Global Poverty and the "New Bottom Billion" Revisited:

Exploring The Paradox That Most Of The World's Extreme Poor No Longer Live In The World's Poorest Countries

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Abstract

This paper revisits, with new data, the changes in the distribution of global poverty towards middle-income countries (MICs).

In doing so it discusses an implied "poverty paradox" – the fact that most of the world's extreme poor no longer live in the world's poorest countries.

The paper also discusses what factors are behind the shift in global poverty towards middle-income countries and how sensitive the distribution of global poverty is to the thresholds for middle-income classification. The paper concludes with implications for research related to poverty.

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1. INTRODUCTION

The majority of the world's poor, by income and multi-dimensional poverty measures, live in countries classified by the World Bank as middle-income countries (Alkire *et al*., 2011; Chandy & Gertz, 2011; Glassman *et al*., 2011; Kanbur & Sumner, 2011a; 2011b; Koch, 2011; Sumner, 2010; 2012). Such patterns matter beyond the thresholds of low income countries and middle income countries (LICs/MICs) set by the World Bank, because they reflect a pattern of rising average incomes. Further, although the thresholds do not mean a sudden change in countries when a line is crossed in per capita income, substantially higher levels of average per capita income imply substantially more domestic resources available for poverty reduction and the international system treats countries differently at higher levels of average per capita income.[1]

The paper updates the data for the distribution of global poverty to 2008 in light of the updated PovCal (2012) dataset and estimates of Chen and Ravallion (2012). The paper also discusses what factors are behind the shift in global poverty towards middle-income countries and how sensitive the distribution of global poverty is to the thresholds for middle-income classification.[2]

The paper is structured as follows: Section 2 revisits the changing distribution of global poverty, 1990 vs. 2008. Section 3 discusses the factors underlying the changes in the distribution of global poverty and section 4, the thresholds for low and middle-income countries. Section 5 concludes.

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[1] At a policy level such changes matter because the thresholds are used in various ways by a number of bilateral and multilateral donors in decision-making, often with other indicators to determine the terms of engagement with countries, as well as by various non-aid actors (such as investment ratings agencies). For a detailed discussion of how the thresholds are used by UNICEF, UNDP, UNFPA, WFP and the Global Fund to Fight AIDS, TB and Malaria, see UNICEF (2009, p. 76-80).

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2. THE CHANGING DISTRIBUTION OF GLOBAL POVERTY, 1990 VS. 2008

This section updates the global poverty distribution data originally published in Sumner (2010), and refined in Sumner (2012), based on a significantly updated dataset (PovCal, 2012); and extends analysis to the $2 poverty line which is the average (median) poverty line for all developing countries (Chen & Ravallion, 2008; 2012).

The data produced is consistent with the global and regional estimates of Chen and Ravallion (2012). However, it is worth noting at the outset that the author is aware that there are a range of methodological questions about the use of poverty lines *per se,* and the international poverty lines in particular. These matters are discussed in Annex I. In terms of robustness by data coverage and corroboration: the new PovCal (2012) 2008 data covers 84% of the population of LICs and 98% of the population of MICs (see annex table A1), with very few countries missing data (see annex table A2);[3] and the estimates for the distribution of global poverty by income poverty are consistent with the global distribution of multi-dimensional poverty (Alkire *et al*., 2011) and health-related poverty data (Glassman *et al*., 2011).

New estimates for global poverty in 2008, based on the significantly updated PovCal (2012) dataset, support earlier findings that most of the world's poor (by both $1.25 and $2 international poverty lines) live in South Asia and Sub-Saharan Africa. In contrast, in 1990 half of the world's poor lived in East Asia and the Pacific, mostly in China (see Chen & Ravallion, 2008; 2012; Sumner, 2010; 2012).

The proportion of the world's $1.25 poor in China fell to an estimated 14% in 2008, while India's proportion of world poverty rose to 35%, and Sub-Saharan Africa's to 31% (see table 1 and 3). The $2 estimates – as noted, the average poverty line for developing countries – tell a similar story to the $1.25 estimates, with a notably lower contribution to world poverty from sub-Saharan Africa.

Estimates for 2008 also confirm that the world's poor (by both $1.25 and $2 poverty lines) largely live in middle-income countries (MICs). The proportion of the world's $1.25 and $2 poor accounted for by MICs is respectively 74% and 79%. This

[3] Most notably are: Afghanistan (29m population in 2008), Korea (23m population), Myanmar (49m population) and Uzbekistan (27m population). Argentina (total population 39m) is not included as it has only urban poverty data in PovCal (2012).

suggests that using the average poverty line for developing countries means that even more of the world's poor live in MICs.[4]

In spite of the global distribution of poverty, it is important of course to note that LICs typically have higher rates of poverty incidence (see table) and larger poverty gap (see Sumner, 2012b). Any discussion of poverty in MICs should not distract from poverty in LICs.

That said, some MICs do have surprisingly high poverty headcounts (and a higher than expected poverty gap) even at the higher average level of per capita income found in MICs. Across all MICs, the average (population weighted) incidence of poverty is almost one in five of the population at $1.25/day, and 40% at $2/day. In the lower-middle income countries (LMICs), this rises to 30% and 60% respectively (and for comparison, the LMIC group without India has poverty incidences of 25% and 50% at $1.25 and $2 respectively). Importantly, the shift from the $1.25 poverty line to the $2 poverty line doubles the poor in MICs from almost 1bn to almost 2bn (meaning there are a billion people under $1.25 in MICs and another billion between $1.25 and $2 in MICs). In contrast, the shift from $1.25 to $2 in LICs only raises poverty from 320m to 490m.

In sum, the distribution of global poverty is thus:

- Half of the world's poor live in India and China (mainly in India);
- A quarter of the world's poor live in other MICs (primarily populous LMICs such as Pakistan, Nigeria and Indonesia);
- A quarter (or less) of the world's poor live in the remaining 35 LICs.

How many poor people live in "fragile states" depends on the definition of "fragile states" (as well as the definition of poverty). If one takes the "non-official" OECD (2012) list of 45 fragile states, the new PovCal (2012) data covers 97% of the relevant population of the "non-official" OECD fragile states (see methodological annex table A1), and there are 400m poor people who account for 28%-32% of world

[4] There are about 920m extreme ($1.25/day) poor people in MICs./ This is a "new bottom billion;" new in the sense it is not the "bottom billion" originally discussed by Collier (2007), which was identified as the total population of 58 countries that were "falling behind and often falling apart" (Collier, 2007 p. 3). This was based on data from the late 1990s and the turn of the century. Incidentally, the total population of the new expanded OECD (2012) "unofficial" list of fragile states is a little over one billion people of which 400m are extreme ($1.25) poor and 650m are moderate ($2) poor (see text).

poverty in those 45 "fragile states." About 45% of the poor in fragile states are living in countries classified as middle-income, and 65% are in Sub-Saharan Africa. One issue that is evident is that, taking the OECD (2012) "non-official" fragile states list, more than two-thirds of the poor in fragile states live in just 5 countries: Nigeria (100m poor) Bangladesh (76m poor), DRC (55m poor), Pakistan (35m poor) and Kenya (15.7m poor). Similar patterns are even more pronounced if one uses the higher poverty measure of $2/day (as noted, the average for all developing countries).

The number of poor in fragile states has risen due to the revision of countries in the OECD (2012) list; most notably, the inclusion of populous Bangladesh in the group, which has a high poverty incidence but which wasn't in the 43 countries of the OECD (2010) "Resource Flows to Fragile States" list.[5] This earlier list was the product of combining three available lists of "fragile states" at that time (Brookings, Carlton and the World Bank's) thus producing the broadest possible list of 43 fragile states at that time. As noted in Sumner (2010), only 17 of those 43 "fragile states" are common across the lists, and the differences in the countries listed mean the proportion of the world's poor in fragile states in 2007 ranged from 6% to 25% (see detailed critique of the "fragile states" lists from Harttgen and Klasen, 2010).

Over the past few years, the Carlton and Brookings lists of "fragile states" have not been updated since 2007 and 2008 respectively, and consequentially are less frequently cited.[6] One further list that has come to prominence is the annually updated, 60 country list of *the Fund for Peace*, called *the Failed States Index*. Chandy and Gertz (2010) estimated the proportion of the world's poor in fragile states at 40% using this list.[7]

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[5] The following were added: Bangladesh, Burkina Faso, Georgia, Lebanon, Malawi, Palestinian Adm. Areas, Sri Lanka and Uzbekistan and the following were removed: Djibouti, Equatorial Guinea, The Gambia, Rwanda, Tonga, West Bank and Gaza. See Annex 1 table A1 for full list of OECD (2012) fragile states.

[6] For Carlton and Brooking lists see respectvely, see: www4.carleton.ca/cifp/app/ffs_raniking.php and www.brookings.edu/reports/2008/02_weak_states_index.aspx

[7] The list is actually divided into three groups of twenty countries, that are respectively classified as "critical" (bottom 20), "in danger" (bottom 21-40), and "borderline" (bottom 41-60). Applying the Failed States Index list to the new PovCal (2012) dataset, the data produces 259m $1.25 poor in the "critical" group, 119m $1.25 poor in the "in danger" group, and 69m $1.25 poor in the "borderline" group (totalling 378m without the "borderline" group and 447m with the "borderline group"). In short, 21% of the world's poor live in the 20 "critical" countries, 11% live "in danger" and a further 6% of the world's poor are in "borderline" countries (in sum 38.4% of the world's poor in those 60 countries).

Table 1. Estimates of the distribution of global poverty, and poverty incidence, $1.25 and $2, 2008

	$1.25 poverty line			$2 poverty line		
	Millions of people	**% world's poor**	**Poverty incidence (% popn)**	**Millions of people**	**% world's poor**	**Poverty incidence (% popn)**
East Asia and Pacific	265.4	21.5	14.3	614.3	26.1	33.2
Eastern Europe and Central Asia	2.1	0.2	0.5	9.9	0.4	2.4
Latin American and the Caribbean	35.3	2.9	6.9	67.4	2.9	13.1
Middle East and North Africa	8.5	0.7	2.7	43.8	1.9	13.9
South Asia	546.5	44.3	36.0	1,074.7	45.6	70.9
Sub-Saharan Africa	376.0	30.5	47.5	547.5	23.2	69.2
Low Income Countries	316.7	25.7	48.5	486.3	20.6	74.4
Middle Income Countries	917.1	74.3	19.5	1,871.1	79.4	39.7
New MICs (post-2000)	651.7	52.8	33.4	1,266.4	53.7	64.9
LMICs	711.6	57.7	30.2	1,394.5	59.2	59.1
LMICs minus India	285.6	23.1	23.4	569.4	24.2	46.7
UMICs	205.5	16.7	8.7	476.6	20.2	20.3
China and India	599.0	48.6	24.3	1,219.5	51.7	53.8
PINCIs	785.9	63.7	26.1	1,570.0	66.6	52.2
Fragile States (OECD)	398.9	32.3	39.9	665.4	28.2	66.6
Total	1,233.8	100.0	22.8	2,357.5	100.0	43.6

Source: Data processed from PovCal (2012). Note: PovCal adjusts base years using linear interpolation. PINCIs = Pakistan, India, Nigeria, China and Indonesia. Fragile States = 45 countries in OECD (2012).

Table 2. Distribution of poverty in OECD (2012) Fragile States (group of 45 countries), 2008

	Millions of people ($1.25)	**% Fragile States poor ($1.25)**
LICs	226.8	56.9
LMICs	172.1	43.1
Total in 45 Fragile States	398.9	100.0
Total in 5 countries (Nigeria, DRC, Bangladesh, Pakistan and Kenya)	281.2	70.5
Europe & Central Asia	1.4	0.3
Middle East & North Africa	4.6	1.1
Sub-Saharan Africa	263.0	65.9
East Asia & Pacific	3.2	0.8
South Asia	120.4	30.2
Latin America & Caribbean	6.3	1.6

Source: Data processed from PovCal (2012). Note: Fragile States = 45 countries in OECD (2012).

3. FACTORS UNDERLYING THE CHANGES IN THE DISTRIBUTION OF GLOBAL POVERTY

The changes in global poverty distribution are a function of several factors. First, almost 30 countries became better off in average per capita terms (by exchange rate conversion), attaining "middle-income" classification, and thus the number of LICs fell from 63 in 2000 to 35 in 2010 (see table 3). This could fall to just 16 LICs in 2030 if one applies IMF World Economic Outlook (2012) projections up to 2030 (see Sumner, 2012b). Second, the world's poor are surprisingly concentrated: not only do 80% of the world's extreme ($1.25/day) poor live in just 10 countries, which account for 980m (another "bottom billion") of the world's poor, but almost 90% of the world's extreme poor live in just 20 countries (see table 4).

Table 3. Number of LICs and MICs (GNI US$ per capita, Atlas)

World Bank Fiscal Year (data from calendar year)	**FY02 (2000)**	**FY05 (2003)**	**FY10 (2008)**	**FY11 (2009)**	**FY12 (2010)**
LICs	63	61	43	40	35
MICs	92	93	101	104	109

Source: World Bank (2011a).

Of these "top 20" poor countries by numbers of poor people, only half of these countries are LICs and the remaining half are MICs, and almost all of these are MICs which have attained MIC status in the past decade.

These 28 "new MICs" ("new MICs over the last decade) account for two-thirds of the world's poor with China, or half of the world's poor without China. Most notably, there are 5 large new MICs (Pakistan, India, Nigeria, China, and Indonesia – henceforth "PINCIs") which account for a substantial proportion of the world's poor, and most of the number who "moved" from living in LICs to living in MICs. In short, many of those countries where the world's poor are concentrated are countries that became better off in average per capita income terms and graduated to LMIC status over the past decade. Fourth, in those countries becoming richer in average per capita terms and achieving MIC status, although the incidence of poverty (% of population poor) generally fell, the absolute numbers of poor people fell less than one might expect. The actual number of poor people ($1.25/day) barely fell or rose in India, Nigeria and Angola. In China, Indonesia, Pakistan, Vietnam and Sudan, $1.25 poverty incidence did fall. However, when one considers $2 poverty, there are only substantial

declines in the number of poor people in China and Vietnam, and to a lesser extent Indonesia.

Table 4. Top 20 poor countries (by number of $1.25/day poor people), 2008, country classifications and GDP per capita PPP (countries transitioning from LIC to MIC since 1990 are highlighted)

	% World $1.25 Poor	% World $2 Poor	Country classification (based on data for calendar year)		GDP pc/day (PPP, constant 2005 $)	
	2008	2008	1990	2009	1990	2009
1. India	34.5	35.0	LIC	LMIC	3.4	8.2
2. China	14.0	16.7	LIC	UMIC	3.0	17.0
3. Nigeria	8.1	5.4	LIC	LMIC	3.9	5.6
4. Bangladesh	6.0	5.3	LIC	LIC	2.0	3.9
5. DRC	4.5	2.6	LIC	LIC	1.7	0.8
6. Indonesia	4.2	5.2	LIC	LMIC	5.5	10.1
7. Pakistan	2.3	5.2	LIC	LMIC	4.4	6.5
8. Tanzania	1.4	1.6	LIC	LIC	2.4	3.4
9. Philippines	1.3	1.6	LMIC	LMIC	7.0	9.2
10. Kenya	1.2	1.1	LIC	LIC	3.9	3.9
11. Vietnam	1.1	1.6	LIC	LMIC	2.5	7.5
12. Uganda	1.1	0.9	LIC	LIC	1.5	3.1
13. Madagascar	1.1	0.7	LIC	LIC	2.8	2.4
14. Mozambique	1.0	0.8	LIC	LIC	1.1	2.2
15. Ethiopia	0.9	1.8	LIC	LIC	1.5	2.4
16. Brazil	0.8	0.9	UMIC	UMIC	19.7	25.9
17. Angola	0.8	0.5	LIC	LMIC	9.0	14.8
18. Malawi	0.8	0.6	LIC	LIC	1.6	2.1
19. Nepal	0.8	0.8	LIC	LIC	1.9	2.9
20. Sudan	0.7	0.8	LIC	LMIC	2.8	5.4
Top 10	79.2	79.5				
Top 20	86.6	89.1				
New MICs (28)	52.8	53.7				
New MICs + China	66.8	70.4				
PINCIs	63.7	66.6				

Source: Data processed from PovCal (2012) and WDI (2011).

Clearly, there is much more to investigate here in terms of explanatory factors.[8] One would want to look closely at population growth rates in the poorest expenditure groups, and what has happened in the channels whereby economic development can lead to poverty reduction (e.g. wage employment, real wages, self-employment and productivity in self employment, and the output elasticity of demand for labour). And in doing so reconnecting poverty analysis to broader processes of economic development (Harriss, 2007; Harriss-White, 2005). Interestingly, for those new MICs with two data points there are some drastic changes away from agriculture value

[8] There are also some data that one might question. The poverty rates listed in PovCal for three countries (Pakistan, Sudan and Ethiopia) in 2008 appears to be lower than one might expect. For rates by national poverty lines see Gentilini and Sumner (2012).

added as a proportion of GDP. For example, the proportion of agriculture value added as a percent of GDP drastically fell in Ghana, India, Laos, Lesotho, Vietnam and Yemen (see table 6 and Sumner, 2012b).

At a minimum, the fact that poverty persists at higher levels of average per capita income raises questions about the types of economic growth that lead some countries to reduce the number of people in extreme poverty and other countries not to. Most studies have argued that growth is good for the poor in the general sense that the income of the poor rises one-for-one in line with average income (Dollar & Kraay, 2002; Gallup *et al.,* 1999; Roemer & Gugerty, 1997), and the poverty headcount ratio declines significantly with growth (Bruno *et al.*, 1998; Ravallion, 1995; 2001; Ravallion & Chen, 1997). While it has been strongly asserted that, on average, growth is matched by proportionate reductions in poverty, some evidence challenges this view; suggesting rather that the incomes of the poorest may increase less than proportionately with growth (Besley & Cord, 2007; Grimm *et al*., 2007). Importantly, the averages hide large variations across countries and across measures of poverty, both questioning the relevance of the global average and whether growth responds differently to different kinds of (chronic and transient) income poverty. Initial inequality has most commonly been identified as deterministic in the heterogeneity of country experience: a higher level of inequality leads to less poverty reduction at a given level of growth (Deininger & Squire, 1998; Hanmer & Naschold, 2001; Kraay, 2004; Ravallion, 1995; 1997; 2001; 2004; 2007; Ravallion & Chen, 1997; Son & Kakwani, 2003; Stewart, 2000). The heterogeneity of country experience has also been linked to changes in inequality over time, due to geographical differences (urban-rural); the sectoral pattern of growth; the composition of public expenditure; labour markets; social capital endowments and the variance in actual rates of growth (Fields, 2001; Kraay, 2004; Mosley, 2004; Mosley *et al.* 2004; Ravallion, 1995; Ravallion & Chen, 1997).[9]

[9] Increases in agricultural productivity have been thought to be the most effective for the reduction of poverty (Bourguignon & Morrisson, 1998; Gallup *et al.,* 1999; Timmer, 1997; Thirtle *et al.,* 2001). Similarly, labour intensive growth is more poverty reducing because the poor's main asset is labour. Adelman (2000) has argued that the factor intensity of growth determines the distribution of benefits.

Table 5. Poverty in the top 20 countries, 1990 vs. 2008 (countries transitioning from LIC to MIC since 1990 are highlighted)

	% population poor				Poor people (millions)			
	$1.25		**$2**		**$1.25**		**$2**	
	1990	**2008**	**1990**	**2008**	**1990**	**2008**	**1990**	**2008**
1. India	51.3	37.4	82.6	72.4	435.9	426.0	701.7	825.1
2. China	60.2	13.1	84.6	29.8	683.2	173.0	960.6	394.3
3. Nigeria	60.4	66.5	80.1	84.0	58.8	100.5	77.9	127.0
4. Bangladesh	68.4	46.6	91.8	78.4	79.1	74.6	106.2	125.5
5. DRC	56.3	86.2	77.5	94.5	20.8	55.4	28.7	60.7
6. Indonesia	54.3	22.6	84.6	54.4	96.3	51.5	150.0	123.6
7. Pakistan *	61.9	21.0	87.0	60.2	66.9	34.9	93.9	99.9
8. Tanzania	69.8	66.8	90.2	87.3	17.8	28.4	23.0	37.1
9. Philippines	29.7	19.4	54.9	42.2	18.5	17.5	34.2	38.1
10. Kenya	36.2	40.6	57.0	64.5	8.5	15.7	13.4	25.0
TOP 10					1,485.6	977.5	2,189.6	1,856.4
11. Vietnam	73.1	16.9	90.1	43.3	48.4	14.5	59.6	37.4
12. Uganda	68.7	44.4	86.5	70.6	12.2	14.1	15.3	22.3
13. Madagascar	74.1	71.6	88.8	89.3	8.3	13.7	10.0	17.1
14. Mozambique	81.3	59.6	92.9	81.8	11.0	13.3	12.6	18.3
15. Ethiopia *	62.1	16.0	85.3	53.6	30.0	12.9	41.2	43.2
16. Brazil	17.2	6.0	30.0	11.3	25.8	11.5	44.9	21.7
17. Angola	46.7	55.9	62.9	71.6	5.0	10.1	6.7	12.9
18. Malawi	89.0	67.3	96.0	87.5	8.4	10.0	9.1	13.0
19. Nepal	74.5	33.9	92.0	64.9	14.2	9.8	17.6	18.7
20. Sudan *	56.2	20.4	82.1	45.0	15.2	8.4	22.2	18.6
TOP 20					1,664.2	1,095.8	2,428.8	2,079.6

Source: Data processed from PovCal (2012). Note: * = The poverty data listed in PovCal (2012) for these countries in 2008 appears lower than one might expect suggesting caution (see also discussion in Sumner, 2012b) and for rates by national poverty lines see Gentilini and Sumner (2012).

Table 6. Selected "new MICs" and structural change of GDP

	Agriculture, value added, % GDP	
	1990	**2009**
Ghana	45.1	31.8
India	29.3	17.8
Indonesia	19.4	15.3
Lao PDR	61.2	35.2
Lesotho	24.9	7.7
Mauritania	29.6	20.2
Pakistan	26.0	21.6
Senegal	19.9	17.2
Vietnam	38.7	20.9
Yemen, Rep.	24.4	9.9

Source: WDI (2011).

4. THE THRESHOLDS FOR LOW AND MIDDLE-INCOME COUNTRIES

The shift in global poverty raises various questions about the thresholds themselves, and whether any thresholds solely or largely based on defining poverty by countries rather than people are useful any longer given the declining number of low income countries. The LIC/MIC thresholds are based on GNI per capita average income (exchange rate conversion).[10] One could argue that thresholds set in the 1960s are worthy of a substantial review, particularly because (i) the methodology for original threshold setting has never been published;[11] (ii) some 40-50 years of new data are available since the thresholds were originally established; (iii) there are questions over whether "international inflation" ought now to include China and other "emerging economies" in its calculation, and indeed whether the use of "international inflation" rates for the world's richest countries is an appropriate way to assess the LIC/MIC thresholds over time for the world's poorer countries, which may have had inflation rates above the "international inflation" rate.

More fundamentally, one could also ask: should such thresholds simply be *abandoned outright* in favour of a more sophisticated approach? Alternatively, such thresholds could instead be applied at a different level, for example, sub-national level

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[10] The World Bank's thresholds are discussed in-depth in Sumner (2012). See also Nielsen (2011). The World Bank's "Atlas method" takes GNI in national currency and converts it to US dollars using the three-year average of exchange rates (taking the average of a country's exchange rate for that year and its exchange rates for the two preceding years), adjusted for the difference between national inflation and that of "international inflation" (the weighted average of inflation in the Euro Zone, Japan, the UK, and the US as measured by the change in the IMF's Special Drawing Rights deflator).

[11] According to the short history of the Bank's classifications available on their website (World Bank, 2011a), the actual basis for the original thresholds was established by:

> finding a stable relationship between a summary measure of well-being such as poverty incidence and infant mortality on the one hand and economic variables including per capita GNI estimated based on the Bank's Atlas method on the other. Based on such a relationship and the annual availability of Bank's resources, the original per capita income thresholds were established.

The actual documentation containing the original formulae are identifiable by their World Bank document numbers (contained in the Excel sheet on the World Bank's classification history webpage noted above), but these are World Bank board documents and not publically available. The exact formulae of the thresholds have never been published. Indeed, the World Bank's Public Information Centre notes in personal correspondence that:

> there is no official document that we can find that ever specified an exact formula for setting the original income thresholds… When IDA was established in 1960, member countries were classified... based more on *a general understanding and agreement by the executive directors of each country rather than strict income guidelines* [emphasis added] – though, for the most part, the classifications were in line with per capita income levels. [Personal correspondence].

(so poorer states in India would qualify; see later discussion on sub-national income per capita).

With regards to assessing if the changing global distribution of poverty is a sleight of hand, there are several issues. First, are the thresholds a meaningful way of dividing the world into four groups of countries, in relative terms at least? Interestingly, and coincidentally, the current thresholds for LIC, LMIC, UMIC and HIC are somewhat similar to the quartile boundaries if one splits the world's countries with the necessary data into four equal groups (41 countries per quartile). For example, the current classification, the threshold for LICs (<$1005 GNI per capita) is reasonably close to the threshold for the bottom quartile (<$1,180); the threshold for LMICs ($1006-$3,975) corresponds with quartile two ($1,181-$3,850); and the threshold for UMICs ($3,976-$12,275) corresponds with quartile three ($3,851-$10,120) (see table 7).

Analysis of the countries in each quartile (GNP pc Atlas and GDP PPP pc 2005 constant $) in 1990 and 2008/9 and the changing distribution of world poverty by quartiles produces interesting results (see table 8 and 9). Of course this is a relative comparison in contrast to an absolute comparison of country thresholds. What is evident is that the vast majority of countries are in exactly the same quartile by GNI pc Atlas and GDP PPP pc in 1990 and in 2008 with the exception of 16 countries which have risen quartile by GNI pc and 14 countries that have risen quartile by GDP pc PPP.

Taking GNI pc by Atlas (as per the LIC/MIC estimation), there are still two-thirds of the world's poor in the poorest quartile. However, taking GDP pc PPP the world's poor have unambiguously shifted from Q4 to Q3: In 1990 almost 90% of the world's poor lived in the poorest quartile of countries. Whilst, in 2008, only a third of the world's poor were in the poorest quintile and two-thirds were in the quartile above of which four-fifths of the world's poor moving up from Q1 to Q2 is accounted for by India and China. The other fifth is accounted for by the other three countries rising from Q1 to Q2 GDP PPP quartile: Pakistan, Vietnam and Bhutan and much more so countries already in Q2 such as Indonesia.

Second, does the graduation of countries reflect higher per capita income in PPP terms or simply in exchange rate conversion? In general there is a close correlation between GNI per capita by Atlas and PPP (see figure 1 and table 10).

Table 7. Country thresholds and quartile data, 1990 and 2009

	1990		2009	
	Thresholds (US$ pc, Atlas)	**Quartiles (US$ pc, Atlas)**	**Thresholds (US$ pc, Atlas)**	**Quartiles (US$ pc, Atlas)**
HIC or Q4	> 7,621+	7330-75810	> 12,276	> $10,120
UMIC or Q3	2,466-7,620	1740-7260	3,976-12,275	3,851-10,120
LMIC or Q2	611-2,465	550-1720	1006-3975	1181-3850
LIC or Q1	<=610	< 540	<=1005	< 1,180

Source: Data processed from WDI (2011).

Table 8. GNI pc (Atlas) and GDP pc PPP (constant 2005 $): Relative position of countries by quartiles (countries by 1990 and 2008 position, Q1 = poorest)

GNI pc Atlas		1990			
	2008	Q4	Q3	Q2	Q1 (*) (**)
	Q4	35	6	0	1
	Q3	1	29	4	0
	Q2 (*)	0	2	27	5
	Q1 (**) (poorest)	0	0	5	29
GDP pc PPP constant 2005 $		1990			
	2008	Q4	Q3	Q2	Q1 (*) (**)
	Q4	40	3	1	0
	Q3	2	33	5	0
	Q2 (*)(**)	0	5	30	5
	Q1 (poorest)	0	0	3	35

Source: Processed from WDI (2011). Note: * = China; ** = India

Table 9. Distribution of global poverty ($1.25 and $2) by GNI pc (Atlas) and GDP pc (PPP 2005 constant $) quartiles

	$1.25		$2	
	1990	2008	1990	2008
GNI pc (Atlas)				
Q4	0.0	0.0	0.0	0.0
Q3	2.4	2.4	3.2	3.1
Q2	8.9	31.3 (*)	10.9	33.6 (*)
Q1 (poorest)	88.7 (*) (**)	66.3 (**)	85.9 (*) (**)	63.4 (**)
GDP pc PPP (constant 2005$)				
Q4	0.0	0.0	0.0	0.0
Q3	2.5	2.5	3.1	3.4
Q2	8.9	60.6 (*) (**)	10.9	67.8 (*) (**)
Q1 (poorest)	88.5 (*) (**)	36.8	86.0 (*) (**)	28.9

Source: Processed from PovCal (2012) and WDI (2011). Note: * = China; ** = India.

Figure 1. GNI pc (Atlas, Current $) Vs. GDP pc PPP (2005, int'l $), (Dark/Blue = LICs, Light/Green = LMICs)

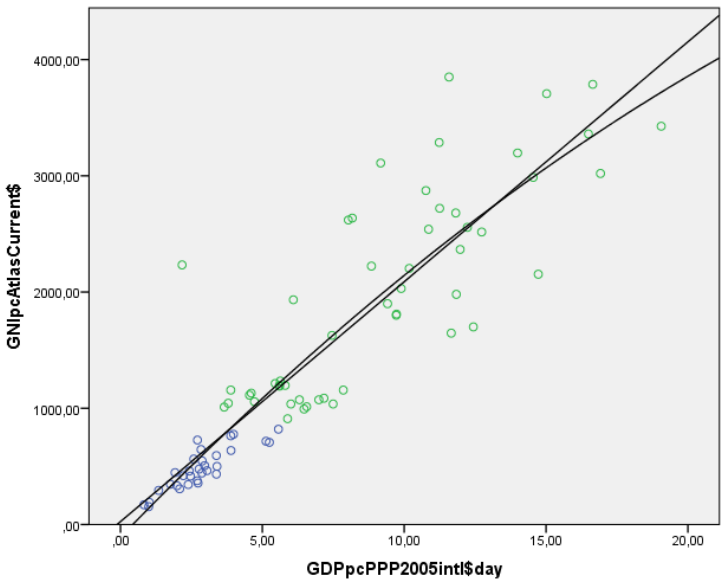

Table 10. Correlation, GNI pc (Atlas) and GDP pc PPP, average value, 2008-2010

		GDPpcPPP2005intl$day	GNIpcAtlasCurrent$
LICs and LMICs			
GDPpcPPP2005intl$day	Pearson Correlation	1	,899**
	Sig. (2-tailed)		,000
	N	84	83
GNIpcAtlasCurrent$	Pearson Correlation	,899**	1
	Sig. (2-tailed)	,000	
	N	83	87
**. Correlation is significant at the 0.01 level (2-tailed). R2 linear =0.807; R2 quadratic =0.801			
LICs, LMICs and UMICs			
GDPpcPPP2005intl$day	Pearson Correlation	1	,955**
	Sig. (2-tailed)		,000
	N	135	134
GNIpcAtlasCurrent$	Pearson Correlation	,955**	1
	Sig. (2-tailed)	,000	
	N	134	139
**. Correlation is significant at the 0.01 level (2-tailed). R2 linear = 0.913; R2 quadratic = 0.913			

However, the country data for those countries graduating to MIC status over the past decade ("New MICs"), and their PPP per capita income in 1990 and 2009, gives some cause for concern. Although all of the 28 New MICs are better off in terms of GNI per capita (exchange rate conversion) in 2009 compared to 1990 (or they wouldn't have crossed the LIC to MIC threshold), there are a very small number of countries (including Cameroon, Cote d'Ivoire and Zambia), who by PPP per capita terms are barely better off, or in some cases worse off.[12]

Third, there is the question of how sensitive the changes in the distribution of global poverty are to the LIC/MIC thresholds. The two figures below respectively show the cumulative poverty counts by GNI per capita with LIC/LMIC/UMIC thresholds identified. 43% of the world's poor live in India and Nigeria; countries that are about 20% above the $1005 threshold. The shift in the global distribution of poverty from LICs to MICs is thus, of course, a function of the thresholds themselves; but the bulk of world poverty is well above the current $1005 per capita LIC threshold. Such an assessment is, however, based on a methodological mismatch – the mismatch between the Atlas (exchange rate conversion) method used to construct the "poor countries" threshold (meaning the LIC/MIC threshold), and the PPPs method used to construct the "poor people" threshold (meaning the international poverty lines). Thus to assess more systematically how sensitive estimates of global poverty are to thresholds, one approach that can be taken is to produce cumulative poverty counts for $1.25 poverty and plot against GDP PPP per capita at multiples of the $1.25 poverty line for example.

Indeed, one way one could think about absolute and relative "poor" countries is by applying the international poverty line – $1.25/day (or $2/day) – for individuals, and multiples of them, to each country's average income.[13] This might mean that one could say there are:

[12] Further, some but not all of the "transition" economies in the new MIC group, such as Georgia and Ukraine, are not better off in PPP per capita terms despite graduating by Atlas terms. However, for such countries, unreliable GNI per capita data for 1990 may be an issue.

[13] $1.25/day is the mean of the national poverty lines of the poorest 15 countries in terms of consumption per capita, and thus there is clear logic that one should judge extreme poverty by the poverty lines in the poorest countries, rather than $2/day which is the median poverty line for all developing countries (Chen & Ravallion, 2008, p. 4)

- "Absolute poor" countries: VLICs (very low income countries) with an average income of less than $1.25 per capita/day, and MLICs (moderately low income countries) with an average income of less than $2.50 pc/day;
- "Relatively poor" countries: LMICs with an average income of less than $5 pc/day, and UMICs with an average income of less than $13 pc/day (which would be below the poverty line in the USA; see Ravallion, 2009);
- "Non-poor" or high income countries: countries with an average income of more than $13 pc/day (which would be above the poverty line in the USA).

Such an approach is open to the criticism that it simply replaces one set of arbitrary thresholds with another set, albeit a set that logically links definitions of poverty. Alternatively, one might make more use of the classifications of low, (and medium, high and very high) Human Development Countries (see UNDP, 2011). These are relative and based on the quartiles of HDI distribution across countries, meaning there will always be a quarter of all countries that are low HDI and a quarter medium HDI in any year.[14]

Fourth, are the current thresholds comparable with the thresholds in 1990? This is a difficult question to answer. Whether "international inflation" is a meaningful way to update the thresholds is open to discussion. To assess the comparability fully one would want to assess PPPs, although this too is contentious (see Deaton, 2010; 2011; Deaton & Heston, 2010). One way of looking at the issue is to compare, over time, changes by country group averages. If one considers various GNI and GDP per capita measures, (see table 11), one finds that that the "average" for the LIC and MIC country groups are approximately the same as in 1990 by average GDP pc/day PPP (constant 2005 international $). This comparison is interesting as the countries in each grouping have changed substantially, and yet the group average is (reasonably) comparable (and the degree of dispersion within country groups is not high).[15]

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[14] There is also, of course, the UN category of 'Least Developed Countries', which utilises a sophisticated methodology that combines human assets (including nutrition, child mortality, school enrolment and adult literacy), economic vulnerability (including measures of the instability of agricultural production, population displaced by natural disasters, instability in exports, the share of agriculture in GDP and exports), and proxies for economic "smallness" (less than 75 million people), "remoteness" and GNI per capita. However, the graduation criteria make it very difficult to leave the category (see, for detailed discussion, Guillaumont, 2010) and a third of the 49 LDCs are MICs.

[15] An alternative is a relative assessment - to compare the thresholds to world per capita GNI. Nielsen (2011, p. 13-14) notes, 'the low-income threshold fell from 16 to 11 percent of average world income over this period [1976-2009] and the high-income threshold fell from 189 to 140 percent'.

Fig 2. Threshold sensitivity of LIC/MIC lines – Global poverty, US$1.25, by GNI per capita, Atlas, 2008-9

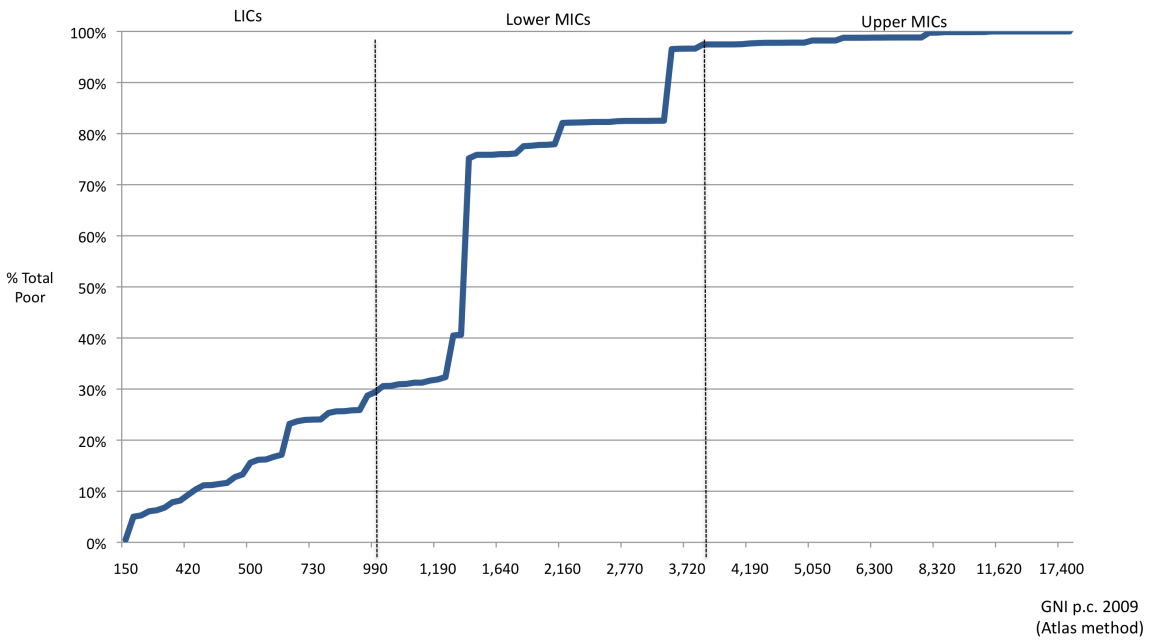


Fig 3. Threshold sensitivity of LIC/MIC lines – Global poverty, US$2, by GNI per capita, Atlas, 2008-9

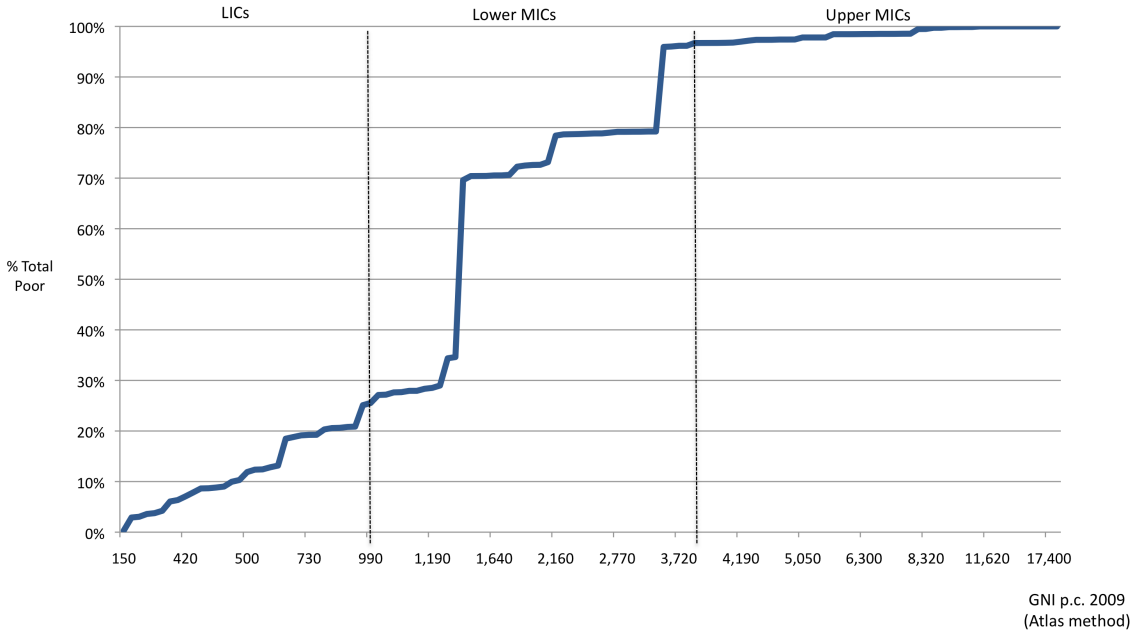


Fig 4. Global poverty, $1.25, by GDP pc, PPP, 1990 vs 2008

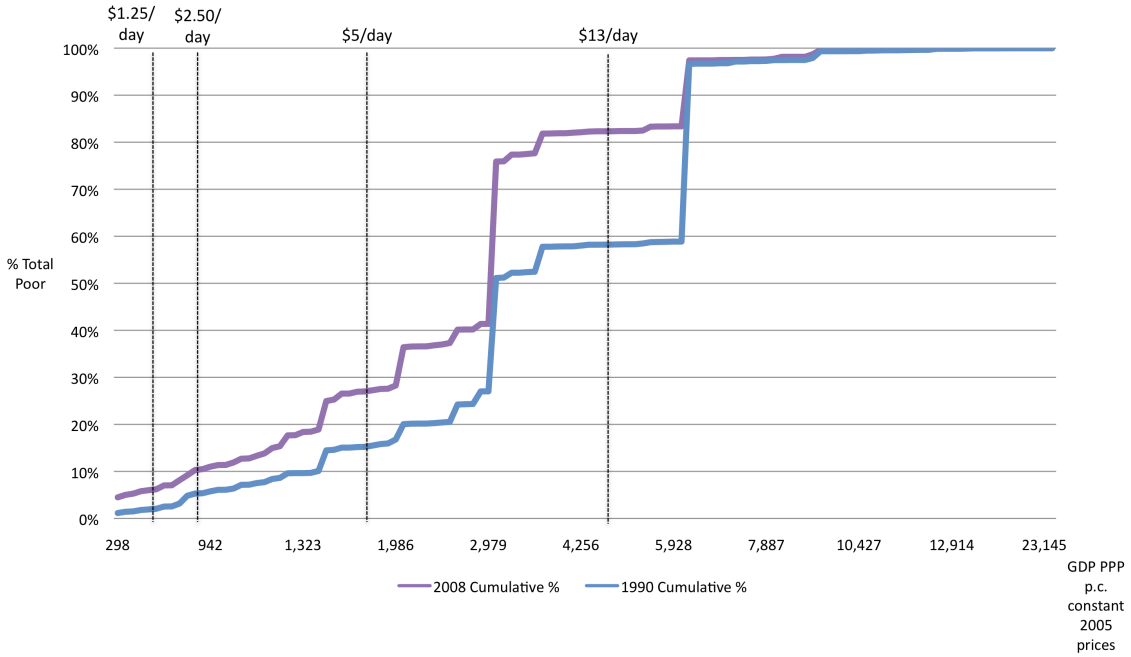
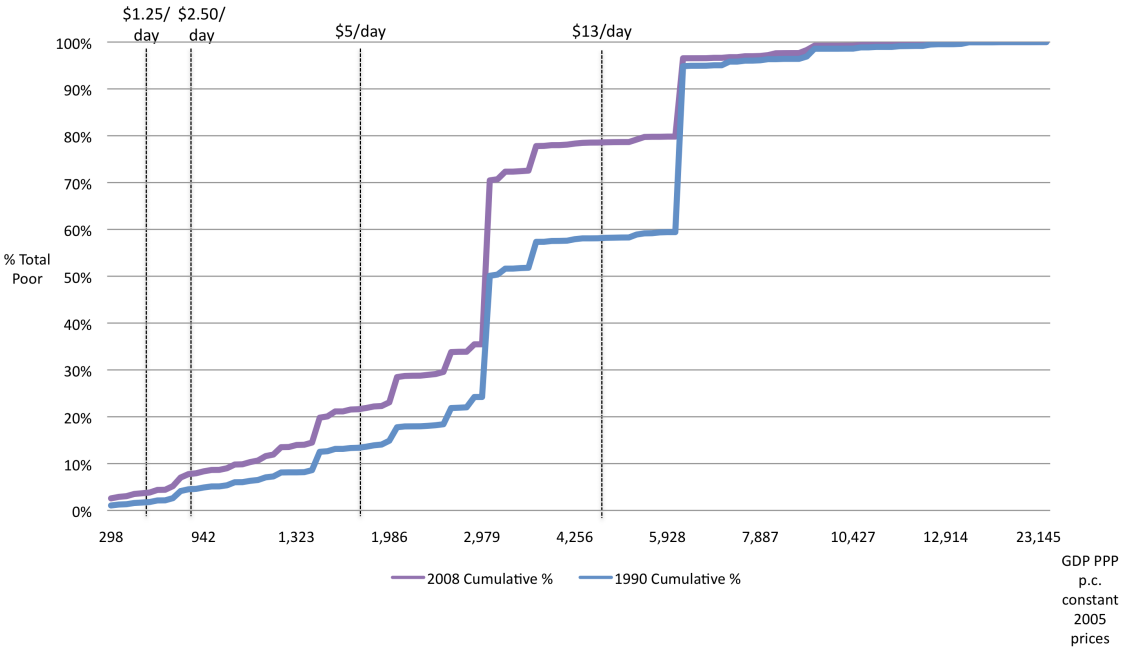


Fig 5. Global poverty, $2, by GDP pc, PPP, 1990 vs 2008



One can consider other indicators but it is not clear how to interpret these, as the LIC group average reflects those countries "left behind". For example, comparing 1990 and 2009, the average for the LIC group saw little change in forex reserves but significant increases in aid dependency, primary export concentration and weaker domestic savings; all of which likely reflects the LICs "left behind" being structurally poorer LICs than those which saw average incomes rise over the period. Conversely, the LMIC group average was significantly better off by forex, and had lower aid dependency and lower primary export concentration. However, within each country grouping, although the variation by per capita income is low, the degree of dispersion within country groups for indicators of aid dependency and export indicators would suggest caution in interpretation of the country group averages for these indicators. For this reason the data is not presented having been considered.

One further issue is spatial and group inequalities within MICs, and whether the world's poor live in poor provinces in MICs or 'LICs within MICs' (and/or certain social groups within MICs). One could test the hypothesis that many MICs, especially lower-MICs, are in fact collections of LIC-like provinces with a small number of higher per capita income MIC-like provinces. To pursue this is, of course, a much bigger endeavor. However, if one considers India, one finds support for this hypothesis. If one applied the LIC-MIC threshold at sub-national level, a substantial number of states in India would likely be LICs and an estimated two-thirds of India's poor would live in those LIC states and perhaps surprisingly, a third of India's poor would live in MIC states in India (see table 12).[16]

Table 11. Estimates of Average GDP pc/day PPP, constant 2005 intl $, popn unweighted, 1990 vs. 2009

	1990	**2009**
LICs	3.2	2.8
MICs	17.1	17.7

Source: Processed from WDI (2011).

[16] The new poverty line in India utilized in 2009-10 data, "happens to be close to, but less than, the 2005 PPP $1.25 per day poverty norm used by the World Bank in its latest world poverty estimates" (Government of India, 2009, p. 8), and produces a national poverty rate of 29.8% or 355m poor (compared to the $1.25 data that produces a rate of 32.7% or 400m poor according to PovCal). As the Government of India (2012, p. 2) notes, rural dwelling Scheduled Tribes, Scheduled Castes and Other Backward Castes face respectively poverty rates of 47.4%, 42.3% and 31.9%, compared to 33.8% for all classes. In contrast, urban dwelling Scheduled Tribes, Scheduled Castes and Other Backward Castes face respectively poverty rates of 34.1%, 30.4% and 24.3%, compared to 20.9% for all classes.

Table 12. Estimates of the distribution of poverty by national poverty line in India by state, 2009/10

	Est. GNI pc by state, 2009 (US$)	**State GNI pc, 2009 as % India average ($1220)**	**% Population poor in each state (2009/10)**	**% of total Indian poor by state**
Bihar	415	34.0	53.5	15.3
Manipur	587	48.1	47.1	0.4
Madhya Pradesh	609	49.9	36.7	7.4
Uttar Pradesh	646	53.0	37.7	20.8
Jharkhand	691	56.6	39.1	3.6
Assam	751	61.6	37.9	3.3
Jammu and Kashmir	753	61.7	9.4	0.3
Nagaland	780	63.9	20.9	0.1
Tripura	821	67.3	17.4	0.2
Mizoram	845	69.3	21.1	0.1
Rajasthan	853	69.9	24.8	4.7
Orissa	881	72.2	37.0	4.3
Arunachal Pradesh	922	75.6	25.9	0.1
Meghalaya	925	75.8	17.1	0.1
West Bengal	990	81.2	26.7	6.8
% of Indian's poor in LIC states				67.4
Tamil Nadu	1,039	85.2	17.1	3.4
Sikkim	1,078	88.4	13.1	0.0
Chhattisgarh	1,147	94.0	48.7	3.4
Uttaranchal	1,236	101.3	18.0	0.5
Andhra Pradesh	1,253	102.7	21.1	5.0
Karnataka	1,304	106.9	23.6	4.0
Kerala	1,365	111.9	12.0	1.1
Himachal Pradesh	1,541	126.3	9.5	0.2
Gujarat	1,684	138.0	23.0	3.8
Punjab	1,739	142.5	15.9	1.2
Maharashtra	1,933	158.4	24.5	7.6
Haryana	2,171	178.0	20.1	1.4
Delhi	2,399	196.6	14.2	0.7
Goa	3,019	247.4	8.7	0.0
% of India's poor in MIC states				32.5
Total				99.9

Sources: GNI pc by state from CEIC database based on relative GDP PPP pc: (Province GDP pc / National GDP pc)*(National GNI per capita). Poverty data based on Planning Commission (2012).

5. CONCLUSIONS

This paper has updated the data for the distribution of global poverty to 2008 with the most recently available data and explored the factors behind the shift in global poverty towards middle-income countries and how sensitive the distribution of global poverty is to the thresholds for middle-income classification.

The updated data and broader analysis substantiates the changing distribution of global poverty towards MICs (however defined) and suggests an apparent "poverty paradox" – most of the world's poor do not live in the world's poorest countries.

The changing distribution of global poverty challenges the orthodox view that most of the world's extreme poor live in the world's poorest countries, and that extreme poverty is minimal at higher levels of average per capita income. This shifts how we view global poverty because understandings and definitions of poverty have: (i) tended to under emphasise questions of national inequality, and (ii) tended to present poverty as "residual" at higher levels of average per capita income rather than a structural outcome of specific patterns of growth and distribution, and their interaction with sub-national/spatial inequalities and horizontal/group inequalities.

One take on the data is that extreme poverty is turning gradually from a question of poor people in absolute poor countries to poor people in relative poor countries or non-poor countries (depending on the definition applied for this). This implies a shift over time from international redistribution (via aid) to national redistribution of some kind; and thus a greater focus on governance and the relationship between the poor and the non-poor, as the latter, in the not-too-distant future, will have the capacity to end the poverty of the former.

What the above points to is that poverty research needs to go beyond the studying the "poor." This would suggest that, rather than study individual or household deprivations as poverty research has done, more focus should be placed on socio-economic groups and inter- and intra- group distribution and social differentiation. This means less focus on studying the "poor" and greater focus on studying the "non-poor", meaning not only those groups vulnerable to poverty but the secure middle class and elites, and their social relationships with the "poor". This would mean more focus on reconnecting poverty research with the broader processes of economic development, and implies a shift from researching the "traditional" area of mainstream poverty research (meaning deprivation) to researching something

different and far more political: distribution. Of course many researchers have been doing this already, but some argue that poverty research in the mainstream has been depoliticized by the "measurement obsession". Measurement is not the problem, however. The problem is embedding poverty research within an analysis that includes distribution, social differentiation and the process of economic development – in short the political economy of poverty. Poverty research has under emphasised questions of inequality under the assumption that poor people always live in poor countries so inequality does not matter if everyone is poor. That is no longer so certain. Mainstream poverty research has also tended to present poverty as "residual" at higher levels of average per capita income, rather than an outcome of specific patterns of economic development and social structures and relationships. Again, poverty in middle-income countries raises a question mark over this. In sum, in the future the questions for radical poverty research might be reframed from "who is poor?" and "why are they poor?" to "who does what?" and "who gets what?"

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ANNEX I: METHODOLOGICAL ANNEX

The pattern observed in the distribution of global poverty raises numerous methodological questions. First, there the $1.25 and $2 poverty lines themselves have been subject to considerable contention (for critical review see Fischer, 2010). Most notably, such contention has centred on Purchasing Power Parity (PPP) related issues (see discussion in Sumner, 2012 drawn from Deaton, 2010; 2011; Deaton and Heston, 2010; Klasen, 2010). However, in spite of various issues related to data quality (e.g. the treatment of urban and rural areas of large countries; prices for "comparison resistant items" (e.g. government services, health and education); the effects of the regional structure of the latest International Comparison Program; the absence of weights within basic headings which may result in basic headings being priced using high-priced, unrepresentative goods that are rarely consumed in some countries; the use of national accounts statistics data that does not reflect consumption patterns of people who are poor by global standards), Deaton (2010, p. 31) concludes that the reweighting of the PPPs matters less than might be thought and instead, the quality of underlying household surveys and national accounts is a more urgent area for improvement:

> PPPs for the poorer countries in Africa or in Asia may be *good enough* [emphasis added] to support global poverty counts, at least *provided the uncertainties are recognized* [emphasis added]. (Deaton, 2010, p. 31).

Further, clustering around the 'international poverty line' between $1 and $1.25 'Asianised' world extreme poverty because 200m Indians live(d) between $1 to $1.25 in 2005 (Deaton, 2011). It is for this reason it is important to make global estimates both with and without India (and with and without China) in tables so comparisons can be made.

This points towards that fact that people move in and out of poverty, and numerous studies have shown that there is no such group as "the poor" in the way the term is conventionally used. Of particular relevance is the poverty dynamics literature, and the research on chronic and transient poverty (e.g. Baulch, 2011; Hulme *et al.,* 2001; Hulme & McKay, 2007; McKay & Lawson, 2002; Narayan & Petesch, 2007). In countries with data, it has been estimated that the percentage of the poor that are always poor comprises typically 20-40% of poor households (see data in Dercon & Shapiro, 2007).

Given these points, it is important that the distribution of global poverty noted by expenditure poverty holds across other poverty measures (see Alkire *et al*., 2011). Further, that the population coverage of the poverty data used is reasonable (see table below). In fact the population coverage is of such a level that countries with missing data comprise a relatively small proportion of the population of LICs and MICs, and their absence will not make a substantial difference to estimates of the global distribution. For this reason, as per Chandy and Gertz (2011), estimates here do not "fill" data gaps like Ravallion and Chen (2008) with weighted regional averages. There is some slight bias in the estimates towards MICs, but the population coverage of LICs is still respectable.

Table A1. Population coverage of US$1.25 and US$2 poverty data by country classifications, 2008 (% population covered by category, current country classifications)

	2008
LIC	83.5
MICs	98.0
LICs and MICs	96.0
Fragile States (45 countries in OECD, 2012)	97.2

Source: Processed from PovCal Net (2012). Note: Consumption surveys used for all countries the with following exceptions for countries with income surveys: Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Croatia, Czech Republic, Dominican Republic, Ecuador, El Salvador, Estonia, Guatemala, Guyana, Honduras, Malaysia, Mexico, Moldova, Rep., Nicaragua, Panama, Paraguay Poland, Russian Federation, Slovak Republic, Slovenia, Trinidad and Tobago Turkmenistan, Ukraine, Uruguay Uzbekistan and Venezuela. OECD (2012) fragile states = Afghanistan, Angola, Bangladesh, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Comoros, Congo, Dem. Rep., Congo, Rep., Côte d'Ivoire, Eritrea, Ethiopia, Georgia, Guinea, Guinea-Bissau, Haiti, Iraq, Kenya, Kiribati Korea, Dem Rep., Lebanon, Liberia, Malawi, Myanmar, Nepal, Niger, Nigeria, Pakistan, Palestinian Adm. Areas, Papua New Guinea, São Tomé and Principe, Sierra Leone, Solomon Islands, Somalia Sri Lanka, Sudan, Tajikistan, Timor-Leste, Togo, Uganda, Uzbekistan, Yemen, Rep. and Zimbabwe.

Table A2. Countries with no poverty data

Country	**Country Classification**	**Population (2008)**
Afghanistan	Low income	29,021,099
Eritrea	Low income	4,926,877
Korea, Dem. Rep.	Low income	23,818,753
Myanmar	Low income	49,563,019
Somalia	Low income	8,926,326
Zimbabwe	Low income	12,462,879
Kiribati	Lower middle income	96,558
Kosovo	Lower middle income	1,795,000
Marshall Islands	Lower middle income	59,667
Micronesia, Fed. Sts.	Lower middle income	110,414
Mongolia	Lower middle income	2,641,216
Samoa	Lower middle income	178,869
Solomon Islands	Lower middle income	510,672
Tonga	Lower middle income	103,566
Tuvalu	Lower middle income	n/a
Uzbekistan	Lower middle income	27,313,700
Vanuatu	Lower middle income	233,866
American Samoa	Upper middle income	66,107
Antigua and Barbuda	Upper middle income	86,634
Argentina	Upper middle income	39,882,980
Cuba	Upper middle income	11,204,735
Dominica	Upper middle income	73,193
Grenada	Upper middle income	103,538
Lebanon	Upper middle income	4,193,758
Libya	Upper middle income	6,294,181
Mauritius	Upper middle income	1,268,854
Mayotte	Upper middle income	191,187
Palau	Upper middle income	20,279
St. Kitts and Nevis	Upper middle income	49,190
St. Vincent and the Grenadines	Upper middle income	109,117