

Identifying the 'Bottom Billion': Beyond National Averages

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The world now carries over seven billion human beings. Where do the poorest billion of us – the 'bottom billion' in terms of multidimensional poverty – live? The question is important to constructing effective policies and informing institutions and movements seeking to reduce poverty. This policy brief does two things: first, it zooms in on the poorest billion based on a multidimensional approach and, second, it goes beyond national aggregates. In particular, it looks at the bottom billion first at the subnational level and then, for the first time, using individual poverty profiles.¹ The analysis is based on the global Multidimensional Poverty Index (MPI) – a measure of acute poverty in over 100 developing countries, which includes information on health, education, and living standards, and is published in UNDP's *Human Development Report*. As we show, the MPI allows us to undertake subnational and individual level analyses and so go beyond national averages that hide inequality.

FINDINGS AT-A-GLANCE

Where the poorest billion of us live depends on whether we identify the bottom billion living in the poorest countries, the bottom billion living in the poorest subnational regions, or the bottom billion by individual poverty profiles. If we consider national poverty averages, the bottom billion live in the **30 poorest countries**. If we disaggregate national poverty at subnational levels, we find that the bottom billion live in 265 subnational regions across **44 countries**. Finally, when we consider the intensity of poverty experienced by each poor person, we find that the billion poorest people are actually distributed across **100 countries**, including – surprisingly – high income countries. This analysis shows the importance of creating global poverty estimates that can be disaggregated in different ways to show disparities across groups and inequalities among the poor.

REGIONAL DISTRIBUTION

Across all analyses, some consistent findings emerge. First, South Asia leads the world in poverty, housing 52-62% of

the bottom billion by different estimates. Even when the bottom billion are identified most precisely, using individual poverty profiles, India is home to 40% of the world's poorest billion people. It is followed by Africa, with 33-39% of the bottom billion.



Photo by Mihika Chatterjee

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MICS VS LICs

A second finding relates to countries' World Bank income categories. Most of the poorest billion people live in Middle Income Countries (MICs). Low Income Countries (LICs) are home to 31-38% of the bottom billion, and lower Middle Income Countries to 60-66%.

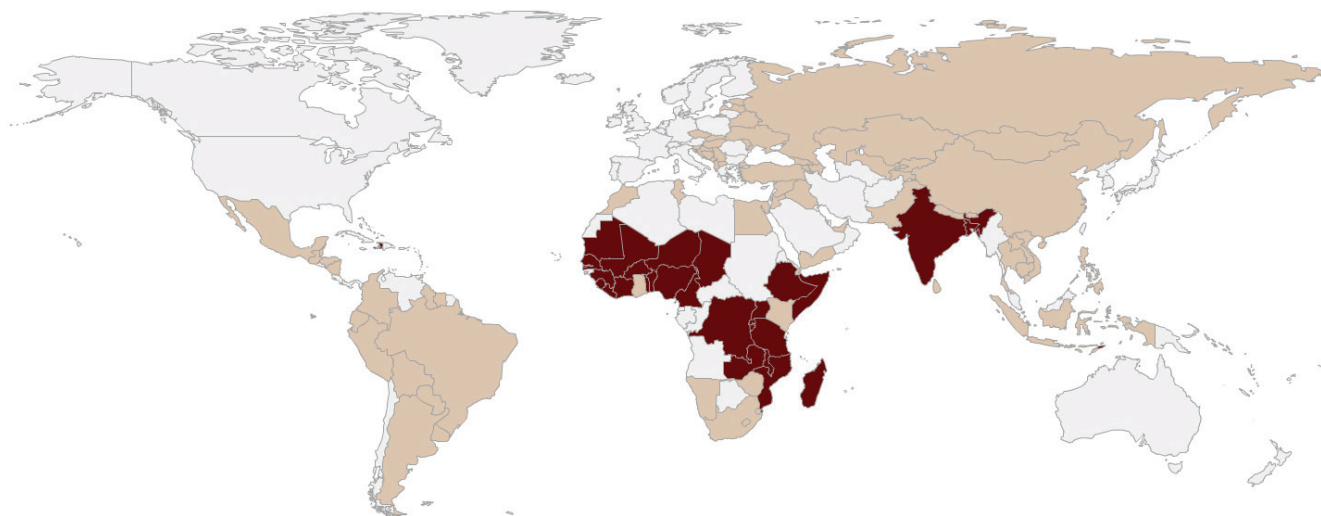
MORE DETAILS

The remainder of this briefing provides details of the methodology and results just summarized. Our analysis uses MPI data from 104 countries, covering

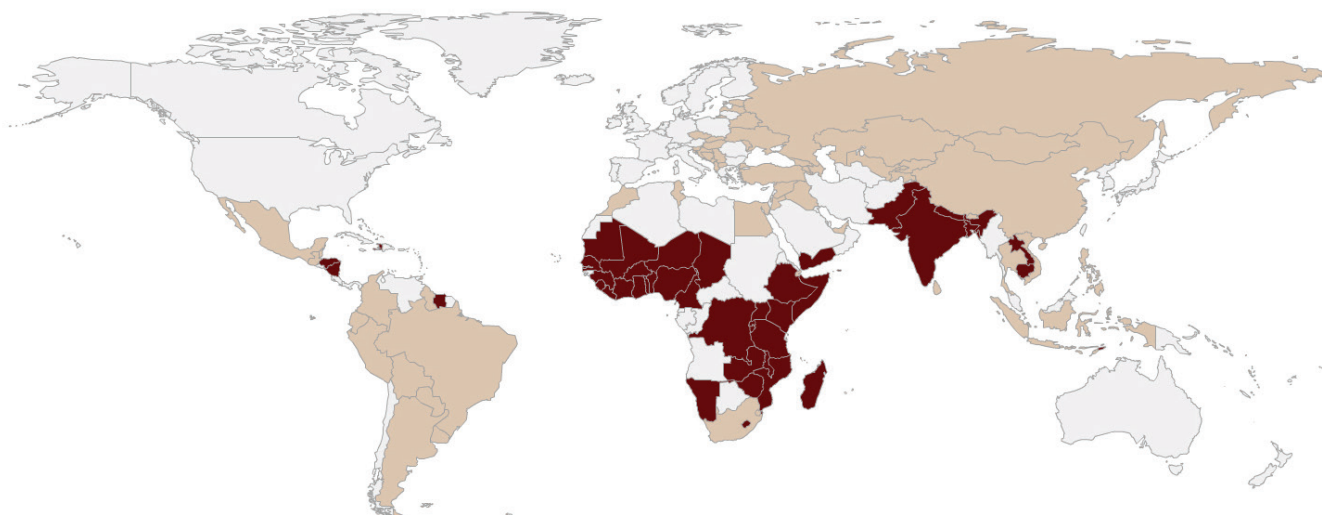
nearly 89% of the population from upper Middle Income Countries, 98% of those in lower MICs and 86% of people living in LICs.²

Where in the world do the 'bottom billion' in terms of multidimensional poverty live? It depends on the level of analysis. Using national-level data, we find they live in 30 countries. Using subnational-level data, we find they are located in 44 countries. Using individual poverty profiles, we find they are spread across 100 countries, as illustrated below.

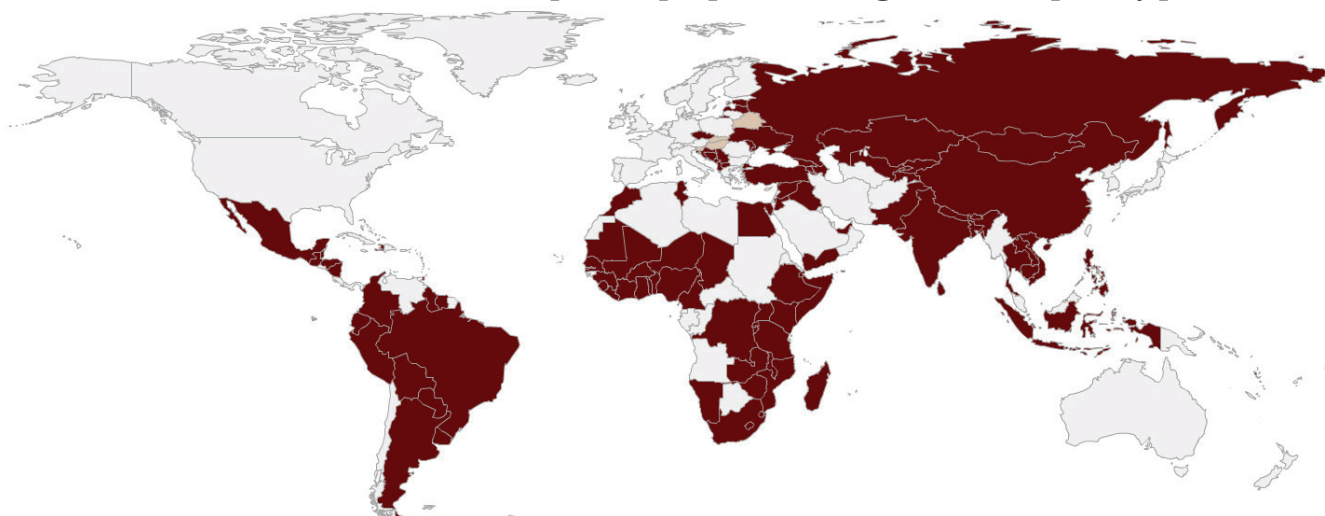
Distribution of the bottom billion poorest people according to national poverty levels



Distribution of the bottom billion poorest people according to subnational (regional) poverty levels



Distribution of the bottom billion poorest people according to individual poverty profiles



Countries which were home to some of the bottom billion poorest people, according to the analysis
 Countries which were not home to any of the bottom billion poorest people, according to the analysis
 Countries that were not part of the analysis

THE BOTTOM BILLION BY COUNTRIES³

To start with, we rank the countries by their MPI values, starting with the poorest countries. We find that the poorest one billion people – according to national poverty averages – live in 30 countries.⁴ The average MPI of these countries is 0.322, just poorer than Nigeria. Of these people, 62.4% are from South Asia, 36.4% live in Sub-Saharan Africa and merely 1.2% live in other geographic regions. India alone is home to 55.2% of the poorest bottom billion identified by this analysis, and has the second highest Gross National Income (GNI) per capita of the 30 countries after Timor-Leste. If we look across income categories, 65.8% are from lower Middle Income Countries and 34.2% are from Low Income Countries. No upper middle income or high income countries are among the 30 poorest countries (Table 1).

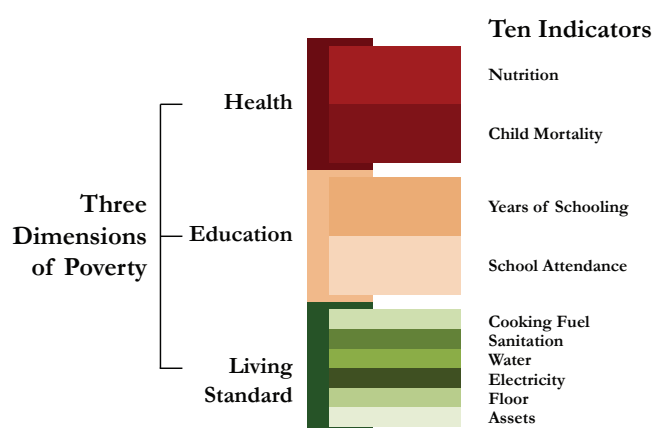
However, country aggregates overlook a great deal of variation in poverty levels. For example, if we look inside Tanzania, we find that in the Kilimanjaro region in 2010, 32.4% of people are poor; whereas in the Dodoma region a staggering 87.4% are poor. Compounding this further, poor people in Kilimanjaro are on average deprived in 41% of the MPI indicators (see ‘What is the MPI?’, right), whereas the average intensity in Dodoma is over 54%.

THE BOTTOM BILLION BY SUBNATIONAL REGIONS⁵

In our next analysis, we break down the countries that we can by subnational regions. We then rank all subnational regions from poorest to least-poor according to the MPI,⁶ and identify the one billion people living in the poorest subnational regions. Our results change significantly. Now, we find

What is the MPI?

The Multidimensional Poverty Index (MPI) is a measure of acute multidimensional poverty published in the UNDP *Human Development Reports* for over 100 developing countries since 2010. Developed with OPHI, it has three dimensions and ten indicators, which reflect some MDGs and international standards of poverty (Alkire and Santos 2010, Alkire Conconi and Roche 2013). Each dimension is equally weighted, and each indicator within a dimension is equally weighted. The MPI methodology follows Alkire and Foster (2011), and identifies a person as poor if they are deprived in a third or more of the weighted indicators.



that the one billion people living in the poorest subnational regions are distributed across 265 subnational regions from 44 countries, including the 30 countries identified by the previous method. Only 2.8% of these one billion people are from outside South Asia and Sub-Saharan Africa (Table 2). On average, the MPI of these poorest regions is 0.395, just poorer than DR Congo. Nationally, the average MPIs in Sub-Saharan Africa and in Low Income regions are much higher than this average. Subnational decompositions are tremendously useful as they clearly reveal the disparities in poverty within countries and show the need for regional policies. Decomposition by other subgroups of population (rural-urban, ethnicity, etc) is possible and could add further insights. Yet even looking at poverty at the subnational level conceals inequality across the poor within a region. It is highly unlikely that all poor people



Table 1: Distribution of Bottom Billion in the Poorest Countries by World Region and Income Category

World Region	Number of Countries	Total Population		Bottom Billion MPI Poor		Average MPI
		Thousands	% of World Population	Thousands	% of Bottom Billion	
Total	30	2,020,720	37.7%	1,192,272	100%	0.322
<i>World Region</i>						
Europe and Central Asia	0	-	-	-	-	-
Arab States	1	9,331	0.2%	7,573	0.6%	0.514
Latin America and Carib.	1	9,993	0.2%	5,641	0.5%	0.299
East Asia and Pacific	1	1,124	0.0%	765	0.1%	0.360
South Asia	2	1,373,306	25.6%	744,174	62.4%	0.284
Sub-Saharan Africa	25	626,966	11.7%	434,119	36.4%	0.401
<i>Income Category</i>						
High Income	0	-	-	-	-	-
Upper Middle Income	0	-	-	-	-	-
Lower Middle Income	7	1,449,021	27.0%	784,871	65.8%	0.289
Low Income	23	571,699	10.7%	407,401	34.2%	0.405



in a subnational region would share the average intensity of poverty of that region. Therefore, we go one step further, by looking at the poverty profiles of individuals from every household surveyed across our 104 countries in order to identify where the poorest billion people live.

THE BOTTOM BILLION BY INDIVIDUAL POVERTY PROFILES

When we identify the poorest one billion people based on the intensity of their multiple deprivations, the picture sharpens further. In this new approach we effectively rank the population in all of the 104 country surveys according to the intensity of their poverty profiles.⁷ We start with people who are deprived in all ten indicators – that is 17 million people, of whom 4 million each live in Ethiopia and India. We then add people who

Table 2: Distribution of Bottom Billion in the Poorest Subnational Regions

World Region	Number of Countries	Number of Sub-Nat. Regions	Total Population		Bottom Billion MPI Poor		Average MPI
			Thousands	% of World Population	Thousands	% of Bottom Billion	
Total	44	265	1,439,539	26.9%	1,007,293	100%	0.395
<i>World Region</i>							
Europe and Central Asia	0	0	-	-	-	-	-
Arab States	2	2	33,384	0.6%	20,204	2.0%	0.348
Latin America and Carib.	4	13	7,290	0.1%	4,898	0.5%	0.363
East Asia and Pacific	3	18	5,672	0.1%	3,466	0.3%	0.335
South Asia	4	19	896,722	16.7%	583,715	57.9%	0.355
Sub-Saharan Africa	31	213	496,471	9.3%	395,009	39.2%	0.472
<i>Income Category</i>							
High Income	0	0	-	-	-	-	-
Upper Middle Income	2	4	631	0.0%	400	0.04%	0.315
Lower Middle Income	15	79	924,020	17.2%	620,576	61.6%	0.375
Low Income	27	182	514,887	9.6%	386,318	38.4%	0.431

are deprived in 95% of the indicators and so on until we have identified the poorest billion people. Each of those poorest billion people are deprived in 44.44% or more of the indicators.⁸ This method is the most precise at the individual level and also puts an emphasis on people rather than countries or regions.⁹

Surprisingly, the poorest billion people are distributed across 100 countries. Among these, 51.6% reside in South Asia, 32.7% reside in Sub-Saharan Africa, and 12.3% reside in East Asia and Pacific. India and China are home to the largest numbers of bottom billion poor: nearly 40% of the bottom billion poor reside in India. Alongside the number of bottom billion poor in a country, we can see the average intensity of deprivation, which varies. What these results show is that there are a considerable number of people with a high intensity poverty profile in a rather large number of countries.

Also, surprisingly, 9.5% of the bottom billion poor people reside in upper Middle Income Countries, and 41,000 of the poorest bottom billion live in

five High Income Countries (Table 3). Only four out of 104 countries have zero bottom billion poor people: Belarus, Hungary, Slovenia, and Slovakia.

Our three-method calculations of the bottom billion show the importance of having poverty measures that can be disaggregated. It also models the flexibility of the MPI methodology. Because the MPI is a direct measure of poverty and is not mediated by prices or other location-specific markers, in essence we can dissolve national boundaries and undertake direct comparisons using people's deprivation profiles.¹⁰ For targeting or policy it can be useful to consider the MPI at different levels of geographic or social disaggregation, and these are also easily computed and analysed.

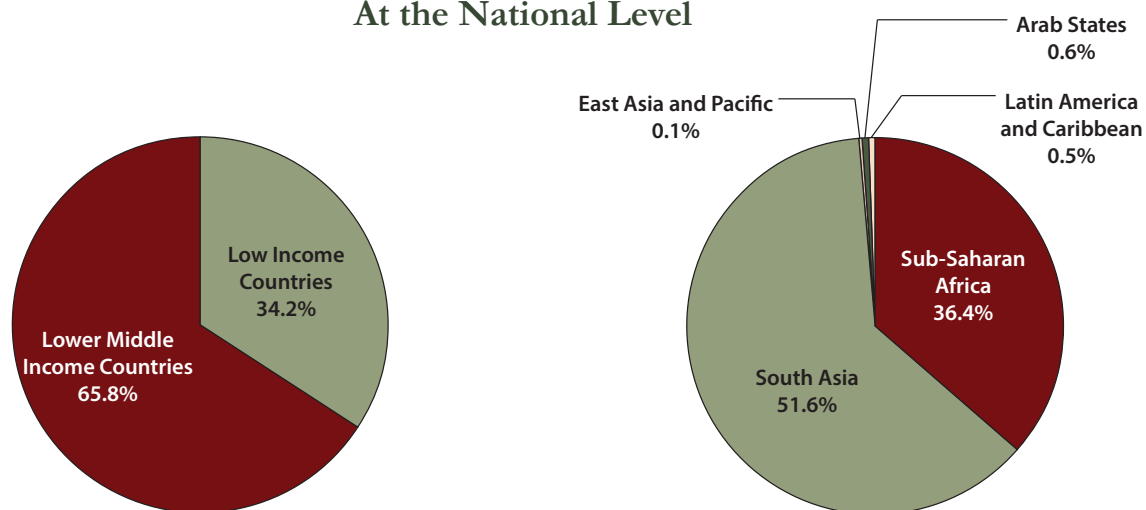
Multidimensional poverty measures enable us to identify who is poor, how poor they are, and what policies will most effectively eradicate their poverty. This note has shown the importance of creating poverty measures that can be disaggregated in different ways: by subnational region and even down to the individual level.

Table 3: Distribution of Bottom Billion according to Individual Poverty Profile

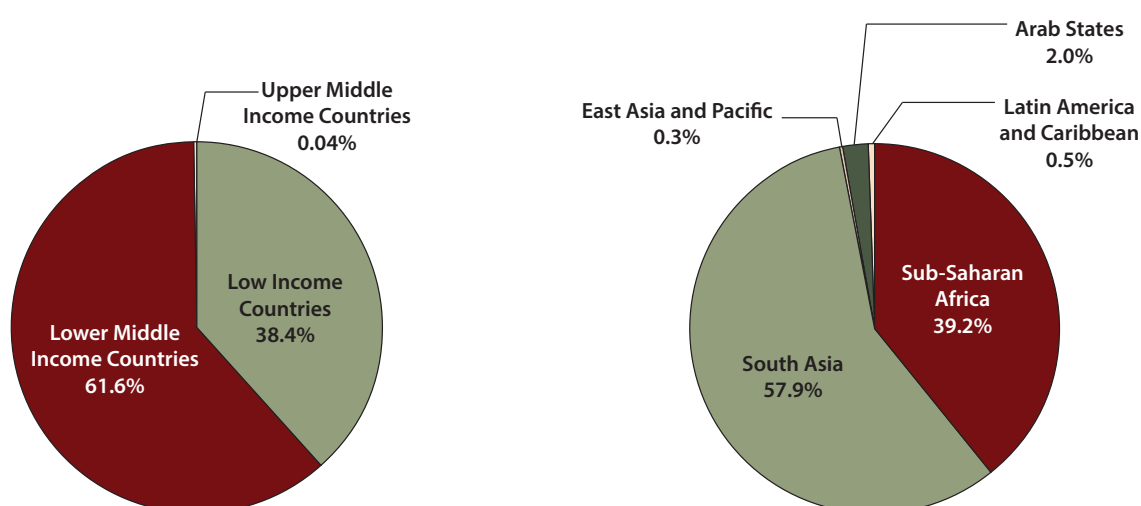
World Region	Number of Countries	Bottom Billion MPI Poor	
		Thousands	% of Bottom Billion
Total	100	1,133,060	100%
<i>World Region</i>			
Europe and Central Asia	20	2,715	0.24%
Arab States	11	19,946	1.76%
Latin America and Carib.	18	16,103	1.42%
East Asia and Pacific	10	139,293	12.29%
South Asia	7	584,519	51.59%
Sub-Saharan Africa	34	370,483	32.70%
<i>Income Category</i>			
High Income	5	41	0.00%
Upper Middle Income	25	107,161	9.46%
Lower Middle Income	41	674,708	59.55%
Low Income	29	351,150	30.99%

Finding the multidimensionally poorest billion people by geographical region and country income category

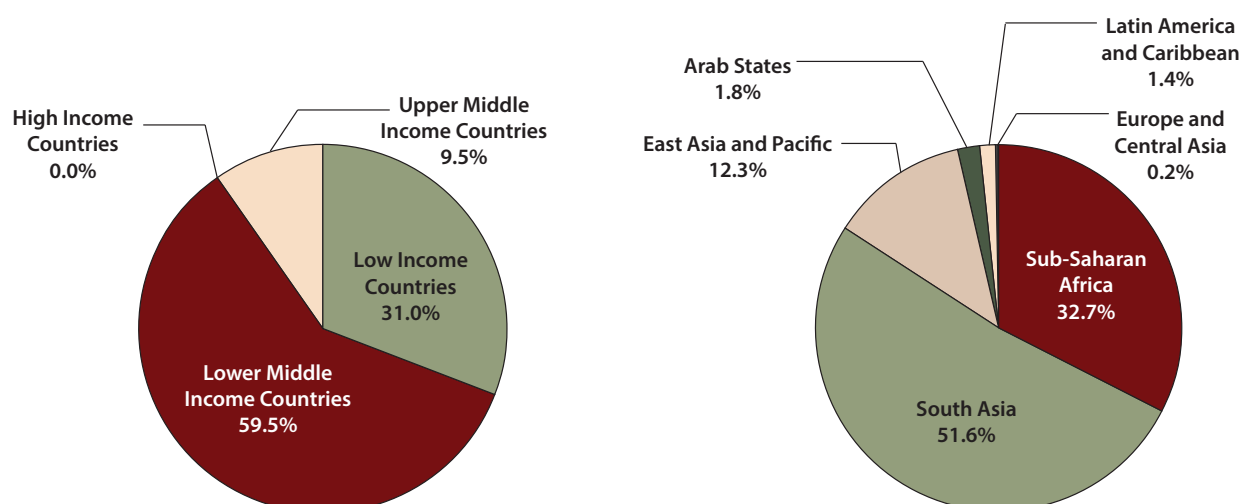
At the National Level



At the Subnational Level



At the Individual Level



NOTES

1. This is possible because the MPI is a direct measure of poverty. It does not require adjustments for prices, exchange rates or inflation, so can be easily compared across subnational regions and indeed across individuals living in different countries. Note that the MPI uses the most recent Demographic and Health Surveys (DHS) or Multiple Indicator Cluster Survey (MICS) data available, so years vary across countries.

2. Our overall sample of 104 countries covers 77.7% of the world population or 5.4 billion people, using UN population figures for the year 2010 (UN 2011). Note that as with all similar exercises, this exercise requires very important computational caveats, because the surveys used for the computations were collected from different years and not all ten indicators were available across all surveys (97 countries have 9 or 10 indicators). When we use the older survey with the population of year 2010, we implicitly assume that the level of poverty has remained unchanged. This is a strong assumption, but should provide incentive to countries to collect more up-to-date data. See the discussions in Alkire and Santos (2010) and Alkire, Roche and Sumner (2013) for why we do not predict poverty.

3. This first section supports findings from recent studies, which show that the geography of poverty is changing and an increasingly large number of the world's poor are living in Middle Income Countries (Alkire, Roche and Seth 2011; Alkire, Roche and Sumner 2013; Glasman et al. 2011; Sumner 2012; Kanbur and Sumner 2012).

4. Because of country sizes, this method actually identifies 1.19 billion people.

5. A preliminary analysis of national disparities and world distribution of global multidimensional poverty was undertaken in Alkire, Roche and Seth (2011).

6. We were not able to decompose three countries (Yemen, Somalia and Chad) at the subnational level, but included them in the subnational bottom billion analysis as their poverty levels were high and each had less than 25 million people, making them smaller than a number of subnational regions we did use.

7. Using household surveys, we actually rank weighted respondents.

8. Thus each person in the bottom billion is deprived in at least one health or education indicator and five standard-of-living indicators, or two health and education indicators and two standard-of-living indicators. Note that the poverty cut-off of 44 percent in fact identifies 1.13 billion people instead of precisely 1 billion people because 264 million people across 100 countries share exactly the same deprivation score of 44.4 percent.

9. The tradeoff is that now we can only report the number of people and intensity of their poverty, not the percentage of poor people and hence not the MPI.

10. This exercise remains constrained by incomparabilities across the datasets in terms of year, indicator and variable definition. These are particularly acute for the World Health Survey MPI estimates and for the 7 countries lacking 2+ indicators (see Alkire and Santos 2010, Alkire et al. 2011, Alkire et al. 2013). Naturally, the accuracy of the MPI will also vary in different contexts; however it provides a starting point for undertaking such comparisons, and can be improved as data improve.

REFERENCES

Alkire, S. and Foster, J.E. (2011): "Counting and Multidimensional Poverty Measurement", *Journal of Public Economics*, 95(7): 476–487.

Alkire, S.; Roche, J.M.; Santos, M.E. and Seth, S. (2011): "Multidimensional Poverty Index 2011: Brief Methodological Note", Oxford Poverty and Human Development Initiative, the University of Oxford.

Alkire, S.; Conconi, A. and Roche, J.M. (2013): "Multidimensional Poverty Index 2013: Brief Methodological Note and Results", Oxford Poverty and Human Development Initiative, the University of Oxford.

Alkire, S.; Roche, J.M. and Seth, S. (2011): "Subnational Disparities and Inter-temporal Evolution of Multidimensional Poverty across Developing Countries", OPHI Research in Progress 32a.

Alkire, S., Roche, J.M. and Sumner, A. (2013): 'Where do the World's Multidimensionally Poor People Live?', OPHI Working Paper 61, Oxford Poverty and Human Development Initiative, the University of Oxford.

Alkire S. and Santos, M. E. (2010): "Acute Multidimensional Poverty: A New Index for Developing Countries", Working Paper 38, Oxford Poverty and Human Development Initiative, the University of Oxford.

Glasman, A.; Duran, D. and Sumner, A. (2011): "Global Health and the New Bottom Billion: What Do Shifts in Global Poverty and the Global Disease Burden Mean for GAVI and the Global Fund?", Working Paper 270, Washington, DC: Global Economy and Development at Brookings, The Brookings Institution.

Kanbur, R. and Sumner, A. (2011): "Poor Countries or Poor People? Development Assistance and the New Geography of Global Poverty", Working paper 2011-08, Ithaca, NY: Charles H. Dyson School of Applied Economics and Management, Cornell University.

United Nations, Department of Economic and Social Affairs, Population Division (2011): "World Population Prospects: The 2010 Revision", CD-ROM Edition.

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