

OPHI Workshop on Multidimensional Measurement in Different Contexts, 1–2 June 2009

Overview

This workshop had the unique characteristic of bringing together specialists from different subjects; academics as well as researchers from international institutions connected to policy design. There were representatives from UNDP, UNICEF and IDB. Over the two days fifteen presentations discussed issues of multidimensional measurement. A significant number of the presentations applied OPHI's method to measure multidimensional poverty, developed by [Alkire and Foster](#) (2007, AF hereafter), to a variety of other contexts, finding that it is applicable, relevant and flexible to be implemented in areas other than poverty measurement. The workshop identified a number of common issues faced when constructing composite indices and outlined some lines for future research.

Summary and further research

James Foster and Amie Gaye opened the closing session of the workshop and were followed by comments and discussion by all participants. The main points raised were the following:

1) Going to basics: The technology for the development of composite indices provides a wide range of options in terms of each of the many steps involved (selection of indicators, weights, normalization techniques, aggregation procedures, etc.). However, going back to basic and intuitive approaches to constructing these sort of indices such as the counting approach, can prove useful and transparent.

2) Use of thresholds/standards as a transparent way of normalization: It was remarked that the use of thresholds inherent to poverty measurement (poverty lines) can prove to be useful for the construction of composite indicators in other contexts. It requires 'setting standards' in the context where multidimensional measurement is going to take place. It automatically normalises all the variables, expressing them in 'standards units', and therefore it constitutes a more transparent mechanism than other normalization methodologies typically used (i.e. by the Human Development Index). Different types of thresholds or standards can be used, depending on the purpose of measurement. In the poverty literature selecting the poverty line constitutes a very significant step. Absolute poverty lines, relative ones as well as hybrids that combine both are available and analogous constructs could be developed in other contexts (measurement of education quality, governance, fair trade, etc.). For a measure to be truly multidimensional there needs to be a threshold per considered indicator, as done by the AF methodology. Despite the convenience of using thresholds or standards one needs to bear in mind the purpose of the particular measurement exercise at hand. In poverty measurement one wants to focus on the poor, i.e. those below the threshold, and ignore what happens to the non-poor. In other measurement exercises one may want to consider both, those below *and* above the standard and then, the methodology needs some adjustments.

3) Data limitations and ordinal variables: When using multidimensional measures one needs to be aware of data limitations. Most frequently, many indicators are of

ordinal nature (self rated health), and sometimes even just dichotomous (access to drinking water). Other times, even when the variable is cardinal, the dataset may be of very poor quality, with a great deal of measurement error. In any of those cases, using a measure that requires cardinal and continuous variables is not a wise decision. Measures need to adapt to data limitations. In that sense, the M_0 measure of the AF family has the advantage of being suitable for both ordinal data as well as poor-quality cardinal data, which does not allow relying too much on the absolute magnitudes. M_0 does not change with monotonic transformations of ordinal variables.

4) Purpose of measurement and axiomatic approach: At the beginning of any measurement exercise one needs to be clear on which are the purposes of the exercise and choose the measurement methodology accordingly. Is the purpose monitoring? Is it targeting a programme? The purpose of measurement needs to be built *into* the measure, and there is where axioms come to play a crucial role. A measure is good or bad for a certain purpose depending on whether it satisfies or not some minimum properties (axioms) that express the measurement purpose. Axioms allow us to see the applicability of the measure. For example, the AF family has the property of allowing break-downs by dimension (once the poor have been identified), which is very convenient for policy purposes. The literature on poverty measurement has worked in this way from its very beginnings, setting – for example – that an income poverty measure should increase whenever the income of a poor person decreases and should not change if the income of a non-poor person increases. Axiomatic approaches are the way to go whenever one intends to do measurement, independently of the particular context.

5) Reflecting dynamics: Multidimensional measures may be better at reflecting dynamics. For example, policies may reflect improvements in some dimensions more quickly than in others, and by considering several of them and not just one, those successes may become evident.

6) Identification and available resources: The k cut-off to identify the multidimensionally poor of the AF methodology can be seen as resources-driven. According to the disposable budget one can prioritize the most deprived population (i.e. those suffering with a higher number of coupled deprivations).

7) Cross-country comparisons vs. context specific analysis: Clearly, cross country comparisons require to use the same indicators, thresholds and weights. However, this may overlook context-specific characteristics. Once again, the purpose of the measurement task should guide the selection of indicators, thresholds or standards and weights.

8) Analysis of pathways and causality for policy design: Measurement is just the first step to address any policy relevant issue such as poverty, education quality, fair trade, inequality, governance or any other context. The next necessary and fundamental step is to carefully look at the pathways through which a certain phenomenon happens. Decompositions are a good first step, but they are no indicator of causality or pathways. Further analysis must follow.

Issues identified for further research:

- To incorporate cluster effects into the measurement. By focusing on the individual, we are neglecting the effects of communities, or neighbourhoods, which can have important influences in certain contexts.
- Advance more the development of measures that allow dealing with ordinal data, as the M_0 measure.
- Explore sensitivity and robustness issues, particularly to the number of dimensions considered and to the cut-offs.
- Explore the use of hybrid thresholds (combination of absolute and relative thresholds).
- Use participatory methods to set up indicators and cut-offs.
- Robustness of the measures to the cut-offs.
- Measurement is just the first step to address any policy relevant issue such as poverty, education quality, fair trade, inequality, governance or any other context. The next necessary and fundamental step is to carefully look at the pathways through which phenomenon happen. Decompositions are a good first step, but they are no indicator of causality or pathways. Further analysis must follow.

One-sentence summary of each paper or presentation:

Alkire and Foster propose a new class of multidimensional poverty measures. [Paper](#)

Annoni discusses in detail the different alternatives at each step of constructing composite indicators. [Presentation](#)

Azevedo and Robles propose to use the AF methodology as a targeting instrument of the Progreso-Oportunidades Program in Mexico. [Paper](#)

Alkire and Seth propose the AF methodology as a potential (better) alternative to the one currently used to target the poor in India. [Paper](#)

Tikly discusses the concept of education quality and its implications for measurement. [Presentation](#)

Foster and Santos with De Hoyos and Szekely explore an extension of the AF methodology to measure quality of education and illustrates it with Argentinean data. [Presentation](#)

Farhan describes the methodology of the Mo Ibrahim Index of African Governance, its objectives and main audience to which it is directed. [Presentation](#)

Building on the Mo Ibrahim Index of African Governance, **Singh** proposes an alternative method to construct the index, based on the AF methodology. [Paper](#)

Drawing from the poverty measurement literature, **Foster, Horowitz and Mendez** introduce a new family of corruption measures based on an axiomatic approach. [Paper](#)

Trafton explores the applicability of the AF methodology to the measurement of social responsibility, for example fair trade among coops, and presents an application using data from Benetech on human rights. [Paper](#)

McLennan presents the methodology and main results of the South African Index of Multiple Deprivation for Children developed by the Centre for Analysis of South African Social Policy.

Biggeri, Trani and Vincenzo presents the results of the application of the AF measures to measure multidimensional poverty among children in Afghanistan, with a new and unique dataset. [Paper](#)

Roche discusses the results of multidimensional poverty estimations among children in Bangladesh using the AF measures. [Presentation Paper](#)

Harttgen et al. propose a modification to the Human Development Index to account for inequality by income quintiles. This was a background paper for the *Human Development Report 2006*, UNDP Human Development Report Office, New York. [Paper](#)

Foster, Szekely and Lopez-Calva present an inequality adjusted HDI. This paper has already been published and therefore we remit the interested reader to the following reference: 'Measuring the Distribution of Human Development: Methodology and Application to Mexico', *Journal of Human Development*, 6: 5-30.