

Multidimensional Child Deprivation and Monetary Poverty in sub-Saharan Africa

MODA In Brief 7

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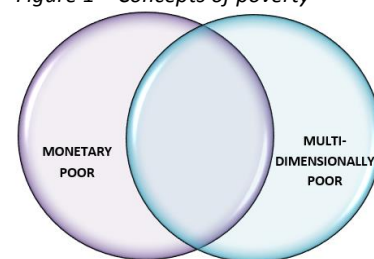
Ilze Plavgo and Marlous de Milliano | December 2014

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. 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. **This Brief is based on the CC-MODA analysis of multidimensional child deprivation in sub-Saharan Africa (de Milliano and Plavgo, 2014), showing how many children in sub-Saharan Africa are multidimensionally deprived. It then compares the results with monetary poverty rates of the total population and studies the correlation between the two measures of poverty.**

Two main concepts of poverty

MODA distinguishes two main concepts of poverty: monetary poverty and multidimensional deprivation (de Neubourg et al., 2014) and uses both to analyse child poverty when data used for the analysis has information on both. Monetary poverty measures a household’s lack of financial means to provide its members with basic goods and services deemed necessary for their survival and development. Deprivations measure the individual status in each of the various sectors considered as crucial for individuals’ survival and development. When measuring child poverty, the MODA methodology encourages using both concepts of poverty as complementary poverty measures, with the monetary poverty measurement concentrating on the average financial means available to the households where children live, and the deprivation measurement determining whether children’s basic needs are satisfied. Measuring both types of poverty simultaneously for each child allows identifying the different groups of children that may require different policy responses depending on what type of poverty they experience.

Figure 1 – Concepts of poverty



Definition of multidimensional child deprivation

Multidimensional child deprivation is defined as the non-fulfilment of children’s rights in the main dimensions of survival, development, protection and participation. The CC-MODA analysis for sub-Saharan Africa is based on five dimensions: health, nutrition, water, sanitation, and housing for children below the age of five; and education, information, water, sanitation, and housing for children aged 5 to 17 (see Figure 2). To identify the multidimensionally deprived children, we count the number of dimensions each child is deprived in and use a cut-off of two deprivations, defining a child as multidimensionally deprived if he/she is deprived in two or more dimensions simultaneously. Multidimensional deprivation rates are calculated for 30 sub-Saharan African countries¹ using DHS and MICS household survey data from 2008-2012.

Figure 2 – Life-cycle stages, dimensions and indicators used for the CC-MODA analysis

Age 0-4	Age 5-17
<ul style="list-style-type: none"> 1 Infant and young child feeding 2 Wasting 	<ul style="list-style-type: none"> 1 Compulsory school attendance 2 Primary school attainment
<ul style="list-style-type: none"> 1 DPT immunization 2 Skilled birth attendance 	<ul style="list-style-type: none"> 1 Availability of information devices
<ul style="list-style-type: none"> 1 Access to improved water source 2 Distance to water source 	<ul style="list-style-type: none"> 1 Access to improved water source 2 Distance to water source
<ul style="list-style-type: none"> 1 Access to improved sanitation 	<ul style="list-style-type: none"> 1 Access to improved sanitation
<ul style="list-style-type: none"> 1 Overcrowding 2 Floor and roof material 	<ul style="list-style-type: none"> 1 Overcrowding 2 Floor and roof material
<ul style="list-style-type: none"> 1 Domestic violence 	<ul style="list-style-type: none"> 1 Domestic violence

¹ Benin, Burkina Faso, Burundi, Cameroon, CAR, 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.

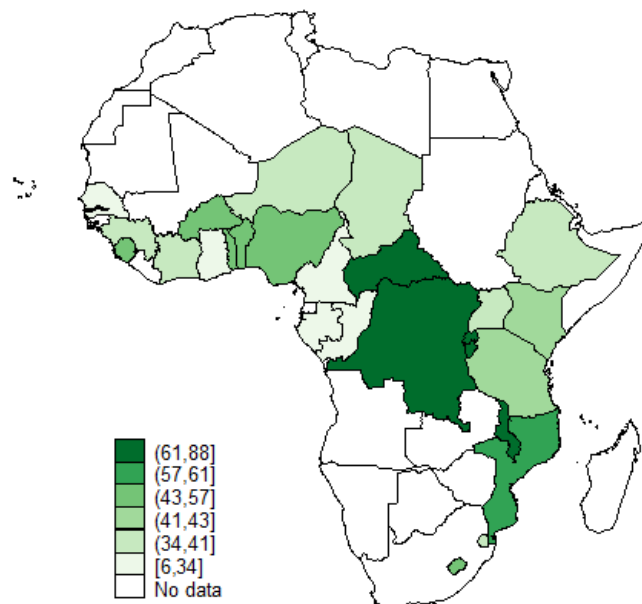
Definition of monetary child poverty

Monetary child poverty for this multi-country study is defined as children living in households where household members experience extreme poverty, living below USD1.25 PPP a day. As DHS and MICS surveys do not have any information on households' spending or income, monetary child poverty cannot be calculated at an individual child level within CC-MODA.² Thus, aggregate international poverty rates of the total population are used when comparing poverty rates by country. Monetary poverty rates are available for 28 out of a total of 30 sub-Saharan African countries analysed, retrieved from the World Bank (2014). To estimate the absolute number of monetary poor children in the region, the aggregate poverty rates of the total population are multiplied by the size of the child population per country. It should, however, be acknowledged that monetary poverty rates among children are generally higher than those of the total population.³ The results presented here should thus be regarded as a potential underestimation of the number of monetary poor children.

Comparing monetary poverty and multidimensional deprivation among children in sub-Saharan Africa

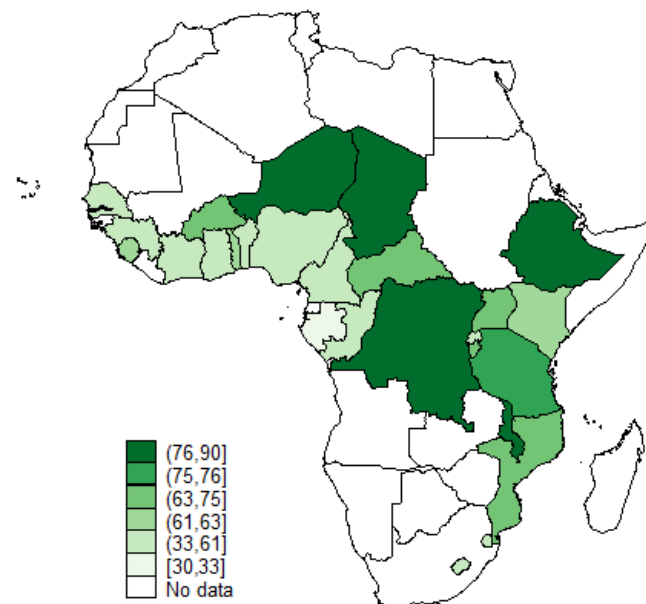
Figures 3 and 4 show poverty rates per country, comparing the ranking based on monetary poverty rates for the total population (Figure 3) with the ranking based on multidimensional child deprivation rates (Figure 4). The darker shades indicate higher poverty rates. The figures reveal that **country ranking varies significantly depending on the poverty measure used**. As can be seen in Figure 3, countries with the highest monetary poverty rates (% of total population living below USD1.25 PPP a day) are DR Congo and Burundi (88% and 81%), followed by Malawi, Rwanda, the Central African Republic, and Mozambique (ranging from 61% to 72%). The highest multidimensional child deprivation rates (% of children deprived in 2-5 dimensions), however, are in Ethiopia, Chad, and Niger (90%, 88%, and 85%, respectively), followed by DR Congo and Malawi (83% and 79%). Differences can be observed not only in terms of country ranking, but also in the level of poverty and child deprivation identified per country. In Gabon, for example, while the extreme monetary poverty rate is very low (6%), the multidimensional deprivation analysis reveals that 30% of all children are multidimensionally deprived experiencing two or more dimensional deprivations. This underlines that the two poverty measures are conceptually different and that both should be used as complementary measures to identify poor children in order to understand their situation and to help identify appropriate policy responses.

Figure 3: Monetary poverty rates at USD1.25 (PPP) a day (% of total population)



Source: World Bank Databank (retrieved in Oct 2014)

Figure 4: Multidimensional deprivation rates: children deprived in 2-5 dimensions (% of children below age 18)



Source: CC-MODA based on most recent DHS and MICS data

² Whenever data allows, MODA measures monetary poverty alongside deprivation at an individual child level to carry out an overlap analysis of the two measures for children. See for instance EU-MODA (Chzhen et al, 2014), Mali (de Milliano and Handa, 2014), Madagascar (Plavgo, forthcoming), and UNICEF Senegal (forthcoming).

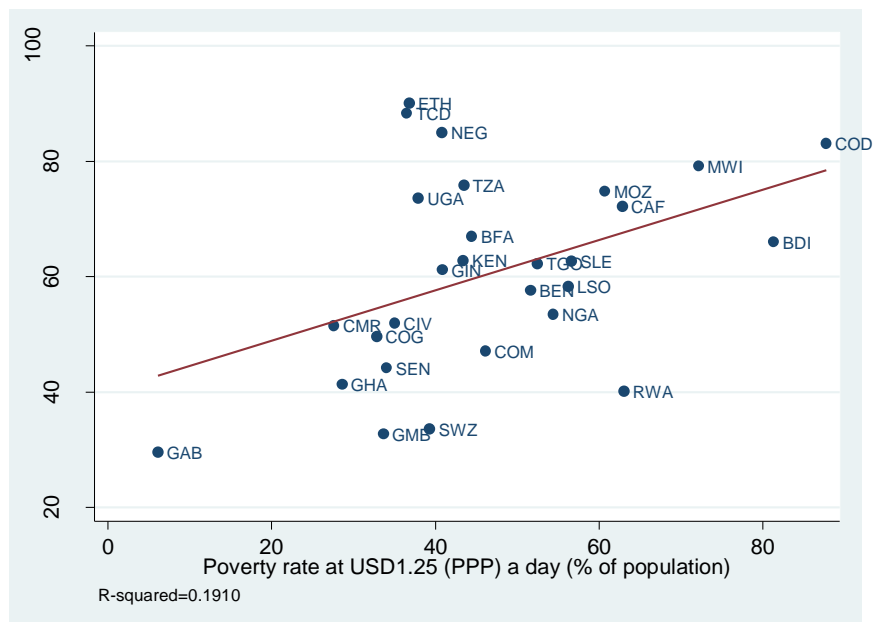
³ See, e.g., Olinto et al, 2013 where it is shown that the poverty rates are considerably higher among children compared to the other groups of the total population.

The overall results show that among a total of 361 million children living in 28 countries for which monetary poverty rates are available, **181 million children (50.1%) experience extreme poverty living below USD1.25 PPP a day.** Within the same countries, **244 million children (67.5%) are multidimensionally deprived.** The proportion of multidimensionally deprived children is thus 17 percentage points higher than the estimated proportion of children in extreme monetary poverty based on a poverty line of USD1.25 a day. As mentioned earlier, the number of children in monetary poverty is likely to be an underestimation as the monetary poverty calculations are based on poverty rates of the total population.

Correlation between monetary poverty and multidimensional child deprivation

Figure 5 looks at the correlation between multidimensional child deprivation rates (% of children deprived in 2-5 dimensions) and monetary poverty rates (% of total population living below USD1.25 PPP per day) in 28 countries in sub-Saharan Africa. The figure shows a fairly large spread among the countries, indicating a moderate correlation between multidimensional deprivation for children and absolute monetary poverty for the total population. For most of the countries analysed, monetary poverty rates for the total population are considerably lower than multidimensional deprivation rates for children. There are, however, a few countries, such as Burundi and Rwanda, with higher monetary poverty levels compared to multidimensional deprivation. A sizable group of countries clusters around the trend line suggesting moderate correlation between the two measures. Nevertheless, the relatively high margin of unexplained variance between the two measures ($R^2=0.1910$) further suggests that there are other important factors beyond monetary poverty that predict child deprivation rates in this region.

Figure 5 – Correlation between monetary poverty and multidimensional child poverty



Given the data restrictions of this study, we are unable to conclude whether the multidimensionally deprived children are also monetary poor living below USD1.25 PPP a day, or whether the two measures identify two different groups of children. Analysing whether the same children lacking basic goods and services are also among the extremely poor in monetary terms requires information on deprivations and monetary poverty from the same data source. Country-specific MODA studies using datasets which also include household consumption show that monetary poverty and deprivations overlap to some extent, but large proportions of children who are multidimensionally deprived are not necessarily monetary poor, and vice versa.⁴ Differences between deprivation and monetary poverty are expected, especially among children, due to differences in intra-household distribution of resources, and because children need goods and services that are more likely to be subject to missing or incomplete markets, among other reasons. The two measures of poverty thus complement each other when measuring and analysing child well-being as they reveal different aspects of child poverty requiring different policy responses.

⁴ Research in Senegal (UNICEF Senegal, forthcoming) shows that 20% of children are multidimensionally deprived but living in families above the national monetary poverty line, indicating that a monetary poverty measure alone underestimates children's poverty; at the same time, 15% of the monetary poor children are not deprived in any of the dimensions analysed, indicating that children's basic rights may have been fulfilled through public service provision or through other channels. See analyses of child monetary and multidimensional poverty in Mali (de Milliano and Handa, 2014) and Madagascar (Plavgo, forthcoming) for similar findings.

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* No. 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. [\[EN pdf\]](#)

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Chzhen, Y., C. de Neubourg, I. Plavgo and M. de Milliano (2014). Understanding Child Deprivation in the European Union: The Multiple Overlapping Deprivation Analysis (EU-MODA) Approach, *Innocenti Working Paper* No.2014-18, UNICEF Office of Research, Florence.

De Milliano, M., Handa, S., (2014). 'Child Poverty and Deprivation in Mali – the first national estimates', *Innocenti Working Paper* 2014-20, UNICEF Office of Research, Florence.

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UNICEF Senegal (forthcoming), *Actualisation de l'étude sur la pauvreté et les disparités chez les enfants au Sénégal 2013*. UNICEF Senegal country office, Dakar, Senegal.

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](#)
- [BRIEF 6: MULTIDIMENSIONAL CHILD DEPRIVATION IN SUB-SAHARAN AFRICA](#)
- [BRIEF 7: MULTIDIMENSIONAL CHILD DEPRIVATION AND MONETARY POVERTY IN SUB-SAHARAN AFRICA](#)