Philanthropy, Welfare Capitalism, or Radically Different Global Economic Model: What Would It Take to End Global Poverty within a Generation Based on Historical Growth Patterns?

Peter Edward and Andy Sumner

Abstract

This paper considers the effectiveness and efficiency of global growth, as a route to poverty reduction, since 1990 and then demonstrates the redistributive challenges implicit in various poverty lines and scenarios: the significance being that this historical data can inform understanding and appreciation of what it would involve to end global poverty in the future. We find that a very modest redistribution of global growth could have ended poverty already at the lowest poverty lines. However higher, but arguably more reasonable, poverty lines present radically different challenges to the current workings of national economic systems and to global (normative) obligations.

JEL Codes: D63, I32

Keywords: Poverty; Inequality; Distribution; Economic Growth

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EXECUTIVE SUMMARY

Since the Cold War global output and consumption doubled and the number of people who lived below low poverty lines has fallen dramatically. Even so, one in seven people still live on less than $2 a day and one in three on less than $4 a day (in 2011 PPP). Ending global poverty has become the focus of the discussion around the new UN Sustainable Development Goals. There are numerous global poverty projections, almost a small cottage industry, on the plausibility of ending poverty at the lower global poverty lines. Many but not all assume inequality is static. Other papers look at the distribution of growth benefits since the end of the Cold War and the relationship between growth and poverty at various, again low, poverty lines. In this paper we take a different approach. We look at the history of global growth since 1990 and ask what would it have taken to end global poverty already at various poverty lines? We find that a very modest redistribution of the growth increment of the $15 trillion of consumption growth generated since 1990 could have ended $2 (2011PPP) poverty by 2012 – almost one might say philanthropy. At the more reasonable poverty line of $4 per day something more substantial is required in terms of welfare regimes. However, ending $10 would require something much more radical, meaning a different form of social organization altogether. We argue by implication that the causes of the persistence of global absolute poverty and its eventual elimination are less so that there has been insufficient growth and more so that the pattern of growth or the distribution of the growth increment has not been conducive to eliminating poverty to date. We argue greater attention will be needed to policies that shift the distribution of the growth increment if global poverty is to be ended.

1 INTRODUCTION

Global output and consumption has doubled since 1990. And yet, despite this dramatic increase in global consumption and in all the attendant environmental and sustainability risks that ensue, one in seven people still live on less than $2 a day and more than one in three people on less than $4 a day (all in 2011 purchasing power parity (PPP)). That is not to say growth has not been effective. Growth has certainly been effective in reducing poverty at lower poverty lines, albeit with substantial cross country variations (see for discussion, Adams, 2003; Bourguignon, 2003; Dollar et al., 2013; Edward, 2006; Fosu, 2011; Kalwij and Verschoor, 2007; Kraay, 2006; Loayza and Raddatz, 2010; Ravallion, 1995; 2001; 2005; Ravallion and Chen, 1997; White and Anderson, 2001). However, although growth has been effective at reducing poverty at lower poverty lines there is a question mark over whether the distribution of growth has been as efficient as it needs to be if the world is to substantially reduce poverty at (slightly) higher, but arguably more reasonable, poverty lines.

These issues are particularly relevant because ending global poverty in the near future, typically defined as by 2030, has become the focus of much of the discussion around the new UN Sustainable Development Goals (SDGs). There are numerous poverty projections, almost a small cottage industry, on the plausibility of ending poverty at various lower end poverty lines (e.g. Bluhm et al., 2014; Burt et al., 2014; Edward and Sumner, 2013a; 2013b; 2014; Dercon and Lea, 2012; Hillebrand, 2009; Karver et al., 2012; Ravallion, 2012, 2013). Such estimates are fragile to assumptions on growth and distribution taken (see for discussion Edward and Sumner, 2014) while projections have, to date, been solely based on 'old' or 2005 PPP data, and focus mainly on lower end poverty lines ($1.25 in 2005 PPP). Many, but not all, such projections ignore the interaction of growth with inequality and instead assume that inequality is static over time on the basis that historically inequality has risen in as many countries as it has fallen and overall global within country inequality has been largely static.

At first sight, recent global success in reducing poverty at lower poverty lines seems to provide strong support for economic growth as the primary route to eliminate poverty, but this may well not reflect the less impressive impact of global growth on the living conditions of the many poor people who live slightly above the extreme poverty line.[i] It deserves reflection also that in 1990 the global $2 a day poverty gap was $493bn (at 2011 PPP rates). By 2012, after over $15tn of growth in global consumption (Household Final Consumption Expenditure or HFCE) at 2011 PPP rates, that poverty gap was still $205bn. So, while growth might seem to have been an effective way to reduce extreme poverty there are questions as to whether global growth alone can be relied upon to eradicate poverty. And, since much of the global poverty reduction has occurred in a small number of emerging economies where absolute poverty rates at $2 are now relatively low (for example, China and Indonesia) it can be expected that while these economies will continue to contribute to global growth the impact of that growth on overall global absolute poverty rates will reduce. There is a risk that focusing global attention onto poverty defined by very low poverty lines, means that the dominant focus is on the effectiveness, rather than the efficiency, of global

growth as a route to poverty reduction. Side-stepping issues of efficiency in this way makes it easier to overlook that there may well be limits to global growth and that the 'easy wins' available in large emerging economies may now be coming to an end. But if these oversights are unreasonable (and many would argue that they are) then it is necessary to go deeper and consider the relationship between growth, inequality and poverty in more detail. To explore this issue of the efficiency of growth as a route to poverty reduction we investigate how the benefits of global consumption growth have been distributed across various segments of global society. We then consider how different scenarios of redistribution might have led to different degrees of poverty reduction and reflect on the implications.

Exploring this issue of efficiency requires that, instead of merely investigating the relationship between growth and poverty by lower poverty lines, one needs also to consider the global distribution of the entire consumption growth increment. Using a custom-built model of consumption, output and distribution, the 'Growth Inequality and Poverty' (GrIP) model v2.0, we start by considering the entire global distribution, from poorest to richest, to identify who has benefited and by how much from the doubling of global consumption since 1990. We then explore a range of poverty lines to ask what it would have taken to end global poverty at these various poverty lines. The implication here is that the historical data can inform arguments underpinning the implementation of the forthcoming UN SDGs on what it would take to end global poverty within a generation. This leads us to identify that the challenge of eradicating poverty at different poverty lines can have radically different implications. We extend our analysis by means of discussing how much redistribution of the global consumption *growth increment* would have been needed to end poverty, who among the richer peoples of the world might have had to forego some of their increase in consumption to enable this redistribution, and how much would that have impacted on their consumption levels.

Our intention is that any redistribution would need to sustain incentives for growth. Of course, there is an argument that redistribution of the growth increment could slow aggregate growth. However, Luebker (2007), taking data for 26 countries, found no support for the idea that redistribution impedes future growth. Additionally, other studies have found that redistribution may even be good for growth or at least have a neutral impact on growth (Easterly and Rebelo, 1993; Ostry et al., 2014; Perotti, 1996). Recognising, however, that people are unlikely to willingly see a reduction in their existing consumption but might be somewhat less aggrieved about missing out on part of a potential increase in consumption, we pose the question as one of the distribution of the *growth increment*. This is our question: how much less consumption growth would have accrued to the rich if the world had found a way to direct that growth first to poverty eradication for the poorest (for example, by national growth that raised the consumption of the poorest or by transnational transfers or foreign aid) before allowing the rest of that growth to accrue to the rest of the global population. We find that redistribution would sustain incentives for growth taking the $2 and $4 poverty lines but might not for a $10 poverty line in the generation timeframe taken.

The paper is structured as follows: Section 2 outlines the methodology and the custom-built model of consumption, output and distribution. Section 3 then presents and justifies our analytical approach which is one of global segments based on contemporary global consumption and population patterns. Section 4 discusses the distribution of the benefits of global growth since 1990 and what it would have taken to end global poverty. Section 5 concludes.

2 A MODEL OF GLOBAL CONSUMPTION, OUTPUT AND DISTRIBUTION

The GrIP model is a custom-built model of global consumption, output and distribution discussed and originally developed by Edward (2006), and further discussed (and updated and expanded) in Edward and Sumner (2013a, 2013b, 2014, 2015). The latest iteration of the model (v2.0) is discussed in extensive depth in Edward and Sumner (2015) and in this section summarised in terms of the main features including the PPP revision.[ii] In the methodology section here we discuss the three main construction issues: the datasets used; the global population and consumption coverage; and a new adjustment for this paper related to top incomes.

In summary, GrIP is a global model of consumption distribution built of data drawn from several datasets (see Table 1) with adjustments made for consistency. The principal datasets are: the World Bank's *PovcalNet*; *World Development Indicators* (henceforth, WDI); and the United Nations' World Institute of Development Economics (UNU-WIDER) *World Income Inequality Database* (henceforth, WIID). In this paper, we have chosen not to go back further than 1990, notably because the 2011 PPP figures (in WDI) have been backdated but only to 1990. We therefore provide analysis here only from 1990, a starting point that does, however, neatly cover a line in history, namely the end of the Cold War and the period of contemporary globalisation since that has played a role in shaping global economic growth.

Table 1 Core components of the GrIP v2.0 model (data sources and date of update)

Variables	Source and date of update
Survey distributions, survey means	PovcalNet, 8 Oct 2014
HFCE and GDP in 2011 PPP, population headcounts, additional survey distributions	WDI, 17 Oct 2014
HFCE and GDP in 2005 PPP	WDI, 18 Dec 2013
Additional survey distributions	WIID3b, Sept 2014
GDP growth forecasts	IMF World Economic Outlook (WEO), Oct 2014
Population growth forecasts	UNPD World Population Prospects (WPP) 2012 (medium forecast)

The core approach in the GrIP model is to take for each country the survey distribution data[iii] and, by combining this with data on national population and on the mean consumption per capita in internationally comparable PPP $, develop for each country an estimate of how many people live at any specific consumption ($-a-day, in this paper in 2011 PPP unless explicitly noted otherwise). Having identified for each country the number of

people living at a given consumption level, GrIP then aggregates these to build a global distribution. A wide variety of other aggregations are also readily produced; for example, by region or income category. These aggregations can then be interrogated to investigate issues such as poverty levels and trends in inequality and the distribution of the benefits of economic growth. A number of methodological issues arise in making the best use of the available data to build a global model of consumption distribution and these are discussed next.

GrIP predominantly uses survey distributions from Povcal. The Povcal distributions are supplemented where possible with additional distribution data drawn (in order of preference) from WDI or WIID (Process 1 in Table 2). Surveys can be based on consumption or income distribution. In the past analysts have tended to ignore the difference but recent work by Lahoti et al. (2014) has suggested a useful way to adjust income surveys to align with consumption surveys and that adjustment is included in the analysis in this paper. Surveys do not take place annually, so in the GrIP model, distributions for intermediate years between surveys are calculated by interpolation, while in years subsequent to the most recent survey, or prior to the earliest survey, the distribution is assumed to remain unchanged from that survey.[iv] Where a country has no usable surveys, or the gaps between surveys are too great to allow reliable interpolation, we programme the GrIP model to 'fill' a country's missing distributions with a distribution estimated from other similar countries (Process 2 in Table 2). The extent of coverage of the GrIP analysis, and the impact of the various process stages in extending this coverage is summarised in Table 2 and illustrates the extent to which GrIP represents a global model of consumption distribution incorporating over 96 per cent of the global population.

It has long been recognised that the consumption (or income) means (consumption per person per annum, for example) identified in surveys do not reveal a consistent systematic relationship (both between countries and even across time within a single country) with national account (NA) means (HFCE per capita, for example). Comparisons of the impact of using the different means (survey or NA) were first made in the early to mid-2000s by Deaton (2005), Ravallion (2003) and Sala-i-Martin (2002). More recently, Edward and Sumner (2014) used GrIP v1.0 with 2005 PPP data to highlight the importance of adjusting poverty lines to take account of systemic differences between survey and NA data and to demonstrate how these different approaches lead to substantially differing views on the geography (meaning location) and scale of global poverty. In this paper we only use the survey-based approach because this mirrors the approach used for PovcalNet and in World Bank poverty estimates. This is done as follows: for every survey in PovcalNet GrIP calculates the ratio between the NA mean and the survey mean (the NA/S ratio). For years between surveys, NA/S ratios are estimated by interpolation and for years beyond the range of available surveys the closest relevant NA/S ratio is used (i.e. similar to the approach used for survey distributions). For countries added or filled (Process 1 and Process 2 countries) no survey mean data are available so the NA/S ratio is estimated from the country's HFCE per capita value using a relationship derived from all the available PovcalNet data. NA/S ratios are then combined with relevant HFCE data from WDI so that the consumption

Table 2 Coverage of population and HFCE in GrIP v2.0 before and after filling by 2011 and 2005 PPP

	2011 PPP			2005 PPP		
	No. of countries	**Population**	**HFCE**	**No. of countries**	**Population**	**HFCE**
PovcalNet coverage						
1990	110	88.1	82.5	110	88.1	81.1
2012	111	86.9	77.3	109	85.8	73.4
Process 1: additional distributions from WDI and WIID						
1990	130	94.0	97.3	128	93.8	96.9
2012	145	94.6	96.5	143	93.5	94.6
Process 2: filling with estimates for countries with no survey data						
1990	175	96.8	100.6	169	96.4	99.0
2012	192	98.1	100.8	180	96.5	98.0

Source: GrIP v2.0. Note: Process 2 figures for HFCE coverage exceed 100 per cent because the WDI 2011 PPP figure for global total HFCE is actually slightly lower than the sum of the HFCE figures for the individual countries.

mean applied in GrIP for any given country–year combination makes the best use of all the relevant data available in PovcalNet and WDI.

Once the country distribution (data on quintile and top and bottom decile shares are used) and consumption means are identified they have to be combined to determine the consumption distribution (the number of people living at each consumption level) for that country. In earlier versions of GrIP a linear distribution algorithm (described in Edward, 2006) was used that accurately replicates the consumption level in each fractile in the source data. This works well in the lower fractiles where poverty headcounts are estimated, but at the higher end of the distribution (typically the upper quintile: the highest consuming 20%) while it does accurately reproduce the totals of these top two deciles it does so at the expense of significant oversimplification of the large variations in inequality within those deciles. In GrIP v2.0 a facility has been added to use the best fit of the generalised quadratic (GQ) or Beta Lorenz functions, as described by Datt (1998), which arguably replicates better the inequality within these highest deciles (in almost all cases it is the GQ function that gives the best fit). In this paper we use the linear estimation method for poverty lines up to and including $4. However, when looking at higher cut-offs and when considering the global distribution across all consumption levels we consider that despite their limitations the GQ and Beta functions are likely to be more representative of the distribution within the highest quintiles. Therefore, when looking at the cut-offs and population segments above $4 and when presenting analysis that covers the full range of global consumption the analysis is derived from the best-fit GQ/Beta Lorenz functions.

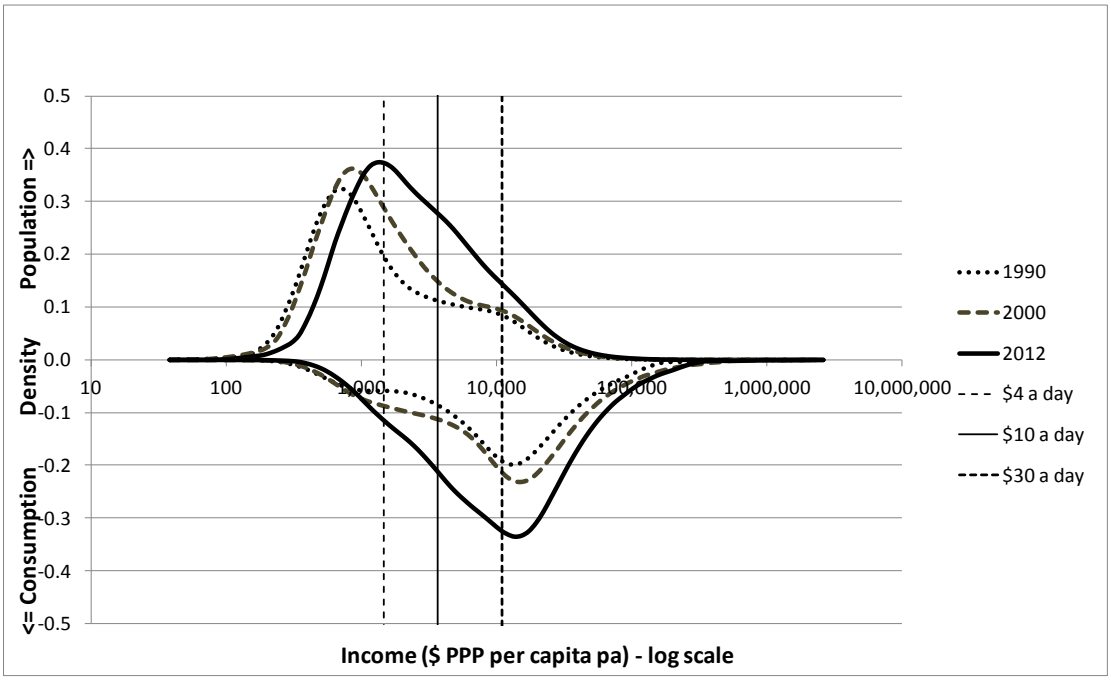
A new feature of the GrIP model for this paper is an adjustment for top incomes. It is widely recognised that the share of the distribution that accrues to the top percentiles can be substantial judging by data from the Paris School of Economics' *Top Incomes Project* (TIP) which is based on taxation data (see Alvaredo et al., 2014). It is also recognised that the top of the distribution is not well captured in the household survey data (see for discussion, Korinek et al., 2006). Various methods have been proposed recently to take account of this. Some scholars have attempted to adjust for 'top incomes' by assuming that discrepancies between survey and NA data are entirely due to underreporting by the richest (e.g. Lakner and Milanovic, 2013). Others develop assumptions on the missing 'top incomes' by drawing on the work of Thomas Piketty and Tony Atkinson and others on top incomes based on tax data (e.g. Anand and Segal, 2014).[v] If one is simply making poverty estimates at low poverty lines then the problem of 'missing' consumption of the richest in society is largely incidental and could be ignored because it occurs at the top of the country distributions and so generally well above the poverty lines under consideration. However, the issue could make a difference when considering global consumption redistribution, as we do here, because it raises the possibility that the size and difficulty of the global challenge of removing poverty, at the different poverty cut-offs we consider, might be different if one takes into account the missing top incomes.

In GrIP v2.0 we use the Paris TIP dataset to develop a relationship between the share of the top decile (10%) in PovcalNet surveys and the reported shares in TIP of the top 10 per cent,

top 5 per cent and top 1 per cent. We use the most recent surveys from each country in TIP where there is both a matching income-based survey in PovcalNet and data in TIP for the top 10 per cent, top 5 per cent and top 1 per cent. This yields 17 datapoints (all of which are from high-income countries) from which we derive linear relationships (of the form y = m.x + c) to estimate, from the unadjusted top decile share in the survey distributions in GrIP, revised shares of the top 10 per cent, 5 per cent and 1 per cent in each country.[vi] The data in GrIP is then adjusted by adding consumption appropriately to the top 10 per cent in each country to bring the shares of these top fractiles in line with these estimated revised shares. Recognising, however, that the NA HFCE figure probably provides an upper limit to the amount of consumption that should reasonably be allocated to any country we do cap the adjustment so that the total consumption for each country does not exceed its NA HFCE total.[vii]

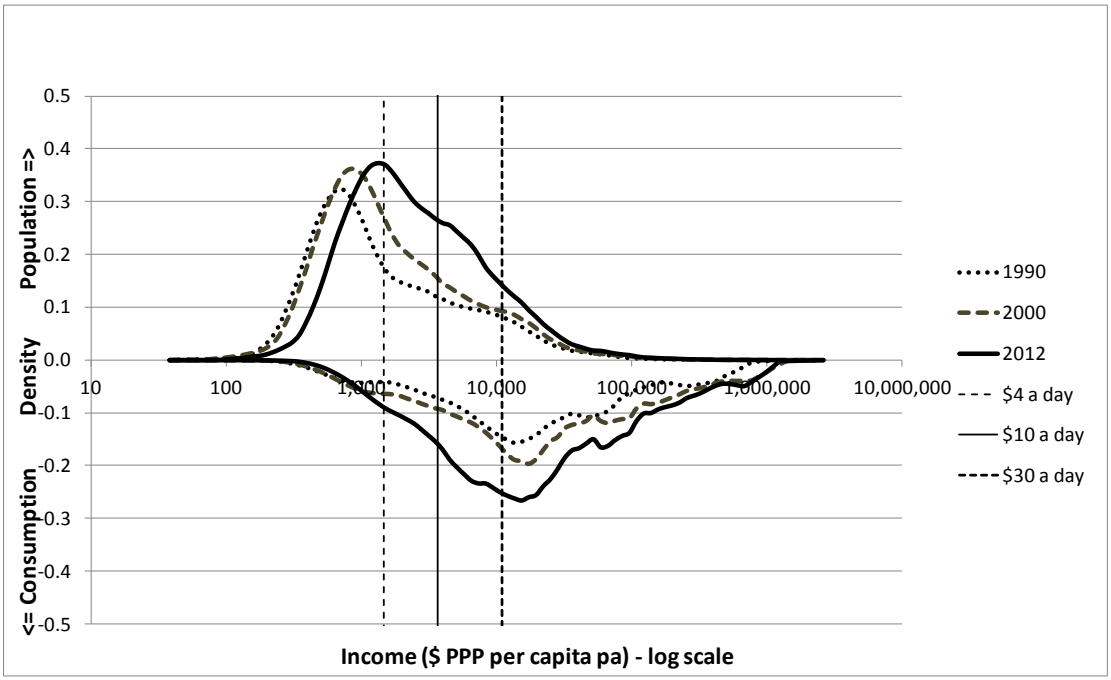
This adjustment does not have any impact on the absolute consumption of those below the top decile in each country. It simply adds consumption to the top 10 per cent in each country and distributes this so as to reproduce, in GrIP's consumption-based analysis, the same share of the distribution that the TIP database identifies for and among the top 10 per cent. In practice, however, the share of the rich in a consumption survey will probably be lower than this as rich people tend not to consume as high a proportion of their annual income as do poor people due to savings and investments. For these reasons we consider that the top incomes adjustment in GrIP most probably overstates the share of consumption that is accounted for by the richest decile in each country. Thus, we suggest that our analyses with top income adjustment (Figure 1) and without top income adjustment (Figure 2) might be seen as representing two ends of extremes. In the text below we refer to estimates without top income adjustment unless explicitly stated.

Figure 1 Global density curves, 1990, 2000 and 2012 *without* top income adjustment



Source: GrIP v2.0.

Figure 2 Global density curves, 1990, 2000 and 2012 *with* top income adjustment



Source: GrIP v2.0.

3 ANALYTICAL FRAMEWORK: A STYLISED GLOBAL CONSUMPTION STRATIFICATION

In this section we outline an analytical framework for considering global consumption stratification and thus redistribution of growth nationally and internationally based on the actual empirical pattern of global consumption in 2012. Our approach, of segmentation by identifying cut-off points at absolute consumption levels, has been used to estimate global dollar-a-day poverty levels (for example, Chen and Ravallion, 2010; 2012; Jolliffe and Prydz, 2015; Ravallion et al., 2008). But those analyses focus only on the poorer countries and only on the lowest income levels (numbers below a global absolute poverty line). More recently, a body of empirical studies related to developing countries has emerged in response to the growing data on middle-income groups. Typically referring to these groups as 'the middle classes', more often than not, the segmentation is defined by reference to daily expenditure per capita. Many of these recent studies are based on absolute definitions of expenditure per capita/day (PPP), ranging from $2/day to $100/day (see for a range Banerjee and Duflo, 2008; Birdsall et al., 2014; Easterly, 2001; Kharas, 2010; Ravallion, 2010).

The precedent for segmentation by consumption level lies not in social class theory (which cannot be conflated with consumption data as it is a social identity) but with preference similarity theory – the idea that people with similar purchasing power levels tend, wherever they are in the world, to have broadly similar consumption preferences (Linder, 1961). Imagine a group of people spread around the world but all with broadly similar income per capita in PPP terms (i.e. similar spending or consumption power) then we might think of that as a distinct global segment. If one wishes to outline such global segments, so as to demarcate them into global consumption groups, then the various global reference points that one might look at would include a person's position relative to:

i. The global distribution peaks for population and consumption (HFCE per capita);
ii. Median HFCE per capita in the industrial/advanced/'rich' world (which we define as OECD high-income countries (HICs)) and median HFCE per capita in the developing world (meaning low and middle-income countries);
iii. Global consumption fractiles.

By considering these reference points, we estimate, for 2012, a set of stylised global groups or global consumption 'segments'. Of course these cut-offs between these segments are not really points of 'hard' differentiation: there is not going to be much difference between someone just above or just below the cut-off. But the cut-off points between these stylised groups do nevertheless have globally applicable rationales that justify their relevance for making delineations, in consumption per capita in 2011 PPP $, between these global segments. The groups we identify are: the destitute; the absolute poor; the 'precariat'; the 'securiat' and the 'prosperiat' (See Table 3). We use the cut-offs of $2 for destitute, $4 for absolute poverty, $10 for security from poverty (thus the precariat is $4-$10) and $30 per day for prosperity. Table 3 shows the groups and the logic of the differentiation of segments.

The justification for the cut-offs is as follows. The global destitute are those below $2 per day. This population is very poor even by developing country standards as it is below half of the median consumption for all developing countries (which was $4.3 in 2012). It is also approximately the median of the national poverty line of all low-income countries (see Jolliffe and Prydz, 2015). This level of expenditure cut-off includes all the population in the world's poorest decile and 40 per cent of the next decile above the poorest. Table 4 shows where this and each segment live and their consumption. This destitute segment amounts to almost a billion people, one in ten of whom live in China. Three in ten live in India and a further four in ten live in sub-Saharan Africa. A third live in low-income or least developed countries and the remainder live in middle-income countries.

The global absolute poor are those below $4 a day. This population is poor by developing country standards (non-OECD HIC). This population live at or below the mode (peak) of the global population curve (which is $3.7) (see Figure 1) and below the median consumption per capita for developing countries ($4.3). The mean of these reference points is $4 which we take as the cut-off so that this segment broadly equates to the world's poorest 40 per cent (to be precise: those on $4.2 or less). This group amounts to 2.7bn people. About one third (900m) of this segment live in India, 670m in sub-Saharan Africa and 360m in China. Most (2 billion) live in middle-income countries and about 600–650m live in low-income or least developed countries.

Third, the 'precariat' (or insecure by global standards – drawing on Standing, 2011 and López-Calva and Ortiz-Juarez, 2014) are those who are not absolute poor by developing country standards but are both at risk of sliding back into poverty and are poor by rich/industrial country (OECD HIC) standards. These people consume above the mode (peak) of the global population curve and above the developing country median. However, the precariat consume at or below the upper limit of the poorest decile in rich/advanced countries ($9.5) and constitute the global deciles 5 to 7 (the upper limit of which is $10.8). So while they are in the middle in global terms – within this group is the global median ($5.5) – they are poor in rich country terms. Importantly, the $10 per day level is also close to the 'middle class' or 'security from poverty' line of $10 developed by López-Calva and Ortiz-Juarez (2014) based on the probability of falling back into poverty. Those living in this group are approximately 2 billion in number. Of the group 600m live in China, 250m elsewhere in East Asia and 300m in India. Just 170m live in sub-Saharan Africa. The overwhelming majority live in middle-income countries. Just 100–130m of the 2 billion live in low-income or least developed countries.

Next we identify a secure 'middle' or 'securiat' consuming between $10 and $30 per day. This includes those people who are not poor by OECD HIC standards and who live above the $10 'security from poverty' line (noted above) but who are still at or below the OECD HIC median ($27.8). They live above the poorest decile in rich/advanced countries (OECD HIC) so could 'afford' to live in rich/advanced countries, although some two thirds of them live in developing countries. The $30 upper cut-off for this group also is relevant in terms of the global consumption curve. It is both slightly above the median of the global

consumption curve, or the point at which there is equal consumption above and below this consumption level ($27.3 which occurs at the 89th percentile of the global population) and a little below the mode/peak of the global consumption curve (which throughout the period from 1990 to 2012 has been in the region of $35 to $40). The population in this group broadly equate to global consumption deciles 8 and 9 (decile 9 has an upper limit of $29.3). Those living in this group total 1.5bn in number, of which 1 billion live in developing countries and almost exclusively in middle-income countries. China accounts for 370m of that 1 billion. Other countries in East Asia account for another 200m. Latin America accounts for 180m and the Middle East and North Africa region for 150m.

Finally, there is a prosperous group or 'prosperiat' who consume above $30 per day. This group lives above the OECD HIC median and above the mode of the global consumption curve ($27.3). This segment amounts to just 700m people of which 130m live in developing countries and 500m live in OECD high-income countries mostly in Europe and North America. Effectively forming just the richest 10 per cent of the world's population this group accounts for almost half of global consumption. To put this into context, this group is by no means merely those who are considered rich by developed country standards as it includes 46 per cent of the population of the OECD HICs – in other words most of this group comprises people who would be considered comfortably in the 'middle' but not rich in the developed world.

The strength of the approach outlined is that it is framed around global reference points and around developed countries as much as developing countries so it is global in its description. The weaknesses, of course, are that the cut-offs, even though they are based on reasoned justification as set out previously, are nevertheless somewhat subjective and therefore any estimates that are derived from them can be sensitive to where the cut-offs are located. For this reason, we present density curves and growth incidence curves for the entire global population so that in addition to focusing on the different segments readers can reflect on the implications of the global consumption distribution as a whole.

4 WHAT WOULD IT TAKE TO END GLOBAL POVERTY WITHIN A GENERATION BASED ON HISTORICAL GROWTH PATTERNS?

In this section we discuss the following questions: first, across the groups outlined, who benefited and by how much from consumption growth since 1990; and, second, how much redistribution of the growth increment would have ended poverty by 2012 at various poverty lines? Figures 3 and 4 (and see also Table 5) show who benefitted from growth in terms of the global growth incidence curve (with and without top income adjustment). Data in the text are based on the estimates without top income adjustment. We find that those under $2 per day in 2012 had captured 1.9 per cent of global consumption growth, 1990–2012. Those under $4 captured 9.4 per cent. The precariat ($4–10) captured 20.3 per cent while the securiat ($10–30) captured 31.1 per cent and the prosperiat ($30+) captured 39.1 per cent of global consumption growth. If those under $2 poverty had captured 3.3 per cent, and those

Table 3 Stylised consumption groups based on global consumption, 2012 (2011 PPP$)

	Destitute	Absolute poor	Precariat	Securiat	Prosperiat
	Very poor by developing country standards	Poor by developing country standards	Not poor by developing country standards but poor by OECD HIC standards	Not poor by OECD HIC standards but below the OECD HIC median.	Above OECD HIC median
Daily consumption per capita (2011 PPP$)	0–2	0–4	4–10	10–30	30+
Global position with reference to global consumption and population curves from GrIP	Below 50 per cent of the median consumption for developing countries ($4.3)	At or below peak of global population curve (less than $3.7) Below median for developing countries ($4.3)	Above peak of global population curve ($3.7) At or above median for developing countries ($4.3) At or below poorest decile upper limit in OECD HICs ($9.5)	Above the poorest decile in OECD HICs ($9.5) At or below the OECD HIC median ($27.8) At or below the median ($27.3) of the global consumption distribution curve Below the mode ($35+) of the global consumption distribution curve	Above the OECD HIC median ($27.8) Above the median ($27.3) of the global consumption distribution curve At or above the mode ($35+) of the global consumption distribution curve
Global position with reference to poverty lines	Median poverty line of low-income countries = $1.92 (see Jolliffe and Prydz, 2015)	Median poverty line of developing countries = $3.08 (see Jolliffe and Prydz, 2015)	Below 'security from poverty' line of $10 (see López-Calva and Ortiz-Juarez, 2014)	Above 'security from poverty' line of $10 (see López-Calva and Ortiz-Juarez, 2014)	Substantially above the 'security from poverty' line of $10 (see López-Calva and Ortiz-Juarez, 2014)
Global position relative to global consumption deciles	Decile 1, plus 40% of decile 2 ($0–2)	Decile 1–4 ($0–$4.2)	Decile 5–7 ($4.2–$10.8)	Decile 8–9 ($10.8–$29.3)	Decile 10 ($29.3+)

Source: Authors' elaboration based on estimates from GrIP v2.0 (without top income adjustment).

Table 4 Where does each group live and how much do they consume? Data without top income adjustment

	Population (Millions)					Consumption ($bn)				
	Destitute Less than $2	**Poor Less than $4**	**Precariat $4–$10**	**Securiat $10–$30**	**Prosperiat $30+**	**Destitute Less than $2**	**Poor Less than $4**	**Precariat $4–$10**	**Securiat $10–$30**	**Prosperiat $30+**
Total	956	2,664	2,030	1,544	669	500	2,331	4,740	9,622	14,757
China	84	360	579	372	39	50	359	1,388	2,099	654
India	292	907	291	35	4	170	815	596	188	60
East Asia and Pacific	134	577	832	571	152	81	571	1,977	3,390	2,991
Europe and Central Asia	11	44	168	446	237	6	43	446	2,990	4,666
Latin America and Caribbean	59	165	212	177	43	30	145	514	1,061	1,070
Middle East and North Africa	3	52	177	138	28	2	59	440	812	513
North America	-	4	32	116	196	-	6	84	843	5,249
South Asia Region	359	1,148	439	57	5	208	1,040	912	300	81
Sub-Saharan Africa	390	673	170	41	8	174	467	367	227	186
E Asia less China	49	218	252	199	113	30	213	589	1,291	2,337
S Asia less India	67	242	148	21	1	38	225	316	111	21
High – OECD	1	13	104	451	483	0	15	279	3,250	11,069
High – non-OECD	0	2	41	126	55	0	2	114	847	1,112
LIC and MIC	955	2,650	1,886	967	131	500	2,314	4,346	5,525	2,576
UMIC	146	565	959	742	113	83	549	2,330	4,302	2,267
LMIC	459	1,469	816	209	17	257	1,333	1,788	1,142	291
UMIC (excl. China)	62	205	379	370	74	32	190	943	2,203	1,613
LMIC (excl. India)	167	563	525	174	14	87	518	1,191	953	231
LIC	350	616	110	15	1	160	432	229	81	18
LDCs	361	652	133	19	1	166	464	276	100	20
Fragile states (World Bank list)	146	247	80	33	3	60	166	178	185	45

Source: GrIP v2.0

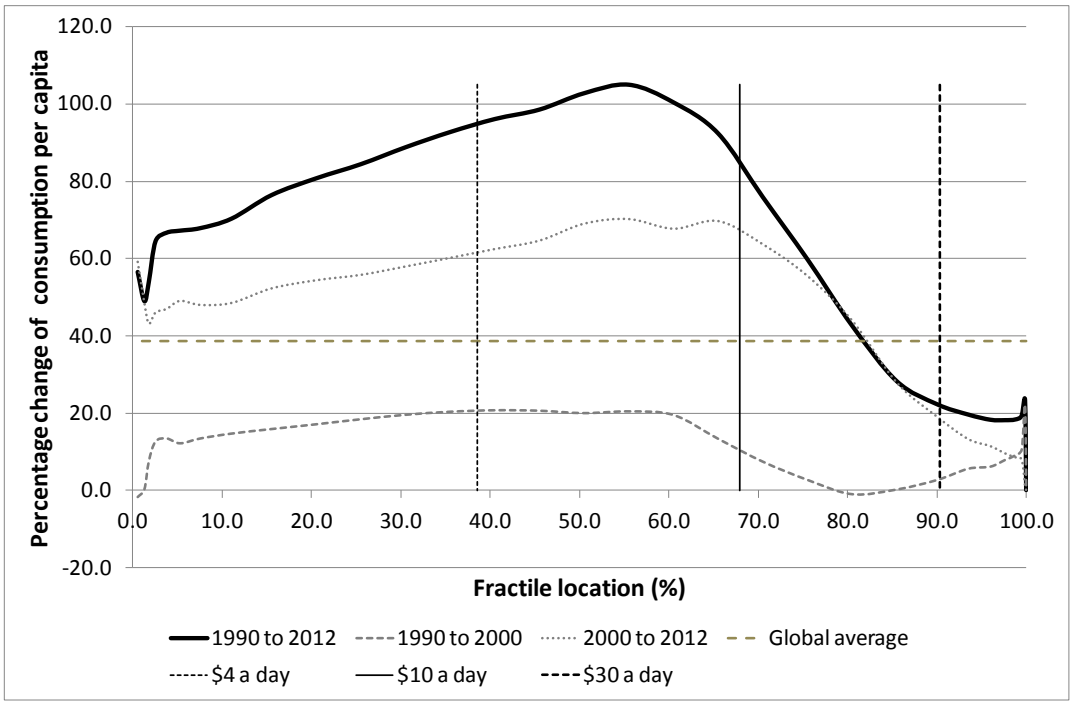
under $4 had captured 20.1 per cent of global consumption growth, this would have eliminated poverty at each of those poverty lines.

The data point to the significant implications that different perspectives on poverty can have on the role of global economic growth in the eradication of poverty. If the global aspiration was merely to remove the poverty of the destitute (those living on less than $2) then it would have required only an extra 1.4 per cent of the 1990 to 2012 global growth to have been redistributed to the poor.

If one had taken this money from the prosperiat then they would have seen *their share of the global consumption growth* in that period fall just slightly from 39.1 per cent to 37.7 per cent. One might therefore refer to this scenario as something akin to *global philanthropy*, although while the additional reallocation of growth required might seem rather modest it is worth noting that it still represents a 75 per cent increase in the share of consumption accruing to the destitute, which potentially implies that existing mechanisms for ensuring the poor benefit from growth may not be adequate to achieve even this modest amount of redistribution.

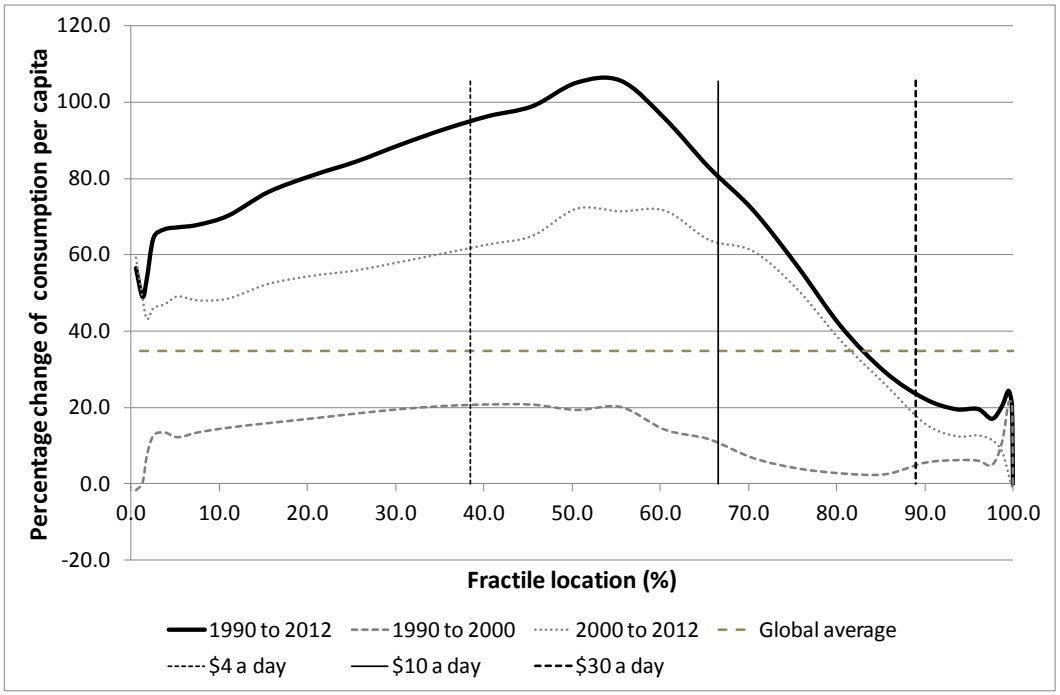
Eradicating poverty by 2012 at the $4 poverty line would have been considerably more challenging, requiring much more substantial reallocation of growth benefits towards the poorest. To investigate this we develop here a model of redistribution as an analytical device that helps to illustrate how much redistribution of the growth increment – from whom and to whom – would have been needed. To do this, we make a number of assumptions (and for comparison purposes we apply this analysis to both the $4 and $2 poverty lines to illustrate the sizeable differences implicit in different poverty eradication aspirations). First, we consider that since consumption growth was around ten times the $4 poverty gap there should be no need for anyone to be poorer in 2012 than in 1990. In fact we assume that everyone – from richest to poorest – should be able to benefit from that growth. So we only consider redistribution of the shares of the consumption growth increment. Second, for this we consider, for now, only the analysis without the top income adjustment, on the basis that this is the more challenging scenario since there is less growth to redistribute globally and so the shares of growth to be foregone are larger (we return later to consideration of the significance of the top income adjustment). Third, we assume that it is only those in the global prosperiat who will contribute to the redistribution and we cap the maximum redistribution that anyone might be expected to contribute to 50 per cent of their growth in average per capita consumption. This calculation is made separately for each country to ensure that having allowed for differences in consumption and population growth rates no one in the prosperiat in any country is expected to contribute more than 50 per cent of their consumption per capita growth. This country-by-country approach is an important methodological clarification designed to ensure that the analysis takes account of differences in national consumption and population growth rates and initial consumption per capita levels. Overall, at the global level, this country-by-country approach and the 50 per cent cap on the contribution of the prosperiat ensures that even after redistribution the global prosperiat would still see their consumption levels rise by more per capita in absolute terms

Figure 3 Global growth incidence curve, 1990–2012, 1990–2000 and 2000–2012 *without* top income adjustment



Source: GrIP v2.0.

Figure 4 Global growth incidence curve, 1990–2012, 1990–2000 and 2000–2012 *with* top income adjustment



Source: GrIP v2.0.

than would the securiat. In other words, we consider a level of redistribution that would merely dilute rather than invert the differential incentives, whereby the greatest absolute rewards accrue to the richest (we are not arguing that this is how the global economic system must or should work but merely observing that this is how it does work currently, and our aim here is to develop a scenario that does not require an inversion of that logic). Finally, we assume that the issue of redistribution is first and foremost a national one. So we assume that wherever possible money available for redistribution (on the basis of the preceding assumptions) is reallocated first to remove in-country poverty, with any balance then remaining being available to contribute to global (international) redistribution. This means that in a middle-income country such as China, those in the prosperiat would contribute first to removing poverty in China at the rate of 50 per cent of their share of global growth. Any balance remaining after that within-country redistribution would then contribute to a global 'pot' but since that would not (at the poverty lines we are considering here) be called on in full the effective call on that money would be less than the 50 per cent rate. What this means is that in our analysis the burden of eradicating poverty in a given country falls more heavily on members of the prosperiat living in that country than it does on the global community, something that we find not unreasonable and consistent with the notion that one of the purposes of national economic growth is to remove national poverty.

We propose this model of redistribution as an analytical device based on reasonable assumptions that can help to expose where and by how much the burden of successfully eradicating poverty by 2012 might have fallen. Results for our analysis are provided in Table 6 for $2 poverty and Table 7 for $4 poverty. We discuss $4 first and then $2 poverty because the latter is far less challenging. We find that, out of 171 countries for which adequate data exist (in both 1990 and 2012) to make the calculations, in 138 countries there is some $4 poverty. Fifty of these countries could have ended that poverty via within-country redistribution of the growth increment without needing any transnational transfers (see Table 7). This would have reduced global $4 poverty by 532m. The remaining 88 countries would have needed some transnational transfer. Within-country redistribution (both in the 50 countries that could remove poverty without transnational assistance and in those that need such assistance, on the basis that they transfer first as much as they can internally and then the international community makes up the rest) would redistribute $307bn of a total $1,888bn from the richest segment (the prosperiat, above $30 in 2012) to the poorest. After this redistribution there would still be a remaining shortfall of $1,220bn needing to be covered by transnational redistribution, and there would be $1,581bn ($1,888 minus $307) available for such transnational transfers. So in effect the world could (just, the cover ratio for global transfers is 77.2% = 1220/1581) have 'afforded' to remove $4 poverty by 2012 (on the basis of all the assumptions outlined above). Which countries are we talking about? Eleven OECD HIC countries have $4 poverty but they can all afford to remove this themselves. Twenty-seven low-income countries (LICs) have $4 poverty but none could afford to remove it all themselves. About one-third (27 out of 86) of the middle-income countries (MICs) could have ended $4 poverty without the help of transnational transfers. While the cover ratio for global transfers would be 77.2 per cent, once all the within-country

transfers are taken into account the overall cover ratio (the percentage of total available funds redistributed both within-country and globally) would be 80.9 per cent. For China, for example, the effective cover ratio would be 91.2 per cent reflecting the assumption in the analysis that China would both fully fund redistribution internally plus contribute to global transfers at 77.2 per cent of any remaining balance of its transfer funds. Countries such as the LICs, that cannot afford to remove poverty alone have a cover ratio of 100 per cent reflecting that in this analysis it is assumed that all their estimated transfer funds are redistributed within-country, in addition to receiving global transfers.

These differences reflect the underlying assumption in our analysis that countries should do what they can to help themselves before having recourse to global transfers. We are *not* proposing this 'help yourself before the world helps you' approach as a policy recommendation. All we want to demonstrate is that the assumptions built into our analysis first place the burden of poverty alleviation on national populations and only second on the international community. And yet, even with those assumptions the analysis estimates that 79.9 per cent (1220/1527) of the poverty eradication redistribution would need to be in the form of global transfers and about two-thirds of the total global redistribution (64.2% = (850+131)/1527) would need to come from HICs. Even after several decades of substantial global economic growth in which some developing and emerging economies have enjoyed unprecedented growth rates and substantial poverty reduction, the challenge of global poverty still remains one to which the richer countries of the world would need to make a very strong commitment if the aspiration was to eradicate $4 poverty.

Results for $2 poverty are provided in Table 6. These confirm, as discussed earlier, that the challenge of eradicating poverty at this destitution level would be much lower than at $4. Although 105 countries have poverty at the $2 rate, using the assumptions in this analysis more than half of those could eradicate that through within-country transfers, the overall cover ratio would be just 10.2 per cent and the contribution of the HICs would fall to less than 10 per cent of the funds assumed available from the prosperiat and would amount to just half of the total global redistribution burden.

In summary then, we might say that despite strong global economic growth in the period from 1990 to 2012, the pattern and distribution of that growth was nowhere near as 'poverty efficient' as it might have been. If, on average, the richest population decile (the prosperiat consuming $30 or more a day) had 'merely' foregone 5 per cent of their increase in consumption over that period (10.2% of 50% – recall the assumption earlier that only 50% of the increase is potentially available for redistribution) we could today be living in a world free from $2 poverty. The $2 poverty line is, however, very low. Removing poverty at the more reasonable poverty line of $4 would have been rather more challenging as it would have entailed redistributing an extra 10.7 per cent of global growth to those living on under $4 a day. To achieve this, the prosperiat would have had to forego 40 per cent of their increase in consumption (80.9% of 50%). This would doubtless have been very challenging, especially as it would have required substantial reallocation of the benefits of growth away from HICs and towards LICs and MICs. However, if there had been a system of global

social welfare in place it might still have been achievable. We term this global social welfare because although it entails large-scale redistributions from rich to poor it would still have meant that on average the prosperiat would have seen their consumption levels grow in absolute terms by around twice the consumption growth of the securiat. There is, therefore, reason to suppose that this level of redistribution might in theory be achieved by diluting rather than inverting a logic of differential incentives whereby the greatest absolute rewards accrue to the richest.

However, it is likely that to expect the prosperiat to forego such a large share of the growth that they enjoyed in the 1990 to 2012 period would have required very considerable political contestation (particularly given that even the far more modest redistribution required to remove $2 poverty by 2012 does not seem to have been achievable). This scenario might therefore be thought of as requiring substantial changes in the governance of growth and its distribution across consumption levels so that removing absolute ($4) poverty might be regarded as needing a welfarist form of capitalism of a scale not yet visible in the world.

If the world had aspired, in the period 1990 to 2012, to the challenge of creating a world in which no one had to live at risk of sliding back into poverty by removing poverty at $10 a day then it would have been necessary to ensure that all of the economic growth that accrued not only to the prosperiat but also to the securiat was redistributed to the poor and the precariat. Results for the $10 poverty line (Table 8) reveal that to remove the precariat group's risk of sliding back into poverty would require a global transfer fund from the prosperiat more than five times the maximum size that our analysis assumes – a finding that is consistent with the conclusion that removing poverty at this level would require a pattern of global growth that yielded negligible growth in consumption among not only the prosperiat but also the securiat in order to concentrate all the benefits of growth on the poor and the precariat. In marked contrast to the global welfare challenge of $4 poverty, removing poverty at $10 would therefore necessitate an inversion of the dominant logic, namely that while most of the benefits of growth accrue to the non-poor, nevertheless the trickledown of a smaller share of global growth to those on lower consumption levels can ultimately eradicate poverty. Indeed, this is such an inversion of that normal logic of growth and poverty reduction that it is difficult to envisage how such a situation could be achieved without a radically different form of global economic organisation.

The discussion above indicates how focusing on poverty without considering the distributional dimensions can leave one blind to the political and economic challenges to the existing global economic order implied by an aspiration to 'make poverty history'. In short, ending $2 poverty might be labelled as a scenario of global philanthropy. In contrast, ending $4 poverty would be a scenario that requires substantial intervention in terms of – presumably – global social welfare regimes to shift the benefits of growth both within and between countries. Ending $10 poverty would require some sort of radically different global economic model.

What difference would it make if one uses data adjusted for top incomes? (see data in Annex Tables A1, A2 and A3). The top income adjustment increases the amount of global consumption growth in the analysis from $14.7tn to $18.1tn and the share of this growth that is captured by the prosperiat increases from 39.1 per cent to 50.9 per cent (Table 5). Not surprisingly, the scenario of removing destitute ($2) poverty (Annex Table A1) remains one of philanthropy as the global transfer cover ratio falls to 6.2 per cent (from 10.2% without the top income adjustment). Eradicating absolute ($4) poverty also becomes easier with the cover ratio falling to 48.6 per cent (from 80.9%) – a significant difference but hardly sufficient difference to reduce the problem of poverty eradication from one of global social welfare regimes to one of merely more philanthropy (see Annex Table A2).

These results are not particularly surprising. What is perhaps more interesting is whether, once the top income adjustment is made, there is a possibility that the world could have removed the risk of sliding back into poverty ($10) through global social welfare (see Annex Table A3). Here we find that it would still be necessary to redistribute more than three times the assumed global transfer fund available from the prosperiat. In other words, and bearing in mind that this fund is assumed to be 50 per cent of the prosperiat group's consumption growth share, even after allowing for the top incomes adjustment it would still be necessary for redistribution to extend deeply into the share of the securiat. This is consistent with the data in Table 5 that shows that 78.3 per cent of global consumption growth would have needed to be redistributed to those on $10 or less, reducing the share captured by the securiat and prosperiat from 76.7 per cent to just 21.7 per cent. In other words, even with adjustment for missing top incomes we still find that in order to have removed poverty at the $10 level in the 1990 to 2012 period 80 per cent of the growth would have had to accrue to the poorest 70 per cent of the global population while just 20 per cent accrued to the richest 30 per cent. This remains the inversion of the dominant trickledown logic that we identified earlier, so even after making allowance for the possibility that top incomes are not adequately captured in the national household survey data, we still see this as likely to require a radically different form of economic organisation.

Table 5 Where does each group live and how much do they consume? Data with and without top income adjustment

	Poor		Poor + Precariat	Precariat	Securiat	Prosperiat	Total
	Destitute: less than $2	Absolute: less than $4	Less than $10	$4–$10	$10–$30	$30+	
***Without* top income adjustment**							
Population in fractile in 2012 (millions)	956	2,664	4,695	2,030	1,544	669	6,908
Fractile percentage in 2012	13.8	38.6	68.0	29.4	22.4	9.7	100.0
2012 consumption of segment ($bn)	500	2,331	7,071	4,740	9,622	14,757	31,450
1990 population (million) for same share of population as in 2012	707	1,971	3,473	1,502	1,143	495	5,111
1990 consumption upper cut-off level ($/year) for same population share as in 2012	417	750	1,970	1,970	9,020		
Consumption of global segment in 1990 ($bn)	220	948	2,709	1,761	5,056	9,021	16,785
Consumption growth of segment 1990 to 2012 ($bn)	280	1,383	4,362	2,979	4,566	5,736	14,664
Segment's share of global consumption growth 1990 to 2012 (%)	1.9	9.4	29.7	20.3	31.1	39.1	100.0
Poverty gap in 2012 ($bn)	197	1,559	10,065				
Share of global consumption growth 1990 to 2012 that would have 'ended poverty' to top of the segment (%)	3.3	20.1	98.4				
***With* top income adjustment**							
Population in fractile in 2012 (millions)	956	2,658	4,596	1,938	1,550	763	6,908
Fractile percentage in 2012	13.8	38.5	66.5	28.0	22.4	11.0	100.0
2012 consumption of segment ($bn)	500	2,324	6,840	4,516	9,639	23,518	39,997
1990 population (million) for same share of population as in 2012	707	1,967	3,400	1,434	1,147	564	5,111
1990 consumption upper cut-off level ($/year) for same population share as in 2012	417	749	2,028	2,028	8,813		
Consumption of global segment in 1990 ($bn)	220	945	2,637	1,692	4,972	14,332	21,941
Consumption growth of segment 1990 to 2012 ($bn)	280	1,379	4,202	2,824	4,667	9,186	18,056
Segment's share of global consumption growth 1990 to 2012 (%)	1.6	7.6	23.3	15.6	25.8	50.9	100.0
Poverty gap in 2012 ($bn)	197	1,557	9,935				
Share of global consumption growth 1990 to 2012 that would have 'ended poverty' to top of the segment (%)	2.6	16.3	78.3				

Source: GrIP v2.0.

Table 6 Estimates of scale of redistribution of the growth increment, 1990–2012 to eradicate $2 poverty, *without* top income adjustment

	Amount available for within-country and global transfers ($bn)	No. of countries that can afford to remove poverty without global transfers	No. of countries that require global transfers	Total poverty headcount (millions)	Poverty headcount in countries that can afford to remove poverty without global transfers (millions)	Amount transferred within-country ($bn)	Poverty gap remaining after within-country transfers ($bn)	Total available for global transfers ($bn)	Amount received in global transfer ($bn)	Amount provided to global transfer ($bn)	Total amount transferred (within-country and global) ($bn)	Cover ratio (% all transfers)
Total	1,888.1	43	62	935	172	50.8	142.2	1,837.3	142.2	142.2	193.1	10.2
China	271.5	1	0	84	84	11.3	0.0	260.2	0.0	20.1	31.4	11.6
India	18.3	0	1	292	0	18.3	24.4	0.0	24.4	0.0	18.3	100.0
East Asia and Pacific	629.5	9	9	131	110	14.9	1.9	614.6	1.9	47.6	62.5	9.9
Europe and Central Asia	522.8	3	8	11	1	0.1	2.4	522.7	2.4	40.5	40.6	7.8
Latin America & Caribbean	175.0	24	4	54	49	10.9	1.0	164.1	1.0	12.7	23.7	13.5
Middle East & North Africa	25.7	2	1	3	3	0.3	0.0	25.4	0.0	2.0	2.2	8.7
North America	466.7	0	0	0	0	0.0	0.0	466.7	0.0	36.1	36.1	7.7
South Asia Region	24.0	0	3	351	0	18.4	34.2	5.5	34.2	0.4	18.9	78.8
Sub-Saharan Africa	44.4	5	37	385	9	6.2	102.8	38.2	102.8	3.0	9.1	20.6
E Asia less China	358.0	8	9	47	25	3.6	1.9	354.4	1.9	27.4	31.0	8.7
S Asia less India	5.6	0	2	59	0	0.1	9.8	5.5	9.8	0.4	0.6	9.8
High – OECD	1,100.6	2	0	1	1	0.1	0.0	1,100.5	0.0	85.2	85.3	7.8
High – non-OECD	169.8	8	0	0	0	0.0	0.0	169.8	0.0	13.1	13.2	7.8
LIC and MIC	617.6	33	62	934	171	50.7	142.2	566.9	142.2	43.9	94.6	15.3
UMIC	541.5	20	10	146	136	21.6	2.7	519.9	2.7	40.3	61.8	11.4
LMIC	74.7	13	25	457	35	27.7	49.9	47.0	49.9	3.6	31.3	42.0
UMIC (excl. China)	270.0	19	10	62	52	10.3	2.7	259.7	2.7	20.1	30.4	11.3
LMIC (excl. India)	56.4	13	24	166	35	9.4	25.5	47.0	25.5	3.6	13.0	23.1
LIC	1.4	0	27	331	0	1.4	89.7	0.0	89.7	0.0	1.4	100.0
LDCs	2.9	3	35	342	3	2.6	91.2	0.3	91.2	0.0	2.6	90.3
Fragile states	0.4	2	19	128	3	0.3	42.0	0.1	42.0	0.0	0.4	85.8

Source: GrIP v2.0.

Table 7 Estimates of scale of redistribution of the growth increment, 1990–2012 to eradicate $4 poverty, *without* top income adjustment

	Amount available for within-country and global transfers ($bn)	No. of countries that can afford to remove poverty without global transfers	No. of countries that require global transfers	Total poverty headcount (millions)	Poverty headcount in countries that can afford to remove poverty without global transfers (millions)	Amount transferred within-country ($bn)	Poverty gap remaining after within-country transfers ($bn)	Total available for global transfers ($bn)	Amount received in global transfer ($bn)	Amount provided to global transfer ($bn)	Total amount transferred (within-country and global) ($bn)	Cover ratio (%, all transfers)
Total	1,888.1	50	88	2,612	532	306.8	1,220.2	1,581.3	1,220.2	1,220.2	1,527.0	80.9
China	271.5	1	0	360	360	166.9	0.0	104.6	0.0	80.7	247.6	91.2
India	18.3	0	1	907	0	18.3	490.0	0.0	490.0	0.0	18.3	100.0
East Asia and Pacific	629.5	9	14	567	386	186.9	79.4	442.6	79.4	341.5	528.4	83.9
Europe and Central Asia	522.8	12	11	44	11	3.8	17.8	519.0	17.8	400.5	404.3	77.3
Latin America & Caribbean	175.0	19	13	157	91	69.9	19.3	105.1	19.3	81.1	151.0	86.3
Middle East & North Africa	25.7	4	5	50	14	4.8	12.2	20.9	12.2	16.1	20.9	81.4
North America	466.7	1	0	4	4	0.7	0.0	466.0	0.0	359.5	360.3	77.2
South Asia Region	24.0	2	4	1,124	4	22.6	599.9	1.4	599.9	1.1	23.6	98.7
Sub-Saharan Africa	44.4	3	41	667	21	18.0	491.6	26.4	491.6	20.3	38.4	86.4
E Asia less China	358.0	8	14	207	26	20.0	79.4	338.0	79.4	260.8	280.8	78.4
S Asia less India	5.6	2	3	217	4	4.2	109.9	1.4	109.9	1.1	5.3	94.3
High – OECD	1,100.6	11	0	13	13	3.5	0.0	1,097.1	0.0	846.5	850.1	77.2
High – non-OECD	169.8	12	2	2	2	0.8	0.1	169.1	0.1	130.5	131.2	77.3
LIC and MIC	617.6	27	86	2,598	518	302.5	1,220.1	315.1	1,220.1	243.2	545.7	88.3
UMIC	541.5	19	23	563	482	247.6	27.8	294.0	27.8	226.8	474.4	87.6
LMIC	74.7	8	36	1,467	36	53.5	757.1	21.2	757.1	16.3	69.8	93.5
UMIC (excl. China)	270.0	18	23	204	122	80.7	27.8	189.3	27.8	146.1	226.8	84.0
LMIC (excl. India)	56.4	8	35	560	36	35.2	267.1	21.2	267.1	16.3	51.5	91.4
LIC	1.4	0	27	567	0	1.4	435.2	0.0	435.2	0.0	1.4	100.0
LDCs	2.9	2	37	602	0	2.8	453.2	0.1	453.2	0.0	2.9	99.6
Fragile states	0.4	0	21	205	0	0.4	166.9	0.0	166.9	0.0	0.4	100.0

Source: GrIP v2.0.

Table 8 Estimates of scale of redistribution of the growth increment, 1990–2012 to eradicate $10 poverty, *without* top income adjustment

	Amount available for within-country and global transfers ($bn)	No. of countries that can afford to remove poverty without global transfers	No. of countries that require global transfers	Total poverty headcount (millions)	Poverty headcount in countries that can afford to remove poverty without global transfers (millions)	Amount transferred within-country ($bn)	Poverty gap remaining after within-country transfers ($bn)	Total available for global transfers ($bn)	Amount received in global transfer ($bn)	Amount provided to global transfer ($bn)	Total amount transferred (within-country and global) ($bn)	Cover ratio (%, all transfers)
Total	1,888.1	39	130	4,610	147	743.0	9,135.6	1,145.1	1,145.1	1,145.1	1,888.1	100.0
China	271.5	0	1	939	0	271.5	1,411.0	0.0	176.9	0.0	271.5	100.0
India	18.3	0	1	1,198	0	18.3	2,941.3	0.0	368.7	0.0	18.3	100.0
East Asia and Pacific	629.5	8	18	1,394	33	347.4	2,210.4	282.2	277.0	282.2	629.5	100.0
Europe and Central Asia	522.8	23	20	210	71	97.8	185.2	425.0	23.2	425.0	522.8	100.0
Latin America & Caribbean	175.0	2	30	367	3	171.9	516.0	3.2	64.7	3.2	175.0	100.0
Middle East & North Africa	25.7	3	12	209	3	13.5	301.9	12.2	37.8	12.2	25.7	100.0
North America	466.7	3	0	37	37	44.1	0.0	422.6	0.0	422.6	466.7	100.0
South Asia Region	24.0	0	6	1,558	0	24.0	3,742.6	0.0	469.1	0.0	24.0	100.0
Sub-Saharan Africa	44.4	0	44	837	0	44.4	2,179.5	0.0	273.2	0.0	44.4	100.0
E Asia less China	358.0	8	17	454	33	75.8	799.4	282.2	100.2	282.2	358.0	100.0
S Asia less India	5.6	0	5	360	0	5.6	801.3	0.0	100.4	0.0	5.6	100.0
High – OECD	1,100.6	25	4	116	85	119.6	10.2	981.0	1.3	981.0	1,100.6	100.0
High – non-OECD	169.8	8	13	42	32	32.3	9.0	137.6	1.1	137.6	169.8	100.0
LIC and MIC	617.6	6	113	4,452	29	591.2	9,116.4	26.5	1,142.7	26.5	617.6	100.0
UMIC	541.5	5	42	1,506	19	520.2	2,142.7	21.4	268.6	21.4	541.5	100.0
LMIC	74.7	1	44	2,280	10	69.6	5,140.9	5.1	644.4	5.1	74.7	100.0
UMIC (excl. China)	270.0	5	41	567	19	248.6	731.7	21.4	91.7	21.4	270.0	100.0
LMIC (excl. India)	56.4	1	43	1,082	10	51.3	2,199.6	5.1	275.7	5.1	56.4	100.0
LIC	1.4	0	27	666	0	1.4	1,832.8	0.0	229.7	0.0	1.4	100.0
LDCs	2.9	0	39	723	0	2.9	1,960.3	0.0	245.7	0.0	2.9	100.0
Fragile states	0.4	0	21	258	0	0.4	697.2	0.0	87.4	0.0	0.4	100.0

Source: GrIP v2.0.

5 CONCLUSIONS

From 1990 to 2012, global output and consumption doubled and the number of people who lived below low poverty lines fell dramatically. Even so, one in seven people still live on less than $2 a day and one in three on less than $4 a day (in 2011 PPP). Noting that there was at least $15 trillion of consumption growth in that period and that the remaining poverty gaps at $2 and $4 are $200bn and $1.6tn it is apparent that the persistence of global poverty cannot be ascribed simply to insufficient growth. Instead the efficiency by which growth has been transmitted into poverty reduction deserves investigation, with a view to identifying implications that might be relevant for poverty reduction in the future as the new United Nations SDGs aspire to end global poverty.

To this end, this paper has analysed the distribution of consumption growth from 1990 to 2012 and, from that, has discussed the scale of the global challenge implied in ending global poverty at various poverty lines. We note that any redistribution would need to maintain incentives for growth but at $2 and $4 poverty lines we find there was enough growth 1990-2012 to share to have made this possible. Our primary finding of the paper is that a very modest amount of redistribution of the global consumption growth increment could have ended $2 (2011 PPP) poverty by 2012. One could label this as 'global philanthropy', since the small size of this redistribution would not really have had any fundamental impact on the contemporary model of global capitalism. This is not to say that achieving that redistribution would have been easy. Although the redistribution required would have been less than 1.5 per cent of global consumption growth this still amounts to an increase of almost 75 per cent in the share of growth that accrued to those currently on less than $2 a day. What this does illustrate, therefore, is that the problem of the persistence of $2 poverty should not be ascribed to insufficient growth since 1990 and instead attention should be paid to the mechanisms and systems that account for the distribution of the growth that did take place. There was more than enough growth to have removed $2 poverty through redistribution of the benefits of global growth from the global prosperiat (those consuming over $30 a day, a group that is just 10 per cent of the world's population but includes around half of the population of the high-income countries and accounts for almost half of global consumption) to the $2 poor without having any significant, or even noticeable probable impact on the consumption levels of those richest citizens of the world. However, $2 a day is an extremely low level of consumption. If one took a more reasonable poverty line, such as the median consumption of developing countries in 2012, of $4 per day, something more substantial is required. Ending poverty is still plausible. Indeed, ending $4 poverty could have been achieved while still allowing a substantial share of global consumption growth to accrue to the prosperiat. It would, though, have required a substantial redistribution of growth that would imply some kind of shift of welfare regimes in order that the consumption of those living under $4 a day was raised to at least $4 a day.

At higher poverty lines, such as the $10 a day level at which the risk of falling back into poverty declines to low probabilities, something much more radical would be required in terms of economic organisation. Ending $10 poverty requires a redistribution not only of all

the prosperiat group's post-1990 consumption growth share but also either a reduction of the prosperiat group's consumption to below 1990 standards or a more extensive redistribution of the growth increment that would effectively mean that consumption levels of all those above $10 a day (not only the prosperiat on $30+ but also the securiat on $10–30) would have remained at or only slightly above their 1990 levels: a scenario that would almost certainly imply a very radical shift in the forms of contemporary capitalism.

In conclusion, we would argue that the causes of the persistence of global absolute poverty, certainly at $2 and $4 per day, and its eventual elimination are less due to insufficient growth than to the pattern of growth or the distribution of the growth increment which has not been conducive to eliminating poverty at $2 or $4. Eradicating $2 poverty may 'merely' require some enhanced effort but eradicating $4 poverty would require a substantial shift towards stronger welfare regimes. This implies that a much greater focus in policy is needed on the governance of growth – managing the pattern of growth and who benefits if $2 or $4 poverty are to be ended. And if $10 poverty were to be ended in a generation a radically new form of economic organisation would be needed. In other words, the challenge of creating in a generation a world, not only free of poverty, but where no one was at risk of falling back into poverty, would require a form of economic organisation where, for several decades at least, hardly any of the benefits of growth were captured by the securiat and the prosperiat.

In conclusion, we would argue that the historical data points towards the need for greater attention to the distribution of the growth increment and to consider better the implications of different poverty eradication aspirations. One avenue for future exploration would be to compare the existing national and regional variants of growth and welfare regimes in the developing world to consider how they are differentiated by their socioeconomic outcomes in terms of the distribution of growth benefits across the segments used in this paper. To be clear, the purpose of our analysis here is to highlight that when one looks at the overall pattern of growth, inequality and poverty in recent decades it becomes clear that different poverty lines and different aspirations over the extent of poverty reduction that is needed, or desirable, lead to radically different challenges to the current workings of national economic systems and global (normative) obligations to the developing world and to poverty eradication. If the aspiration, for example, is to see a world in which destitution is eradicated, that could be achieved with slightly different patterns of growth. If the aspiration is for a higher poverty line of $4, the current median of developing countries, then a substantial global welfare regime with national counterparts is required. However, if the aspiration is that no one is at risk of sliding into poverty ever again then it is very unlikely that that this could be achieved through philanthropy or a global welfare regime alone.

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ANNEX Table A1 Estimates of scale of redistribution of the growth increment, 1990–2012 to eradicate $2 poverty, *with* top income adjustment

	Amount available for within-country and global transfers ($bn)	No. of countries that can afford to remove poverty without global transfers	No. of countries that require global transfers	Total poverty headcount (millions)	Poverty headcount in countries that can afford to remove poverty without global transfers (millions)	Amount transferred within-country ($bn)	Poverty gap remaining after within-country transfers ($bn)	Total available for global transfers ($bn)	Amount received in global transfer ($bn)	Amount provided to global transfer ($bn)	Total amount transferred (within-country and global) ($bn)	Cover ratio (%, all transfers)
Total	3,136.4	48	57	935	493	93.0	100.1	3,043.4	100.1	100.1	193.1	6.2
China	518.8	1	0	84	84	11.3	0.0	507.5	0.0	16.7	28.0	5.4
India	78.3	1	0	292	292	42.8	0.0	35.6	0.0	1.2	43.9	56.1
East Asia and Pacific	1,105.9	12	6	131	127	15.9	0.9	1,090.0	0.9	35.8	51.7	4.7
Europe and Central Asia	776.8	4	7	11	1	0.2	2.3	776.7	2.3	25.5	25.7	3.3
Latin America & Caribbean	120.5	21	7	54	36	8.0	3.9	112.5	3.9	3.7	11.7	9.7
Middle East & North Africa	44.3	0	3	3	0	0.0	0.3	44.3	0.3	1.5	1.5	3.3
North America	937.0	0	0	0	0	0.0	0.0	937.0	0.0	30.8	30.8	3.3
South Asia Region	105.5	2	1	351	295	49.0	3.7	56.6	3.7	1.9	50.8	48.2
Sub-Saharan Africa	46.4	9	33	385	34	20.0	88.9	26.4	88.9	0.9	20.9	45.0
E Asia less China	587.1	11	6	47	43	4.6	0.9	582.5	0.9	19.2	23.8	4.0
S Asia less India	27.2	1	1	59	3	6.2	3.7	21.0	3.7	0.7	6.9	25.3
High – OECD	1,817.9	2	0	1	1	0.1	0.0	1,817.8	0.0	59.8	59.9	3.3
High – non-OECD	283.9	8	0	0	0	0.0	0.0	283.9	0.0	9.3	9.4	3.3
LIC and MIC	1,034.6	38	57	934	492	92.9	100.1	941.7	100.1	31.0	123.8	12.0
UMIC	742.3	20	10	146	125	19.0	5.2	723.3	5.2	23.8	42.8	5.8
LMIC	273.8	15	23	457	345	58.4	19.2	215.4	19.2	7.1	65.5	23.9
UMIC (excl. China)	223.5	19	10	62	40	7.7	5.2	215.8	5.2	7.1	14.8	6.6
LMIC (excl. India)	195.4	14	23	166	54	15.6	19.2	179.8	19.2	5.9	21.5	11.0
LIC	18.5	3	24	331	22	15.4	75.6	3.1	75.6	0.1	15.5	84.0
LDCs	20.1	6	32	342	24	15.8	78.0	4.4	78.0	0.1	15.9	79.0
Fragile states	3.6	2	19	128	3	2.9	39.4	0.7	39.4	0.0	2.9	81.9

Source: GrIP v2.0.

Table A2 Estimates of scale of redistribution of the growth increment, 1990–2012 to eradicate $4 poverty, *with* top income adjustment

	Amount available for within-country and global transfers ($bn)	No. of countries that can afford to remove poverty without global transfers	No. of countries that require global transfers	Total poverty headcount (millions)	Poverty headcount in countries that can afford to remove poverty without global transfers (millions)	Amount transferred within-country ($bn)	Poverty gap remaining after within-country transfers ($bn)	Total available for global transfers ($bn)	Amount received in global transfer ($bn)	Amount provided to global transfer ($bn)	Total amount transferred (within-country and global) ($bn)	Cover ratio (%, all transfers)
Total	3,136.4	55	83	2,606	612	433.8	1,091.5	2,702.6	1,091.5	1,091.5	1,525.3	48.6
China	518.8	1	0	360	360	166.9	0.0	351.9	0.0	142.1	309.0	59.6
India	78.3	0	1	907	0	78.3	430.0	0.0	430.0	0.0	78.3	100.0
East Asia and Pacific	1,105.9	13	10	567	507	244.8	21.4	861.1	21.4	347.8	592.6	53.6
Europe and Central Asia	776.8	14	9	44	12	4.0	17.5	772.8	17.5	312.1	316.1	40.7
Latin America & Caribbean	120.5	17	15	157	48	44.9	44.4	75.6	44.4	30.5	75.4	62.6
Middle East & North Africa	44.3	4	5	50	14	3.5	13.5	40.8	13.5	16.5	20.0	45.1
North America	937.0	1	0	4	4	0.7	0.0	936.3	0.0	378.1	378.9	40.4
South Asia Region	105.5	2	4	1,124	4	96.7	525.7	8.8	525.7	3.6	100.3	95.0
Sub-Saharan Africa	46.4	4	40	661	23	39.2	469.0	7.2	469.0	2.9	42.1	90.7
E Asia less China	587.1	12	10	207	147	77.9	21.4	509.2	21.4	205.7	283.6	48.3
S Asia less India	27.2	2	3	217	4	18.4	95.7	8.8	95.7	3.6	21.9	80.7
High – OECD	1,817.9	10	1	13	10	2.7	0.8	1,815.3	0.8	733.1	735.8	40.5
High – non-OECD	283.9	13	1	2	2	0.8	0.0	283.1	0.0	114.3	115.2	40.6
LIC and MIC	1,034.6	32	81	2,592	600	430.3	1,090.7	604.3	1,090.7	244.1	674.3	65.2
UMIC	742.3	21	21	563	440	224.3	51.0	518.1	51.0	209.2	433.5	58.4
LMIC	273.8	11	33	1,467	160	187.5	623.1	86.2	623.1	34.8	222.3	81.2
UMIC (excl. China)	223.5	20	21	203	81	57.3	51.0	166.2	51.0	67.1	124.5	55.7
LMIC (excl. India)	195.4	11	32	560	160	109.2	193.1	86.2	193.1	34.8	144.0	73.7
LIC	18.5	0	27	562	0	18.5	416.6	0.0	416.6	0.0	18.5	100.0
LDCs	20.1	2	37	596	0	19.3	435.1	0.8	435.1	0.3	19.7	97.7
Fragile states	3.6	0	21	200	0	3.6	162.4	0.0	162.4	0.0	3.6	100.0

Source: GrIP v2.0.

Table A3 Estimates of scale of redistribution of the growth increment, 1990–2012 to eradicate $10 poverty, *with* top income adjustment

	Amount available for within-country and global transfers ($bn)	No. of countries that can afford to remove poverty without global transfers	No. of countries that require global transfers	Total poverty headcount (millions)	Poverty headcount in countries that can afford to remove poverty without global transfers (millions)	Amount transferred within-country ($bn)	Poverty gap remaining after within-country transfers ($bn)	Total available for global transfers ($bn)	Amount received in global transfer ($bn)	Amount provided to global transfer ($bn)	Total amount transferred (within-country and global) ($bn)	Cover ratio (%, all transfers)
Total	3,136.4	44	125	4,514	156	1,141.4	8,611.7	1,995.1	1,995.1	1,995.1	3,136.4	100.0
China	518.8	0	1	936	0	518.8	1,164.1	0.0	269.7	0.0	518.8	100.0
India	78.3	0	1	1,147	0	78.3	2,810.5	0.0	651.1	0.0	78.3	100.0
East Asia and Pacific	1,105.9	7	19	1,387	20	694.2	1,862.6	411.6	431.5	411.6	1,105.9	100.0
Europe and Central Asia	776.8	27	16	208	93	114.6	167.3	662.2	38.8	662.2	776.8	100.0
Latin America & Caribbean	120.5	4	28	367	3	117.1	570.8	3.4	132.2	3.4	120.5	100.0
Middle East & North Africa	44.3	3	12	208	3	19.5	295.6	24.9	68.5	24.9	44.3	100.0
North America	937.0	3	0	37	37	44.1	0.0	892.9	0.0	892.9	937.0	100.0
South Asia Region	105.5	0	6	1,497	0	105.5	3,577.7	0.0	828.9	0.0	105.5	100.0
Sub-Saharan Africa	46.4	0	44	810	0	46.4	2,137.6	0.0	495.2	0.0	46.4	100.0
E Asia less China	587.1	7	18	451	20	175.5	698.5	411.6	161.8	411.6	587.1	100.0
S Asia less India	27.2	0	5	350	0	27.2	767.3	0.0	177.8	0.0	27.2	100.0
High – OECD	1,817.9	26	3	116	99	113.9	15.9	1,704.0	3.7	1,704.0	1,817.9	100.0
High – non-OECD	283.9	11	10	42	34	35.1	6.2	248.9	1.4	248.9	283.9	100.0
LIC and MIC	1,034.6	7	112	4,355	24	992.4	8,589.6	42.2	1,990.0	42.2	1,034.6	100.0
UMIC	742.3	6	41	1,502	14	718.3	1,944.7	24.1	450.5	24.1	742.3	100.0
LMIC	273.8	1	44	2,207	10	255.6	4,873.2	18.1	1,129.0	18.1	273.8	100.0
UMIC (excl. China)	223.5	6	40	566	14	199.5	780.6	24.1	180.8	24.1	223.5	100.0
LMIC (excl. India)	195.4	1	43	1,060	10	177.3	2,062.7	18.1	477.9	18.1	195.4	100.0
LIC	18.5	0	27	646	0	18.5	1,771.7	0.0	410.5	0.0	18.5	100.0
LDCs	20.1	0	39	701	0	20.1	1,897.7	0.0	439.7	0.0	20.1	100.0
Fragile states	3.6	0	21	250	0	3.6	678.2	0.0	157.1	0.0	3.6	100.0

Source: GrIP v2.0.

Notes

[i] The $1.25 or 'extreme poverty' line is based on 2005 PPP rates. Jolliffe and Prydz (2015) argue, using 2011 PPP rates, this poverty line ought to be closer to $2 a day.

[ii] Our reasons for this are that, notwithstanding various methodological critiques, the 2011 PPP rates are generally considered to be more reliable than the 2005 rates because of improvements in methodology (Deaton and Aten, 2014) and, because they lead to lower poverty estimates for a given poverty line, using the 2011 rates will generate a more favourable perspective on the impact of global growth on poverty reduction.

[iii][iii] We use published quintile and decile data disaggregated into a range of smaller fractiles.

[iv] See Dang et al. (2014) for discussion of such issues.

[v] See for detailed discussion Edward and Sumner (2015).

[vi] The countries and years used in the analysis are: Australia 2003, Canada 2010, Denmark 2010, Finland 2007, France 2005, Germany 2007, Ireland 2007, Italy 2008, Japan 2008, Netherlands 2010, Norway 2010, Spain 2010, Sweden 2005, Switzerland 2004, United Kingdom 2010, United States 2010, Uruguay 2012. One eligible country (Malaysia 2009) was omitted because the PovcalNet share to the top 10 per cent is actually higher than that shown in TIP.

[vii] There are some exceptions to this where the PovcalNet survey mean already implies a consumption level higher than the HFCE total. In those cases we reason that the HFCE figures must be questionable and so do not apply the cap.