



## Is \$1.82 the New \$1.25? Choosing the Next International Extreme Poverty Line

**Abstract:** This brief summarizes the technical and political issues surrounding the World Bank's impending choice of a new International Extreme Poverty Line (IEPL) based on the 2011 Purchasing Power Parity (PPP) exchange rates. The new line, to be announced in July 2015, will succeed the current IEPL, \$1.25 per day at 2005 PPP. Significantly, this will be the first such change since President Obama and other world leaders committed the global community to eradicate extreme poverty within a generation. As the metric that will be used to track progress against this bold target, the choice of a new IEPL has attracted considerable attention within the development community. The evidence suggests that the new line will be set at, or very near to, \$1.82 per day at 2011 PPP. The brief weighs the merits of this choice.

### PPP exchange rates and poverty monitoring

In June 2014, the International Comparison Program (ICP)—a consortium of national statistical agencies housed within the World Bank—released final estimates of the 2011 Purchasing Power Parity (PPP) exchange rates for 199 countries.<sup>1</sup> PPPs allow monetary values expressed in, say, Bangladeshi taka to be converted into equivalent numbers of U.S. dollars—equivalent in the sense of providing the same purchasing power over goods and services in the United States as the original number of taka provide in Bangladesh. Of course, PPPs provide similar equivalencies between dollars and the currencies of the remaining 197 countries. Using the dollar as the numeraire—the common value against which all other monetary values are compared—PPPs allow us to compare the relative cost of living and relative living standards in different countries.

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<sup>1</sup> The date preceding a set of PPPs indicates the year in which the comparative price surveys that underpin those PPPs were carried out. The ICP estimates various types of PPPs, which differ according to the basket of goods and services to which they apply. All PPPs discussed here pertain to “individual consumption expenditure by households.”

PPPs are central to the World Bank's two-step approach to tracking extreme poverty at the regional and global levels. The first step involves setting a common poverty line—the International Extreme Poverty Line, or IEPL—based on the lines that poor countries themselves use to measure poverty among their own citizens. In this step, PPPs are used to convert the national poverty lines of the world's poorest countries into equivalent numbers of dollars, whereupon a representative value is identified and anointed as the IEPL. The second step involves using PPPs to convert income and consumption data collected in national household surveys—the basic source of data on the level and distribution of living standards in those countries—into equivalent amounts of U.S. dollars. Once both the IEPL and the consumption/income data have been converted into dollars, standard methods can be applied to derive poverty statistics for each country.

Two points about this approach deserve special attention. First, despite reliance on the U.S. dollar as numeraire, the poverty calculations based on this approach emphasize comparisons *among developing countries*, rather than comparing living standards in developing countries with those in the United States or other developed countries. Second, the accuracy of the World Bank's poverty estimates depend heavily on the accuracy of the PPP exchange rates used to compute them. For this reason, each time a new set of PPPs is released, the World Bank has

used those PPPs to re-convert national household survey data into dollars, compute a new International Extreme Poverty Line, and issue new estimates of the global and regional prevalence of extreme poverty.

### Three IEPLs picked by three different methods

In all of these calculations, the World Bank has adhered to the principle that the IEPL should be anchored in the poverty lines of the poorest countries. However, it has applied this principle in a different manner each time it has set a new IEPL.

The first IEPL was set in conjunction with the 1990 *World Development Report: Poverty*. For this purpose,

World Bank researchers compiled a database of 33 national poverty lines, which they converted to U.S. dollar equivalents using 1985 PPPs. Inspection of this dataset revealed that the national poverty lines of six of those 33 countries were very close to \$31 per month, while two others were in the same ballpark (Table 1, columns 1 and 2). For use in the WDR, this value was rounded off to \$370 per year at 1985 PPP—roughly \$1.02 per day. This “dollar-a-day line” immediately gained a foothold in international discourse on extreme poverty. Indeed, the World Bank soon rounded off the IEPL to \$30.42 per month—exactly \$1.00 per day—apparently to bring the line into full alignment with the dollar-a-day label (Chen and Ravallion 2001).

**Table 1: Countries Considered in Setting Each International Extreme Poverty Line**

1990: "Dollar-a-Day Line"		2000: \$1.08/day at 1993 PPP		2008: \$1.25/day at 2005 PPP		2015: \$1.82/day at 2011 PPP	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Countries considered	Poverty line in 1985 PPP\$ / month	Countries considered	Poverty line in 1993 PPP\$ / month	Countries considered	Poverty line in 2005 PPP\$ / month	Countries considered	Poverty line in 2011 PPP\$ / month
Kenya	\$30.63	China	\$24.48	Malawi	\$26.11	Malawi	\$40.83
Nepal	\$30.70	Tanzania	\$26.07	Mali	\$41.89	Mali	\$65.44
Tanzania	\$30.96	Zambia	\$26.81	Ethiopia	\$41.04	Ethiopia	\$61.60
Bangladesh	\$31.00	India	\$26.97	Sierra Leone	\$51.54	Sierra Leone	\$82.93
Indonesia	\$31.25	Indonesia	\$32.03	Niger	\$33.35	Niger	\$45.27
Morocco	\$31.33	Thailand	\$33.45	Uganda	\$38.51	Uganda	\$53.84
Philippines	\$32.25	Nepal	\$33.60	Gambia	\$44.92	Gambia	\$55.42
Pakistan	\$34.25	Bangladesh	\$36.23	Rwanda	\$30.17	Rwanda	\$47.28
		Tunisia	\$38.29	Guinea-Bissau	\$45.96	Guinea-Bissau	\$65.60
		Pakistan	\$45.61	Tanzania	\$19.20	Tanzania	\$26.84
				Tajikistan	\$58.83	Tajikistan	\$96.68
				Mozambique	\$29.54	Mozambique	\$38.33
				Chad	\$26.60	Chad	\$38.46
				Nepal	\$26.43	Nepal	\$46.16
				Ghana	\$55.65	Ghana	\$64.85
<b>Selection Method</b>	Inspection	Median		Unweighted mean		Unweighted mean	

Sources: Columns (1)-(4) from Reddy and Pogge (2005); columns (5) and (6) calculated by the author using data from Ravallion, Chen, and Sangraula (2008); columns (7) and (8) from Jolliffe and Prydz (2015b).

The World Bank set the second IEPL in 2000, again in conjunction with a *World Development Report* focused on poverty. This time around, the World Bank researchers continued to rely on the same set of 33 national poverty lines they had used to set the dollar-a-day line—the only difference being that these poverty lines were converted into U.S. dollars

using 1993 PPP exchange rates rather than the 1985 PPPs. Meanwhile, instead of relying on pure inspection as in 1990, this time the researchers set the IEPL at the median of the 10 lowest national poverty lines among the 33 in the database (Table 1, columns 3 and 4). This value—\$32.74 per month or \$1.08 per day at 1993 PPP—inherited the “dollar-a-

day line” label (Chen and Ravallion 2001). More importantly for our purposes, the two poverty lines and their associated sets of PPPs implied quite similar total numbers of people living in extreme poverty in 1993: 1,350 million when measured against the \$1.00/day line at 1985 PPP, versus 1,304 million when measured against the \$1.08/day line at 1993 PPP—a reduction of 3.4 percent. The most noticeable difference was a shift in the regional poverty headcount ratios, which fell sharply in Latin America and the Caribbean and rose in Sub-Saharan Africa (Deaton 2010).

The transition to the third IEPL could not have been more different. The World Bank researchers set the new IEPL at \$1.25/day (\$37.98/month) at the new 2005 PPP exchange rates. They announced that when measured against the new IEPL, the

global extreme poverty headcount for 2005 was 48 percent higher than when measured against the old IEPL: 1,374 million versus 931 million (Table 2, columns 1 vs. 2). They offered a simple explanation for this enormous difference: that the developing world was much poorer than had previously been recognized. According to this explanation, the new and improved methods used to gather comparative price data and compile them into the 2005 PPPs had revealed that the cost of living in most developing countries was much higher, and their living standards therefore much lower, than the PPPs from 1993 and earlier had suggested (Chen and Ravallion, 2008). If so, it was only natural that the new PPPs should produce a major increase in the measured rate of extreme poverty.

**Table 2: Estimated Numbers of Extreme Poor at Different International Extreme Poverty Lines**

Year of Poverty Estimate	(1) 2005	(2) 2005	(3) 2011	(4) 2011	(5) 2011	(6) 2011	(7) 2011	(8) 2011
Poverty Line Year of PPP	\$1.08 1993	\$1.25 2005	\$1.25 2005	\$1.78 2011	\$1.82 2011	\$1.82 2011	\$1.92 2011	\$1.92 2011
Source of Estimate	USAID							
	World Bank PovCalNet	World Bank PovCalNet	World Bank PovCalNet	Continuous Headcount	Jolliffe and Prydz	USAID	Jolliffe and Prydz	USAID
East Asia & Pacific		324	161	263	261	275	293	308
of which China		206	84	194		199		223
Eastern Europe & Central Asia		6	2	3	2	3	3	4
Latin America & Caribbean		40	28	27	33	28	37	30
Middle East & North Africa		9	6	3	2	4	3	4
South Asia		596	399	331	347	352	407	409
of which India		457	301	287		304		350
Sub-Saharan Africa		398	415	384	392	393	416	417
Developing World (% in Extreme Poverty)	931 (16.8%)	1,373 (24.8%)	1,011 (17.0%)	1,011 (17.0%)	1,038 (17.4%)	1,055 (17.7%)	1,158 (19.5%)	1,172 (19.7%)

Sources: Columns labeled “PovCalNet” from the World Bank’s PovCalNet online tool,

<http://iresearch.worldbank.org/PovcalNet/index.htm?0>; columns labeled “USAID” calculated by the author using

USAID’s PovCalNet emulator; columns labeled “Jolliffe and Prydz” from their May 2015 working paper.

### Another take on 2005: embracing a higher poverty line

Subsequent analysis has not been kind to this interpretation. True, the 2005 PPPs implied that most developing countries were poorer than previously recognized—but *only in relation to the industrialized countries*. But as emphasized above, this finding is quite tangential to the prevalence of extreme poverty as measured using the World Bank’s approach, in which poverty calculations focus on comparisons *among* developing countries.

Under that approach, the global poverty rate depends on the relationship between (1) household consumption or income in developing countries in general, especially larger countries, and (2) the poverty lines prevailing in the poorest among those countries. Any dramatic change in this relationship demands careful explanation—with due attention to changes in the measurement approach that produced the numbers.

And a close look at the details of the World Bank’s approach to setting the IEPL makes it clear that

almost all of that jaw-dropping increase in measured poverty in 2005 resulted from the adoption of a much higher IEPL than had been used in the past. This increase in turn resulted from the adoption of new methods for picking the IEPL. In particular, in 2008 the World Bank's researchers adopted a much more thorough approach to selecting an IEPL based on the 2005 PPPs than they had previously used. They began by compiling an expanded database of 88 national poverty lines, and carefully updated each country's line to its most recent known value. Next, they used recent data on per capita expenditures (PCE) in 2005 PPP to shift the focus from the countries with the *lowest national poverty lines* to the national poverty lines of the *poorest countries*. They decided to calculate the IEPL as a simple average of the poverty lines of the 15 poorest countries—those with monthly PCE of \$60 or less at 2005 PPP (Ravallion, Chen, and Sangraula, 2008).

Taken together, these methodological changes virtually guaranteed that the new IEPL would be very different from the previous one. First, shifting to a much larger database of countries, and adopting new criteria for selecting among those countries, produced an almost complete lack of overlap between the countries whose poverty lines were considered in the previous rounds and those considered in 2008: only two (Nepal and Tanzania) appeared on both lists (Table 1, columns 3 vs. 5). Second, the new set of 15 countries appeared to set their poverty lines very differently from the 10 countries they replaced. Among the original group, the monthly poverty line averaged 37 percent of monthly per capita expenditures in 2005 (mean and median). In sharp contrast, the 15 countries considered in 2008 tended to set their poverty lines at a much higher proportion of average living standards, with a mean of 92 percent and a median of 96 percent of 2005 PCE. Had the World Bank applied the same approach in 2008 that it used in 2000—setting the IEPL at the median among the poverty lines of the same set of 10 countries—the IEPL would have been set at \$32.05 per month, or \$1.05/day at 2005 PPP. Instead, under the new approach the IEPL shot up to \$37.98 per month (\$1.25/day at 2005 PPP), 19 percent higher than would have been the case with the previous approach.

Not surprisingly, adopting a much higher IEPL produced a much higher estimate of the prevalence of extreme poverty in 2005 (Deaton, 2010). The

impact of this change can be easily verified by querying the World Bank's PovCalNet online poverty calculator: at the \$1.05/day IEPL that would have emerged had the World Bank stuck with its previous method, PovCalNet estimates the total number of extreme poor in 2005 at 971 million—only 4 percent more than the 931 million estimated when using the previous IEPL. The remaining 44 percentage points of that 48-percent increase in the global extreme poverty headcount for 2005—from 971 million to 1,374 million—directly reflected the shift to a much higher IEPL—and indirectly, the change in the method used to set the IEPL.<sup>2</sup>

Fortunately, the practical impact of that change was limited by the fact that in 2008, the global community was still pursuing a poverty target expressed in *relative* terms—cutting the global prevalence of extreme poverty *in half* between 1990 and 2015 (Millennium Development Goals Target 1a). Although the shift to a much higher IEPL boosted the measured prevalence of extreme poverty in 2005 by nearly half, that same shift simultaneously boosted poverty estimates for all previous years to a roughly similar degree, leaving the rate of progress toward the global poverty target largely unchanged.

### The current challenge: new PPPs and a new poverty goal

The enormous jump in measured extreme poverty that arose with the IEPL update remains fresh in the minds of those making decisions about the next update—choosing an IEPL based on the 2011 PPPs. The political context, meanwhile, has elevated the stakes. So long as the international community was pursuing a poverty target stated in

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<sup>2</sup> It should be stressed that the \$1.25/day line, and the method used to set it, are entirely defensible and consistent with the underlying principle of anchoring the IEPL on the poverty lines of the poorest countries. Rather, the point is that in seeking to explain a surprisingly large measured change (“You’re 2.54 times as tall as you were yesterday!”), it is important to consider the role of changes in the measurement technology (“dressmaker’s tape vs. laser-calibrated micrometer”) and changes in the measurement standard itself (“inches versus centimeters”) before concluding that the facts on the ground must have changed.

relative terms like MDG Target 1a, even large changes in measured poverty like that announced in 2008 could be accommodated relatively painlessly. In contrast, when President Obama committed the United States to help “eradicate extreme poverty in a generation,” and other world leaders and international organizations made similar commitments, the global focus shifted from a *relative* target to an *absolute* target, often stated as “cutting the global prevalence of extreme poverty to 3 percent or less by 2030.” Those bold commitments have given the *level* of measured extreme poverty a much greater degree of political salience than it had under the MDGs. In particular, the governments and organizations that made those commitments have become vulnerable to large changes in the measured prevalence of extreme poverty resulting from the adoption of new PPPs and new poverty lines. Moreover, those vulnerabilities apply regardless of the direction of the announced change in global poverty rates. On the one hand, another sharp uptick in the measured global poverty headcount could easily place the 3-percent target completely out of reach. But on the other hand, announcing a dramatic *reduction* in the measured prevalence of global poverty could provoke public cynicism toward the whole effort—making it appear that the numbers were somehow being cooked to make the target easier to reach.

A further complication is that the 2011 PPP exchange rates differ just as dramatically from the 2005 PPPs as the latter differed from the 1993 versions. These differences partly reflect further improvements in the methods used to gather and interpret country price data (Inklaar and Rao, 2014). In fact, the 2011 PPPs largely unwind the previous changes, implying that in most developing countries, the cost of living is much lower, and therefore real living standards much higher, than the 2005 PPPs had led us to believe. But again, those generalizations are only meaningful in comparing living standards in developing countries to those in developed countries. From the standpoint of monitoring extreme poverty in the developing countries, those large changes in PPPs highlight the challenge of setting the new IEPL in a way that remains consistent with the concept of “extreme poverty” that underpinned the commitments of President Obama and other world leaders to end that condition. And in confronting this challenge, it is important to remember that several further

rounds of PPPs will be released between now and 2030. Ideally, whatever method is chosen to set an IEPL based on the 2011 PPPs should remain equally applicable to these further updates.

This author has suggested one simple method for resetting the IEPL in the transition from one set of PPPs to another—a method that would, by design, eliminate *all* transitional jumps in the global poverty rate. This “continuous headcount” approach would set each new IEPL at a level that, alongside the new PPPs, leaves the estimated global poverty headcount in a particular transition year the same as with the outgoing IEPL and PPPs. The intuition behind this approach is that because shifting from one IEPL and set of PPPs to another has no impact on people’s actual living standards, the global poverty headcount should remain similarly unchanged. USAID staff calculations estimate that the “continuous headcount” successor to the \$1.25/day line would be \$1.78 per day at 2011 PPP. This approach would leave the world neither closer to, nor farther away from, the 3-percent extreme poverty target for 2030 than it was under the old poverty line. However, the prevalence of extreme poverty in particular countries and regions would still change—in many cases by a lot (Table 2, columns 3 vs. 4). The major downside to this approach is that at each transition from one set of PPPs to another, the global poverty headcount is set at a level based entirely on the outgoing set of PPPs; the new PPPs can only affect the country and regional pattern within that total. This is problematic because each new round of PPPs embodies a combination of new information and improved methodology that may revise previous understandings about relative living standards among developing countries.

### Is \$1.82 the new \$1.25?

A recent working paper by World Bank economists Dean Jolliffe and Espen Beer Prydz (2015b) makes a detailed case for adopting a different approach to setting a new IEPL based on the 2011 PPPs. This approach involves (a) starting with the original set of 15 national poverty lines used to set the \$1.25/day line; (b) converting each into U.S. dollars at 2011 prices and 2011 PPP exchange rates; and (c) taking the average (Table 1, columns 7 and 8). In making the case for this approach, Jolliffe and Prydz emphasize the same concern with public perceptions

of legitimacy that USAID invoked in support of the “continuous headcount” approach. They also point to the relatively small resulting change in the global poverty headcount as one of its major virtues. Nevertheless, their basic normative argument in favor of this approach is that it comes as close as one reasonably can to maintaining the real value of the \$1.25/day line, the International Extreme Poverty Line in place at the time global leaders committed their countries to eradicating extreme poverty within a generation, while still taking into account the new information contained in the 2011 PPPs. This approach may indeed offer the best way to monitor progress toward an absolute poverty target calibrated against a particular IEPL, and to maintain that calibration through transitions from one IEPL to another.<sup>3</sup>

Jolliffe and Prydz calculate that after converting the 15 original national poverty lines into 2011 PPP dollars, the resulting average would be \$1.82 per day in 2011 prices. They estimate that applying this IEPL would increase the total number of extreme poor in 2011 by 28 million, a 2.8 percent increase over the 1.01 billion estimated to be living below the \$1.25/day line. USAID staff estimates conclude that the actual increase would be a bit higher—closer to 48 million (4.7 percent). Nevertheless, this change is far smaller than the 48-percent increase seen in 2008, and thus comes close to the “continuous headcount” approach in terms of avoiding a large “hiccup” in the global prevalence of extreme poverty. The World Bank’s public release of Jolliffe and Prydz’s proposal as a “policy research working paper” a few weeks before it plans to announce the new IEPL suggests that the new International Extreme Poverty Line will be set at, or very close to, \$1.82 per person per day at 2011 PPP.

Regardless of the level at which the new IEPL is set—and the resulting global headcount—the 2011 PPPs imply a markedly different regional pattern of measured extreme poverty than did the 2005 PPPs.

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<sup>3</sup> Readers will note the contrast between this approach and that taken by previous World Bank researchers in setting the IEPL: whereas the latter applied changing methods to anchor the IEPL in the national poverty lines currently applied by the poorest countries, Jolliffe and Prydz’s approach explicitly and permanently anchors the IEPL in the poverty lines those countries used at a particular point in time.

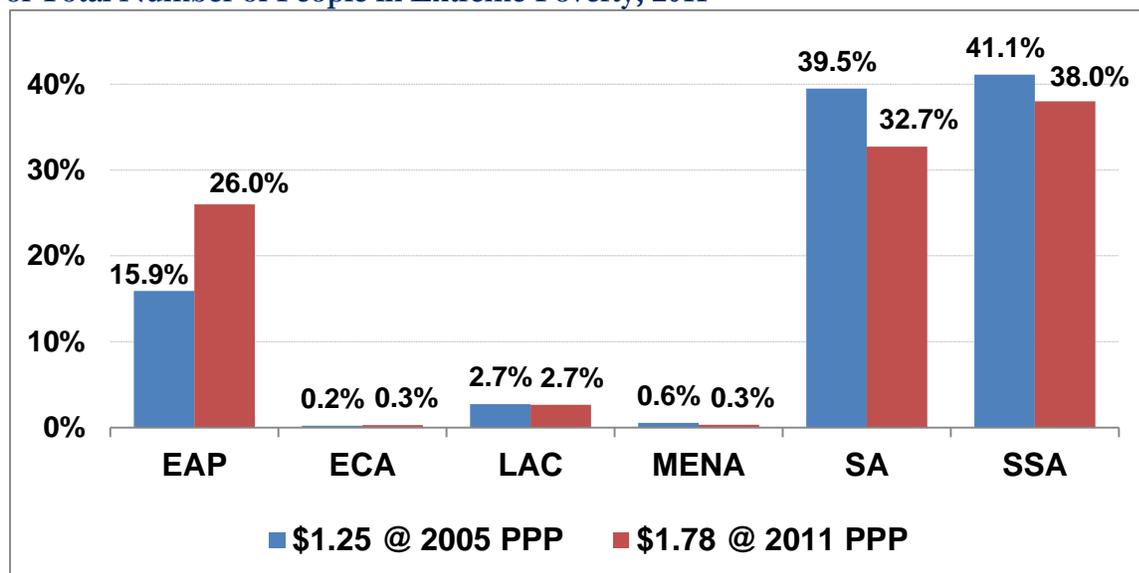
These differences can be seen by comparing columns 3 and 4 in Table 2, which have the same total number of extreme poor; Figure 1 offers a different perspective. The number of extreme poor in East Asia increases by more than half, almost entirely due to a large increase in measured extreme poverty in rural China; poverty in the remainder of East Asia falls by one-third. Meanwhile, South Asia and Sub-Saharan Africa both experience large reductions in measured extreme poverty. Large proportional changes are seen in other regions, but the absolute numbers of extreme poor in those regions remain small in global perspective. To the extent that recent rates of economic growth and poverty reduction continue into the future, these regional shifts could prove helpful in accelerating the global pace of reduction in extreme poverty, at least in the medium term. In particular, the region with the biggest PPP-linked increase in extreme poverty numbers—rural China—could experience accelerated progress in reducing extreme poverty if China follows through on its announced relaxation of barriers to rural-urban migration.

## Assessment

Adopting the Jolliffe-Prydz approach would address the immediate concerns over a possible jump (or dip) in the measured prevalence of extreme poverty. The authors project that reaching the 3-percent extreme poverty target by 2030 will be quite difficult if progress is to be measured against a \$1.82/day line based on 2011 PPPs—just as it was when measured against the \$1.25/day line based on 2005 PPPs. In that sense, their approach avoids creating the appearance that the poverty line is being manipulated to make the extreme poverty target easier to reach.

The main weakness of the proposed approach—clearly recognized by the authors—lies in the narrow base of countries whose poverty lines are averaged to set the IEPL—and in the particular countries included in that base. Because the IEPL rests on information from only 15 countries, it remains vulnerable to “small sample” problems—especially

**Figure 1: Impact of Switching from 2005 PPPs to 2011 PPPs on Regional Shares of Total Number of People in Extreme Poverty, 2011**



Source: Table 2, columns 3 and 4.

economic fluctuations in any of those countries that happen to coincide with a PPP survey year. Moreover, several of those countries have had trouble producing reliable estimates of even the basic economic indicators required to update the IEPL. In particular, for three of those 15 countries, the change in the consumer price index between 1993 and 2005 reported in the World Development Indicators differed dramatically from that used in PovCalNet, by margins ranging from 28 to 75 percent. That difference was enough to change Jolliffe and Prydz's calculated IEPL from \$1.70/day in the first draft of their paper, which relied on the WDI, to \$1.82/day in their second draft, where they embraced the PovCalNet numbers in the name of greater internal consistency. The authors are quite candid in highlighting this sensitivity to conditions in a small number of very poor countries, some of which have experienced major political upheavals in recent years. As an alternative, they suggest computing the IEPL as an average of the poverty lines of a much larger number of developing countries. The resulting average of \$1.92/day would increase the number people in extreme poverty by more than 16 percent compared with the 1.01 billion living on less than \$1.25/day. Adopting that change would make it significantly more difficult to fulfill global commitments to eradicate extreme poverty by 2030 (Table 2, columns 7 and 8).

With the benefit of hindsight, it would have been helpful to have had a serious debate about the best way to track global poverty trends *before* the global community embraced a specific poverty target to succeed MDG Target 1a. Before the new target was set, ideas like Jolliffe and Prydz's broader average might have been assessed on their own merits. So might other suggested approaches—such as Deaton's (2010) suggestion to set the IEPL at \$1.00 U.S. dollar per day at 2005 PPP, updated only for changes in U.S. consumer prices; or Pritchett's (2014) proposal to create a ladder of international poverty lines, each rung of which would become increasingly relevant to a given country as it develops, and then fade again as it develops further—each aimed at correcting more fundamental shortcomings of the current framework for monitoring trends in global poverty. Having settled on an appropriate way to track global poverty reduction, the global community could then have set a poverty target that properly balanced ambition and feasibility.

As matters stand, however, the problem at hand is much narrower: how best to track progress against a target already set in stone by high-level political commitments to “eradicate extreme poverty in a generation,” commitments strongly tied to the specific measure of “extreme poverty” in place at the time they were made. The Jolliffe-Prydz

approach appears to be the simplest and most plausible short-run solution to that problem, and is thus highly likely to be used in setting the next International Extreme Poverty Line. The World Bank has meanwhile established a technical commission that will be meeting over the coming months to examine the full set of methodological issues involved in monitoring progress towards eliminating extreme poverty.<sup>4</sup>

## Appendix: data and methods

Data sources are as documented in the text and tables. In collaboration with Nick Lea of the UK's Department of International Development (DFID), I have developed an Excel-based poverty calculation tool that uses data from the World Bank's PovCalNet online tool to calculate national, regional and global headcounts at user-defined poverty lines, and to project these poverty estimates into the future assuming distribution-neutral growth at different rates. I used this tool to calculate columns (4), (6), and (8) in Table 2 and the results in Figure 1. This tool is available to researchers and other stakeholders on request at the email address below.

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<sup>4</sup> For more details, see [Commission on Global Poverty](#)

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