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An End to Extreme Poverty? (Or at Least the Extreme Poverty Line)

Charles Kenny

Abstract

The World Bank's extreme poverty line has been a huge marketing success, motivating widespread discussion of global poverty. At the same time, it has growing weaknesses. For measuring progress, we want a fixed-definition indicator. The extreme poverty line is not that. For measuring or guaranteeing access of a basic bundle of "economic goods and services" we want to measure (potential) access to those services. The extreme poverty line doesn't do that. For targeting assistance, we want an indicator that influences distribution. The extreme poverty line has largely been ignored in that regard. A multidimensional indicator tied to the Sustainable Development Goals might be a worthy replacement.

An End to Extreme Poverty? (Or at Least the Extreme Poverty Line)

Charles Kenny
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> *"The doctrine of the 'Poverty Line' shows itself peculiarly elusive to examination, because of the difficulty in ascertaining exactly what is meant by it and where it runs. It has a false air of definiteness which is difficult to question, until one finds that, like the ray of light thrown by the moon across the sea, it shifts is position to meet the eye of the observer wherever he happens to place it."*

—Bosanquet, H. (1903). The "Poverty Line." *Charity Organisation Review*, *13*(73), 9–23.

Introduction

Helen Bosanquet, an economist and social reformer, pointed out the problems with poverty lines soon after they were first proposed more than a century ago; among them that they are destined to be an arbitrary division in a continuous income distribution. Bosanquet's concerns over "a false air of definiteness" also apply with full force to today's global extreme poverty line, as set by the World Bank. In global development circles, those who are living on $2.14 a day we often call 'poor', but those on $2.16 are somehow 'not poor.'

As Bosanquet also disdainfully acknowledged, poverty lines were "gratefully accepted by a public anxious for exact and not too difficult science." To put a more positive spin on that, it is simply unarguable that the extreme poverty line has had a huge impact in terms of bringing attention to the issue of global poverty. Figure 1 uses data from Google's corpus of books since 1990 to demonstrate that "$1 a day" (the original line set by the World Bank) and "global poverty" rose in lockstep in frequency of mentions into the 2000s. When people wrote about global poverty, they wrote about $1 a day, and they wrote about the first only in the aftermath of the introduction of the second.

Again, specific income poverty lines demand a huge amount from global statistical capacities, not least around survey data, inflation measurement and purchasing power parity calculations. And they demand the most out of that capacity in precisely the places where it is most limited: the world's low-income countries. Purchasing power parity measures were not primarily designed for the purpose of measuring the purchasing power of the poorest – and nor were inflation measures. Given all of that it is a surprise, and a testament to the talent and ingenuity of the teams that calculate the global poverty numbers, that the results look as good as they do. But despite that, Bosanquet's complaints are still valid, and the time for a serious rethink of the extreme poverty line is upon us, before it descends into somewhat messy incoherence.

FIGURE 1. $1 day and global poverty
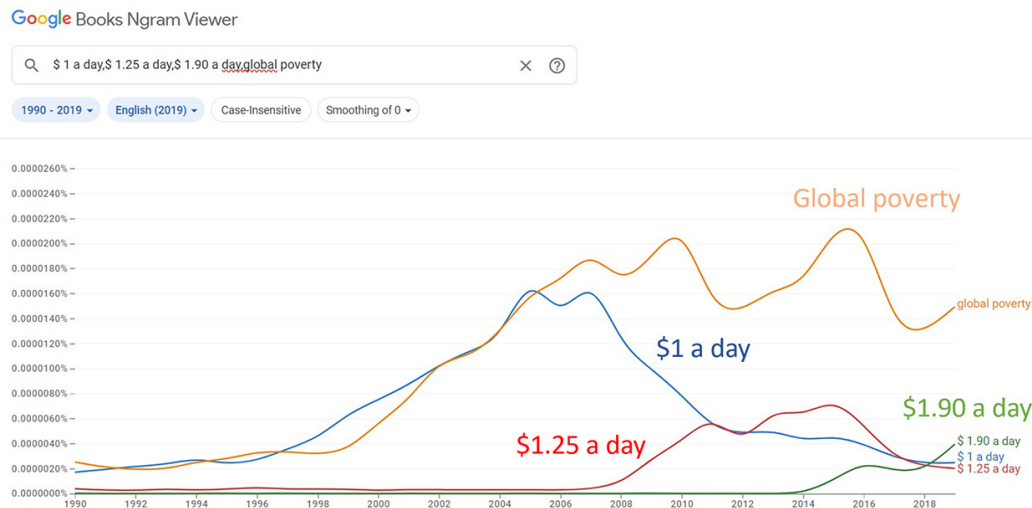
What are poverty lines for? First, to help measure progress and regress in the quality of life of those most disadvantaged (either relative or absolute). That of course is related to the question 'what is poverty' – a term that can encompass (i.a.) levels of deprivation that are literally unlivable over the long term (because they involve utterly inadequate nutrition, for example), specific deprivations of goods, services, or outcomes deemed unacceptable by a moral community (lack of potable water or education, stunting), a level of income judged inadequate to avoid such deprivations and/or a level of income deemed inadequate on the grounds of equity and participation. Related to that, poverty lines themselves can help set a socially accepted target for a minimum quality of life potentially including a basket of minimum goods and services. Third, and most importantly, poverty lines focus policy attention and resources on the most disadvantaged in a community.

At the national level, poverty lines are often a targeting mechanism for welfare payments and for differential pricing of access to services. In the international context as well, they are used both as a tool for directing attention and for progress measurement: notably, the first UN Millennium Development Goal and target as well as the first UN Sustainable Development Goal and target involve progress toward reducing extreme poverty – by 50 percent between 1990 and 2015 in the case of the MDGs and to zero by 2030 in the case of the SDGs.

But the global extreme poverty line falls short on these uses, and increasingly so:

- For measuring progress, we want a fixed-definition indicator. The extreme poverty line is not that. (And in particular, it is not an absolute line as is widely assumed.)
- For measuring or guaranteeing access of a basic bundle of 'economic goods and services' we want to measure (potential) access to those services. The extreme poverty line doesn't do that.
- For targeting assistance, we want an indicator that influences distribution. The extreme poverty line has largely been ignored in that regard.

The first part of this paper suggests these problems are getting worse, not better. The extreme line is: (i) increasingly about measuring changes more than actual levels of consumption as it gets toward the tail of the global income distribution (ii) doesn't come close to measuring the same quality of life as it used to and, (iii) (thanks to economic growth) is irrelevant to more and more countries.

One option would just to abandon the effort, but this would be a mistake: poverty lines still have a role. They are a useful measure of progress even if a partial one, and can be a helpful (if exceedingly blunt) targeting tool. The last part of this paper discusses some potential options.

The inconsistency of the extreme poverty measure

The World Bank's extreme poverty line has always been set relative to the income poverty lines in some of the world's poorest countries. To quote its original creators: "Our aim here is only to quantify the extent of absolute poverty in the developing world, interpreted as the inability to attain consumption levels which would be deemed adequate in only the poorest countries."[1] But while the process has always involved using poor country poverty lines, survey data (primarily) on consumption, and purchasing power parity (PPP) exchange rates, the exact approach has varied considerably over time.

The 1990 World Development Report noted that poverty lines in a small set of countries with low average incomes ranged between $275 and $370 per person a year in constant 1985 PPP prices. This led to the adoption of the 'dollar a day' definition of absolute poverty.[2] The report actually employed two poverty lines: $275 and $370 per person a year in constant 1985 PPP prices "This range was chosen to span the poverty lines estimated in recent studies for a number of countries with low average incomes- Bangladesh, the Arab Republic of Egypt, India, Indonesia, Kenya, Morocco, and Tanzania."[3] The lower limit of the range coincided with a poverty line commonly used for India. The estimated number of people living in in $370/year or 'dollar a day' poverty in 1985 was 1,125 million (thanks to methodological and data updates, the current official World Bank number for those under the extreme poverty line (2017 PPP $2.15) in developing countries in 1985 is around 1,920 million, or about 800 million higher).[4]

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1   Ravallion, M., Datt, G., & van de Walle, D. (1991, December) Quantifying Absolute Poverty in the Developing World. *The Review of Income and Wealth,* Vol. 37, Is. 4, Pgs. 345–361. QUANTIFYING ABSOLUTE POVERTY IN THE DEVELOPING WORLD - Ravallion - 1991 - Review of Income and Wealth - Wiley Online Library

2   World Bank (1990, June). *World Development Report 1990: Poverty.* Washington, DC: World Bank. content (worldbank.org)

3   See Ravallion et al. 1991. In a background paper for the WDR they note that a regression of poverty lines against mean consumption suggests the poorest countries would have an average poverty line of $23/month, about the level of India's poverty line at the time but: "A more generous, and more representative, absolute poverty line for low-income countries is $31 [per month], which (to the nearest dollar) is shared by six of the countries in our sample, namely Indonesia, Bangladesh, Nepal, Kenya, Tanzania, and Morocco, and two other countries are close to this figure (Philippines and Pakistan)."

4   World Bank (2024). Poverty and Inequality Platform. https://pip.worldbank.org/home

Over the following years, revised approaches were adopted. With considerably more survey data, and switching to World Bank over Penn World Table PPP data for the 1993 round, the poverty line definition also changed to the median of the lowest ten poverty lines a sample of poor countries.[5] This produced the $1.08/day 1993 line, and an estimate of 1,183 million in poverty in 1987 (not too dissimilar from the World Development Report estimate from 1990) and 1,191 million in 1996. (In early 2023, the official numbers were 1,830m in 1987 and 1,880m in poverty in 1997).[6] But while headline numbers remained broadly the same, there were some notable differences in the regional composition of poverty. The estimated poverty rate for 1993 had risen sharply in Sub-Saharan Africa (49.7%, versus the early estimate of 39.1%), and fallen sharply in Latin America (15.3% versus 23.5%) – the authors blamed changing PPP values.

By 2005, there was a new round of PPP data and a new, larger, dataset of poverty lines including better coverage in Sub-Saharan Africa, (and so) a new set of countries was used to construct the poverty line: "the mean of the lines found in a reference group of countries defined as those with consumption per capita at 2005 PPP below $60.00 per month."[7] This gave us the $1.25 line and estimates of poverty of 1,720m in 1987, 1,656m in in 1996 and 1,377m in 2005 (compare current official estimates of 1,830m, 1,820m and 1,420m).

The paper documenting what was a leap in estimates of the number of the global poor was titled: "The developing world is poorer than we thought, but no less successful in the fight against poverty." But it is interesting to see what was behind the sudden change, as noted by Angus Deaton.[8] The pure effect of the new PPP numbers was to bring the poverty rate *down* four percentage points. But the average of the new dataset of national poverty lines was considerably higher than the average of previous sets. Using this new, higher, average poverty line increased global poverty by 12 percentage points (including the PPP adjustments leading to a net effect of eight percentage points). In short, extreme poverty went up in in 2005 because the World Bank set a more generous extreme poverty line. Perhaps a more accurate title for the accompanying paper would have been "The developing world is a little richer than we thought, but we've raised the extreme poverty rate based on new data and a new approach."

In 2015 the next update was simply to account for the new round of PPPs: the World Bank took the same national poverty lines expressed in local currency units at 2005 prices, inflated them to 2011

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5   Ravallion et al, 1991

6   Chen, S., & Ravallion, M. (2001). How Did the World's Poorest Fare in the 1990s?. *Review of Income and Wealth*, *47*(3), 283–300. http://www.roiw.org/2001/283.pdf

7   Chen, S., & Ravallion, M. (2010). The Developing World is Poorer than We Thought, but no Less Successful in the Fight Against Poverty. *The Quarterly Journal of Economics*, *125*(4), 1577–1625. https://academic.oup.com/qje/article-abstract/125/4/1577/1916270

8   Deaton, Angus. 2010. "Price Indexes, Inequality, and the Measurement of World Poverty." *American Economic Review*, *100*(1): 5–34.

using each country's own consumer price index, converted and took a simple average ($1.90).[9] The authors suggested that "we felt we had to … [m]inimize changes to the goalposts: keep the definition of the line unchanged, and its new value as close as possible to the $1.25 line in real terms."

One might wonder if the backlash to the sudden changes in in 2005 had scarred poverty analysts in the World Bank when it came to dramatic revisions in the topline number. Indeed, recent revisions have gone to some length to emphasize how little they change the underlying numbers.[10] But perhaps this may have encouraged changing the calculation approach as necessary to keep the topline number the same in the face of new data. Indeed, for the latest update, the calculation process dramatically changed again. The poverty lines are now the median (as opposed to mean) of all 28 low income countries in the poverty line dataset. And the combination of the new approach and the PPP round had a small impact on reported topline poverty compared to the revised 2011 round.

It all adds up to a lot of adjustments. Which country poverty lines have been in the basket used to determine the international poverty line have changed thanks to availability of data, and decisions between using an average PPP consumption cutoff, an Atlas GNI income cutoff ('low income'), or a simple numerical cutoff ('ten countries'). When those national poverty lines date from has changed thanks to data availability and the choice as to inflating old lines by the CPI or using the latest poverty line. How those lines are used to create an international line has switched between mean and median. The line has also moved thanks to the impact of new rounds of purchasing power parity data. That's to say nothing of World Bank staff choices over manipulation and cleaning of poverty line data, consumption survey data, national price data and PPP data. On a bespoke basis, Bank staff would ignore or adjust PPP data and use imputed values on outliers, fill in what they considered unreliable inflation measures with alternate values, and convert (or not) poverty lines to a per capita basis.

Figure 2 reports the global poverty rates as reported for a given year in some of the key texts on the extreme poverty line: the 1990 World Development Report that introduced $1 a day, Chen and Ravallion's papers from 2000 and 2008, Ferreira and colleagues in 2016, Joliffe and colleagues in 2022. It compares those reported totals to what is currently estimated by the World Bank's Poverty and Inequality Platform (PIP). The 1990 World Development Report suggested the global population living in extreme poverty in 1985 was 23 percent. Alternatively, PIP currently estimates that the proportion of people living under the current international poverty line in 1985 was 39.6 percent.

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9   Ferreira, F., Jolliffee, D. M., & Beer Prydz, E. (2015) *The International Poverty Line Has Just Been Raised to $1.90 a Day, But Global Poverty is Basically Unchanged. How is that Even Possible?* World Bank Blogs, October 4, 2015. https://blogs.worldbank.org/developmenttalk/international-poverty-line-has-just-been-raised-190-day-global-poverty-basically-unchanged-how-even

10   Jolliffe, D., Gerszon Mahler, D., Lakner, C., Atamanov, A., & Tetteh-Baah, T. B. (2022, February). *Assessing the Impact of the 2017 PPPs on the International Poverty Line and Global Poverty.* Wasington, DC: World Bank. https://documents1.worldbank.org/curated/en/353811645450974574/pdf/Assessing-the-Impact-of-the-2017-PPPs-on-the-International-Poverty-Line-and-Global-Poverty.pdf

In their 2000 paper, Chen and Ravallion reported an estimate for 1996 global poverty of 20.5 percent. Chen and Ravallion's paper of 2008 suggested global poverty in 1996 was 28.5 percent. The Poverty and Inequality Platform suggests it was 31.3 percent.

FIGURE 2. How many in extreme poverty?
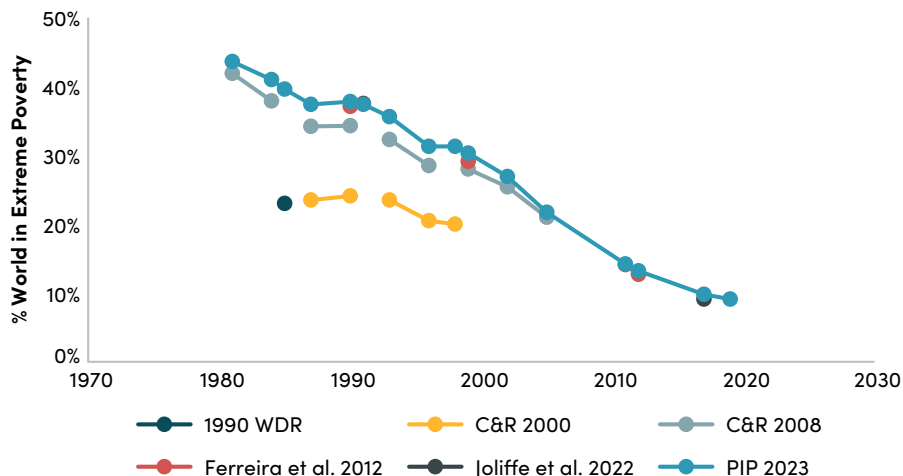
Source: Appendix Table A1.

Changes in approach over time have also shifted where we thought poor people lived. Comparing World Bank estimates made in 2001, 2010 and 2023 regarding regional poverty numbers for the year 1998 (1999 in the case of the 2010 estimate): East Asia had 267 million extreme poor people in 1998 according to the 2001 estimate, 421 million according to the 2010 estimate and 822 million according to the latest estimate. The absolute number of poor people in South Asia has remained comparatively constant (Figure 3).

FIGURE 3. Where was global poverty in 1998? Changing estimates over time
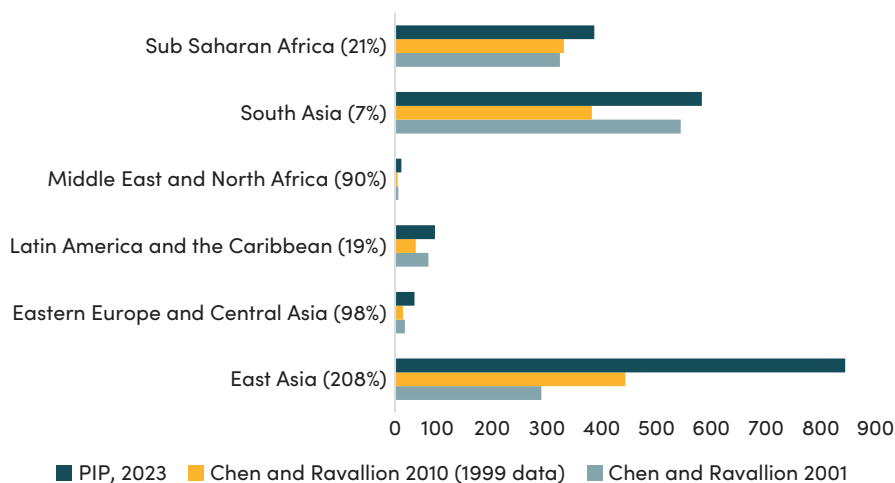
To further examine the changing value of the poverty line and its impact, we use the original national poverty line data used to construct the 1985 $/day, 2005 $1.25/day and 2017 $2.15/day lines, and then inflate them forward (or backward, as appropriate) using IFS and WEO data as favored by the World Bank's PIP platform,[11] making use of the closest survey year CPI deflators provided in PIP's dataset. We then convert the poverty lines back into PPPs using the appropriate year of PPP values, and report the median and average of the resulting lines.[12]

For example, we take the 1985-vintage national poverty lines of the six countries used to create the $/day line, inflate them using national CPIs to 2005 values, and convert them using 2005 PPP data. We repeat the process to 2017. For the 2017 round we take 25 national poverty lines used by Joliffe et al. 2022, deflate them to 2005 and then 1985, and convert using the relevant year of PPP exchange rates.

Note, our approach does not exactly mimic the process used by the authors of the various papers behind the official poverty line, which made bespoke adjustments to deal with currency reissuance and other factors. This is why while Joliffe et al. report that using the 15 national poverty lines selected by Ravallion et al. (2009), converting them to 2017 PPPs, and taking the average, produces an IPL of $2.08, while we report an equivalent poverty line of $1.96.

Using this process, it appears the 2017 PPP value of the poverty lines used in the 1990 World Development Report has a mean of $1.90 and a median of $1.53, considerably below the 'official' poverty line in 2017 PPPs of $2.15. The 2017 PPP value of the poverty lines used in Chen and Ravallion 2008 has a mean of $1.96 and a median of $1.84. By switching from mean to median, Joliffe et al. and predecessors limited the increase in the 'real' value of the poverty line on this measure above

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11 Lakner, D., Gerzon Mahler, D., Nguyen, M., Azevedo, J. P., Chen, S., Jolliffe, D., Beer Prydz, E., & Sangraula, P. (2019, March). *Consumer Price Indices used in Global Poverty Measurement*. Washington, DC: World Bank. World Bank Document

12 For example, the first line of Appendix Table Two shows the 1985-vinatge international poverty line of $1 a day, which is comprised of the national poverty lines of 6 countries, among them Nepal. We convert Nepal's national poverty line of $1 in 1985 PPPs into 126.02 Rupees using the 1985 PPP household consumption conversion factor. We then use WEO annual inflation data to deflate that line to 121.02 Rupees in 1984, the nearest year that PIP records a Nepalese survey and corresponding CPI inflator to 2017 LCUs. We then use that to convert the 1984 figure into 2017 LCUs, and then finally use the 2017 PPP factor listed in PIP to estimate the 1985 poverty line's 2017 PPP equivalent of $1.62. This process is then repeated for the other 5 countries for 2017, and all 6 countries for 2005 using 2005 PPP conversion factors. Alternatively, the 2017 IPL of $2.15 is comprised of 25 national poverty lines, among them being Guinea-Bissau, which had a national poverty line of $2.28 in 2017 PPPs. To estimate that line's 2005 PPP equivalent, we convert the 2017 PPP to 2017 LCUs using the PPP conversion factor listed in PIP. We then convert the 2017 LCU poverty line with the CPI deflator listed by PIP for 2002, the closest survey year to 2005. We then inflate that figure to 2005 LCUs, again using WEO annual inflation data, to obtain an equivalent 2005 LCU poverty line, and then convert that into 2005 PPPs. We do not produce a 1985 estimate for Guinea-Bissau, as no 1985 PPP conversion factor was listed in Summers and Heston, 1988. In the case of Mozambique, this same process yields a 2017 national poverty line of $.00107 in 2005 PPPs. In 2006, Mozambique redenominated its currency by a factor of 1,000. We therefore multiply our 2005 PPP estimate by 1,000 to obtain $1.07 in 2005 PPPs. Similar adjustments are made in cases where currency changes occurred. See Summers, R. & Heston, A. (1988, March) A New Set of International Comparisons of Real Product and Price Levels Estimates for 130 Countries, 1950–1985. *The Review of Income and Wealth*. Vol. 34, Is. 1, Pgs. 1–25. 1.pdf (roiw.org) as well as African Development Bank (2006). *Mozambique at a Glance*. Abidjan, Cote d'Ivoire: AfDB. Le Guide africain des marchés à revenu fixe - Mozambique (afdb.org)

Chen and Ravallion 2008 to $0.19 instead of $0.45 if they had held to the mean. Figure 4 reports the mean (gold) and median (teal) extreme poverty line values in 2017 PPP$ for the three measures.

FIGURE 4. 2017 PPP$ mean and median value of 2017, 2005 and 1985 poverty line baskets
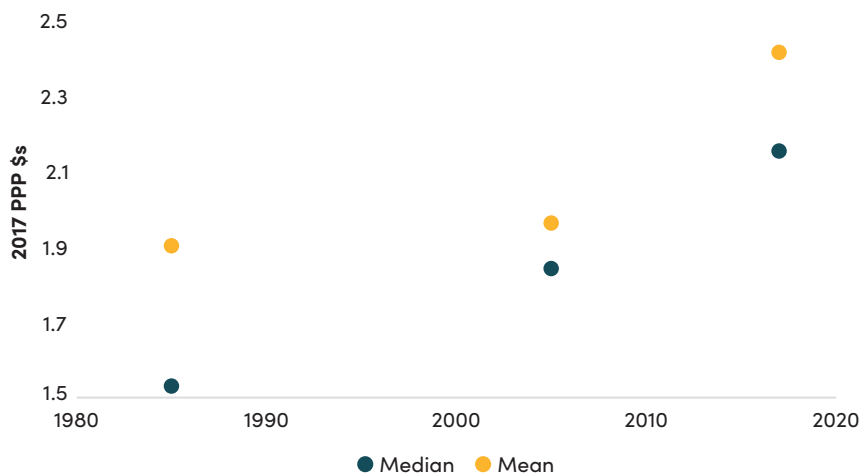
Source: Appendix Table A2.

Figure 5 estimates global poverty rates using the mean and median of the poverty line baskets from the 1990 World Development Report $1 line, the 2008 $1.25 line and the 2022 $2.15 line. The range for 2022 is 4.3 percent to 12.5 percent. If we had kept to using the median of the original 1990 poverty lines, we would likely be on track to the World Bank goal of less than three percent of the World's population living in poverty by 2030 (using the current definition the World Bank estimates we will be at about 7% in that year).[13]

FIGURE 5. How many poor at what line?
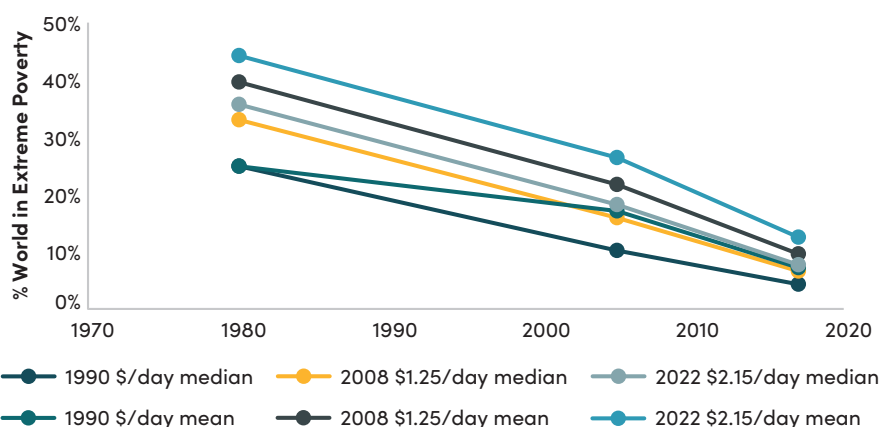
Source: Appendix Table A2.

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13   World Bank. (2022). *Poverty and Shared Prosperity 2022: Correcting Course.* Washington, DC: World Bank. Poverty and Shared Prosperity 2022 (worldbank.org)

This is not of mere historical interest: the current calculation process sets up growing problems for the future. Not least, $2.15 poverty is increasingly concentrated at the tail end of country income distributions and increasingly in countries where surveys are infrequent and prone to inaccuracy thanks to political interference (India) or other challenges (DRC, Nigeria).[14] Again, the extreme poverty line is currently set at the median of the most recent poverty lines of all countries with available data which are poorer than the low-income country cutoff (currently $1,085 GNI per capita at World Bank Atlas exchange rates).[15] That means as countries graduate from low income status, the basket of poverty lines used to calculate global extreme poverty will change.

Figure 6 orders low-income countries in the poverty line sample ordered by Atlas GNI per capita. Assume these countries grow at about 4% a year, their poverty lines remain unchanged and new PPP rounds have no impact. In about twenty years, there will be an interesting period where Central African Republic and Sierra Leone cross the threshold into middle income status, fall out of the extreme poverty line basket, and the extreme poverty line drops from $2.14 to $1.64. Global poverty rates will collapse. Very soon after, Madagascar and Mozambique will cross, leaving Burundi all alone in setting the extreme poverty line for at the higher rate of $2.14. Progress against extreme global poverty will reverse.

And then, Burundi will cross the threshold. Even if it doesn't change its poverty line *at all* in the next decades, it is going to reach middle income status with some people below that line. But once it does so, there will be no low income countries left with which to calculate the extreme poverty line. The world will be free of extreme poverty not by virtue of the fact that there are no people who, under previous definitions, would be considered extremely poor, but by virtue of the fact that the definition requires a calculation that will become impossible to carry out.

Of course growth will not be that uniform and future PPP adjustments will have an impact. And it is also likely that Burundi or other countries currently in the low-income category will raise their national poverty lines in the next decades. But that creates an additional problem. Imagine your days are filled with dreaming about World Free of Poverty,[16] or that you are part of an SDG movement dedicated to the idea that by 2030, we will have eradicated extreme poverty for all people everywhere.[17] If the extreme poverty line keeps on rising, that challenge gets harder and harder. It also suggests the number of people under the extreme poverty line the year before the last country graduates from LIC status and the line becomes incalculable might be quite large.

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14 Bhattacharya, Parmit (2023) India's Statistical System: Past, Present, Future Pramit Bhattacharya Carnegie Endowment Working Paper Lain, J. W., Schoch, M., & Vishwanath, T. (2022). Estimating a Poverty Trend for Nigeria between 2009 and 2019 World Bank. Thontwa, S. K., De Herdt, T., Marivoet, W., & Ulimwengu, J. (2017). National datasets on livelihoods in the DRC: Precisely wrong or vaguely right?.

15 World Bank. (2023). *World Bank Country and Lending Groups.* Accessed January 4, 2024. World Bank Country and Lending Groups – World Bank Data Help Desk

16 As is inscribed in the World Bank's lobby. See https://t.co/H3Fvs1FN71 https://t.co/eArpgI57WO" / X (twitter.com)

17 United Nations. *Goals -1: End Poverty in all its Forms Everywhere.* Accessed January 4, 2024. Goal 1 | Department of Economic and Social Affairs (un.org)

FIGURE 6. Whither the poverty line?
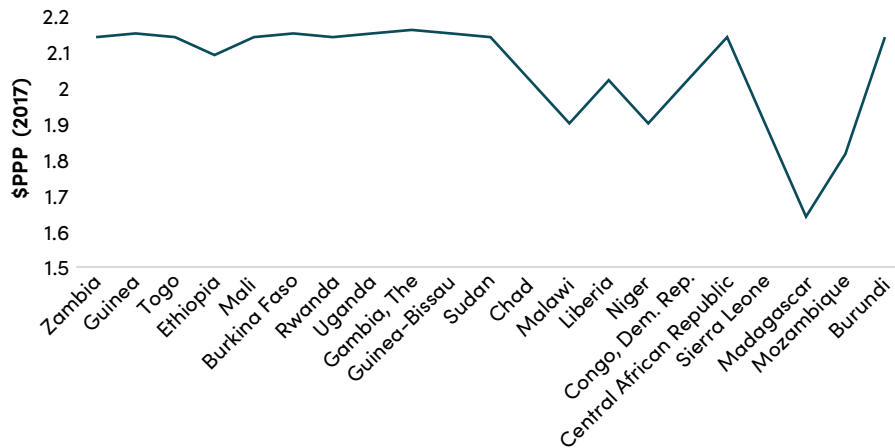
Source: Annex Table A3.

All of this is not to say the $2.15 line or a $1.50 line that is an 'inflation adjusted' version of dollar a day should be freighted with any specific significance beyond the fact that it is where the line is currently or was originally set.

Ravallion and Chen argued the income poverty data suggested the "overall elasticity of the poverty line to mean consumption is about 0.7. However, the slope is essentially zero amongst the poorest 20 or so countries, where absolute poverty clearly dominates."[18] This language (and indeed many of the underlying processes for creating a national poverty line in the poorest countries) is based around the idea of pricing a minimum 'subsistence' consumption bundle of goods (an approach that dates back to Rowntree, 1901).[19] And internationally consistent 'basic needs' poverty calculations that rely on similar consumption baskets certainly track extreme poverty measures fairly closely at the regional aggregate level over the long term, even if there are still marked differences, including that poverty rates look higher in Asia.[20]

But what was the bare subsistence minimum has always been a matter of fierce debate,[21] and national poverty lines even in the poorest countries do not appear to reflect some global 'absolute' minimum.

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18 Chen & Ravallion, 2010.

19 Dissanayake, R. (2023). *Between the Lines: A History of the Most Important Concept in Global Poverty.* Asterik Magazine. Accessed January 4, 2024. Between the Lines: A History of the Most Important Concept in Global Poverty—Asterisk (asteriskmag.com)

20 Van Zanden, J. L., Baten, J., Mira d'Ercole, M., Rijpma, A., Smith, C., & Timmer, M. (2014). *How was life?: Global well-being since 1820.* OECD publishing. Allen, R. (2017, June). *Absolute Poverty: When Necessity Displaces Desire.* Abu Dhabi: New York University. 0005.pdf (nyu.edu)

21 Charles Booth's poverty line set in the 1880s in the UK was linked to a policy discussion around poverty relief. Booth felt any family living on less than 18 shillings a week was poor, but the UK Parliamentary Select Committee on poor law relief noted that the job of relief systems was to prevent destitution, not mere poverty, and that relief payments for a family of five, meant to stave off starvation, averaged only nine shillings and four pence. The argument still rages, and alternate poverty measures have been proposed more closely tied to a minimum consumption basket. Note even then, the standard calculation for a "nutrition based" poverty line uses a bundle of food needs and the cost per item in that bundle determined by choosing a reference group consumption bundle rather than a truly minimum cost bundle of food needs.

By 2016, the extended and harmonized dataset of poverty lines used by the World Bank suggested the relationship between mean consumption levels and poverty lines remained throughout the distribution of poverty lines, suggesting income poverty was a relative concept even in the poorest countries.[22] And it varied a lot even amongst countries with very similar incomes. In 2017 PPP$ terms, the national poverty line in Liberia was $1.64. The country right below Liberia in terms of GDP per capita had a poverty line of $3.13. The next country above in terms of GDP per capita, Sierra Leone, had a poverty line of $3.24.[23] In the absence of evidence of a 'hard floor' for poverty lines globally, any choice of which countries to include in the extreme poverty line basket will be arbitrary.

The current average of low income country poverty lines involves a country grouping created as the result of a decision about where the World Bank decided particular procurement rules should apply in 1989.[24] That all suggests the $2.15 PPP line does not reflect some significant underlying reality better than $1.50 or $4 would, because there isn't a significant underlying reality beyond the fact that $2.15 is more than $1.50, less than $4.00 and all three numbers are inadequate levels of consumption for a high standard of living. In turn, from the point of view of measuring *progress*, no reasonably low line has primacy – we want progress against all of them, fastest for the poorest (the good news: progress across lines does tend to go together because growth is good for the poor, however defined).[25] Meanwhile in terms of setting an ultimate *target*, we consider poor people in Europe and the US poor when they have an income of below about $30 a day.[26]

The problem with (any) income measure

Again, to at least some degree, the extreme poverty line is meant to reflect consumption adequate at least for basic nutrition. But a more direct measure of nutritional adequacy (if also of broader health) is provided by stunting and underweight statistics, and it suggests notably different levels of malnutrition at similar poverty rates (see Figure 7). It is to ask too much of income and conversion statistics for any particular line to be a good measure of a set level of absolute deprivation worldwide, and that suggest the need to consider more direct measurements of deprivation in our poverty measures.

22 Jolliffe, Dean, and Espen Beer Prydz. 2016. "Estimating International Poverty Lines from Comparable National Thresholds." *Journal of Economic Inequality, 14*(2): 185–198. https://doi.org/10.1007/s10888-016-9327-5

23 Jolliffe et al, 2022.

24 Kenny, C. (2023, March). *Past Time for a More Rational Approach to Global Income Classifications.* CGD. Accessed January, 4 2024. Past Time for a More Rational Approach to Global Income Classifications | Center For Global Development | Ideas to Action (cgdev.org)

25 Dollar, D., & Kraay, A. (2001, April). *Growth is Good for the Poor.* Washington, DC: World Bank. World Bank Document

26 Roser, M. (2021, March) *Global Poverty in an Unequal World: Who is considered poor in a rich country? And what does this mean for our understanding of global poverty?* Our World in Data. Accessed January, 4 2024. Global poverty in an unequal world: Who is considered poor in a rich country? And what does this mean for our understanding of global poverty? – Our World in Data See also Pritchett, L. (2006). Who is not poor? Dreaming of a world truly free of poverty. *The World Bank Research Observer, 21*(1), 1–23.

FIGURE 7. Prevalence of stunting and underweight vs $2.15 poverty rate

● Stunting   ● Underweight
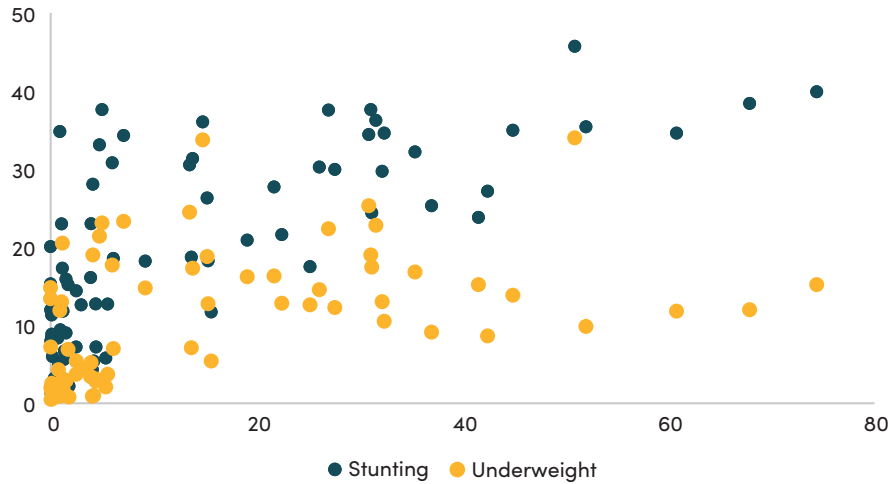
To further illustrate the gap between specific deprivations and income poverty, look at the deprivations for households living under $2.16 a day in 1993 PPP$ as reported by Banerjee and Duflo.[27] Figures 8, 9 and 10 report on infant mortality, tap access and radio ownership. Not only do rates of deprivation vary considerably by location with and across countries, but they are significantly related to levels of poverty in the community as a whole (where more people are poor, poverty is associated with greater deprivation). In Tanzania, only 1 percent of the urban poor living on less than $2 a day owned a television in the 1990s compared to 70 percent of the urban poor in Panama, for example – not surprisingly, electricity access was also considerably lower in Tanzania.

FIGURE 8. Infant mortality in communities living under $2.16 a day (1993 PPP)

● Urban Infmor   ● Rural Infmor
········· Linear (Urban Infmor)   ········· Linear (Rural Infmor)
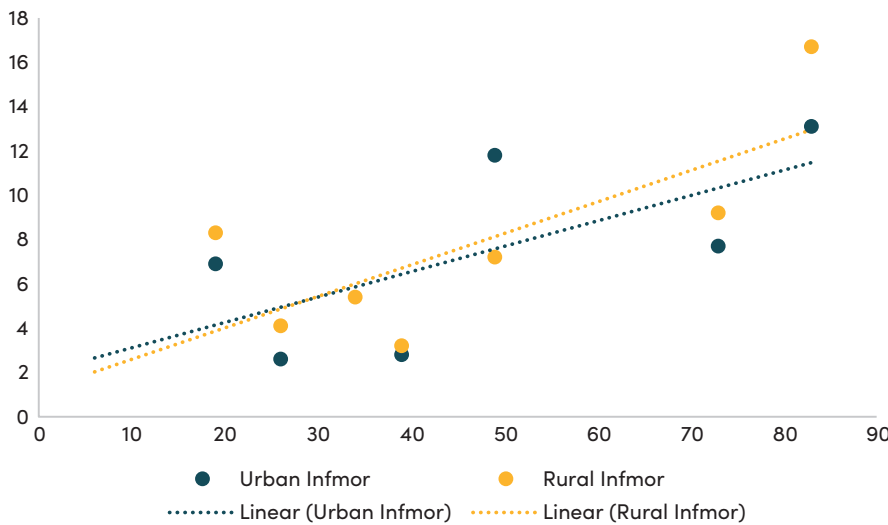
27 Banerjee, A. V., & Duflo, E. (2007). The economic lives of the poor. *Journal of economic perspectives, 21*(1), 141–167.

FIGURE 9. Access to a tap in households living under $2.16 a day (1993 PPP)

- Urban Tap
- Rural Tap
- Linear (Urban Tap)
- Linear (Rural Tap)
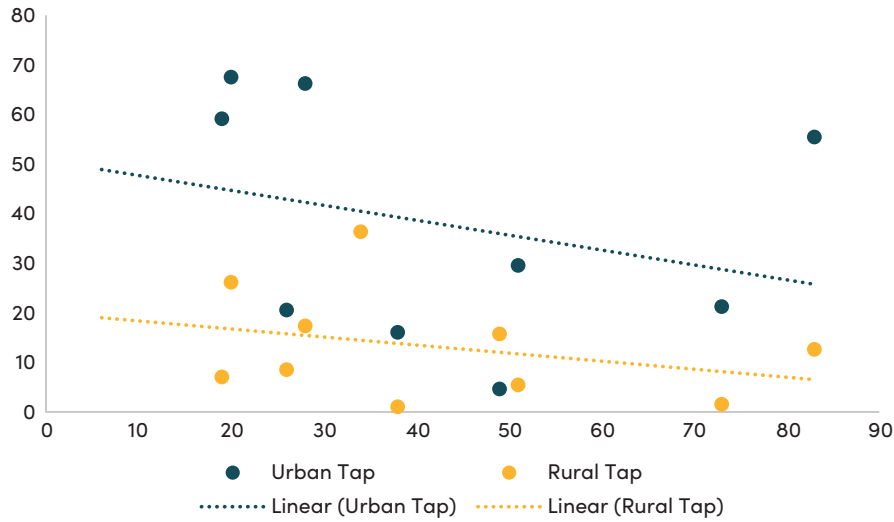
FIGURE 10. Radio ownership in households living under $2.16 a day (1993 PPP)

- Urban Radio
- Rural Radio
- Linear (Urban Radio)
- Linear (Rural Radio)
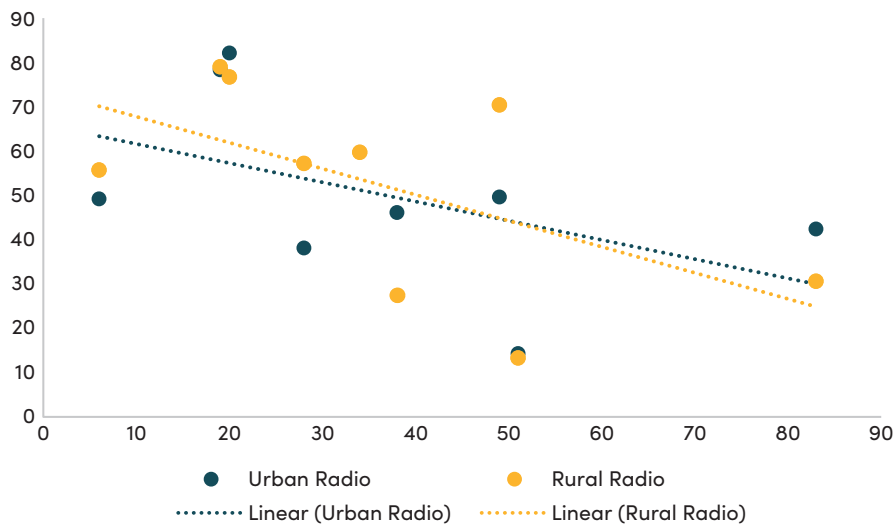
Or look at trends over time: since 1990, the average under five mortality rate associated with a given proportion of a country in poverty has fallen by about one half (see Figure 11). The relationship between primary enrollment and poverty has pretty much broken down at the national level as universal primary education has spread. This has policy relevance: a consumption metric surely leads to the conclusion that growth is good for the poor. A deprivation metric would (does) surely still strongly suggest that,[28] but might suggest other tools including technology and targeted interventions of the sort that can be implemented at scale. (Related both to progress in health and education and to weaknesses in personal consumption measures of poverty is the fact that public

28 Kenny, 2023.

spending on services like housing, health and education can substitute for private spending and public spending on these services has risen even in the world's poorest countries).[29]

It is worth emphasizing that while the relationship between consumption/income and deprivations changes over time thanks to changing technologies and norms, and while at the individual level the link between specific deprivations and any specific poverty line is weak, the cross-country relationship between average income/consumption and declining deprivations is strong. It also shows no sign of a kink around $2.15 (or, indeed, considerably higher poverty lines). That brings us back once again to the point that achieving zero $2.15 poverty should in no sense be considered a reason for policy complacency. Or, to put it another way, the considerable majority of people suffering most deprivations (as it might be, an easily prevented child death in their household) are not in households living under $2.15 a day. Our goals for development should surely involve more than just consumption, and with consumption they should involve a far higher target than $2.15. The number of people living under $2.15 should be seen as a sign of the extent of global failure, the number just above it is no sign of development success.[30]

FIGURE 11. $2.15 poverty and under-five mortality 1990 and 2020
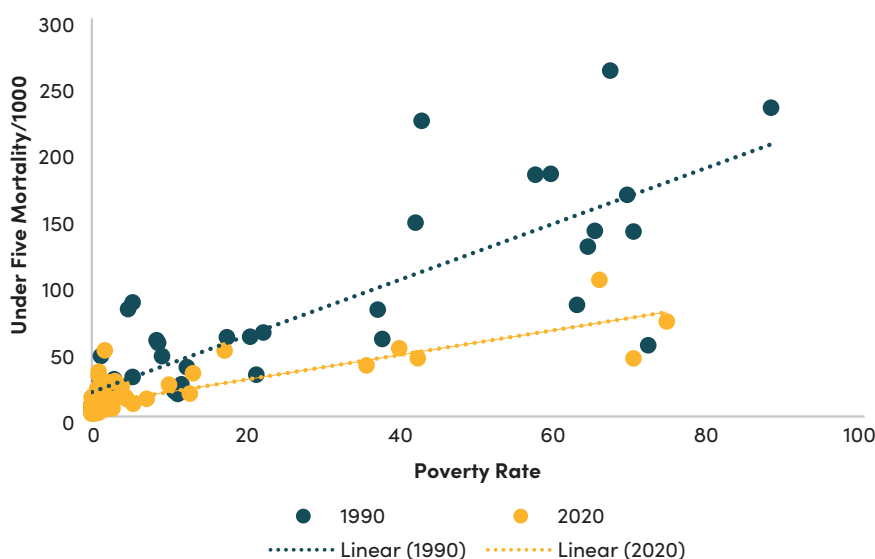
Targeting

This links to the use of the extreme poverty line as a measure for allocation. The extent to which the poverty line matters depends in considerable part on how often it is used as a targeting tool

29 Gethin, A. (2023, September). *Revisiting Global Poverty Reduction: Public Goods and the World of Income, 1980–2022.* Paris, France: World Inequality Lab. Revisiting Global Poverty Reduction: Public Goods and (wid.world)

30 Pritchett, Lant and Kenny, Charles, Promoting Millennium Development Ideals: The Risks of Defining Development Down (August 14, 2013). Center for Global Development Working Paper No. 338, Available at SSRN: https://ssrn.com/abstract=2364643 or http://dx.doi.org/10.2139/ssrn.2364643

for international assistance. As it turns out, it is hard to make the case that the dollar a day line and its successors have been widely used in that way. For example, UK legislation suggests its aid should be focused on poverty reduction but sets no specific targets related to income or multidimensional poverty. The World Bank's soft lending arm (IDA) uses a country GNI cutoff (not even one measured in purchasing power parity) and Gavi follows suit. SDG Indicator 1.a.1 measures "total official development assistance grants from all donors that focus on poverty reduction as a share of the recipient country's gross national income," but it does so with an indicator designed to capture ODA spent on basic social services and development food aid, not the extreme poverty measure.[31]

Figure 12 looks at the relationship between aid per capita and the percentage of the population below the $2.15 line for 71 countries with data (it excludes five outliers: Kiribati, the Marshall Islands, Palau, Tonga and Tuvalu, all countries with comparatively low poverty rates and aid per capita of above $500). It is hard to see much of relationship, something also suggested by a simple linear regression, which suggests there is no relationship between poverty rates and ODA per capita allowing for GNI per capita.[32]

FIGURE 12. Poverty and ODA flows
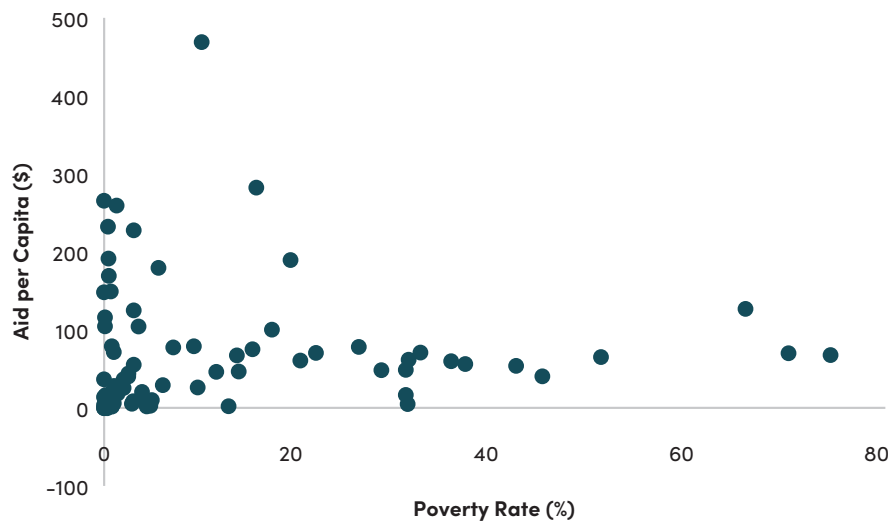
Note: Average of available data 2017–2022 for net ODA received per capita (current US$) and poverty headcount ratio at $2.15 a day (2017 PPP) (% of population) from World Development Indicators.

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31 Government of United Kingdom. *Sustainable Development Goals: Indicator 1.a.1.* Accessed January 4, 2024. Indicator 1.a.1 - Total official development assistance grants from all donors that focus on poverty reduction as a share of the recipient country's gross national income - U.K. Indicators For The Sustainable Development Goals (sdgdata.gov.uk)

32 Average of available data 2017-2022 for net ODA received per capita (current US$), poverty headcount ratio at $2.15 a day (2017 PPP) (% of population) and GNI per capita, PPP (constant 2017 international $). An OLS regression produces Ln(ODA per capita) = 13.4 – 0.2 (poverty headcount ratio) –1.1 Ln(GNI/capita). Poverty significant at p=0.1, income at p=0.01. N=76.

The existing literature suggests a number of bilateral and multilateral donors (though not all, including not the US) do in fact give more ODA per capita to countries with more, poorer people.[33] That said, (again) this appears to be because poorer *countries* get more ODA per capita.[34] There is a strong negative relationship between ODA as a percentage of GNI and GNI per capita,[35] and donors may have become more focused on providing aid to the poorest countries over the period 1970–2004.[36] But the poverty rate insignificant determinant of ODA flows controlling for income, population and civil and political rights.[37] And while ODA per person is higher in poor countries (which have higher poverty rates) ODA allocations *per person in poverty* are regressive – richer countries get more ODA per person in poverty than poor countries.[38] Aid does not appear to target poverty within countries, either.[39]

It may be that ODA allocations are considerably more determined by the World Bank's decisions as to where to set the IDA threshold – something that predates the creation of the global extreme poverty line and is based on Atlas GNI per capita – than it is by measures of extreme poverty. Crossing the IDA threshold is associated with a decline in the aid to GNI ratio of 59% driven by declining IDA flows but also considerable reductions in assistance from other donors.[40]

Of course, while a dollar of aid is likely to have a far bigger impact on quality of life in lower-income countries, it doesn't necessarily follow that aid should be focused on countries with a higher poverty ratio *given their average national income*. This difference will reflect greater inequality and might (even) be a sign that aid will be appropriated by the relatively rich. And if aid has become somewhat more focused on the poorest countries over the period since the World Bank 1990 World Development Report, and the poverty measure could take some credit for that, it would still be a positive impact.

At the same time, to the extent aid has become focused more on poorer countries, the biggest driver appears to be a continued desire not to give aid to large countries. Figure 13 reports cumulative net ODA on the Y axis against cumulative population of countries ranked by income per capita on the X axis. While the shift toward the Y axis between 1990 (blue) and 2021 (orange) suggests that more aid was directed at populations in in the world's poorest countries, it appears that that happened

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33 Sawada, Y., Yamada, H., & Kurosaki, T. (2008). Is aid allocation consistent with global poverty reduction? A cross-donor comparison. *Discussion papers.* (See also: Baulch, B. (2004). *Aid for the Poorest?: The Distribution and Maldistribution of International Development Assistance.* Chronic Poverty Research Centre.)

34 Bandyopadhyay, S., & Wall, H. J. (2006). The determinants of aid in the post-cold war era. FRB of St. Louis Working Paper.

35 Galiani, S., Knack, S., Xu, L. C., & Zou, B. (2017). The effect of aid on growth: Evidence from a quasi-experiment. *Journal of Economic Growth*, *22*, 1–33.

36 Claessens, S., Cassimon, D., & Van Campenhout, B. (2009). Evidence on changes in aid allocation criteria. *The World Bank Economic Review*, *23*(2), 185–208.

37 De Matteis, A. (2013). Relevance of poverty and governance for aid allocation. *Review of Development Finance*, *3*(2), 51–60.

38 Dissanayake, R., & Tahmasebi, A. (2021). Some Unpleasant ODA Arithmetic. *Center for Global Development.*

39 Briggs, R. C. (2021). Why does aid not target the poorest?. *International Studies Quarterly*, *65*(3), 739–752.

40 Galiani, S., Knack, S., Xu, L. C., & Zou, B. (2017). The effect of aid on growth: Evidence from a quasi-experiment. *Journal of Economic Growth*, *22*, 1–33.

primarily because India and China (the long plateaus visible toward the start of the 1990 line and further along the 2021 line) got a lot richer: they never received much aid even when they were home to many hundreds of millions of poor people (and notably, China didn't get an aid bump when hundreds of millions of its citizens were thrown into extreme poverty by the higher line in 2010).[41] That in itself is a sign that other factors including recipient size continue to play a considerable role in aid allocation.

FIGURE 13. Cumulative ODA by cumulative population 1990–2021
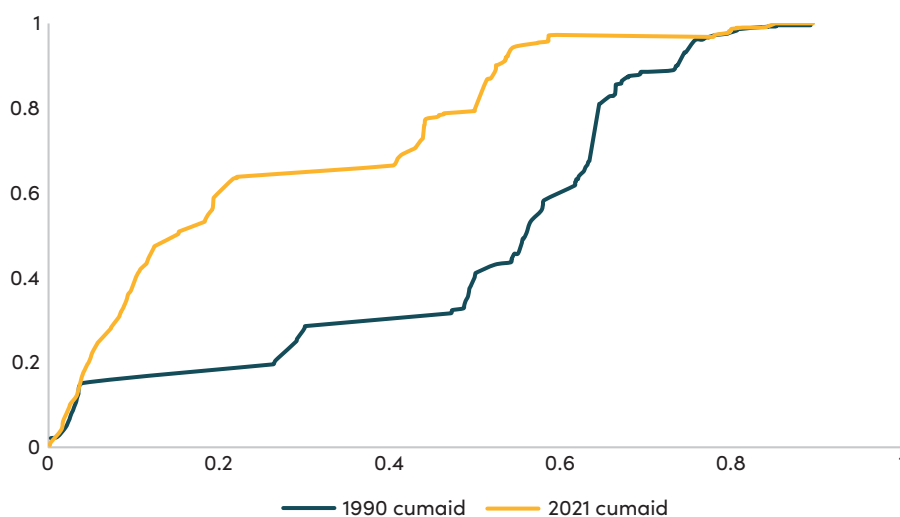
None of this is in any way conclusive on the impact of the creation and diffusion of the global poverty line on aid flows. Perhaps it did have some impact, perhaps in particular through more flows to lower income countries than would have happened absent the discussion of global poverty that the $1 a day line apparently so dramatically expanded. But the circumstantial evidence that it never became a binding target for any aid agency does suggest any impact was at best indirect.

Conclusion

The good news is that our progress against extreme deprivation is probably greater than suggested by any given extreme income poverty measure, as the quality of life has become cheaper over time. But that we live in a world where (give or take) 700 million people living in $2.15 poverty could each be given an additional $2.15 a day would cost 0.4% of global GDP suggests our capacity to do better has never been greater (it would have cost 3% of global GDP in 1990). That is to say nothing about the considerably greater ease of direct transfers in an age of mobile banking, as demonstrated by charities including Give Directly. And yet we hardly ever direct international public resources in such

41   World Bank Data. *Net ODA Received (% of GNI) – China*. Accessed January 4, 2024. https://data.worldbank.org/indicator/DT.ODA.ODAT.GN.ZS?locations=CN

a manner, let alone increase resources to support such an effort. For all of the marketing success of dollar a day, perhaps this is the best sign of its limited real world impact.

Regardless, the measure is very successful as a framing tool. And the wavering value of the poverty line suggests we need a new process to quantify the extent of extreme income poverty that actually *is* absolute rather than relative. One approach would be to return to the system used for the 2015 $1.90 update: inflating a consistent set of national poverty lines at national inflation rates and then convert using the latest PPPs – with the risk that national CPIs over the long term are unreliable in countries with weak statistical capacity.[42] (Or, now that PPPs are chained, we could use $2.15 PPP updated for international inflation.) Whatever the approach, and for the time being, the international extreme poverty line has become too popular and influential a measure to be subject to arbitrary revision at every PPP round, and too widely adopted as an absolute measure to remain calculated using a relative benchmark. As suggested in 2015, we need to fix the goalposts.

At some point, as more and more countries get richer, if we want to keep a global extreme poverty line, we need a higher one. Perhaps that could be just the LMIC plus LIC average in a given year. But if the point of the income line were to be to help target assistance, we could go back to the original $/day exercise which suggested a little more than a billion people lived in poverty worldwide. Perhaps we could use a bottom billion indicator (at the moment this would be about $2.60). Or the bottom 20 percent is somewhere near the proportion considered in poverty in 1990 – perhaps around $3.30 today.

But the weakening link between extreme poverty and broader deprivations suggests the potential benefits of a 'direct deprivation' basket to measure (progress against) poverty across countries and over time. The Alkire and Foster Multidimensional Poverty Indicator, for example, is based on household measures of the presence of undernourishment, child death, lack of schooling, solid fuel use, inadequate sanitation and drinking water, lack of electricity, inadequate housing and asset ownership (including radio, TV, telephone, cart, bike, refrigerator and car). Once again, it is related to the extent of $1.90 poverty in a country, but only loosely (Figure 14). The World Bank has adopted its own multidimensional measure.[43] A variation on Alkire-Foster would be to develop an 'SDG-consistent' multidimensional indicator based on the targets of the Goals that are universal (in that the Goals suggest everyone should have access to the service or enjoy the outcome by 2030): basic water and sanitation, electricity, Internet, schooling, nutrition, low mortality, health services and so on.

A multidimensional index designed to capture the extent of deprivations that the SDGs suggest shouldn't exist by 2030 would be fixed, cover actual deprivations and garner considerable

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42   As discussed i.a. by Jolliffe et al. (2022).
43   https://www.worldbank.org/en/topic/poverty/brief/multidimensional-poverty-measure

international political appeal. Sadly, as we are considerably off track to meet the SDGs, it would also be a poverty indicator with a life far beyond 2030.

To a large extent this is about marketing, not economics. The Dollar a Day line was an incredible success as a marketing tool (if perhaps also a distraction from a focus on broader-based economic development).[44] But the SDGs have also been a marketing success and provide the basis for a better measure of deprivations – perhaps it is time to embrace that. And perhaps that will make the poverty line a more powerful force of actual policy change. Still, designing a 'better' poverty measure of a floor we think no person should drop below will only make a real difference if the funding and policy is forthcoming to make that floor a reality, and sadly there is precious little sign of that.

FIGURE 14. Multidimensional and $1.90 poverty

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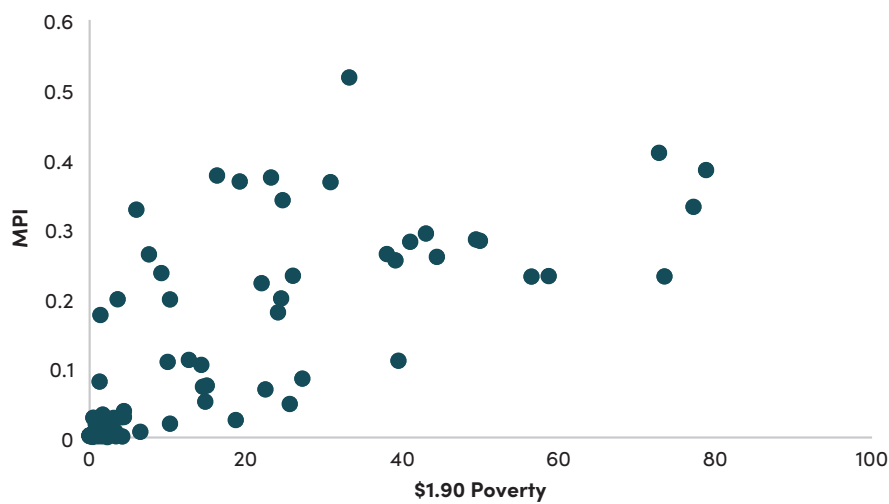
44 Lant Pritchett and Charles Kenny. 2013. "Promoting Millennium Development Ideals: The Risks of Defining Development Down." CGD Working Paper 338. Washington, DC: Center for Global Development.

Appendix

TABLE A1. World Bank official global poverty rates over time

Year	1990 WDR	C&R 2000	C&R 2008	Ferreira et al. 2016	Joliffe et al. 2022	PIP 2023
1981			41.9			43.6
1984			37.9			41.0
1985	23.0					39.6
1987		23.5	34.2			37.4
1990		24.1	34.3	37.1		37.8
1991					37.5	37.4
1993		23.5	32.3			35.6
1996		20.5	28.5			31.3
1998		20.0				31.3
1999			28.0	29.1		30.3
2002			25.4			26.9
2005			21.0			21.7
2011				14.1		14.2
2012				12.7		13.2
2017					9.1	9.8
2019						9.1

Note: earlier global poverty estimates are based on the reported rates for developing countries multiplied by (low and middle income country population / world population).

TABLE A2. Evolution of the poverty line

Evolution of the International Poverty Line, Including Poverty Estimates							
Poverty Line/ Year	Methodology	PPP Dollars Year					
		1985		2005		2017	
		Median	Average	Median	Average	Median	Average
1990 6 Countries, All About Equal	Countries w PPP/Infl data	**$1.00**		$0.85	$1.06	$1.53	$1.90
	Global poverty rate reported for this line	23%		–	–	–	–
	Global poverty rate est. by PIP using the 2017 PPP PL for each year	24.9%	($1.53)	10.2% ($1.53)	17.1% ($1.90)	4.3%	7.2%
2008 Average of 15 Countries	Countries w PPP/Infl data	$1.28	$1.36	$1.26	$1.25	$1.84	$1.96
	Global poverty rate reported for this line	–	37.9% (1984)	–	21.0%	–	–
	Poverty rate est. by PIP using the 2017 PPP PL for each year	33% ($1.84)	35.7% ($1.96)	15.9% ($1.84)	18.2% ($1.96)	6.6%	7.7%
Jolliffe et al. 2022 Median of 25 LICs	Countries w PPP/Infl data	$1.25	$1.89	$1.76	$2.08	**$2.15**	$2.41
	Global poverty rate reported for this line	37.5% (1991)	–	–	–	**9.1%**	–
	Poverty rate est. by PIP using the 2017 PPP PL for each year	39.6% ($2.15)	44.2% ($2.41)	21.7% ($2.15)	26.4% ($2.41)	**9.6%**	12.5%

Notes: Color Highlights Denotes Actual IPL; Countries are not included if necessary data unavailable. See footnote 6 for methodology.

TABLE A3. Poverty line data

	GNI/Capita	Poverty Line	Median Poverty Line
Burundi	240	2.14	2.14
Mozambique	480	1.49	1.815
Madagascar	500	1.64	1.64
Sierra Leone	510	3.24	1.89
Central African Republic	530	2.16	2.14
Congo, Dem. Rep.	580	1.9	2.02
Niger	590	1.87	1.9
Liberia	620	3.13	2.02
Malawi	630	1.68	1.9
Chad	650	2.66	2.02
Sudan	670	3.58	2.14
Guinea-Bissau	780	2.28	2.15
Gambia, The	800	3.87	2.16
Uganda	840	1.49	2.15
Rwanda	850	1.73	2.14
Burkina Faso	860	2.16	2.15
Mali	870	1.95	2.14
Ethiopia	960	2.04	2.09
Togo	980	2.17	2.14
Guinea	1010	3.4	2.15
Zambia	1040	1.78	2.14

Sources: poverty lines Atlas GNI per capita 2021.