014; Ravallion, 2014). Revisions in PPP exchange rates can shift global poverty numbers drastically, such as the increase in the global number of poor in 2005 by 400 million after the adoption of the 2005 PPPs (Chen and Ravallion, 2010), as well as alter country rankings and thus the geographic distribution of poverty. The 2005 PPPs increased global inequality while the 2011 PPPs reduced it again (Milanovic, 2012; Lakner and Milanovic, 2016).

In May 2020, the ICP released two new sets of PPP estimates: revised 2011 PPPs and new 2017 PPPs. This paper takes a first look at these PPPs to investigate their impact on global poverty. To isolate the impact of the PPPs, the methods of global poverty measurement are held constant as much as possible, following the World Bank's existing practices—only PPP estimates are updated.

New PPPs affect global poverty estimates through changes in (i) the value of the international poverty line (IPL), and (ii) the distribution of global welfare. Historically, the World Bank has set the IPL based on the national poverty lines of some of the poorest countries in the world (Ravallion, Chen and Sangraula, 2009; Ferreira et al., 2016). The assessment of poverty in these poorest countries is taken as a yardstick for measuring *absolute* extreme poverty, applicable to all countries. Since these national poverty lines are denominated in domestic currencies, PPPs are applied to convert them into a common and comparable international currency. The same is the case for household welfare, which is reported in domestic currencies in household surveys.

PPPs are preferred to market exchange rates for making comparisons of living standards across countries. Price levels differ across countries, especially between rich and poor ones. For example, the cost of non-tradable services is relatively high in rich countries where factors of production (e.g., labor, land, etc.) are more expensive. These services are generally cheaper in poor countries, even conditional on quality. Market exchange rates equilibrate prices in the tradable goods market, while PPP exchange rates equilibrate prices in both tradable goods and non-tradable services markets. The purchasing power of the currencies of the poor countries are typically higher in domestic markets than what market exchange rates would suggest (the Balassa-Samuelson effect), and hence market exchange rates would understate welfare in developing countries.

New PPP estimates reflect new price data that have been collected around the world, thus providing an up-to-date assessment of relative prices of goods and services across countries. However, ICP methodologies, such as the coverage of price surveys, index number calculations, the linking of regional price data, among others, have also often changed from one round to another. Therefore, in past rounds, changes in PPPs have reflected both new price data and changes/improvements in methodologies. Given the importance of methodological revisions in previous ICP rounds, the

Atkinson Commission on Global Poverty advised the World Bank to retain the 2011 PPPs until 2030 (the target date for the Sustainable Development Goals) for its global poverty measures and not incorporate future ICP rounds (World Bank, 2017). Atkinson was thus more concerned about the effect of methodological revisions moving the goalposts than ignoring new ICP price data. The extent to which the new PPPs analyzed in this paper reflect new price data or methodological changes will be explored in a more extensive follow-up paper.

This paper updates the value of the IPL and the distribution of global welfare with the revised 2011 PPPs and 2017 PPPs, and assesses the impact on global, regional, and country-level poverty headcounts. Using the World Bank's existing methods, we estimate that the value of the IPL remains at $1.90 per person per day with the revised 2011 PPPs. With the 2017 PPPs, we estimate the IPL at $2.10 per person per day. The revised 2011 PPPs increase global extreme poverty slightly, from 10.04% to 10.30% in 2015, equivalent to 20 million more poor people. This is driven by upward revisions in the two poorest regions of the world, Sub-Saharan Africa and South Asia. The 2017 PPPs, on the other hand, decrease global extreme poverty slightly, from 10.04% to 9.41% in 2015, reducing the number of poor people by 46 million. Thus, the revised 2011 PPPs give the impression that global poverty is currently somewhat underestimated, while the 2017 PPPs give the opposite impression, although the impacts are considerably smaller than previous ICP rounds, particularly the 2005 round. While the 2017 PPPs slightly increase poverty headcounts in East Asia and Pacific, they decrease poverty in South Asia and especially Sub-Saharan Africa. For the re-estimated higher poverty lines (corresponding to the current $3.20 and $5.50 lines), our initial analysis suggests that the 2017 PPPs imply larger changes in poverty headcounts, but further analysis is needed to define these lines.

The next section of the paper describes the data used. Section 3 briefly describes the World Bank's methodologies for deriving global poverty lines and updates the lines with the revised 2011 PPPs and 2017 PPPs. Section 4 discusses the results for global poverty at the IPL of $1.90, as well as the higher lines of $3.20 and $5.50, which are considered as the standards for monitoring poverty in lower- and upper-middle income countries, respectively. Section 5 concludes. The Appendix includes further robustness checks and results.

2. Data

The calculation of global poverty rates uses three main data sources: PPPs, consumer price indices (CPIs), and consumption or income from household surveys.

2.1. PPPs

The PPPs are obtained from the ICP, which is housed at the World Bank. For the global poverty estimates, the PPPs for household final consumption expenditure are used. PPPs are price indices that express the currency units of one country in terms of the currency units of a reference country, the United States. In other words, PPPs measure how much it costs to purchase a basket of goods and services in one country compared to how much it costs to purchase the same basket of goods and services in the United States. The PPPs of all participating countries are anchored to the US dollar as the numeraire.

Since its inception in 1968, the ICP has periodically collected international price data and has published PPP exchange rates in nine rounds (1970, 1973, 1975, 1980, 1985, 1993, 2005, 2011, and 2017). This paper focuses on PPP estimates from the last two rounds.[1] The 2011 round has now been revised, which marks the first time the ICP is revising previously published PPPs. The revisions to the 2011 PPPs mostly reflect changes in national accounts that are used as weights for aggregating the price index from the basic headings.

For the 2011 PPPs, this paper imputes PPPs for some countries.[2] As explained in Atamanov et al. (2018), the World Bank in its estimates of global poverty does not use the published 2011 PPPs for six countries. In Egypt, Iraq, Jordan, Lao, Myanmar and Yemen large differences were found between the price changes implied by the 2005 and 2011 PPPs, and domestic consumer price index (CPI) inflation (see Figure A.1 in Appendix A). There were concerns over the coverage and quality of the underlying ICP price collection in some of them. As a result, regression-based 2011 PPP exchange rates were used instead. These were estimated from a slightly modified version of the model used by the ICP to predict 2011 PPPs for non-benchmark countries. See Table A.1 in Appendix A for raw and imputed PPP estimates using the original and revised 2011 PPPs. For the revised 2011 PPPs that are imputed for these six countries, Table A.1 provides two options: Column 4 uses the revised 2011 PPPs together with the old input data that was used in Atamanov et al. (2018). Column 5 uses the revised 2011 PPPs and also updates the input data. Our preferred approach is the latter.

With the 2017 PPPs there are also countries with large differences between changes in PPPs and the inflation rates from domestic CPIs, particularly the Central African Republic and Angola (Figure A.2 in Appendix A). These discrepancies could reflect problems with the CPI series, with the 2011 revised PPPs or with the 2017 PPPs. In this initial analysis, we do not impute any 2017 PPPs; but we will take a closer look at these countries in the future.

This paper follows the approach of Ferreira et al. (2016) to estimate urban and rural PPPs for the three most populous countries in the developing world, namely China, India, and Indonesia (also see Chen and Ravallion, 2008; Chen and Ravallion, 2010; Jolliffe and Prydz, 2015). The ICP price collection has often had an urban bias, although its rural coverage has generally improved in more recent rounds, particularly the 2011 round. The share of urban price collection, the ratio of urban

[1] PPP estimates are expressed as the amount of local currency units that will exchange for one unit of the US dollar in the ICP reference year. As a result, currency re-denominations and conversions affect the comparability of PPP estimates across ICP rounds. This paper takes account of currency re-denominations and conversions, so the PPP estimates are comparable across rounds.

[2] The ICP provides PPP estimates for participating and non-participating countries, whereby the latter are estimated from a regression model. The imputed PPPs that are described here are for countries that we impute in addition.

to rural poverty lines in the ICP reference year, and the national PPPs are used to derive urban and rural PPPs for China, India, and Indonesia for the 2011 and 2017 rounds (see Table A.2 in Appendix A for details). To estimate poverty, the urban and rural areas of these countries are treated as separate "countries" with location-specific PPPs, CPIs, and consumption distributions.[3]

2.2. CPIs

This paper uses the CPI data used by the World Bank in its global poverty estimates, published in PovcalNet (see Lakner et al., 2018; Atamanov et al., 2020).[4] The main source of the CPI data is the International Monetary Fund's International Financial Statistics (IFS). For some countries, PovcalNet uses inflation rates calculated from survey data, since they were deemed more reliable than inflation based on standard sources of CPI data (further details in Lakner et al., 2018).

2.3. Household welfare

Lastly, this paper estimates poverty measures from more than a thousand consumption/income distributions in PovcalNet (March 2020 update) covering 166 economies, that represent around three-quarters of the world's population in 2015.[5] In this paper, we primarily use the reference-year estimates in PovcalNet to illustrate the impact of the new PPPs across countries in 2015 (see Table B.5 for the estimates in latest survey-year up to 2015).[6] For most countries, the distributions use microdata from nationally representative household surveys, while for a few countries (most notably China), the poverty estimates are based on grouped data of fractiles together with a parametric Lorenz curve. The welfare distributions in PovcalNet are denominated in the original 2011 PPP. These are converted into the revised 2011 PPPs and new 2017 PPPs, following Equation 1 in Ferreira et al. (2016). The conversion from 2011 PPPs to 2017 PPPs also requires the change in CPI from 2011 to 2017, whose source is described above.

3. Derivation of global poverty lines

This paper follows the two methodological approaches that the World Bank uses to estimate the poverty lines for its global poverty estimates. In both approaches, the global poverty lines are grounded in national poverty lines, developed by national authorities to capture country-specific notions of poverty. The first approach is based on the poverty lines of the poorest countries, while the second one is based on implicit national poverty lines for a broader set of countries.

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[3] In Indonesia, no rural-urban CPI series is available, so the national CPI series is used throughout.

[4] PovcalNet, available at http://iresearch.worldbank.org/PovcalNet/home.aspx, is the World Bank's data portal for the global poverty estimates.

[5] The March 2020 PovcalNet update includes poverty estimates for 2018 for some regions, but not the world. Since we are interested in comparing all regions, as well as the world, we do not include the estimates for 2018.

[6] PovcalNet reports estimates for reference-years, which are common across countries, and survey-years. Since many countries do not have household surveys every year, it is often necessary to extrapolate or interpolate the welfare aggregate(s) of the closest survey year(s) to a common reference year, in order for poverty to be estimated across all countries to the same point in time. These extrapolations and interpolations to the reference years require additional assumptions, namely that (a) growth in the household income or consumption can be approximated by growth in national accounts and (b) all parts of the distribution grow at the same rate.

3.1. Based on the poverty lines of the poorest countries

While the precise methods have evolved over time, the World Bank's line for measuring global extreme poverty has typically been based on a summary measure (i.e., mean, median, or mode) of the national poverty lines of some of the poorest countries in the world (e.g. see Table 4 in Ferreira et al., 2016 for a brief history). The IPL has been revised with each new round of PPPs. The current IPL is $1.90 (2011 PPP) per person per day, and the preceding IPL was $1.25 (2005 PPP) per person per day.

The $1.25 line is based on the unweighted mean of the national poverty lines of the 15 poorest countries determined in a sample of 74 countries from around the world (Ravallion, Chen and Sangraula, 2009 – RCS). RCS plot all national poverty lines in their sample, expressed in 2005 PPP per person per month, against log household final consumption expenditure (HFCE) per capita in 2005 PPP obtained from national accounts.[7] With parametric and non-parametric regressions, RCS identify a reference group of the 15 poorest countries with the lowest national poverty lines, whose mean poverty line is $37.98 per month, or $1.25 a day. Within this cluster of the poorest countries, RCS find no gradient between national poverty lines and log HFCE per capita; while beyond this cluster, there is a significant positive gradient. This finding supports both absolute and relative concepts of poverty measurement. For the former, there seems to be an absolute poverty line consistent with the standards of some of the poorest countries in the world. For the latter, the finding confirms the stylized fact that national poverty lines increase as countries grow richer.

The adoption of the 2011 ICP round also required a revision of the IPL. Ferreira et al. (2016) updated the IPL from $1.25 in 2005 PPP to $1.90 in 2011 PPP. In an effort to avoid "shifting the goalposts" for the SDG targets, Ferreira et al. (2016) used the same set of 15 poorest countries identified in RCS. Ferreira et al. (2016) used these national poverty lines (denominated in 2005 PPPs, as published by RCS) and converted them to 2011 PPPs, accounting for the changes in PPPs and domestic inflation between 2005 and 2011. Table 1, column 1 reproduces the poverty lines of the poorest 15 countries in Ferreira et al. (2016), whose unweighted mean is $1.88, rounded to $1.90 per person per day.

This paper repeats the exercise done by Ferreira et al. (2016) for the revised 2011 PPPs and 2017 PPPs.[8] With the revised 2011 PPPs, the unweighted mean of the poverty lines of these poorest 15 countries is $1.87 (see Table 1, column 2). This still rounds to $1.90, and we will keep the IPL at $1.90 per person per day when using the revised 2011 PPP. For the 2017 PPPs, we consider two

[7] Household final consumption expenditure (HFCE) has also been known as private consumption expenditure (PCE). The national poverty lines were collected from World Bank reports, such as Poverty Assessments and Poverty Reduction Strategy Papers, prepared in conjunction with national statistical offices. RCS prefer to use household final consumption expenditure (HFCE) from national accounts to monthly consumption expenditure from household surveys, in order to minimize measurement error.

[8] Since the focus of the paper is to isolate the impact of the PPP revisions, we leave all other aspects unchanged. For example, we take the poverty lines in 2011 PPP reported in Ferreira et al. (2016) as given. Similarly, Ferreira et al. (2016) had taken the 2005 PPP poverty lines reported in RCS as given.

options: First, the national poverty lines expressed in 2011 PPPs are updated with the 2017 PPPs and inflated to 2017 with domestic prices (see Table 1, column 3). The unweighted mean is $2.09. Second, the $1.90 line is updated with US inflation between 2011 and 2017 (approximately 9% cumulatively from 2011 to 2017), which results in a line of $2.07.[9] Both approaches produce an IPL of $2.1 per person per day (rounded to the nearest decimal point), which will be used for the 2017 PPPs below.

Table 1. Updating the international poverty line

Country	(1) Poverty line in original 2011 PPP	(2) Poverty line with revised 2011 PPP	(3) Poverty line with 2017 PPP
Chad	1.28	1.29	1.59
Ethiopia	2.03	1.98	2.43
Gambia, The	1.82	1.81	1.88
Ghana	3.07	3.11	2.33
Guinea-Bissau	2.16	2.08	2.45
Malawi	1.34	1.33	1.61
Mali	2.15	2.13	2.49
Mozambique	1.26	1.24	1.39
Nepal	1.47	1.47	1.95
Niger	1.49	1.48	1.47
Rwanda	1.50	1.47	1.79
Sierra Leone	2.73	2.64	3.73
Tajikistan	3.18	3.35	3.27
Tanzania	0.88	0.88	1.06
Uganda	1.77	1.77	1.96
Mean	1.88	1.87	2.09

Note: The table shows the fifteen countries used for deriving the $1.90 international poverty line using the original 2011 PPP (column 1, reproduced from Ferreira et al., 2016). Columns 2 and 3 update these poverty lines for the revised 2011 PPPs and 2017 PPPs, respectively.

3.2. Based on implicit national poverty lines

The World Bank's traditional approach of deriving the IPL, as described and updated above, has been criticized by some scholars. It is based on a limited set of poorest countries, whose national poverty lines are quite old. For example, the poverty line for Mali is obtained from a household survey conducted in 1988-89. With limited statistical capacity, the national poverty lines and the consumer price indices used in updating these lines are susceptible to measurement errors. It has been shown empirically that using the national poverty lines of a limited set of 15 countries to determine an IPL has weak statistical support (Deaton, 2010; Klasen et al., 2016). Additionally, different countries measure poverty differently, so that it is contestable to aggregate different

[9] This is similar to the approach by Dykstra, Kenny and Sandefur (2014) for updating the $1.25 (2005 PPP) line to 2011 PPP.

concepts of poverty into a single, unique absolute poverty line. For example, some countries measure poverty in per-capita terms while others use adult-equivalents. Seven out of these 15 poorest countries, express poverty in adult-equivalent terms.[10] The global welfare distribution to which the IPL is applied is in per-capita terms. Furthermore, RCS apply different methods to aggregate location-specific (e.g., rural/urban) poverty lines; they use consumption shares in most cases, population shares in one case, and no weights in some cases (Jolliffe and Prydz, 2016).

Jolliffe and Prydz (2016) address these concerns by expanding the sample size of national poverty lines beyond the poorest 15 countries and by using an approach that recovers "implicit poverty lines" from harmonized consumption or income distributions denominated in 2011 PPP per capita terms. For each country-year, Jolliffe and Prydz (2016) use the national poverty rate reported in WDI to recover the level of welfare (referred to as the "implicit poverty line") in the PovcalNet distribution that corresponds to such a poverty rate. While national poverty lines would have been set in local currency and may have been expressed in adult-equivalents, the PovcalNet distributions are all expressed in 2011 PPP per-capita terms.

Jolliffe and Prydz (2016) partition their sample of implicit poverty lines into (a) quartiles defined by household final consumption expenditure (HFCE) per capita, and (b) income groups based on the World Bank's income classification which uses gross national income (GNI) per capita (Atlas method). They estimate a poverty line of $1.91 (2011 PPP) as the median implicit poverty line of some 33 low-income countries with surveys relatively close to the 2011 ICP reference year. This supports the $1.90 line estimated using the World Bank's traditional approach based on the 15 poorest countries (see above). In addition to the IPL, the World Bank also reports poverty estimates at higher lines, namely $3.20 and $5.50 (in 2011 PPPs) per person per day, which may be more relevant for countries that have a low incidence of extreme poverty. These lines were chosen to correspond to the median of the implicit national poverty lines of lower- and upper-middle income countries, respectively (Jolliffe and Prydz, 2016).

Table 2 reproduces the estimates by Jolliffe and Prydz (2016) for the original 2011 PPPs and updates them for the revised 2011 PPPs. Using the original 2011 PPPs, we replicate their values and confirm the World Bank's lines for lower- and upper-middle income countries (Columns Median-original). Furthermore, when using the revised 2011 PPPs, we obtain a median of $1.85 for low income countries, which rounds to $1.90, thus supporting our analysis in Table 1. The median implicit poverty line for lower-middle income countries remains unchanged at $3.20 with the revised 2011 PPPs. However, for upper-middle income countries, the revised 2011 PPPs produce median a value that is approximately 20 cents higher at $5.70 (the changes in the means as a result of the revised 2011 PPPs are smaller). Our analysis of poverty trends with the revised 2011 PPP will also consider this line in addition to the lines currently used by the World Bank.

[10] These countries include Ethiopia, Gambia, Ghana, Rwanda, Sierra Leone, Tanzania, and Uganda. For the remaining countries, the poverty lines are expressed in per-capita terms.

Table 3 updates the implicit national poverty lines in Jolliffe and Prydz (2016), using 2017 PPPs and domestic inflation between 2011 and 2017.[11] The higher lines that correspond to the \$3.20 and \$5.50 poverty lines in 2011 PPPs are \$4.00 and \$6.30 in 2017 PPPs, respectively (see Table 3). These are the lines that result from updating the implicit national poverty lines for lower- and upper-middle income countries to the 2017 PPPs. These new higher lines in 2017 PPPs are used to compute global, regional, country-level poverty measures below.

Table 2. Implicit poverty lines – 2011 PPPs

	Median		Mean	
	Original	Revised	Original	Revised
a. By quartile				
Lowest 25% (29)	1.86	1.85	2.11	2.09
25-50% (29)	3.35	3.39	3.65	3.69
50-70% (29)	5.62	5.79	6.17	6.19
Highest 25% (28)	22.2	22.05	21.45	21.55
b. By income classification				
Low income (33)	1.91	1.85	2.23	2.22
Lower-middle income (32)	3.21	3.21	3.88	3.93
Upper-middle income (32)	5.47	5.65	5.62	5.64
High income (29)	21.7	21.7	21.19	21.31

Note: This table uses data from Jolliffe and Prydz (2016), replicates the authors' results with original 2011 PPPs, and updates their results with the revised 2011 PPPs. The dataset is partitioned into quartiles defined by HFCE per capita in panel (a) and the World Bank's income classifications in panel (b). Number of countries in parentheses.

Table 3. Implicit poverty lines – 2017 PPPs

	Median		Mean	
	2011 PPPs	2017 PPPs	2011 PPPs	2017 PPPs
a. By quartile				
Lowest (25%) (29)	1.86	2.15	2.11	2.46
25-50% (29)	3.35	4.30	3.65	4.24
50-70% (29)	5.62	6.28	6.17	6.72
Highest 25% (28)	22.2	23.7	21.45	23.59
b. By income classification				
Low income (33)	1.91	2.15	2.23	2.57
Lower-middle income (32)	3.21	4.00	3.88	4.52
Upper-middle income (32)	5.47	6.27	5.62	6.17
High income (29)	21.7	23.65	21.19	23.34

Note: See Table 2. This table uses data from Jolliffe and Prydz (2016) and updates their results with 2017 PPPs and domestic CPIs. No change in PPP or CPI is assumed for Venezuela, which has no PPP estimate for 2017.

[11] To isolate the impact of the new PPPs, we keep as many components as possible unchanged. In future work, we plan to update the Jolliffe and Prydz (2016) analysis for the 2017 PPPs by using implicit lines close to 2017 and updating the country income classification.

4. Results

4.1. Impact of revised 2011 PPPs on global poverty

This sub-section investigates the impact of revised 2011 PPPs on global poverty. Figure 1 shows regional and global poverty trends and levels, comparing original and revised 2011 PPPs. The regional and global trends in extreme poverty are not affected much by incorporating the revised 2011 PPPs. The revised 2011 PPPs increase the global poverty headcount slightly by raising poverty in Sub-Saharan Africa and South Asia, the two regions that account for most of global poverty.

Figure 1. Regional and global poverty trends with original and revised 2011 PPPs at $1.90 IPL

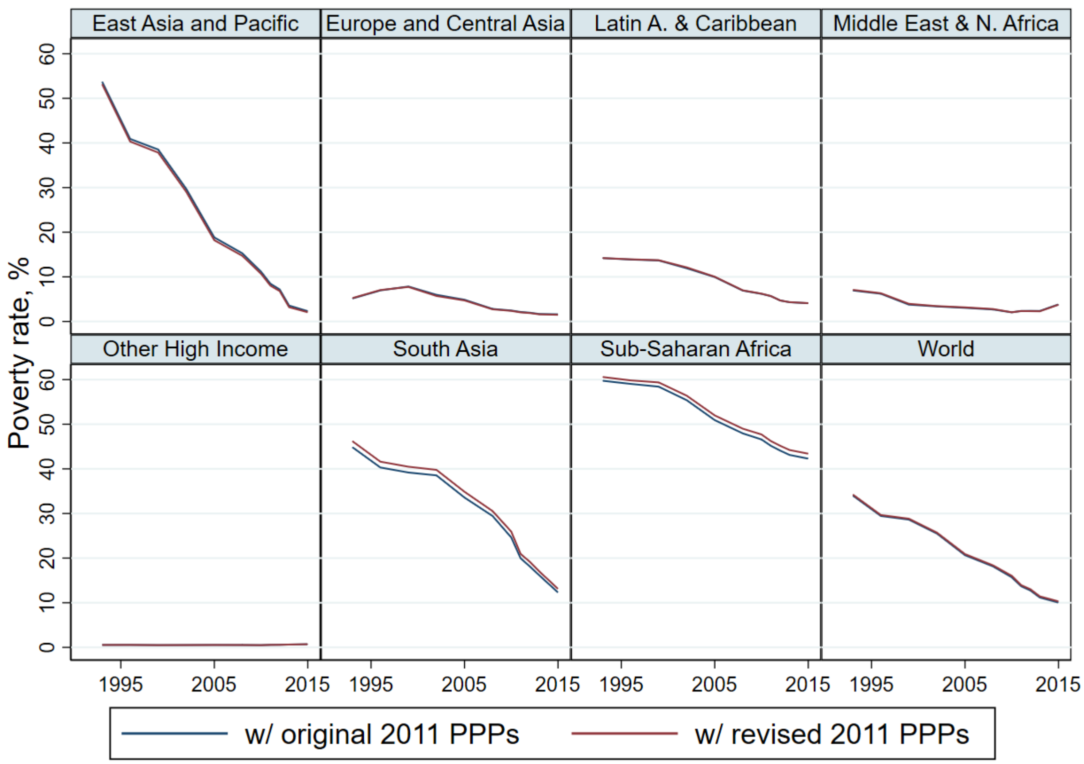


Table 4 takes a closer look at the changes in regional and global poverty for 2015. Extreme poverty is estimated at 10.04% in the world in 2015 with the original 2011 PPPs. The revised 2011 PPPs add 20 million more poor people in the world, bringing the global headcount ratio to 10.30%. While extreme poverty slightly decreases in East Asia and Pacific, Europe and Central Asia, and Middle East and North Africa, this is outweighed by increases in South Asia and Sub-Saharan Africa.[12] Although the change in millions of poor is larger in South Asia (14 million) than Sub-Saharan Africa (11 million), the change in the poverty rate is larger in Sub-Saharan Africa (1.11pp) than South Asia (0.81pp).

[12] PovcalNet does not currently display the regional headcount rate in 2015 for South Asia due to the lack of recent survey data. Here we show the headcount rate nonetheless in order to gauge the impact of the PPPs on the change in poverty in all regions.

Table 4. Regional and global poverty in 2015 at $1.90 IPL, 2011 PPP

Region	Poverty rate, % (original)	Poverty rate, % (revised)	Change poverty rate, pp	Change poverty rate, %	Change millions of poor
East Asia and Pacific	2.31	2.07	-0.24	-10.43	-4.90
Europe and Central Asia	1.61	1.50	-0.11	-6.67	-0.52
Latin America and the Caribbean	4.09	4.10	0.01	0.27	0.07
Middle East and North Africa	3.82	3.76	-0.06	-1.62	-0.23
Other High Income	0.71	0.70	0.00	-0.31	-0.02
South Asia	12.30	13.11	0.81	6.57	14.13
Sub-Saharan Africa	42.29	43.40	1.11	2.62	10.99
World	10.04	10.30	0.27	2.65	19.52

Note: This table compares regional and global extreme poverty with original 2011 PPPs to regional and global extreme poverty with revised 2011 PPPs, using a poverty line of $1.90 per person per day. Estimates shown refer to the 2015 reference-year.

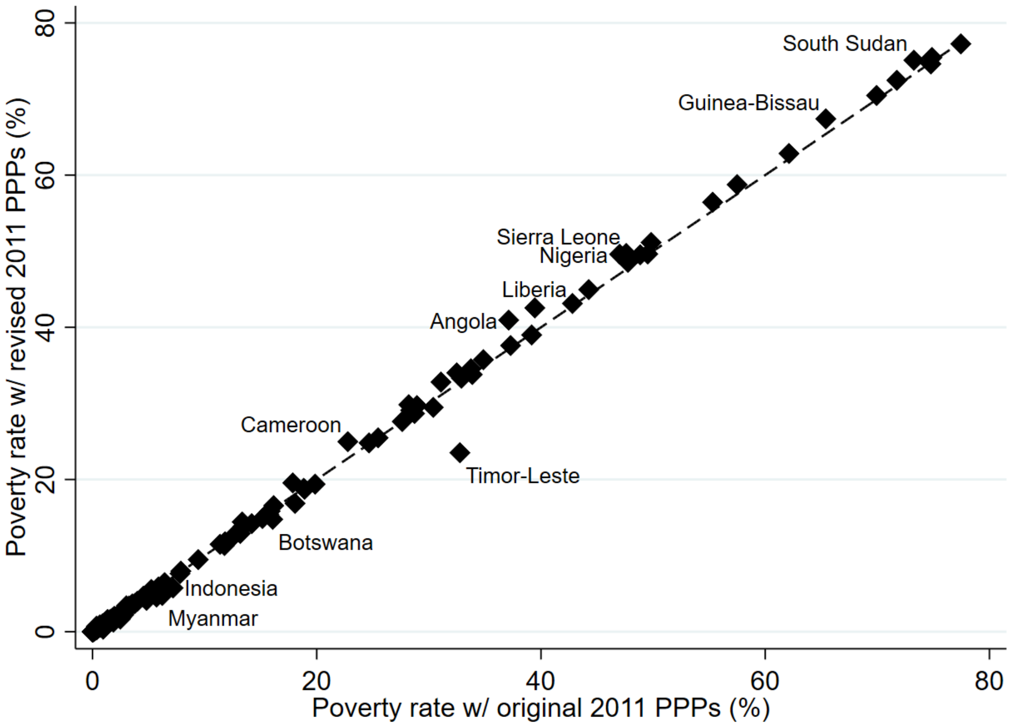
Most of the countries with the largest changes in their poverty rates are in Sub-Saharan Africa. Figure 2 highlights some of these countries, including South Sudan, Guinea-Bissau, Sierra Leone, Nigeria, Liberia, Angola and Cameroon. These countries have higher poverty rates with the revised 2011 PPPs. Timor-Leste stands out as the country with the largest observed reduction in the poverty rate (9.25pp) as a result of the revised 2011 PPPs (see Figure 2). Other countries, such as Botswana, Indonesia and Myanmar also have lower poverty rates with the revised 2011 PPPs.

Table 5 summarizes the countries with the largest changes in millions of poor. With the revised 2011 PPPs, poverty increases by 14.1 million people in India, by 4.7 million people in Nigeria, and falls by 3.6 million people in Indonesia.[13] India and Indonesia explain the changes observed for South Asia and East Asia, respectively (Table 4). India accounts for more than two-thirds of the increase in the global headcount. Nigeria accounts for nearly half of the change in Africa.

At the $3.20 global poverty line, the revised 2011 PPPs show a similar increase in poverty in 2015 (increase in the global headcount ratio by 0.27pp or 19.60 million more poor people) (Table B.1). Again, this is a result of higher poverty estimates in South Asia (increase by 1.25pp, 21.82 million more poor people) and Sub-Saharan Africa (0.86pp higher, 8.56 million more poor people). Poverty trends hardly change across regions and globally (Figure B.1). However, at the $3.20 line, several additional countries, especially in Europe and Central Asia (Armenia, Kyrgyz Republic, Romania, Tajikistan and Turkmenistan) see declines in their poverty rates with the revised 2011 PPPs (Figure B.2).

[13] The latest surveys for India and Nigeria were conducted in 2011 and 2009, respectively. Poverty estimates in 2015 have been extrapolated from these surveys. Indonesia has a survey conducted in 2015.

Figure 2. Country-level poverty rates in 2015 at $1.90 IPL, 2011 PPP



Note: The dashed line is a 45-degree line, which implies no change in the poverty rate as a result of the revision to the 2011 PPPs. Countries above (below) the line see an increase (decrease) in their poverty rate as a result of the revised PPPs. Countries with the largest changes are labelled. Estimates shown refer to the 2015 reference-year.

Table 5. Countries with largest changes in millions of poor in 2015 at $1.90 IPL, 2011 PPP

Country	Poverty rate, % (original)	Poverty rate, % (revised)	Change poverty rate, pp	Change poverty rate, %	Change millions of poor
India	13.35	14.42	1.07	8.04	14.07
Nigeria	47.01	49.61	2.59	5.51	4.69
Indonesia	7.18	5.79	-1.39	-19.39	-3.60
Ethiopia	31.08	32.81	1.73	5.56	1.74
Angola	37.12	40.94	3.83	10.31	1.07
Myanmar	6.22	4.77	-1.45	-23.35	-0.76
Congo, DR	71.74	72.46	0.72	1.01	0.55
Cameroon	22.77	24.97	2.20	9.65	0.51
Bangladesh	15.15	14.88	-0.27	-1.79	-0.42
Côte d'Ivoire	28.21	29.83	1.63	5.77	0.38

Note: This table lists the 10 countries with the largest absolute changes in millions of poor when revised 2011 PPPs are used instead of the original 2011 PPP. Percentage (point) changes are also shown in the table, but the sorting variable is the absolute change in millions of poor. Estimates shown refer to the 2015 reference-year.

With the \$5.50 line, global poverty in 2015 changes even less as a result of the revised 2011 PPPs (increase by 0.08pp or 6.02 million poor people) (Table B.3), and the regional and global trends are very similar, whether the \$5.50 or the \$5.70 line is used (Figure B.3). The fact that changes are smaller at the \$5.50 line than at the lower lines may appear counterintuitive but it is mostly because India has fewer people living on around \$5.50 per day than on around \$3.20 per day, and because the changes for India and Indonesia go in opposite directions. The number of people living on less than \$5.50 per day increases by 10.5 million in India but falls by 7.3 million in Indonesia. The countries with the largest changes in poverty rates at \$5.50 are Fiji, Armenia and Kyrgyz Republic (Figure B.4).

See Table B.5 for country-level poverty headcounts at the \$1.90 and \$3.20 poverty lines (original vs. revised 2011 PPPs) for 2015 or the most recent survey year before that.

4.2. Impact of revised 2017 PPPs on global poverty

We also compare the global, regional, and country-level poverty estimates with the original 2011 PPPs to the estimates using the 2017 PPPs. We set the IPL at \$2.10 per person per day for the 2017 PPPs.[14] Poverty has fallen over time with both sets of PPPs, but changes in poverty levels differ markedly by region (Figure 3). While the 2017 PPPs increase the poverty rate somewhat in East Asia and Pacific, and Europe and Central Asia, they decrease poverty substantially in Sub-Saharan Africa.

Table 6 compares regional and global poverty in 2015 with original 2011 and 2017 PPPs. The 2017 PPPs reduce the global poverty count by 45.87 million people, or 0.63pp, bringing the global poverty headcount ratio to 9.41%. Not surprisingly, most of the reduction stems from the two poorest regions of the world, particularly Sub-Saharan Africa and to a lesser extent South Asia. Sub-Saharan Africa sees a reduction of 4.85pp (11.47%) in its poverty rate (equivalent to 48.14 million fewer people), while South Asia sees a reduction of only 0.28pp (2.24%) (equivalent to 4.83 million fewer people).

Countries in Sub-Saharan Africa still have the highest poverty rates, but most of them are less poor with the 2017 PPPs. Figure 4 highlights some of these countries, including the Central African Republic, the Democratic Republic of the Congo, Rwanda, Tanzania, Nigeria and Sierra Leone. Overall, there are more countries below the 45-degree line, indicating that in most countries poverty rates are lower with the 2017 PPPs.

[14] This is the value suggested by the analysis of the poverty lines in the 15 poorest countries above, which is how the \$1.90 IPL for the 2011 PPPs was originally derived. Using the median of the implicit poverty lines for low income countries also resulted in \$1.90 for 2011. For the 2017 PPPs, however, this median is slightly higher (\$2.15, rounding to \$2.2, see Table 3). In the analysis, we focus on the \$2.10 value, since it follows the same method as what was used to define the \$1.90 IPL.

Figure 3. Regional and global poverty trends at $1.90 2011 PPP vs. $2.10 2017 PPP

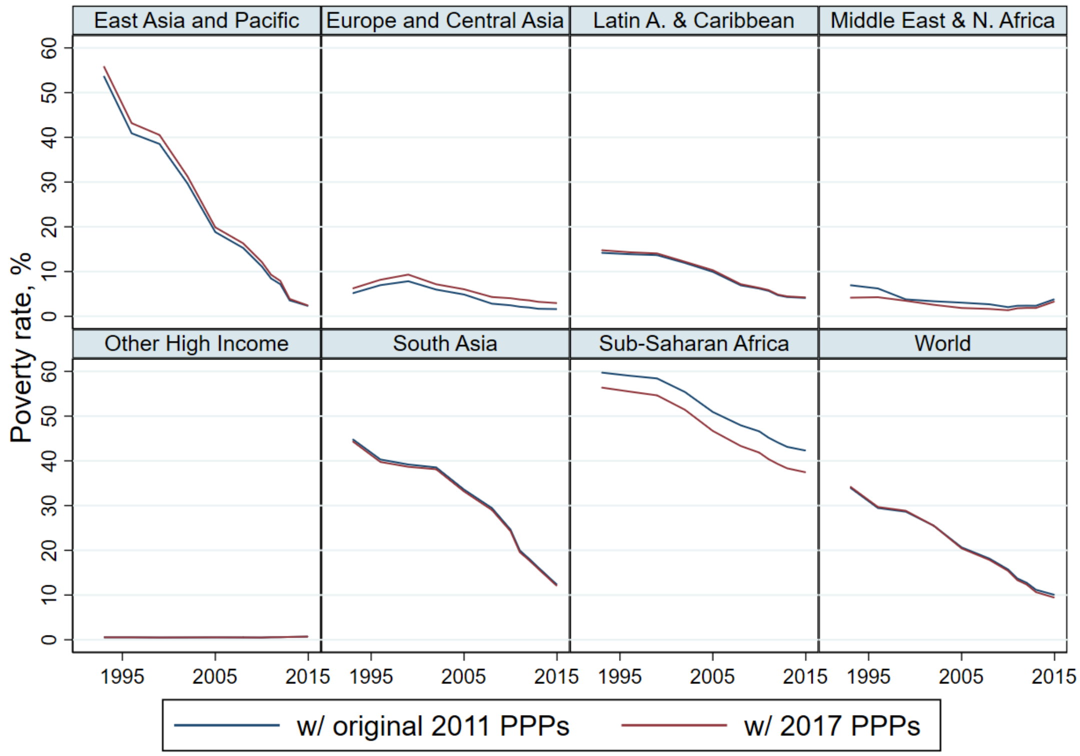
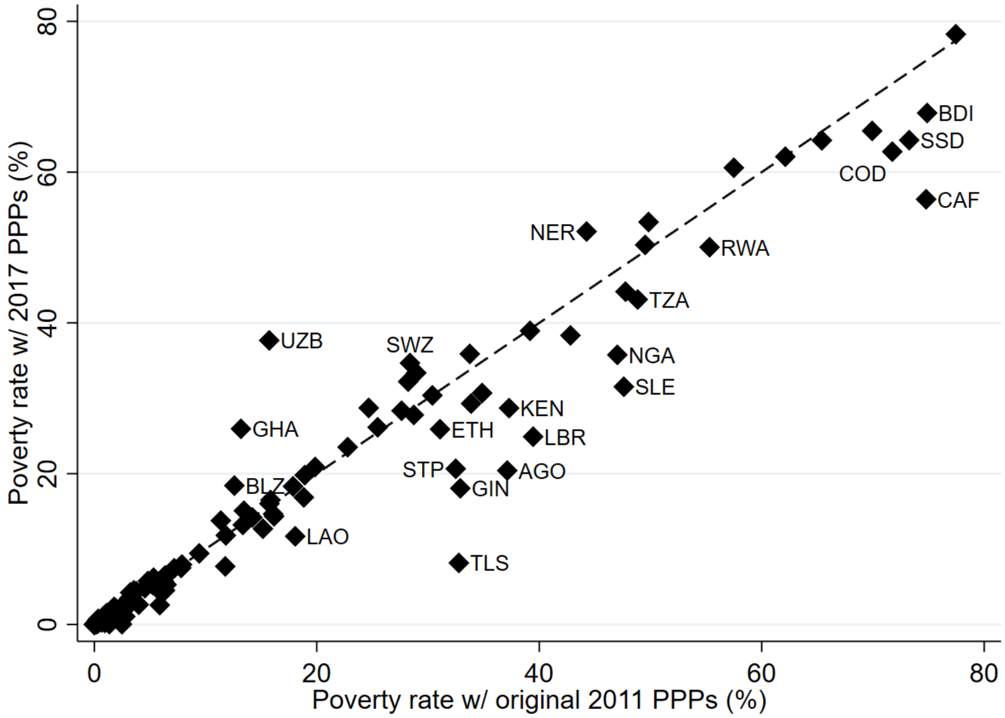


Table 6. Regional and global poverty in 2015 – $1.90 2011 PPP vs. $2.10 2017 PPP

Region	Poverty rate, % (2011 PPP)	Poverty rate, % (2017 PPP)	Change poverty rate, pp	Change poverty rate, %	Change millions of poor
East Asia and Pacific	2.31	2.39	0.08	3.52	1.66
Europe and Central Asia	1.61	2.95	1.35	83.87	6.56
Latin America and the Caribbean	4.09	4.21	0.11	2.76	0.69
Middle East and North Africa	3.82	3.32	-0.50	-13.15	-1.85
Other High Income	0.71	0.71	0.00	0.58	0.04
South Asia	12.30	12.03	-0.28	-2.24	-4.83
Sub-Saharan Africa	42.29	37.44	-4.85	-11.47	-48.14
World	10.04	9.41	-0.63	-6.23	-45.87

Note: This table compares regional and global extreme poverty with original 2011 PPPs ($1.90 poverty line) to regional and global extreme poverty with 2017 PPPs ($2.10 poverty line). Estimates shown refer to the 2015 reference-year.

Figure 4. Country-level poverty rate in 2015 at $1.90 2011 PPP vs. $2.10 2017 PPP



Note: Dashed line is a 45-degree line, which implies no change in the poverty rate as a result of the revision to the 2017 PPPs. Countries above (below) the line see an increase (decrease) in their poverty rate as a result of the 2017 PPPs. Countries with the largest changes are labelled. Estimates shown refer to the 2015 reference-year.

Populous countries in Sub-Saharan Africa, such as Nigeria, the Democratic Republic of the Congo and Ethiopia, also have some of the largest changes in the number of poor people (Table 7). In contrast to most of the general trend, Uzbekistan, Ghana and China have increases in poverty with the 2017 PPPs.[15]

By the poverty standards of lower-middle income countries (i.e., $3.20 2011 PPP and $4.00 2017 PPP), the 2017 PPPs increase global poverty quite substantially.[16] The poverty rate in 2015 increases by almost 4pp, equivalent to an additional 290.1 million more poor people (Table C.1). These changes are mostly explained by increasing poverty in East Asia and Pacific and South Asia, while Sub-Saharan Africa remains almost unchanged. Despite these changes in levels, the regional trends remain fairly similar (Figure C.1). While a majority of countries see a decline in their

[15] This is the first time the ICP provides a PPP estimate for Uzbekistan based on actual prices (and price data collection was based on an experimental approach). The ICP predicted the original 2011 PPP "out of sample" (i.e., the imputation-based approach the ICP uses to estimate PPPs for non-benchmark countries). The 2017 PPP estimate is deemed more credible, but potentially not comparable to estimates from previous rounds. This might explain why Uzbekistan has large changes in its poverty rate in the results presented for the 2017 PPPs.

[16] As described above, we use the implicit poverty lines provided by the Jolliffe and Prydz (2016), which were centered around the 2011 ICP reference year. We plan to update the implicit poverty lines for the 2017 PPPs by using lines close to 2017 and updating the country income classification. This may change the estimated value for the higher poverty line and thus could result in a differential impact of the 2017 PPPs on global poverty at these lines.

poverty rate using the international poverty line, most countries now see an increase as a result of the 2017 PPPs (Figure C.2). Countries on the African continent (e.g., Egypt and Nigeria) record the largest reductions in millions of poor (Table C.2). India, China, Pakistan, and Indonesia—some of the most populous countries in the world—are the countries with the largest increases in millions of poor, driving the increase in the total number of poor at this line.

Table 7. Countries with largest changes in millions of poor in 2015, 2011 PPP vs. 2017 PPP

Country	Poverty rate, % (2011 PPP)	Poverty rate, % (2017 PPP)	Change poverty rate, pp	Change poverty rate, %	Change millions of poor
Nigeria	47.01	35.77	-11.25	-23.92	-20.37
Congo, DR	71.74	62.71	-9.02	-12.58	-6.88
Uzbekistan	15.72	37.68	21.96	139.71	6.87
Ethiopia	31.08	25.90	-5.18	-16.66	-5.22
Angola	37.12	20.41	-16.71	-45.01	-4.66
Kenya	37.29	28.71	-8.58	-23.01	-4.11
Bangladesh	15.15	12.71	-2.45	-16.14	-3.82
Ghana	13.18	25.95	12.77	96.89	3.56
China	0.73	0.95	0.22	30.52	3.04
Tanzania	48.85	43.10	-5.75	-11.77	-2.96

Note: This table lists the 10 countries with the largest absolute changes in millions of poor when 2017 PPPs are used (with $2.10 poverty line) instead of original 2011 PPP (with $1.90 poverty line). Percentage (point) changes are also shown in the table, but the sorting variable is the absolute change in millions of poor. Estimates shown refer to the 2015 reference-year.

Using the lines that are typical of the poverty standards of upper-middle income countries—i.e., $5.50 2011 PPP versus $6.30 2017 PPP—the 2017 PPPs lead to increases in poverty in East Asia and Pacific, Europe and Central Asia, Latin America and the Caribbean, but lead to a reduction in poverty in Middle East and North Africa and Sub-Saharan Africa (Figure C.3). Globally, the 2017 PPPs lead to a slight increase in poverty (0.74 pp higher, 54 million more poor people), which is more similar in magnitude to the changes observed at the international poverty line (Table C.3). Countries are split relatively evenly into rising and falling poverty rates (Figure C.4). Some of the countries with the largest reductions in their poverty rate are Iraq, Egypt, Fiji, Jordan, and Egypt. Some of the countries with the largest increases in their poverty rates are Ghana, Belize, Uzbekistan, Kosovo and Tajikistan. The estimated millions of poor increases in China and India and decreases in Egypt and Iraq (Table C.4).

5. Conclusion

This paper analyses the new revised 2011 and 2017 PPPs that were recently published (May 2020). We re-assess the World Bank's global, regional, and country-level poverty estimates in light of these new PPPs. The revised 2011 PPPs suggest that the number of poor is currently underestimated by 20 million people, while the 2017 PPPs suggest that global poverty headcount is currently overestimated by 46 million people.

These differences are small when compared with differences observed with the adoption of PPPs from previous ICP rounds, particularly the 2005 round, which suggested that 400 million more people were poor than previously thought. The large differences in global poverty estimates that came with previous rounds can be partly explained by changes in ICP methodologies across rounds (Deaton and Heston, 2010; Ravallion, 2014; Deaton and Aten, 2017; Inklaar and Rao, 2017). Hence, the relatively small changes observed in this paper may suggest that the ICP methodology has stabilized, which is a question that we hope to discuss in a more extensive follow-up paper. We also plan to take a closer look at some of the regional differences in the effects of the PPP revisions.

In this paper, we followed the World Bank's existing methods as closely as possible to isolate the impacts of the revised 2011 PPPs and 2017 PPPs on global, regional, and country-level poverty estimates. The follow-up paper will consider additional robustness checks on the World Bank's methods, in particular for imputing PPPs and for updating the global poverty lines.

References

Atamanov, Aziz, R. Andres Castaneda Aguilar, Tony Fujs, Reno Dewina, Carolina Diaz-Bonilla, Daniel Gerszon Mahler, Dean Jolliffe, Christoph Lakner, Mikhail Matytsin, Jose Montes, Laura L. Moreno Herrera, Rose Mungai, David Newhouse, Minh C. Nguyen, Francisco J. Urquiza, Ani Rudra Silwal, Diana M. Sanchez Castro, Marta Schoch, David L. Vargas Mogollon, Martha C. Viveros Mendoza, Judy Yang, Nobuo Yoshida and Haoyu Wu. 2020. "March 2020 PovcalNet Update: What's New." *Global Poverty Monitoring Technical Note* 11 (March).

Atamanov, Aziz, Dean Jolliffe, Christoph Lakner, and Espen Beer Prydz. 2018. "Purchasing Power Parities Used in Global Poverty Measurement." *Global Poverty Monitoring Technical Note, 5*(September).

Chen, Shaohua, and Martin Ravallion. 2008. "China Is Poorer than We Thought, But No Less Successful in the Fight against Poverty." 4621. *Policy Research Working Paper*. Policy Research Working Paper.

———. 2010. "The Developing World Is Poorer than We Thought, but No Less Successful in the Fight against Poverty." *The Quarterly Journal of Economics*, no. November: 1577–1625.

Deaton, Angus. 2010. "Price Indexes, Inequality, and the Measurement of World Poverty." *American Economic*, 5–34. https://doi.org/10.1257/aer.100.1.5.

Deaton, Angus, and Bettina Aten. 2014. "New Price Adjustments Reshape the World, yet Again." VOX CEPR Policy Portal. 2014. https://voxeu.org/article/new-price-adjustments-reshape-world-yet-again.

———. 2017. "Trying to Understand the PPPs in ICP 2011: Why Are the Results so Different." *American Economic Journal: Macroeconomics* 9 (1): 243–64. https://doi.org/10.1257/mac.20150153.

Deaton, Angus, and Alan Heston. 2010. "Understanding PPPs and PPP-Based National Accounts." *American Economic Journal: Macroeconomics* 2 (4): 1–35.

Dykstra, Sarah, Charles Kenny, and Justin Sandefur. 2014. "Global Absolute Poverty Fell by Almost Half on Tuesday." Center for Global Development. https://www.cgdev.org/blog/global-absolute-poverty-fell-almost-half-tuesday.

Ferreira, Francisco H.G., Shaohua Chen, Andrew Dabalen, Yuri Dikhanov, Nada Hamadeh, Dean Jolliffe, Ambar Narayan, Espen Beer Prydz, Ana Revenga, Prem Sangraula, Umar Serajuddin, and Nobuo Yoshida. 2016. "A Global Count of the Extreme Poor in 2012: Data Issues, Methodology and Initial Results." *Journal of Economic Inequality* 14 (2): 141–72. https://doi.org/10.1007/s10888-016-9326-6.

Inklaar, Robert, and D S Prasada Rao. 2017. "Cross-Country Income Levels over Time: Did the Developing World Suddenly Become Much Richer?" *American Economic Journal: Macroeconomics* 9 (1): 265–90.

Jolliffe, Dean, and Espen Beer Prydz. 2015. "Global Poverty Goals and Prices How Purchasing Power Parity Matters." 7256. Policy Research Working Paper. Washington, DC.

———. 2016. "Estimating International Poverty Lines from Comparable National Thresholds." *Journal of Economic Inequality* 14 (2): 185–98. https://doi.org/10.1007/s10888-016-9327-5.

Klasen, Stephan, Tatyana Krivobokova, Friederike Greb, Rahul Lahoti, Syamsul Hidayat, and Pasaribu Manuel. 2016. "International Income Poverty Measurement: Which Way Now?" *The Journal of Economic Inequality*, 199–225. https://doi.org/10.1007/s10888-016-9324-8.

Lakner, Christoph, Daniel Gerszon Mahler, Minh C Nguyen, Joao Pedro Azevedo, Shaohua Chen, and Dean Jolliffe. 2018. "Consumer Price Indices Used in Global Poverty Measurement." *Global Poverty Monitoring Technical Note* 8 (September).

Lakner, Christoph, and Branko Milanovic. 2016. "Global Income Distribution: From the Fall of the Berlin Wall to the Great Recession." *The World Bank Economic Review* 30 (2): 203–32. https://doi.org/10.1093/wber/lhv039.

Milanovic, Branko. 2012. "Global Inequality Recalculated and Updated: The Effect of New PPP Estimates on Global Inequality and 2005 Estimates." *Journal of Economic Inequality* 10 (1): 1–18. https://doi.org/10.1007/s10888-010-9155-y.

Ravallion, Martin. 2014. "An Exploration of the International Comparison Program's New Global Economic Landscape." *National Bureau of Economic Research*. https://doi.org/10.3386/w20338.

Ravallion, Martin, Shaohua Chen, and Prem Sangraula. 2009. "Dollar a Day Revisited." *World Bank Economic Review* 23 (2): 163–84. https://doi.org/10.1093/wber/lhp007.

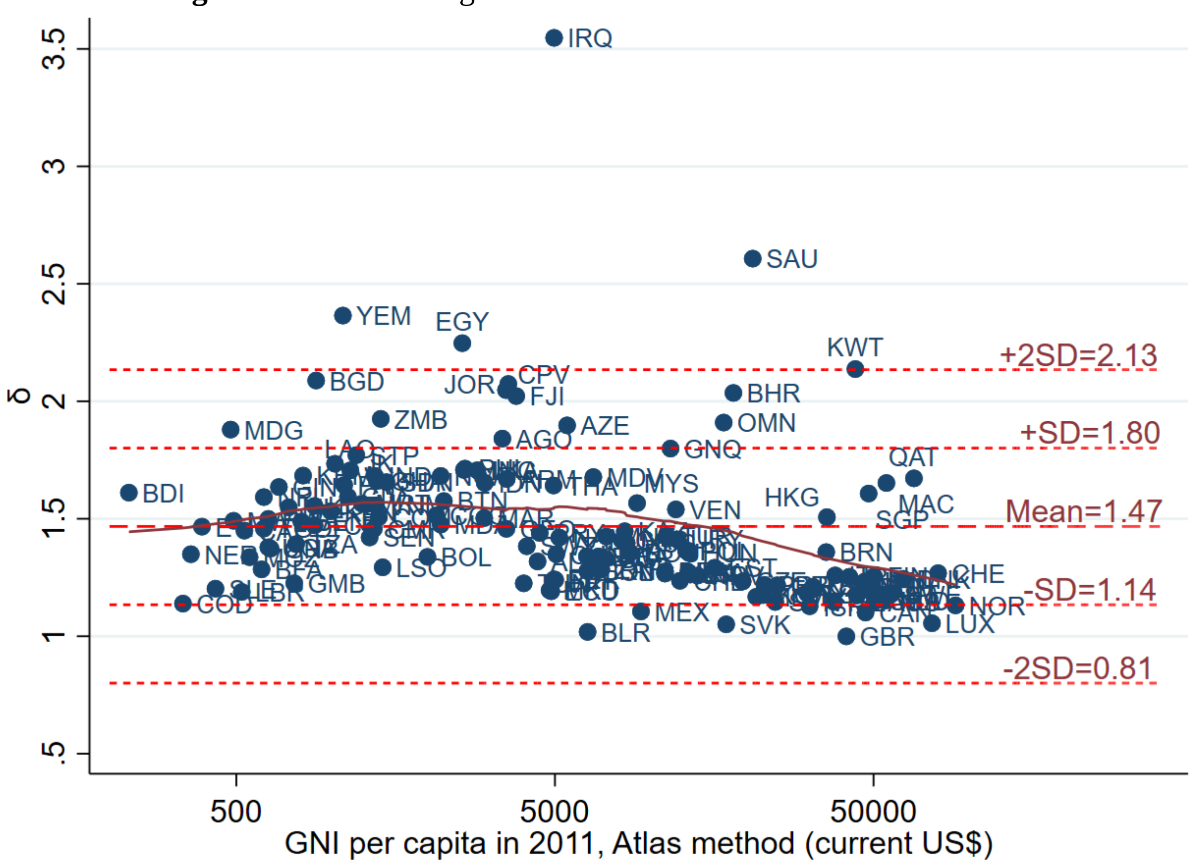
World Bank. 2017. *Monitoring Global Poverty: Report of the Commission on Global Poverty*. Washington, DC: World Bank Publications.

Appendix

A. Comparison of CPIs and PPPs, imputed and urban/rural PPPs

Figure A.1 updates Figure 1 in Ferreira et al. (2016) with the revised 2011 PPPs (displaying only benchmark countries, like Ferreira et al. (2016)). The inflation rate in the United States between 2005 and 2011 is 1.15. δ's greater than 1.15 imply that, in real terms, the purchasing power of the local currency gained value relative to the purchasing power of a dollar. The converse holds for all countries with δ's less than 1.15. Values far from the average imply that prices as measured by the CPI and the PPP evolved differently between 2005 and 2011, likely signaling an issue with the CPI series or with one of the PPP estimates. Ferreira et al. (2016) investigated outlier countries as identified by two standard deviations from the mean on a case-by-case basis. Atamanov et al. (2018) take a closer look at the outlier countries and identify Egypt, Iraq, Jordan, Lao, Myanmar and Yemen as countries for which not to use official ICP 2011 PPP exchange rates, but rather to impute them. This paper continues that practice and imputes PPPs for these countries for the measurement of global poverty. Table A.1 shows the raw and imputed values for both original and revised 2011 PPPs, based on Atamanov et al. (2018).

Figure A.1. Price changes between 2005 PPP and revised 2011 PPP



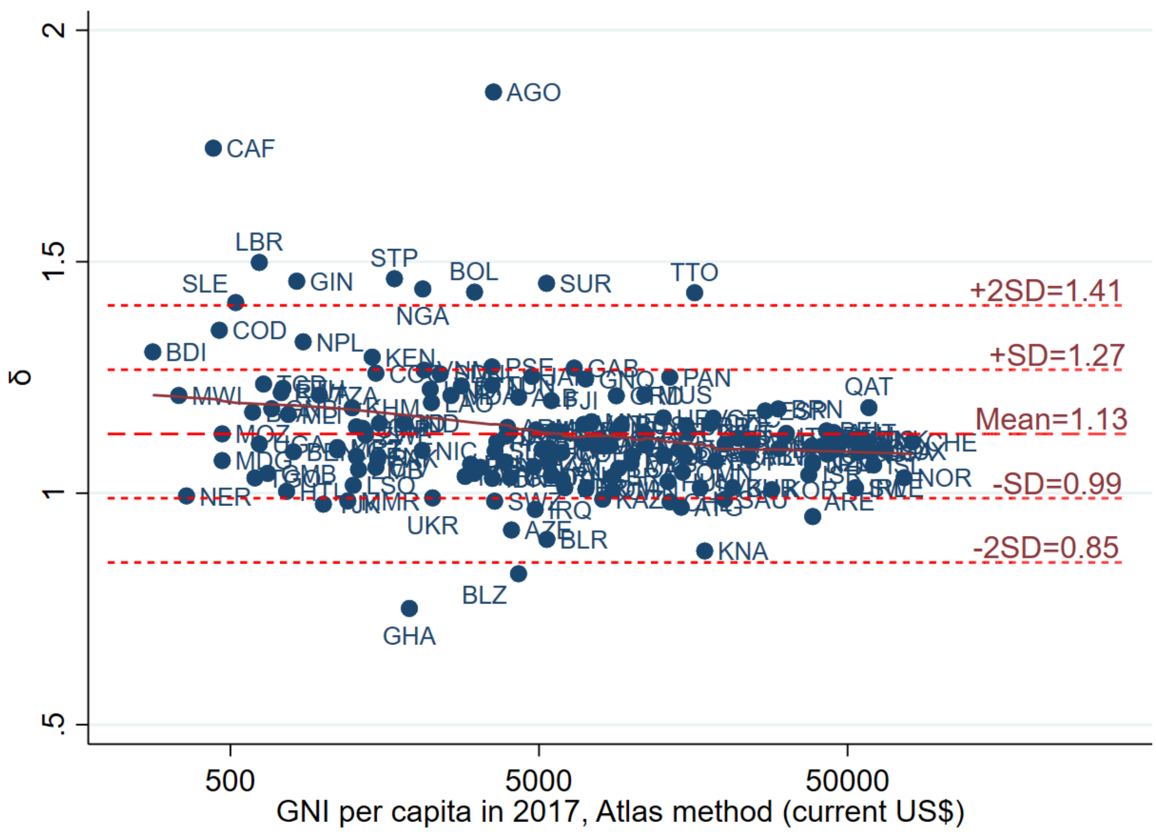
Note: δ = (cpi2011/cpi2005)/(ppp2011revised/ppp2005), where cpi2011 is the domestic CPI in 2011, cpi2005 is the domestic CPI in 2005, ppp2011revised is the revised 2011 PPP, and ppp2005 is original 2005 PPP. The horizontal axis is on a log scale.

Table A.1. Raw and imputed PPPs, 2011 PPPs

Country	2011 PPP (original)		2011 PPP (revised)		
	(1)	(2)	(3)	(4)	(5)
	Raw	Imputed	Raw	Imputed (old input data)	Imputed (new input data)
Egypt	1.80	2.78	1.71	2.74	2.87
Iraq	573.42	1003.80	477.56	993.81	939.22
Jordan	0.32	0.45	0.33	0.44	0.44
Lao	2914.85	3325.20	3124.08	3273.48	3248.44
Myanmar	275.83	320.60	278.39	310.73	296.14
Yemen	82.09	111.30	76.77	109.18	109.53

Note: This table updates the 2011 PPPs for the countries for which the World Bank uses imputed PPPs in its global poverty measures (Atamanov et al., 2018). Columns 1 and 3 report the raw PPPs for household final consumption expenditure obtained from the ICP. Column 2 shows the imputed 2011 PPPs that are currently used (from Atamanov et al., 2018). Column 4 shows imputed 2011 PPPs using revised 2011 PPPs but otherwise the same input data as in Column 2. Column 5 shows imputed 2011 PPPs using both revised 2011 PPPs and new input data.

Figure A.2. Price changes between revised 2011 PPP and 2017 PPP



Note: δ = (cpi2017/cpi2011)/(ppp2017/ppp2011revised), where cpi2017 is the domestic CPI in 2017, cpi2011 is the domestic CPI in 2011, ppp2017 is the 2017 PPP, and ppp2011revised is the revised 2011 PPP. The horizontal axis is on a log scale.

Table A.2. Rural and urban PPPs

Country	Original 2011 PPP	Revised 2011 PPP	2017 PPP
a. China			
Ratio of urban to rural poverty line	1.29	1.29	1.11
ICP urban shares	0.76	0.76	0.79
Rural PPP	3.038	3.039	3.820
Urban PPP	3.904	3.905	4.233
National PPP	3.696	3.698	4.147
b. India			
Ratio of urban to rural poverty line	1.22	1.22	1.22
ICP urban shares	0.74	0.74	0.64
Rural PPP	12.908	13.173	17.092
Urban PPP	15.695	16.018	16.018
National PPP	14.975	15.283	19.469
c. Indonesia			
Ratio of urban to rural poverty line	1.18	1.18	1.07
ICP urban shares	0.61	0.61	0.98
Rural PPP	3678.414	3498.876	4746.852
Urban PPP	4352.751	4140.299	5098.196
National PPP	4091.939	3892.218	5089.686

Note: National PPPs are from the ICP. Further details in the text.

B. Additional results for the revised 2011 PPPs

Figure B.1. Regional and global poverty trends with original and revised 2011 PPPs at $3.20 line

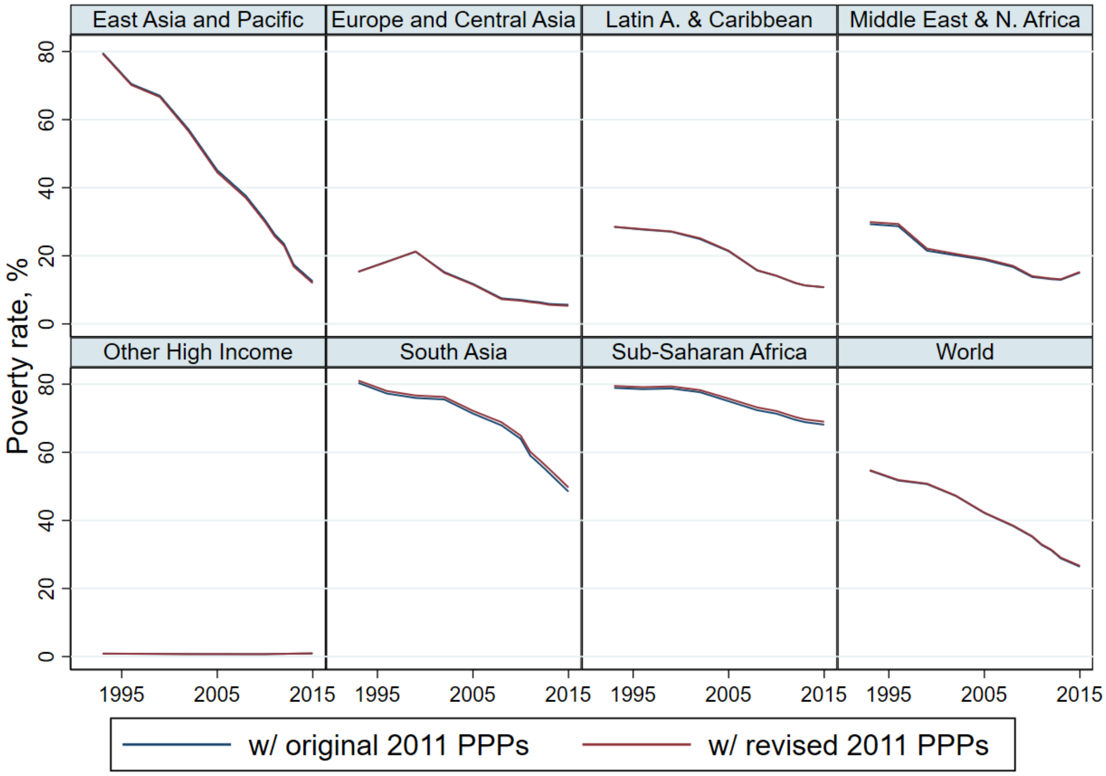
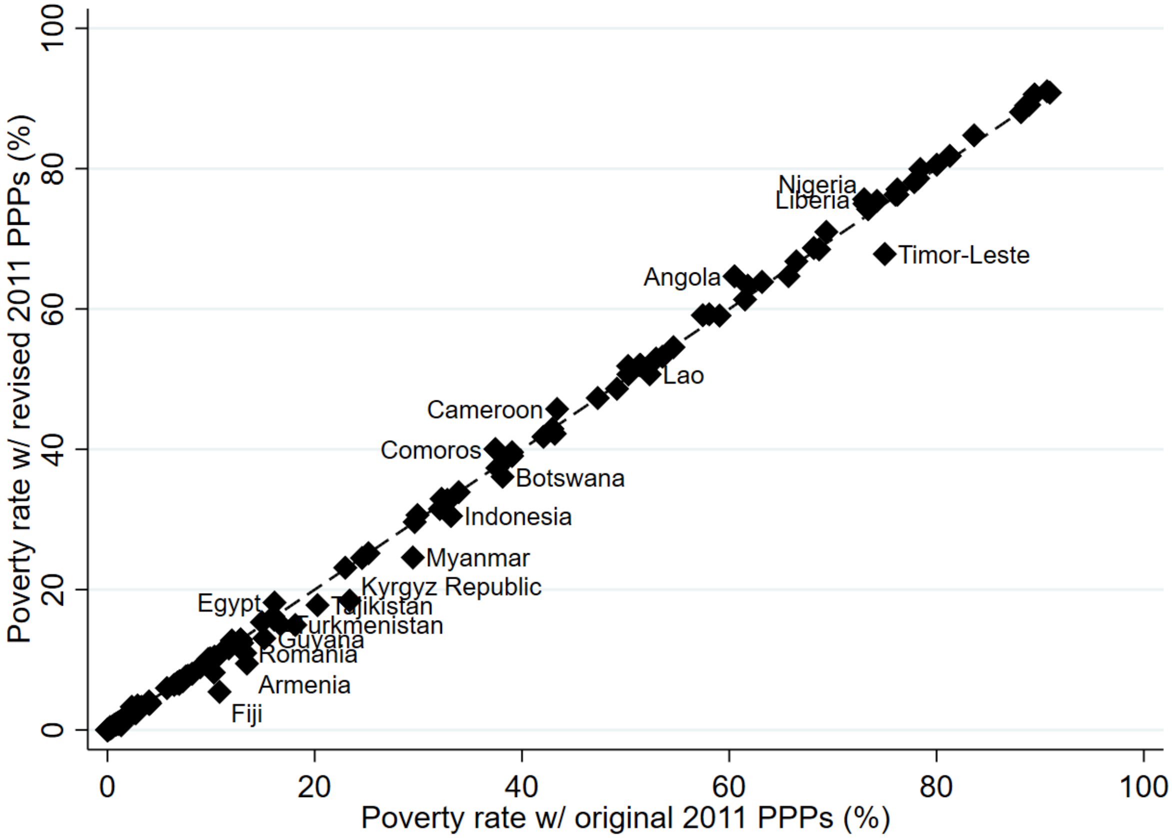


Table B.1. Regional and global poverty in 2015 at $3.20 poverty line, 2011 PPP

Region	Poverty rate, % (original)	Poverty rate, % (revised)	Change poverty rate, pp	Change poverty rate, %	Change millions of poor
East Asia and Pacific	12.46	11.95	-0.51	-4.12	-10.45
Europe and Central Asia	5.63	5.32	-0.30	-5.41	-1.48
Latin America and the Caribbean	10.74	10.80	0.06	0.54	0.36
Middle East and North Africa	15.07	15.27	0.21	1.36	0.76
Other High Income	0.95	0.95	0.00	0.07	0.01
South Asia	48.42	49.67	1.25	2.58	21.82
Sub-Saharan Africa	68.12	68.98	0.86	1.27	8.56
World	26.39	26.66	0.27	1.01	19.60

Note: See Table 4 in the main text.

Figure B.2. Country-level poverty rates in 2015 at $3.20 poverty line, 2011 PPP



Note: See Figure 2 in the main text.

Table B.2. Countries with largest changes in millions of poor in 2015, at $3.20 line, 2011 PPP

Country	Poverty rate, % (original)	Poverty rate, % (revised)	Change poverty rate, pp	Change poverty rate, %	Change millions of poor
India	50.24	51.87	1.63	3.24	21.32
Indonesia	33.15	30.49	-2.66	-8.01	-6.86
Nigeria	73.04	75.00	1.96	2.68	3.55
Myanmar	29.47	24.59	-4.88	-16.54	-2.57
Egypt	16.12	18.16	2.04	12.66	1.89
Ethiopia	69.36	70.98	1.62	2.34	1.64
Angola	60.50	64.66	4.16	6.88	1.16
Iraq	18.12	14.96	-3.16	-17.42	-1.12
Bangladesh	53.55	53.20	-0.35	-0.66	-0.55
Cameroon	43.39	45.74	2.36	5.43	0.55

Note: See Table 5 in the main text.

Figure B.3. Regional and global poverty trends with original and revised 2011 PPPs at $5.50 line

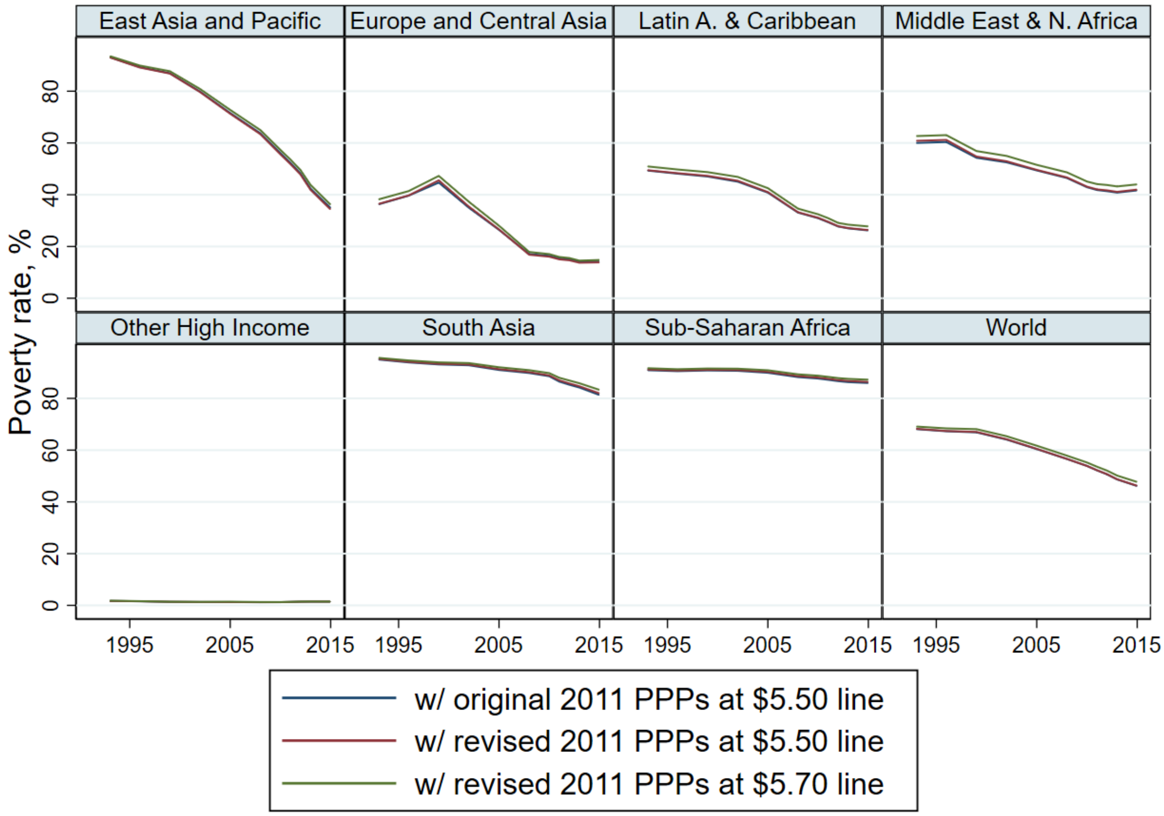
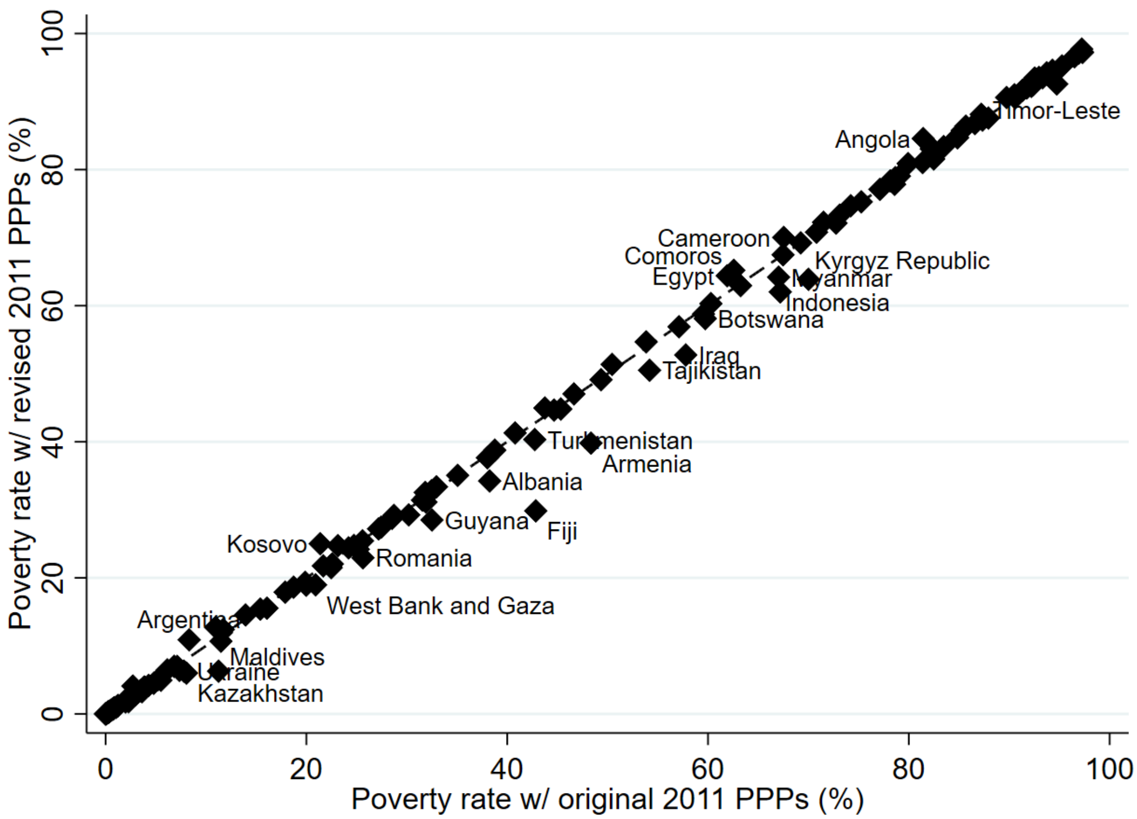


Table B.3. Regional and global poverty in 2015 at $5.50 poverty line, 2011 PPP

Region	Poverty rate, % (original)	Poverty rate, % (revised)	Change poverty rate, pp	Change poverty rate, %	Change millions of poor
East Asia and Pacific	34.86	34.30	-0.56	-1.61	-11.42
Europe and Central Asia	14.20	13.87	-0.33	-2.34	-1.62
Latin America and the Caribbean	26.20	26.34	0.14	0.54	0.87
Middle East and North Africa	41.68	42.00	0.31	0.75	1.15
Other High Income	1.46	1.47	0.00	0.14	0.02
South Asia	81.31	81.94	0.63	0.78	11.06
Sub-Saharan Africa	85.96	86.38	0.41	0.48	4.11
World	46.15	46.23	0.08	0.18	6.02

Note: See Table 4 in the main text.

Figure B.4. Country-level poverty rates in 2015 at $5.50 poverty line, 2011 PPP



Note: See Figure 2 in the main text.

Table B.4. Countries with largest changes in millions of poor in 2015 at $5.50 line, 2011 PPP

Country	Poverty rate, % (original)	Poverty rate, % (revised)	Change poverty rate, pp	Change poverty rate, %	Change millions of poor
India	82.24	83.04	0.80	0.98	10.53
Indonesia	67.03	64.19	-2.84	-4.24	-7.34
Myanmar	67.19	62.02	-5.17	-7.70	-2.72
Egypt	61.90	64.40	2.50	4.04	2.31
Russian Federation	2.71	4.10	1.39	51.36	2.01
Iraq	57.78	52.75	-5.03	-8.70	-1.79
Nigeria	89.74	90.60	0.86	0.96	1.56
Iran	10.95	12.73	1.78	16.27	1.40
Argentina	8.32	10.89	2.58	30.97	1.02
Angola	81.43	84.55	3.13	3.84	0.87

Note: See Table 5 in the main text.

Table B.5. Economy-level poverty rates in 2015 (or most recent), 2011 PPP

Economy	Year	$1.90 IPL Poverty rate, % (original)	$1.90 IPL Poverty rate, % (revised)	$3.20 poverty line Poverty rate, % (original)	$3.20 poverty line Poverty rate, % (revised)
Albania	2015	1.30	1.13	10.26	8.18
Algeria	2011	0.46	0.45	3.89	3.75
Angola	2008	30.08	34.45	55.68	60.60
Argentina	2014	0.65	0.87	2.65	3.54
Armenia	2015	1.86	1.26	13.46	9.46
Australia	2014	0.50	0.50	0.74	0.74
Austria	2015	0.68	0.68	0.73	0.73
Azerbaijan	2005	0.00	0.00	0.04	0.04
Bangladesh	2010	19.63	19.40	60.38	60.20
Belarus	2015	0.00	0.00	0.00	0.00
Belgium	2015	0.07	0.07	0.20	0.20
Belize	1999	13.92	13.92	28.13	27.70
Benin	2015	49.52	49.64	76.22	76.27
Bhutan	2012	2.17	2.18	14.52	14.74
Bolivia	2015	6.35	6.30	11.71	11.62
Bosnia and Herzegovina	2011	0.06	0.06	0.80	0.72
Botswana	2015	16.06	14.49	38.52	36.48
Brazil	2015	3.18	3.15	7.77	7.72
Bulgaria	2015	3.02	3.39	5.74	5.97
Burkina Faso	2014	43.71	43.84	76.44	76.69
Burundi	2013	71.79	72.80	89.26	89.64
Cabo Verde	2015	3.23	3.35	14.91	15.35
Cameroon	2014	23.81	25.97	44.72	46.96
Canada	2013	0.50	0.50	0.50	0.50
Central African Republic	2008	66.26	65.87	83.08	82.88
Chad	2011	38.43	38.08	66.53	66.30
Chile	2015	0.30	0.30	1.06	1.03
China	2015	0.73	0.73	6.96	6.97
Colombia	2015	4.54	4.67	11.88	12.11
Comoros	2014	17.55	19.07	36.94	39.68
Congo, DR	2012	76.59	77.15	91.05	91.37
Congo, Republic of	2011	36.96	38.23	61.26	62.61
Costa Rica	2015	1.52	1.54	4.01	4.07
Cote d'Ivoire	2015	28.21	29.83	57.44	59.10
Croatia	2015	0.63	0.61	1.31	1.29
Cyprus	2015	0.00	0.00	0.07	0.09
Czech Republic	2015	0.01	0.01	0.02	0.02
Denmark	2015	0.18	0.18	0.26	0.21

Djibouti	2013	22.71	22.32	44.63	44.25
Dominican Republic	2015	1.78	1.78	6.43	6.43
Ecuador	2015	3.44	3.45	9.44	9.44
Egypt, Arab Republic of	2015	1.35	1.62	16.12	18.16
El Salvador	2015	1.93	1.99	9.91	10.21
Estonia	2015	0.60	0.59	0.92	0.91
Eswatini	2009	42.03	43.00	64.38	65.13
Ethiopia	2015	30.80	32.59	68.89	70.46
Fiji	2013	1.37	0.48	14.09	7.46
Finland	2015	0.07	0.07	0.11	0.10
France	2015	0.13	0.13	0.15	0.15
Gabon	2005	7.97	7.97	25.82	25.82
Gambia, The	2015	10.15	10.30	37.83	38.39
Georgia	2015	3.76	3.70	16.09	15.72
Germany	2015	0.00	0.00	0.00	0.00
Ghana	2012	12.05	11.63	32.53	31.94
Greece	2015	1.38	1.40	2.82	2.91
Guatemala	2014	8.66	8.78	24.22	24.41
Guinea	2012	35.27	36.09	70.30	70.95
Guinea-Bissau	2010	67.08	68.39	84.52	85.39
Guyana	1998	13.66	11.74	28.87	25.24
Haiti	2012	24.23	24.49	49.85	50.25
Honduras	2015	16.16	16.56	32.24	32.94
Hungary	2015	0.58	0.57	1.07	1.07
Iceland	2015	0.03	0.03	0.03	0.03
India	2011	21.23	22.48	60.40	61.66
Indonesia	2015	7.18	5.79	33.15	30.49
Iran, Islamic Republic of	2015	0.25	0.36	2.43	2.97
Iraq	2012	2.46	1.65	17.85	14.80
Ireland	2015	0.33	0.33	0.43	0.43
Israel	2014	0.49	0.49	0.99	0.99
Italy	2015	1.96	1.95	2.56	2.54
Jamaica	2004	1.70	1.66	9.10	8.88
Japan	2013	0.73	0.73	0.94	0.94
Jordan	2010	0.12	0.10	2.08	2.04
Kazakhstan	2015	0.02	0.01	0.38	0.30
Kenya	2015	36.83	37.08	66.25	66.50
Kiribati	2006	12.87	12.87	34.60	34.60
Korea, Republic of	2012	0.25	0.25	0.50	0.50
Kosovo	2015	0.35	0.72	2.91	3.49
Kyrgyz Republic	2015	2.54	1.83	23.37	18.44
Lao People's Dem. Republic	2012	22.75	21.23	58.69	56.80

Latvia	2015	0.65	0.62	1.61	1.60
Lebanon	2011	0.00	0.00	0.06	0.06
Lesotho	2002	61.31	61.91	79.86	80.38
Liberia	2014	38.61	41.72	73.84	76.41
Lithuania	2015	0.72	0.72	1.44	1.42
Luxembourg	2015	0.32	0.32	0.35	0.35
Madagascar	2012	77.63	77.41	91.00	90.90
Malawi	2010	71.72	72.29	89.06	89.20
Malaysia	2015	0.01	0.01	0.23	0.23
Maldives	2009	7.26	3.45	24.42	16.60
Mali	2009	49.65	50.29	79.31	79.77
Malta	2015	0.08	0.08	0.10	0.10
Mauritania	2014	5.97	5.97	24.08	24.08
Mauritius	2012	0.54	0.55	3.04	3.18
Mexico	2014	4.06	4.00	14.23	13.94
Micronesia, Fed. States of	2013	15.39	15.39	38.71	38.71
Moldova	2015	0.03	0.03	1.37	1.32
Mongolia	2014	0.24	0.21	3.21	2.99
Montenegro	2015	1.67	1.42	8.17	8.01
Morocco	2013	1.03	0.92	7.70	7.34
Mozambique	2014	62.90	63.68	81.88	82.37
Myanmar	2015	6.22	4.77	29.47	24.59
Namibia	2015	13.41	13.79	29.63	30.27
Nepal	2010	15.01	14.99	50.88	50.85
Netherlands	2015	0.05	0.05	0.13	0.13
Nicaragua	2014	3.24	3.41	12.81	13.12
Niger	2014	44.51	45.40	76.94	77.17
Nigeria	2009	53.47	56.40	77.61	79.45
North Macedonia	2015	5.24	5.54	9.73	10.11
Norway	2015	0.15	0.15	0.21	0.21
Pakistan	2015	3.94	3.98	34.71	35.09
Panama	2015	1.98	1.98	6.73	6.73
Papua New Guinea	2009	38.03	38.03	65.59	65.59
Paraguay	2015	1.89	1.71	6.92	6.58
Peru	2015	3.55	3.64	10.32	10.44
Philippines	2015	7.81	7.64	32.65	32.32
Poland	2015	0.00	0.00	0.23	0.20
Portugal	2015	0.48	0.48	1.16	1.11
Romania	2015	5.71	4.56	13.28	10.96
Russian Federation	2015	0.02	0.04	0.26	0.42
Rwanda	2013	56.84	57.90	81.41	81.89
Samoa	2013	1.14	1.14	9.63	9.63

Sao Tome and Principe	2010	32.28	34.59	70.08	71.98
Senegal	2011	37.98	38.53	67.54	68.41
Serbia	2015	0.10	0.07	1.08	0.86
Seychelles	2013	1.06	1.15	2.46	3.13
Sierra Leone	2011	52.21	54.67	81.28	82.56
Slovak Republic	2015	0.66	0.66	1.00	1.00
Slovenia	2015	0.00	0.00	0.00	0.00
Solomon Islands	2013	25.14	25.14	58.75	58.75
South Africa	2014	18.89	18.70	37.61	37.31
South Sudan	2009	42.71	44.67	64.77	67.05
Spain	2015	0.94	0.94	1.48	1.51
Sri Lanka	2012	1.92	2.08	16.07	16.87
St. Lucia	1995	35.92	34.68	63.56	62.18
Sudan	2014	12.69	12.16	44.98	43.98
Suriname	1999	23.38	23.38	42.80	42.80
Sweden	2015	0.50	0.44	0.81	0.81
Switzerland	2015	0.03	0.03	0.03	0.03
Syrian Arab Republic	2004	1.67	1.67	15.30	15.30
Taiwan, China	2013	0.00	0.00	0.25	0.25
Tajikistan	2015	4.81	4.12	20.27	17.79
Tanzania	2011	49.09	49.64	79.02	79.46
Thailand	2015	0.03	0.03	0.49	0.48
Timor-Leste	2014	30.72	21.96	73.35	65.87
Togo	2015	49.82	51.14	73.39	74.21
Tonga	2015	0.95	0.95	7.49	7.49
Trinidad and Tobago	1992	3.41	3.19	13.10	12.52
Tunisia	2015	0.25	0.25	3.01	3.03
Turkey	2015	0.28	0.21	2.73	2.38
Turkmenistan	1998	51.43	48.95	77.84	76.05
Tuvalu	2010	3.26	3.26	17.58	17.58
Uganda	2012	35.86	35.74	67.45	67.35
Ukraine	2015	0.12	0.02	0.50	0.48
United Arab Emirates	2014	0.00	0.00	0.00	0.00
United Kingdom	2015	0.15	0.15	0.32	0.32
United States	2013	1.00	1.00	1.25	1.25
Uruguay	2015	0.13	0.13	0.62	0.67
Uzbekistan	2003	62.13	61.57	86.40	86.20
Vanuatu	2010	13.15	13.15	39.45	39.45
Venezuela, RB	2006	10.22	10.27	17.83	18.09
Vietnam	2014	2.73	2.60	11.44	11.03
West Bank and Gaza	2011	0.20	0.19	3.35	3.04
Yemen, Republic of	2014	18.82	18.27	52.22	51.20

Zambia	2015	57.50	58.75	74.25	75.40
Zimbabwe	2011	21.40	21.36	47.21	47.15

Note: This table reports poverty estimates for 2015 or the most recent survey year before that. For some economies, poverty estimates are available for both consumption and income in PovcalNet. In such cases, poverty estimates from the consumption data are selected for this table (e.g., Haiti, Mexico, the Philippines, Poland, and Serbia).

C. Additional results for the 2017 PPPs

Figure C.1. Regional and global poverty trends at $3.20 2011 PPP vs. $4.00 2017 PPP

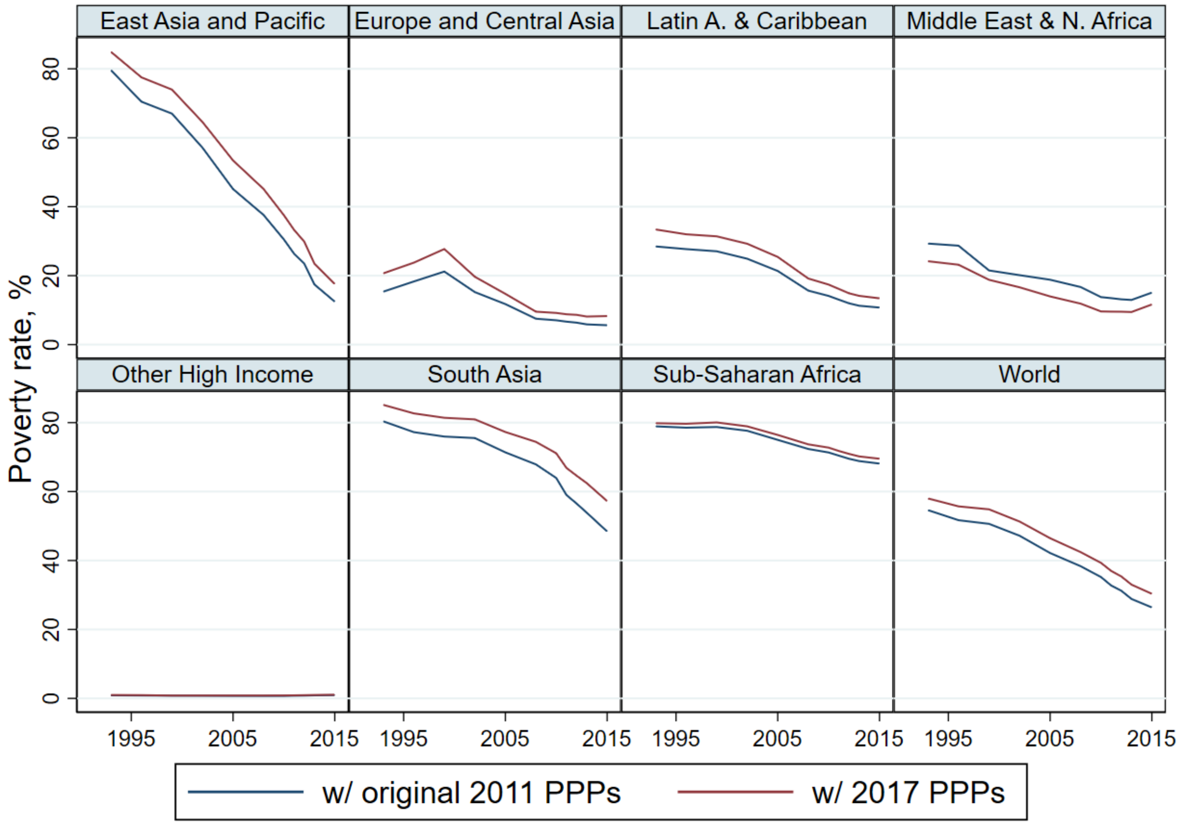
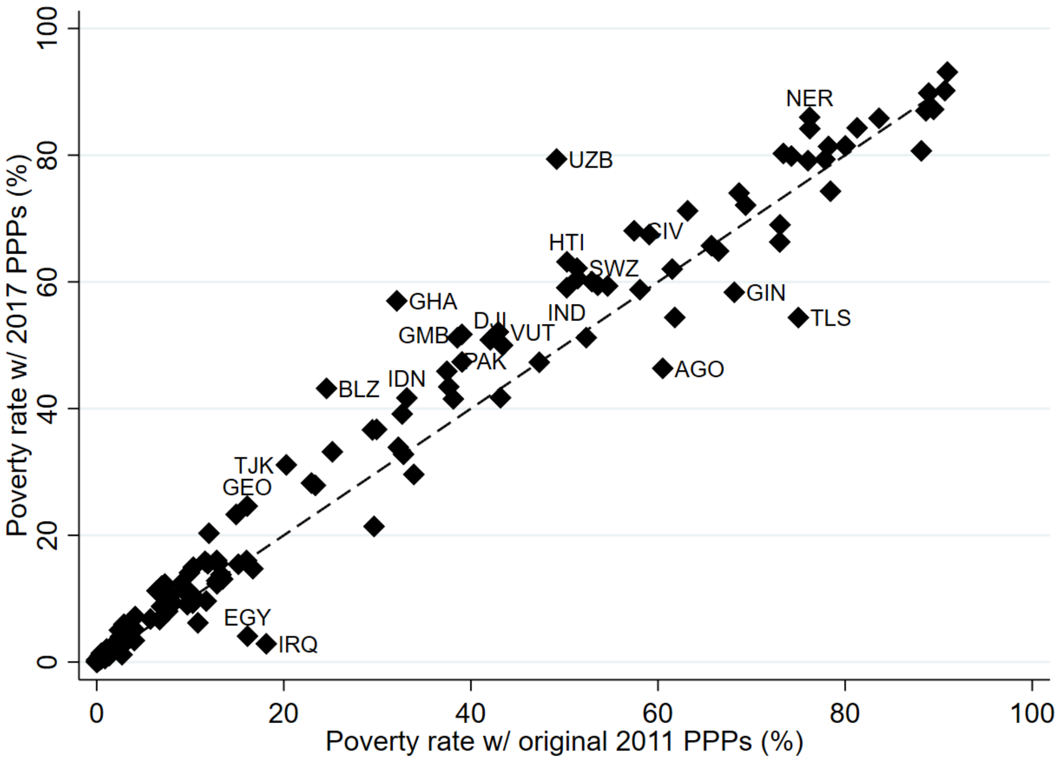


Table C.1. Regional and global poverty in 2015 – $3.20 2011 PPP vs. $4.00 2017 PPP

Region	Poverty rate, % (2011 PPP)	Poverty rate, % (2017 PPP)	Change poverty rate, pp	Change poverty rate, %	Change millions of poor
East Asia and Pacific	12.46	17.57	5.11	41.04	104.23
Europe and Central Asia	5.63	8.28	2.65	47.13	12.92
Latin America and the Caribbean	10.74	13.42	2.68	24.99	16.50
Middle East and North Africa	15.07	11.64	-3.43	-22.73	-12.61
Other High Income	0.95	1.06	0.11	11.47	1.18
South Asia	48.42	57.22	8.80	18.17	153.91
Sub-Saharan Africa	68.12	69.52	1.41	2.07	13.97
World	26.39	30.34	3.95	14.98	290.09

Note: See Table 6 in the main text.

Figure C.2. Country-level poverty rate in 2015 at $3.20 2011 PPP vs. $4.00 2017 PPP



Note: See Figure 6 in the main text.

Table C.2. Countries with largest changes in millions of poor in 2015, 2011 PPP vs. 2017 PPP

Country	Poverty rate, % (2011 PPP)	Poverty rate, % (2017 PPP)	Change poverty rate, pp	Change poverty rate, %	Change millions of poor
India	50.24	59.08	8.84	17.60	115.84
China	6.96	12.01	5.05	72.50	69.22
Pakistan	38.54	51.17	12.63	32.77	25.19
Indonesia	33.15	41.69	8.54	25.75	22.06
Egypt	16.12	4.08	-12.03	-74.66	-11.12
Uzbekistan	49.16	79.38	30.22	61.48	9.46
Bangladesh	53.55	59.47	5.92	11.06	9.26
Nigeria	73.04	69.00	-4.03	-5.52	-7.31
Ghana	32.08	57.01	24.93	77.70	6.94
Philippines	32.65	39.16	6.51	19.93	6.64

Note: See Table 7 in the main text. 2011 PPPs use the $3.20 poverty line, 2017 PPPs use the $4.00 poverty line.

Figure C.3. Regional and global poverty trends at $5.50 2011 PPP vs. $6.30 2017 PPP

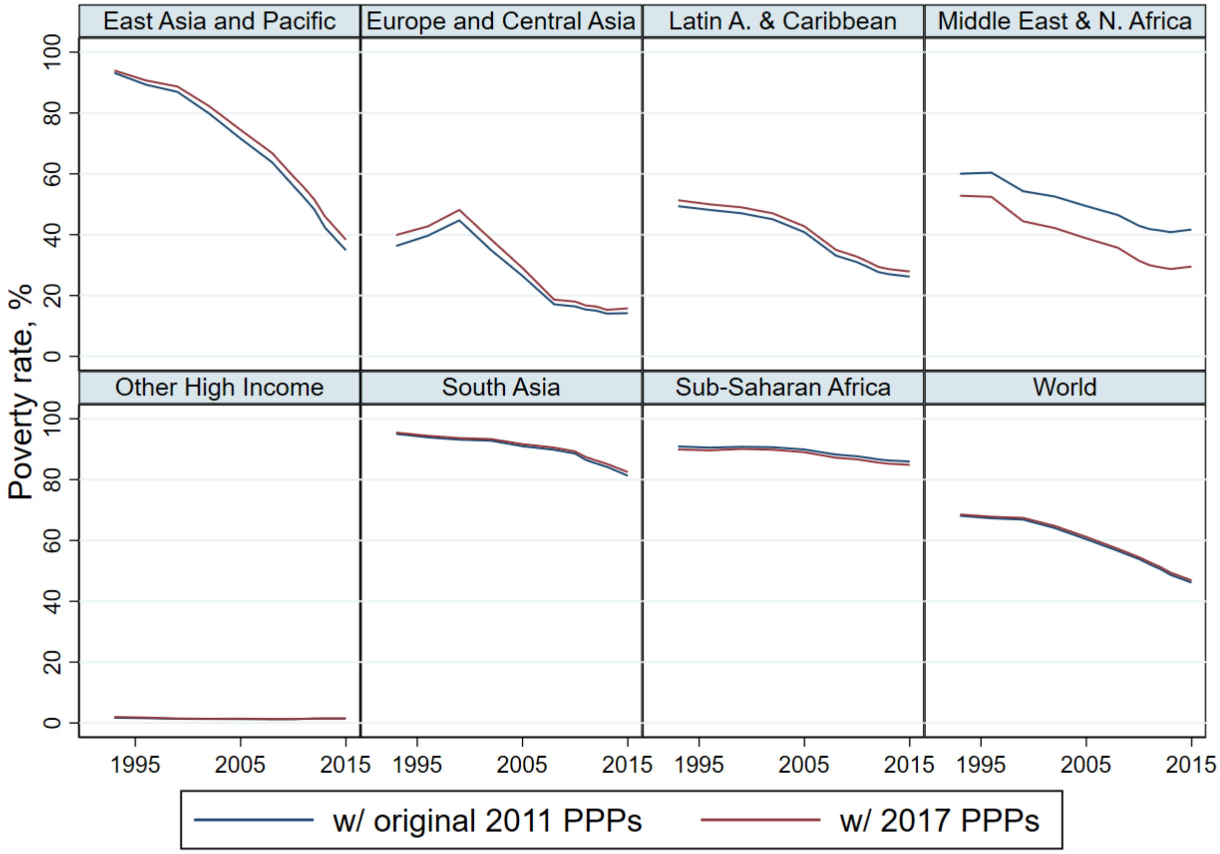
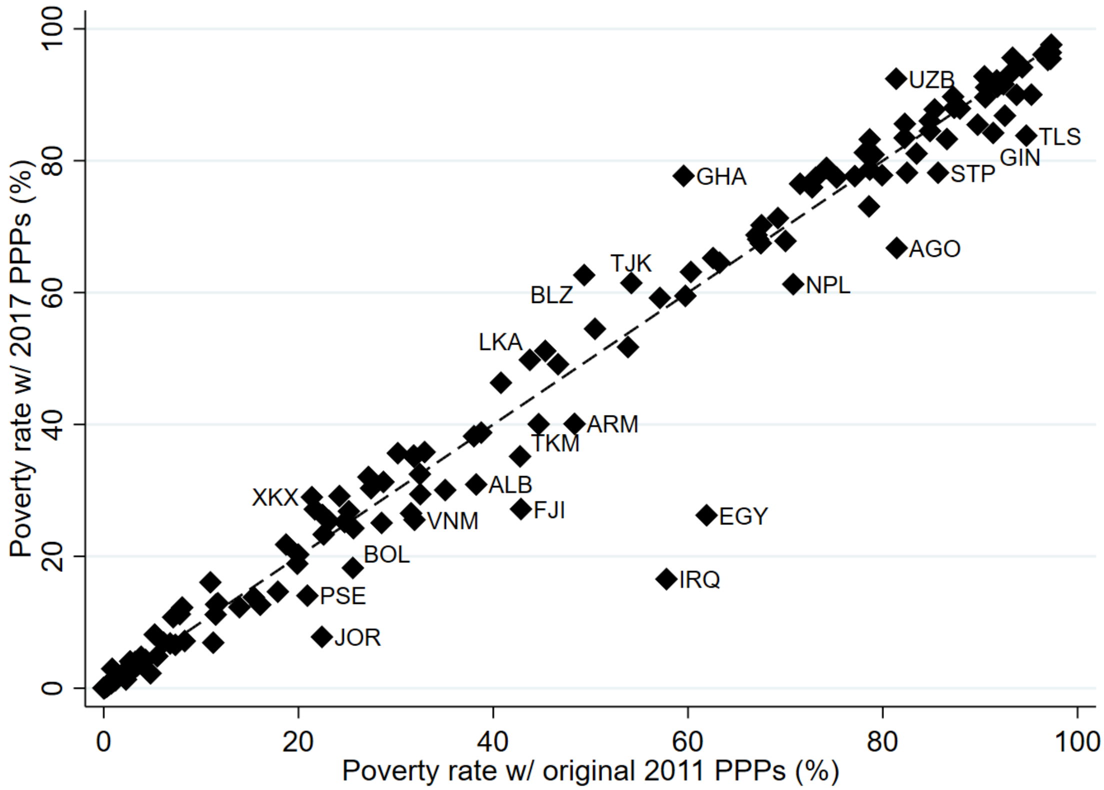


Table C.3. Regional and global poverty in 2015 – $5.50 2011 PPP vs. $6.30 2017 PPP

Region	Poverty rate, % (2011 PPP)	Poverty rate, % (2017 PPP)	Change poverty rate, pp	Change poverty rate, %	Change millions of poor
East Asia and Pacific	34.86	38.34	3.47	9.96	70.77
Europe and Central Asia	14.20	15.76	1.56	11.00	7.61
Latin America and the Caribbean	26.20	27.88	1.68	6.40	10.30
Middle East and North Africa	41.68	29.52	-12.17	-29.19	-44.80
Other High Income	1.46	1.49	0.03	1.88	0.30
South Asia	81.31	82.49	1.18	1.46	20.71
Sub-Saharan Africa	85.96	84.87	-1.09	-1.27	-10.86
World	46.15	46.88	0.74	1.59	53.99

Note: See Table 6 in the main text.

Figure C.4. Country-level poverty rate in 2015 at $5.50 2011 PPP vs. $6.30 2017 PPP



Note: See Figure 6 in main text.

Table C.4. Countries with largest changes in millions of poor in 2015, 2011 PPP vs. 2017 PPP

Country	Poverty rate, % (2011 PPP)	Poverty rate, % (2017 PPP)	Change poverty rate, pp	Change poverty rate, %	Change millions of poor
China	27.18	32.04	4.85	17.86	66.57
Egypt	61.90	26.23	-35.68	-57.63	-32.98
India	82.24	83.46	1.23	1.49	16.05
Iraq	57.78	16.55	-41.24	-71.36	-14.67
Nigeria	89.74	85.47	-4.26	-4.75	-7.72
Brazil	18.73	21.79	3.06	16.36	6.26
Pakistan	78.16	81.23	3.07	3.93	6.13
Vietnam	31.91	25.54	-6.37	-19.96	-5.90
Ghana	59.55	77.70	18.15	30.48	5.06
Indonesia	67.03	68.73	1.70	2.54	4.39

Note: See Table 7 in the main text. 2011 PPP use the $5.50 poverty line, 2017 PPP use the $6.30 poverty line.