MULTIDIMENSIONAL POVERTY: A NEW METHODOLOGY

MOTIVATION

Multidimensional measures enable us to see how many deprivations household experience at the same time. At a glance, measures present an integrated view of situations. Also, we can examine specific situations by population group or deprivation to see in detail how different communities fare. Multidimensional metrics are rigorous, easy to use, flexible, and adaptable to different contexts.

TWO STEPS TO MEASURE

Alkire and Foster propose a new methodology for multidimensional poverty measurement. It includes an **identification method** (ρk) that identifies 'who is poor' by considering the range of deprivations they suffer, and an **aggregation method** that generates an intuitive and decomposable class of poverty measures (M_α).

OPHI

Oxford Poverty & Human Development Initiative
Oxford Department of International Development
Queen Elizabeth House, University of Oxford
www.ophi.org.uk

To find out more about this topic, how it can be applied to practical use, and for details of the references and suggested further reading, visit: **www.ophi.org.uk**

SECOND STEP: CALCULATE A METRIC

The Alkire Foster metric is computed as follows.

First, you censor the data of non-poor people.

Then you determine the **proportion of people who are poor** – this is the multidimensional headcount **H**.
Example: 20% of the population are poor.

Then you determine the ***average* number (or weighted sum) of deprivations** that each poor person experiences, called **A**. You do this by adding up all of the (weighted) deprivations of all poor people, and dividing by the number of poor people.
Example: On average, poor people are deprived in 3.4 out of 7 dimensions this year.

The first measure M_0 is very simple: **H** multiplied by **A**.
Example: $M_0 = (0.20)(3.4/7)$

If data are cardinal, multiply **HA** by the average depth of deprivation in each dimension to obtain M_1.
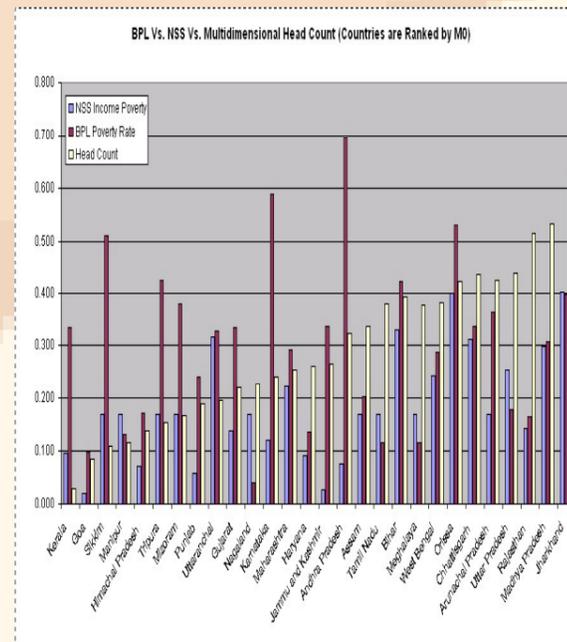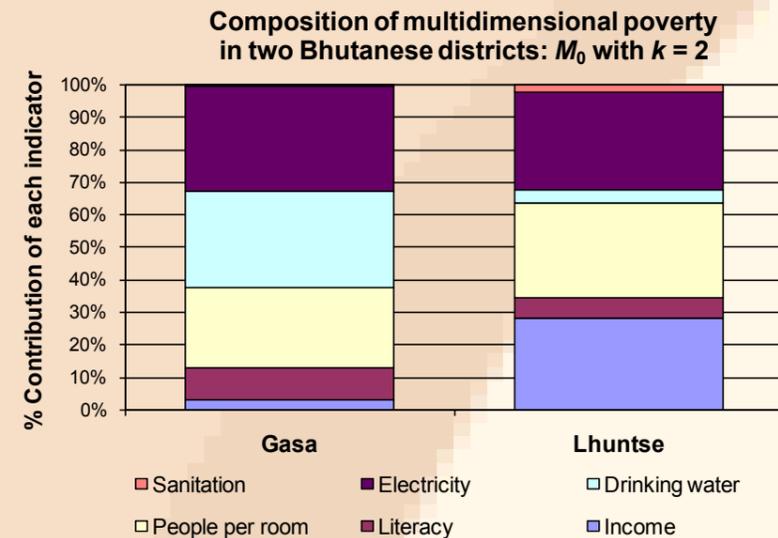Example: Poor people on average fall 40% short of the poverty line, so $M_1 = (0.20)(3.4/7)(0.40)$

To reflect inequality, multiply by the squared gap for M_2.

FIRST STEP: IDENTIFY 'WHO IS POOR'

You identify 'who is poor' in two very intuitive steps. First, set a cutoff within each dimension to determine whether a person is deprived in that dimension. Second, set a cutoff across dimensions that fixes the range of deprivations a person must suffer to be considered poor.

First cutoff: whether a person is deprived in each dimension. For example, Miriam is mildly malnourished. She has a mud house. She is not able to visit her family without permission. And she is illiterate. So if our poverty cutoffs are simple – to be 'nourished, have a concrete house, able to visit family, and literate' – Miriam is deprived in 4 dimensions. If we chose a different cutoff – for example having third degree malnutrition – Miriam might not be identified as deprived.

Second cutoff: the range of dimensions she must be deprived in to be considered poor. In many situations we want to identify the poorest of the poor – people who are deprived in several things at the same time. In that case, we might say that we are interested in people who are deprived in at least 3 dimensions simultaneously. Miriam is poor in 4 dimensions. So she is considered to be multidimensionally poor. Of course for simplicity we have considered each dimension to be equally weighted – but that can be easily changed to incorporate different weights for each dimension.

# MULTIDIMENSIONAL POVERTY: WHAT CAN YOU SHOW?

COMPARE WITH OTHER METRICS

First, compare this multidimensional measure with other metrics that are being used, such as income. Is it significantly different? What information does it include that they overlook? Does it **add value** – and if so, how? Below you can see that income poverty in Lhuntse is much higher than in Gasa. In the traditional measure of income poverty Gasa does well, but its poverty increases dramatically when other dimensions are included.

BPL Vs. NSS Vs. Multidimensional Head Count (Countries are Ranked by M0)

Composition of multidimensional poverty in two Bhutanese districts: M_0 with $k = 2$

% Contribution of each indicator

Gasa   Lhuntse

Sanitation   Electricity   Drinking water
People per room   Literacy   Income

DECOMPOSE BY POPULATION GROUP

You might then compare the measure by different regions of the country, by different ethnicities, possibly by age, gender, urban/rural, or other topics. Who is poorest? Look at the chart to the left – our ranking of Indian states' poverty is very different from other rankings that conventional metrics produce.

Below we illustrate that one can use various robustness techniques to check whether the ranking of countries or provinces changes as the k cutoff changes.

M_0 as cutoff k is varied in five countries

Benin
Burkina
Cameroon
Ghana
Guinea
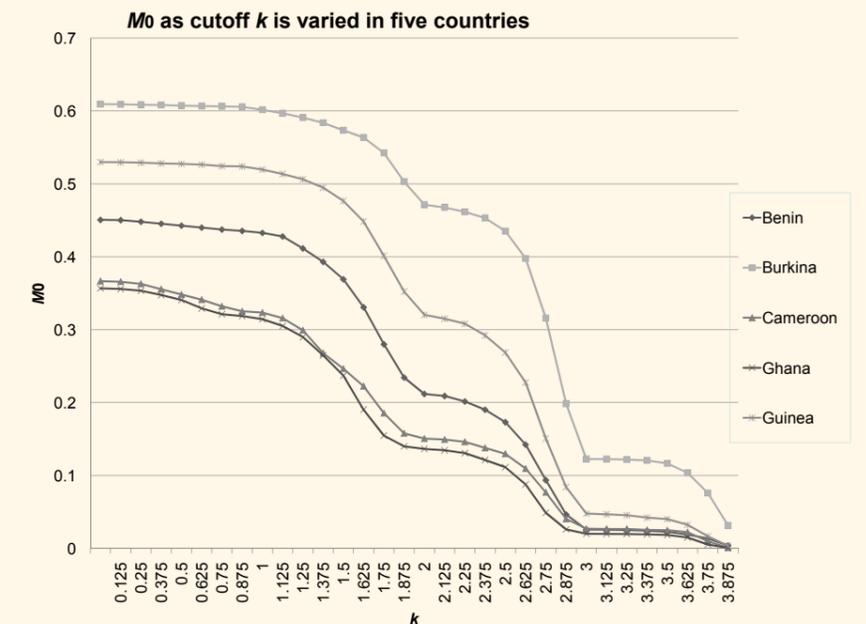
BREAK DOWN BY DIMENSION

One can explore how poverty differs among different populations. Decomposing the measure by dimension is a powerful way to see 'at a glance' how the composition of poverty changes over groups. For example, in the example on the left, two provinces in Bhutan differ greatly in the composition of their poverty. So the same policies would not work equally well.

COMPARE ACROSS TIME

A powerful way of tracking your progress is to see how the dimensions change over time – to see the effects that you are having, and to show successes and challenges clearly.

Income   Education   Health
Water   Sanitation   Electricity

Year
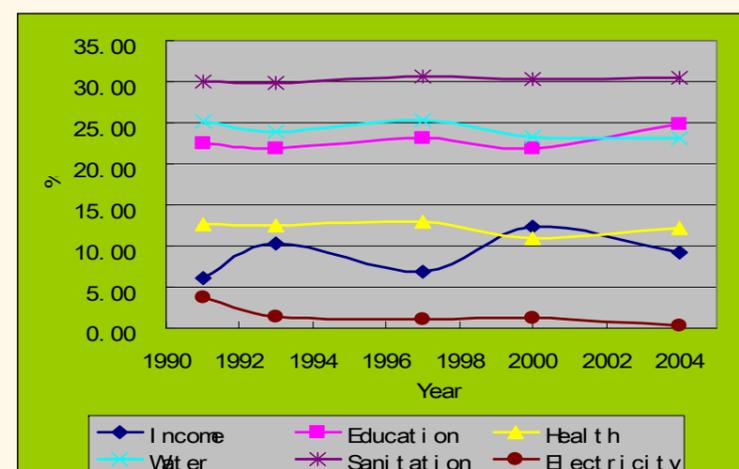
OPHI's APPLICATIONS

Practical applications to illustrate this methodology (see the Working Papers online) are available for poverty in:

❖ Latin America – six countries
❖ Africa – fourteen countries
❖ South Asia – India, Pakistan, Bhutan
❖ and China

We have also developed measures of:

❖ Child Poverty
❖ Targeting of Social Protection and Conditional Cash Transfers
❖ Quality of Education
❖ and Governance

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