

Overlap Analysis of Deprivations in Sub-Saharan Africa

MODA In Brief 3

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The MODA methodology has been developed by UNICEF to define and measure child poverty both at a national and international level, taking into consideration the complex, multifaceted realities of poverty children experience at different stages of their lives. The Cross-Country Multiple Deprivation Overlapping Deprivation Analysis (CC-MODA) is a specific application of the general MODA methodology, designed as a child poverty measure to analyse multidimensional child deprivation in low- and middle-income countries. The dimensions, indicators and thresholds defining deprivation are standardised to be comparable across countries. This Brief analyses how the different dimensional deprivations overlap, revealing the extent to which children experience several deprivations at a time.

Multidimensional child deprivation measurement

Within the CC-MODA study multidimensional child deprivation is measured as the non-fulfilment of basic rights covering aspects of survival, development, protection and participation. The MODA methodology seeks to analyse dimensions which are relevant to the child at a particular stage in life, making the analysis not only child-, but also age-specific. For CC-MODA two age groups are distinguished: children below the age of five, and children of five years and older. For the first age group dimensions on nutrition, health, water, sanitation and housing are included, while for the older age group these are education, information, water, sanitation and housing. For both age groups, the inclusion of 'Protection from violence' depends on data availability. Deprivation analyses are carried out by country using the most recent MICS or DHS household survey data for the period 2008-2012. The results can be found on the interactive MODA web portal.¹ The outcomes of 30 selected sub-Saharan African countries² have been used as part of a specific study on multidimensional child deprivation analysing deprivation incidence and intensity within the selected sub-Saharan African countries and across the region as a whole (see de Milliano & Plavgo, 2014). This study serves as the groundwork for this Brief.

Figure 1: CC-MODA: Identifying the deprivation in each dimension per child, children below age 5

	Nutrition	Health	Water	Sanitation	Housing
	✗	✗	✓	✗	✓
	✓	✓	✗	✓	✓
	✓	✗	✓	✗	✓
	✗	✗	✗	✗	✗

¹ www.unicef-irc.org/MODA

² Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, DR Congo, Eq. Guinea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Kenya, Lesotho, Malawi, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Swaziland, Tanzania, Togo, Uganda, Zimbabwe.

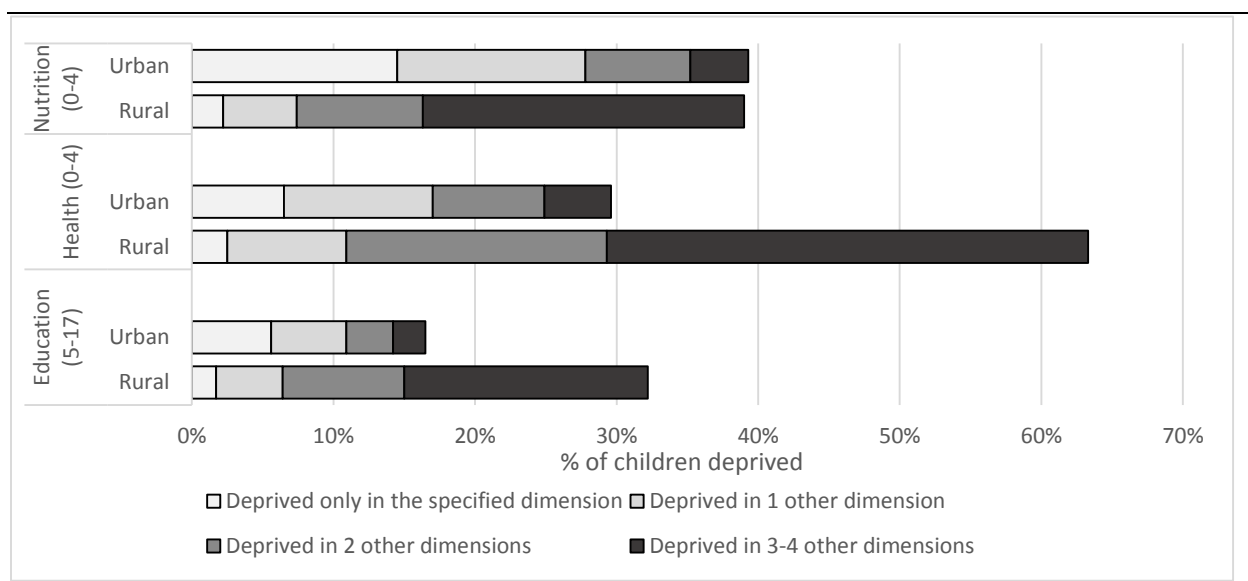
The overlap of dimensional deprivations

The aim of the MODA methodology and the CC-MODA application is to go beyond the knowledge that can be obtained by single-sector analyses, and to provide a holistic picture of child poverty and deprivation. As described in Brief 1 of this series, the MODA methodology uses various methods of analyses such as counting, overlap analysis, and the analysis of indices. This Brief concentrates on the overlap analysis as it is presented in the CC-MODA study on child deprivation in 30 sub-Saharan African countries (de Milliano & Plavgo, 2014). A multidimensional deprivation analysis assists in highlighting the depth of deprivation (see Brief 2), and may identify particular patterns of simultaneous experience of specific deprivations. In the example in Figure 1 the deprivations in health and sanitation are highly related (the same children deprived in one are also deprived in the other dimension), and their deprivations are also often associated with deprivation in nutrition. Overlap analysis assists in indicating the cases in which more or less integrative approaches are beneficial to improve the well-being of children.

Overlapping deprivations in sub-Saharan Africa

The overlap analysis by dimension shows the total deprivation in a given dimension, and then assesses to what extent this deprivation is experienced alongside other deprivations. For instance, **deprivation in nutrition for children under the age of 5 across the selected sub-Saharan countries is similar in rural and urban areas (about 40%), but the nutrition deprivation in rural areas is considerably more often associated with deprivations in other dimensions.** Deprivation in health is more than twice as high in rural areas as compared to urban areas (respectively, 63% and 30%). Moreover, in rural areas half of those deprived in health are deprived in 3 or 4 other dimensions at the same time, while in urban areas this is the case for only 16% of those deprived in health. Education has a similar pattern in the relative overlap of deprivations.

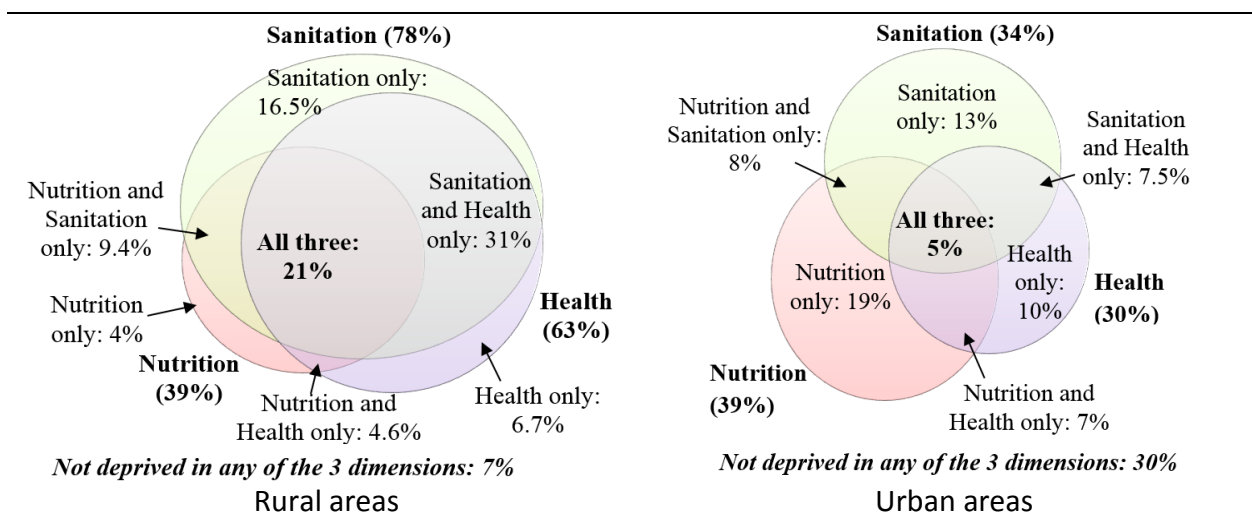
Figure 2: Deprivation overlap by dimension



Likewise, when looking into the combination of three specific dimensional deprivations, **findings show that an integrative approach to alleviate deprivations in rural areas could lead to more efficient and effective results.** The Venn-diagram presented in Figure 3 shows the interaction between the deprivations in nutrition, health and sanitation for rural and urban areas across the sub-Saharan countries in the study. The panel on the left, for rural areas, shows high levels of deprivation and a high degree of integration among

them. In urban areas, the deprivation levels for sanitation and health are less than half of those in rural areas, while the deprivation rate in nutrition is the same. The proportion of children experiencing all three deprivations simultaneously is only 5% in urban areas (or 7% of all children deprived in at least one of the three dimensions), while in rural areas the proportion of children deprived in all three dimensions is four times higher (21%) (or 23% of all children experiencing at least one of the three deprivations); **this upholds the previous finding suggesting that nutrition deprivation in rural areas is one of multiple issues affecting children’s well-being, while nutrition in urban areas is much more often a stand-alone problem, which might be addressed by a single intervention.**

Figure 3: Overlap of nutrition, health and sanitation by area of residence



Concluding remarks

The objective of the deprivation overlap analysis is to inform about the joint experience of deprivations by children, and to unmask the dimensional deprivations that are often associated with one or more other deprivations. The overlap analysis could assist in highlighting mechanisms of policy design; in identifying possible entry points in targeting policy; or in suggesting integrative approaches. In general the results for children across the 30 selected sub-Saharan African countries indicate that the number of deprivations which children suffer from simultaneously are higher for children in rural areas compared to children in urban areas. Also, the deprivations in urban areas are more often found in isolation, indicating that children in urban areas more frequently experience unique issues, whereas rural children suffer from a multitude of issues at the same time. The latter group is particularly vulnerable, as the eradication of a single dimensional deprivation does not alleviate them from deprivation.

SOURCES

MODA web portal:

<http://www.unicef-irc.org/MODA/>

CC-MODA Technical Note:

De Neubourg, C., J. Chai, M. de Milliano, I. Plavgo, Z. Wei (2012). 'Cross-country MODA Study: Multiple Overlapping Deprivation Analysis (MODA) - Technical note', *Innocenti Working Paper* 2012-05, UNICEF Office of Research, Florence. [\[EN pdf\]](#) [\[FR pdf\]](#)

CC-MODA results for sub-Saharan Africa:

de Milliano, M. and I. Plavgo (2014). Analysing Child poverty and deprivation in sub-Saharan Africa: CC-MODA – Cross Country Multiple Overlapping Deprivation Analysis, *Innocenti Working Paper* No.2014-19, UNICEF Office of Research, Florence. [\[EN pdf\]](#)

MODA guidelines:

De Neubourg, C., J. Chai, M. de Milliano, I. Plavgo, Z. Wei (2012), 'Step-by-Step Guidelines to the Multiple Overlapping Deprivation Analysis (MODA)', *Innocenti Working Paper* 2012-10, UNICEF Office of Research, Florence. [\[EN pdf\]](#) [\[FR pdf\]](#)

Background on MODA and multidimensional poverty analysis:

De Neubourg, C., M. de Milliano, I. Plavgo (2014). Lost (in) Dimensions: Consolidating progress in multidimensional poverty research, *Innocenti Working Paper* No. 2014-04, UNICEF Office of Research, Florence. [\[EN pdf\]](#)

BRIEFS RELATED TO CC-MODA:

- **BRIEF 1: THE BASICS OF THE CROSS-COUNTRY MULTIPLE OVERLAPPING DEPRIVATION ANALYSIS (MODA)**
- **BRIEF 2: DISTRIBUTION OF DEPRIVATIONS AMONG CHILDREN IN SUB-SAHARAN AFRICA**
- **BRIEF 3: OVERLAP ANALYSIS OF DEPRIVATIONS IN SUB-SAHARAN AFRICA**
- **BRIEF 4: CROSS-COUNTRY COMPARISON OF MULTIDIMENSIONAL CHILD DEPRIVATION INCIDENCE AND INTENSITY IN SUB-SAHARAN AFRICA**
- **BRIEF 5: COMPOSITION OF MULTIDIMENSIONAL CHILD DEPRIVATION IN SUB-SAHARAN AFRICA BY DIMENSION**
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