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# Analysing child poverty and deprivation in sub-Saharan Africa

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**ISCI conference in Cape Town, South Africa**
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Based on de Milliano, M. and I. Plavgo (2014) Analysing Multidimensional Child Poverty in Sub-Saharan Africa. *Innocenti Working Paper* No.2014-19, UNICEF Office of Research, Florence

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- Framework of the MODA methodology
- CC-MODA methodology
- Results of single and multiple deprivation analyses of 30 countries in sub-Saharan Africa
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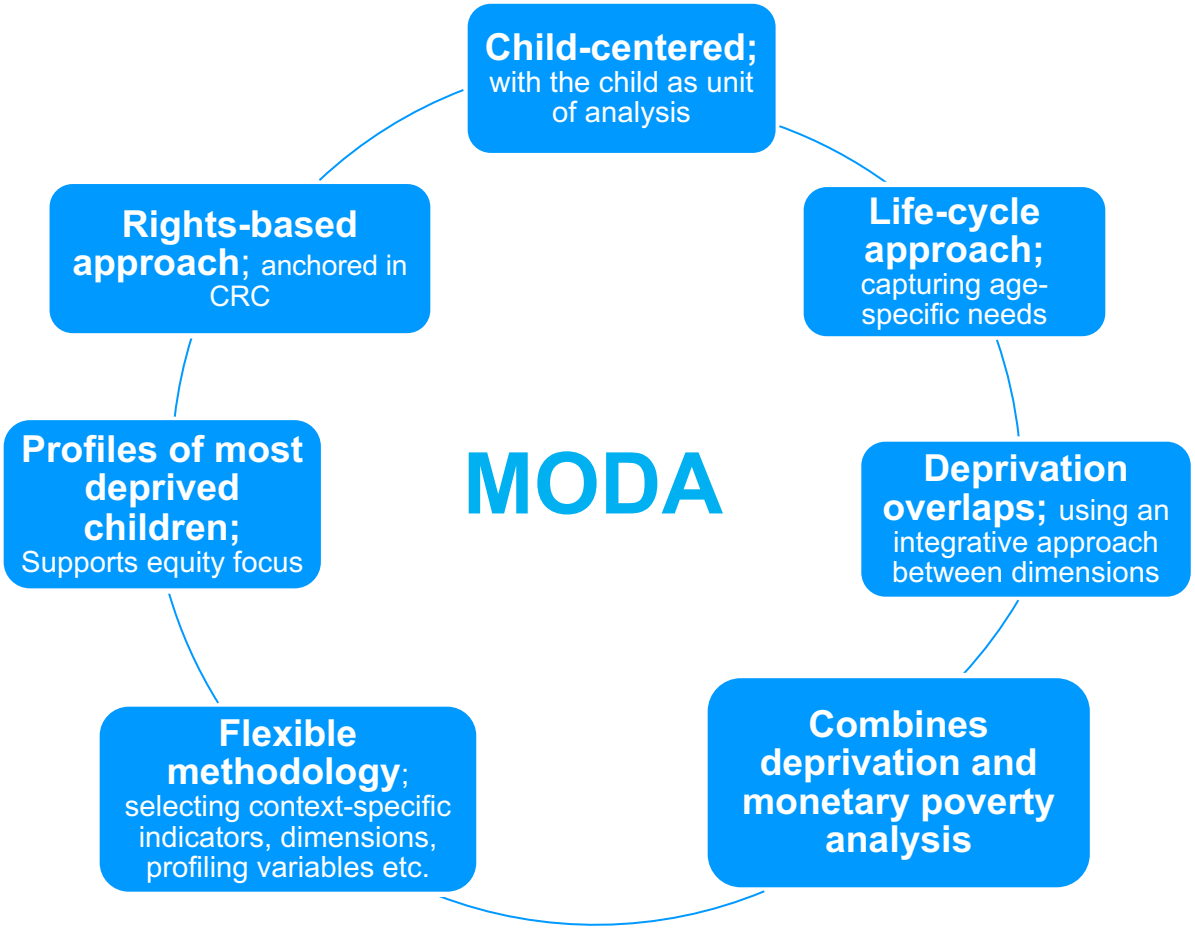
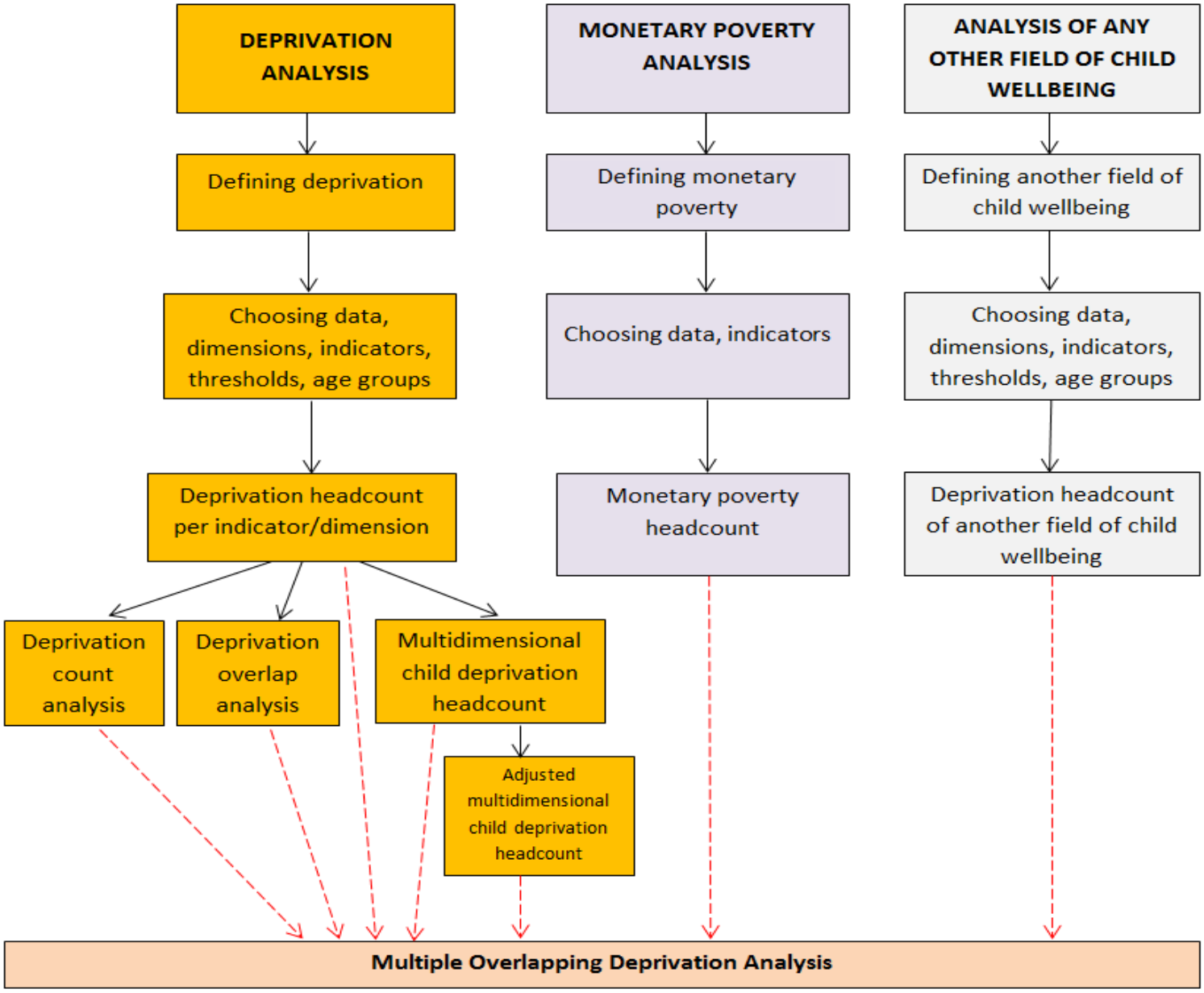
- Correlation between multidimensional child deprivation, monetary poverty, and GDP p.c.
- Concluding remarks

# MODA methodology



# MODA methodology



# CC-MODA methodology

***Countries included***

30 countries in sub-Saharan Africa, representing **78%** of the total population in SSA

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

***Data***

Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) carried out between 2008 and 2012

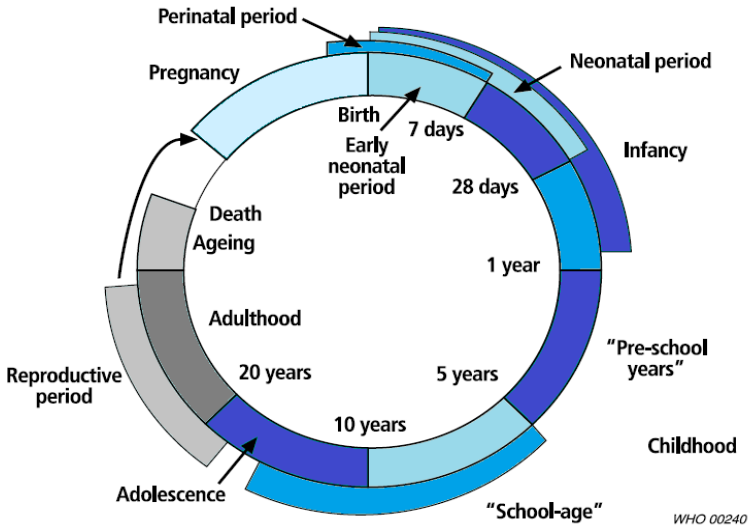
***Sample and unit of analysis***

Children below age 18, representing a total of **367,929,196 children**.
Children represent **52% of the total population** of the selected countries

# CC-MODA methodology

***Life-cycle approach***

*Life-cycle approach: dimensions and indicators selected according to the age of the child*



# CC-MODA methodology

***Rights-based approach***

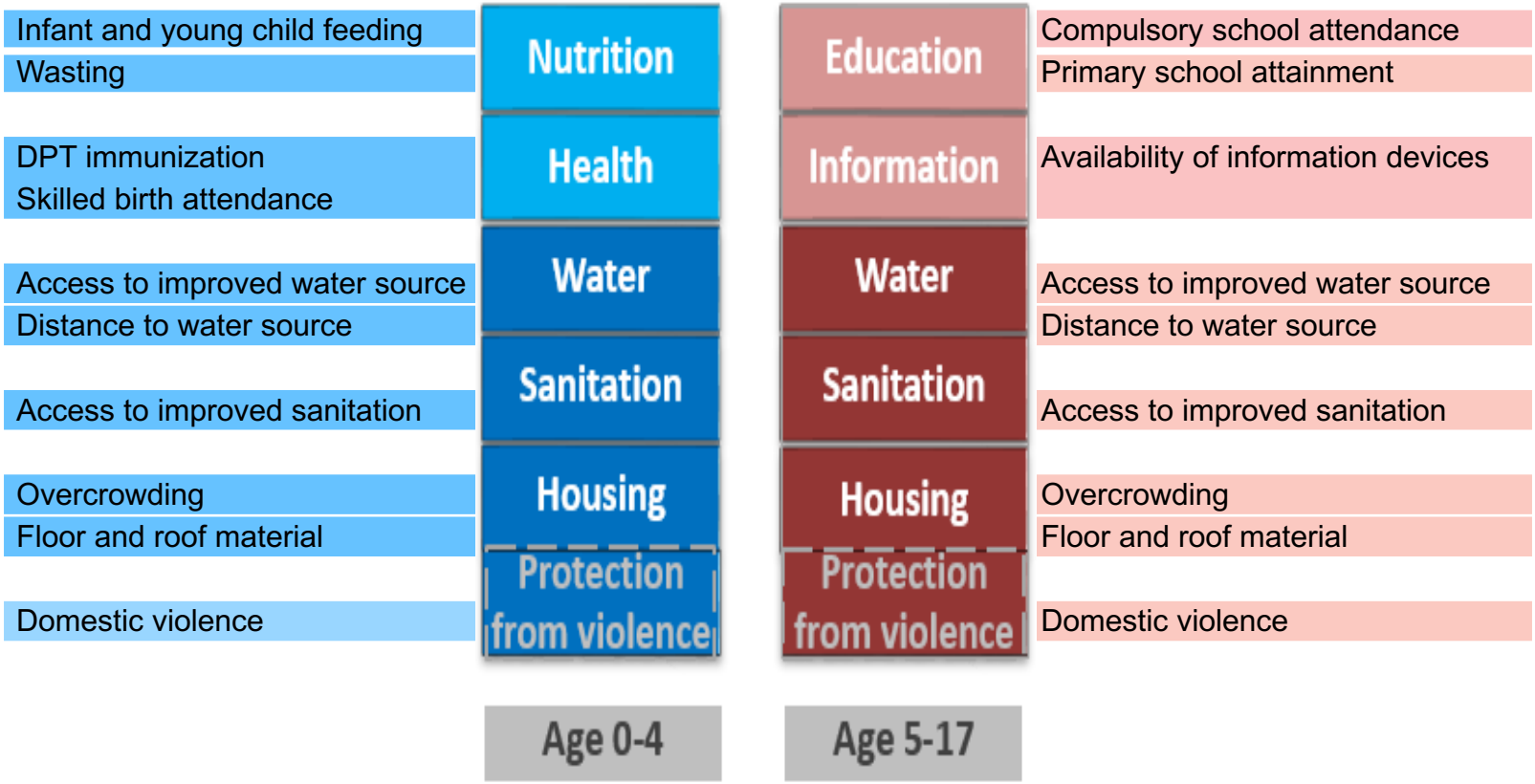
Choice of child well-being dimensions anchored in the Convention on the Rights of the Child

| Categories | Dimensions |
|---|---|
| **Survival and Development** | Food, nutrition; Water, sanitation; Health care; Environment/pollution (CRC Art. 24); Shelter, housing (CRC Art. 27); Education (CRC Art. 28); Leisure; Cultural activities (CRC Art. 31); Information (CRC Art.13, 17) |
| **Protection** | Exploitation, child labour (CRC Art. 32); other forms of exploitation (CRC Art. 33-36); Cruelty, violence (CRC Art. 19, 37); Violence at school (CRC Art. 28); Social security (CRC Art 16, 26, 27) |
| **Participation** | Birth registration, nationality (CRC Art. 7, 8); Information (CRC Art.13, 17); Freedom of expression, views, opinions; Being heard; Freedom of association (CRC Art.12-15). |

# CC-MODA methodology

***Dimensions and indicators selected for CC-MODA analysis***

- Limited to matching indicators available in DHS and MICS data in 30 countries
- Indicators & thresholds based on international guidelines (MDG indicators, WHO, UNESCO, UNHABITAT)
- Union approach used when a dimension has 2 indicators (both identify deprivation and are complementary)



# MODA methodology → CC-MODA

***Thresholds selected for CC-MODA analysis***

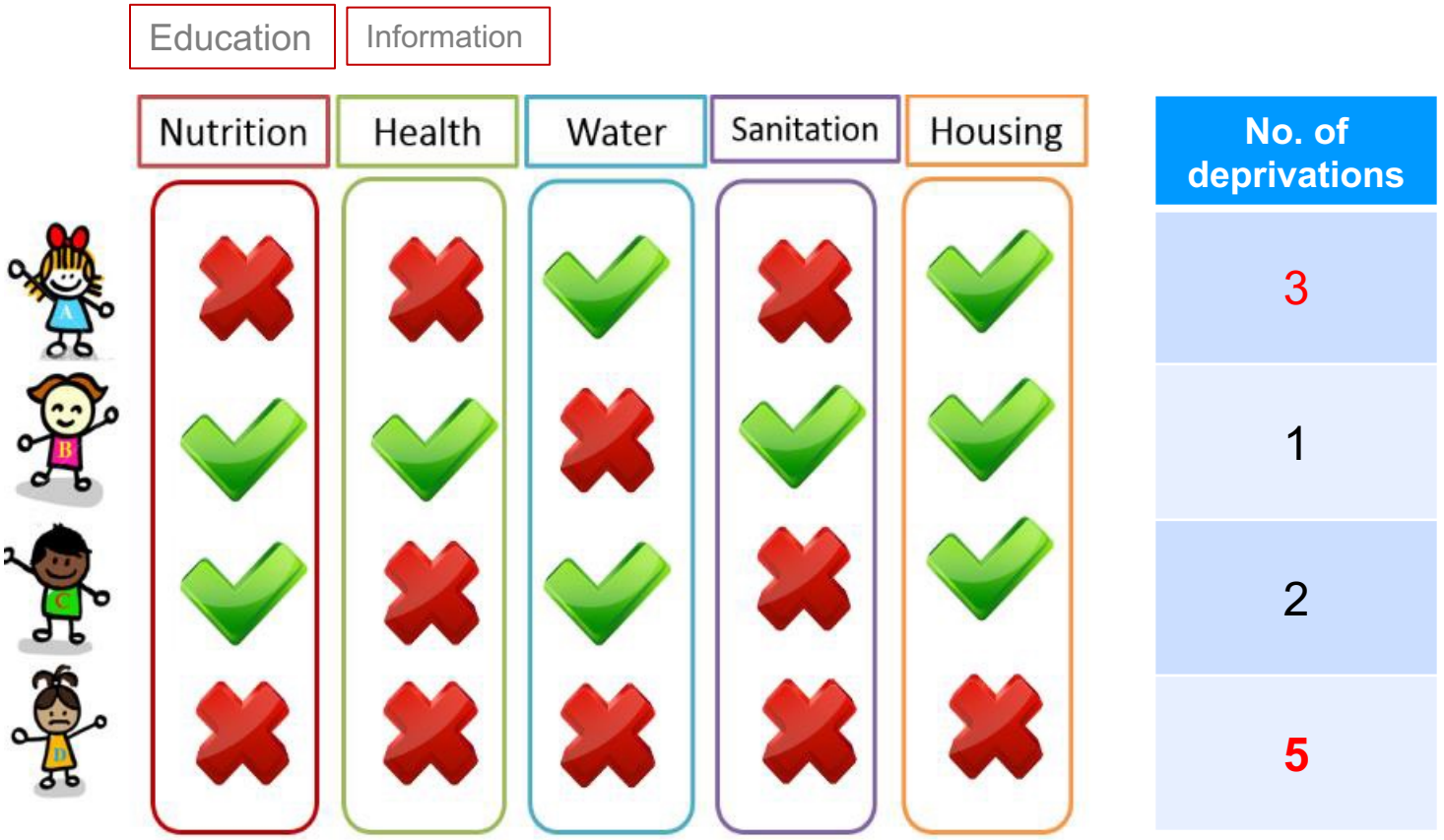
| Dimensions | Indicators | Deprived if |
|---|---|---|
| **1. Nutrition** | Infant and young child feeding | Child under 6 months not exclusively breastfed; child between 6-59 months living in a household where children between 6-23 months are not provided with minimum meal frequency in the last 24 hours. WHO standards. |
| | Weight for height (wasting) | Child's weight for height is below minus two standard deviations from the international median. WHO standards. |
| **2. Health** | Immunization | Child aged 1-4 years has not received all 3 DPT vaccinations. WHO standards. |
| | Skilled assistance at birth | No or an unskilled birth attendant assisted with child's birth. WHO standards. |
| **3. Education** | Compulsory school attendance | Child of compulsory school age but not attending school. Country-specific data, retrieved from UNESCO. |
| | Primary school attainment | Child beyond primary school age with no or incomplete primary education. Country-specific data, retrieved from UNESCO. |
| **4. Information** | Availability of information devices | Family has not reported having any of the following: TV, radio, phone, mobile phone, and computer. MDG. |
| **5. Water** | Access to improved water source | Household's main source of drinking water is unimproved. WHO standards. |
| | Distance to water source | Time needed to collect water (go, get water, and come back) is more than 30 minutes. WHO standards. |
| **6. Sanitation** | Access to improved sanitation | Household usually uses unimproved toilet facility. WHO standards. |
| **7. Housing** | Overcrowding | Household has on average more than four people per sleeping room. UN-HABITAT, adjusted for the number of sleeping rooms only. |
| | Roof & floor material | Both roof and floor are made of natural material, which are not considered permanent. UN-HABITAT standards. |
| **8. Protection from violence** | Domestic violence | Child is living in a household where a child between 2 and 14 years experiences any type of physical abuse by parents. |

# CC-MODA methodology

***Child-centred analysis***

*Horizontal/multidimensional vs. vertical/sector-based approach*

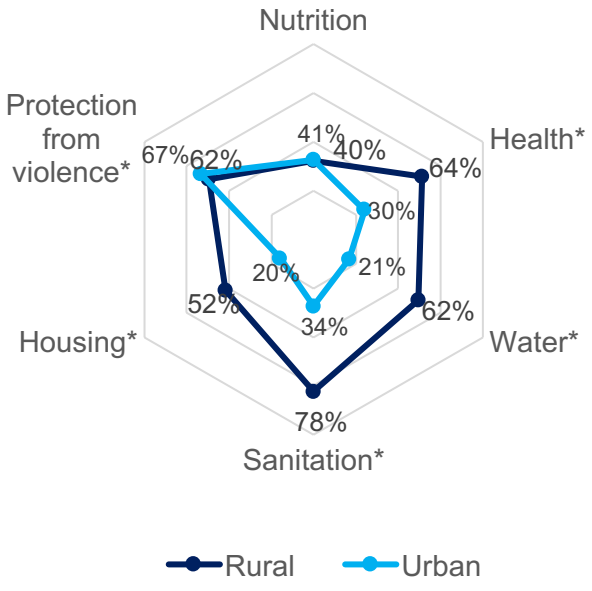
- Child is the unit of analysis (instead of the household)
- Dimension choice driven by their relevance to child well-being (basic needs; rights of the child)
- Focus on the deprivations that each child experiences rather than on single sectors in isolation



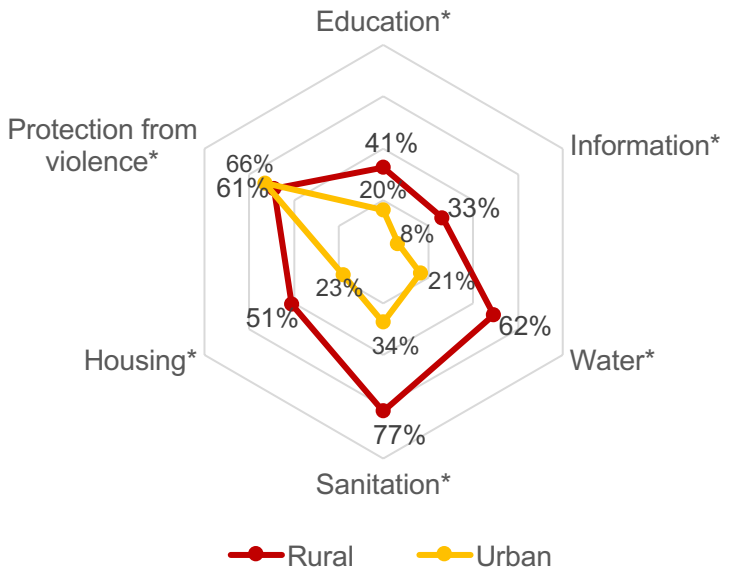
# Deprivation rates by dimension

***Single-dimensional approach***

*Proportion of children in SSA (30 countries) deprived in each of the dimensions*




Children aged 0-4 years



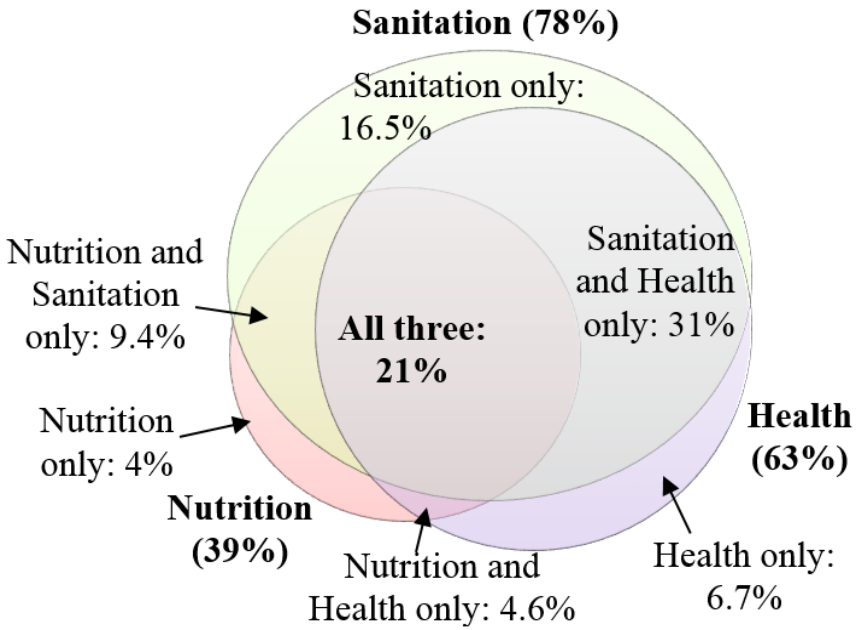

Children aged 5-17 years

# Deprivation overlap

***Multi-dimensional approach***

*Proportion of children in **SSA (30 countries)** deprived several dimensions simultaneously*

- None of the deprivations a unique problem in isolation from other deprivations
- Eradication of a single deprivation will not alleviate children from deprivation
- An integrative approach to alleviate deprivations could lead to more efficient and effective results



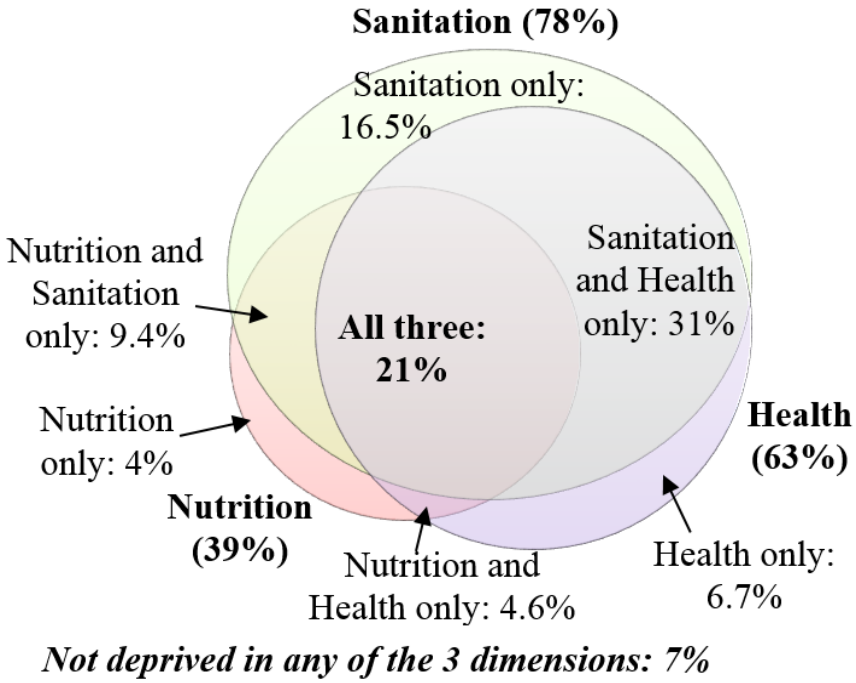

Rural areas

# Deprivation overlap

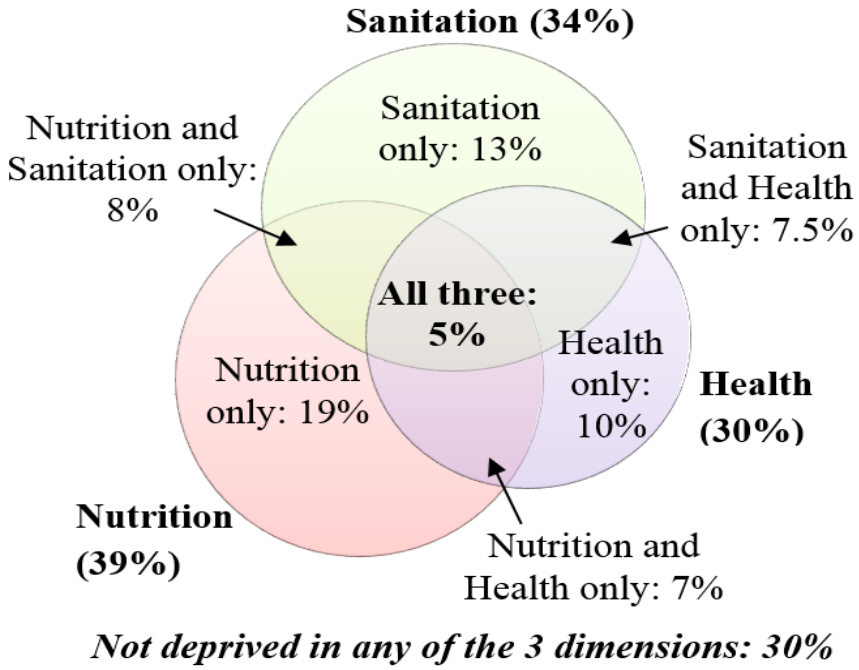
***Multi-dimensional approach***

*Proportion of children in **SSA (30 countries)** deprived several dimensions simultaneously*

- None of the deprivations a unique problem in isolation from other deprivations
- Eradication of a single deprivation will not alleviate children from deprivation (especially in rural areas)
- An integrative approach to alleviate deprivations could lead to more efficient and effective results




Rural areas



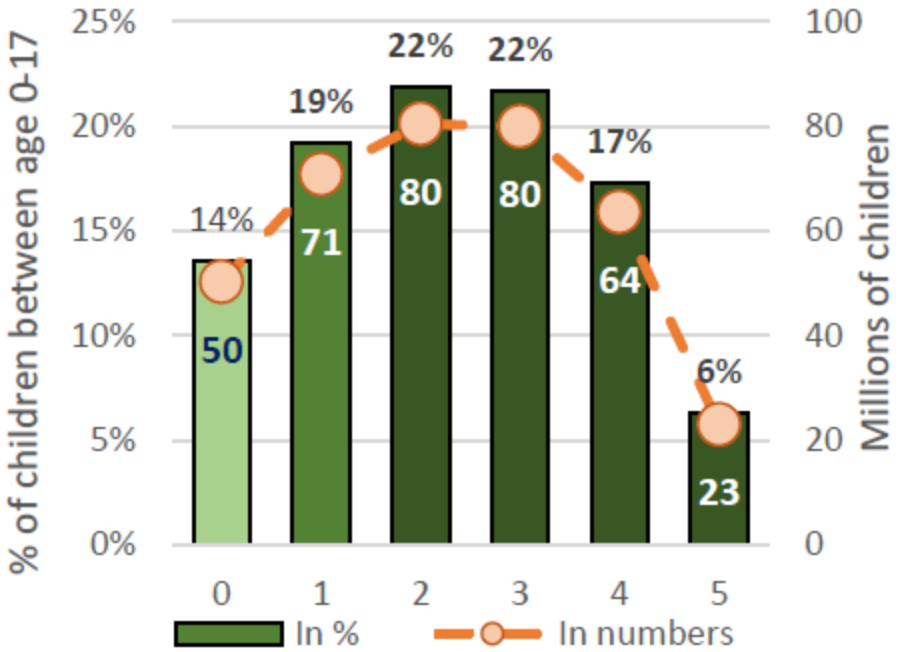

Urban areas

# Deprivation count and distribution

***Multi-dimensional approach***

*Proportion of children in **SSA (30 countries)** deprived in 0, 1, 2…5 dimensions*

- Only **14%** of all children below age 18 do not experience **any** of the deprivations studied
- **23%** of all children suffer from **4-5** dimensional deprivations
- **45%** of all children experience **3-5** dimensional deprivations
- **67%** of all children below 18 experience **2-5** deprivations, equal to **247 millions** of children

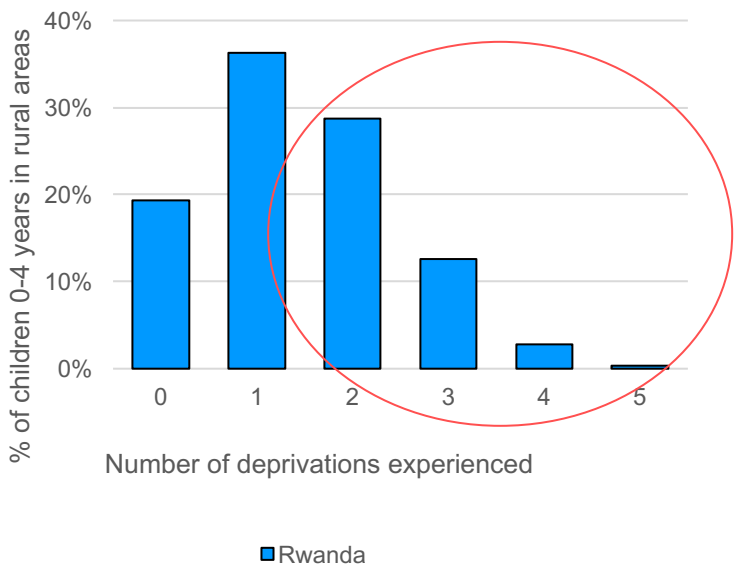


# Deprivation count and distribution

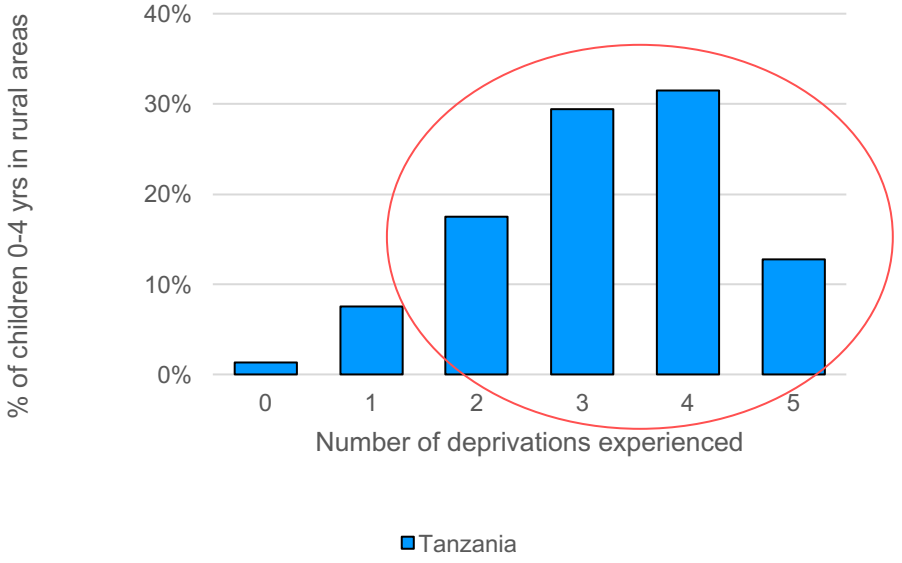
***Multi-dimensional approach***

*Proportion of children deprived in 0, 1, 2…5 dimensions* ***by country, age-group, sub-group***

- **Large disparities** across countries and area of residence



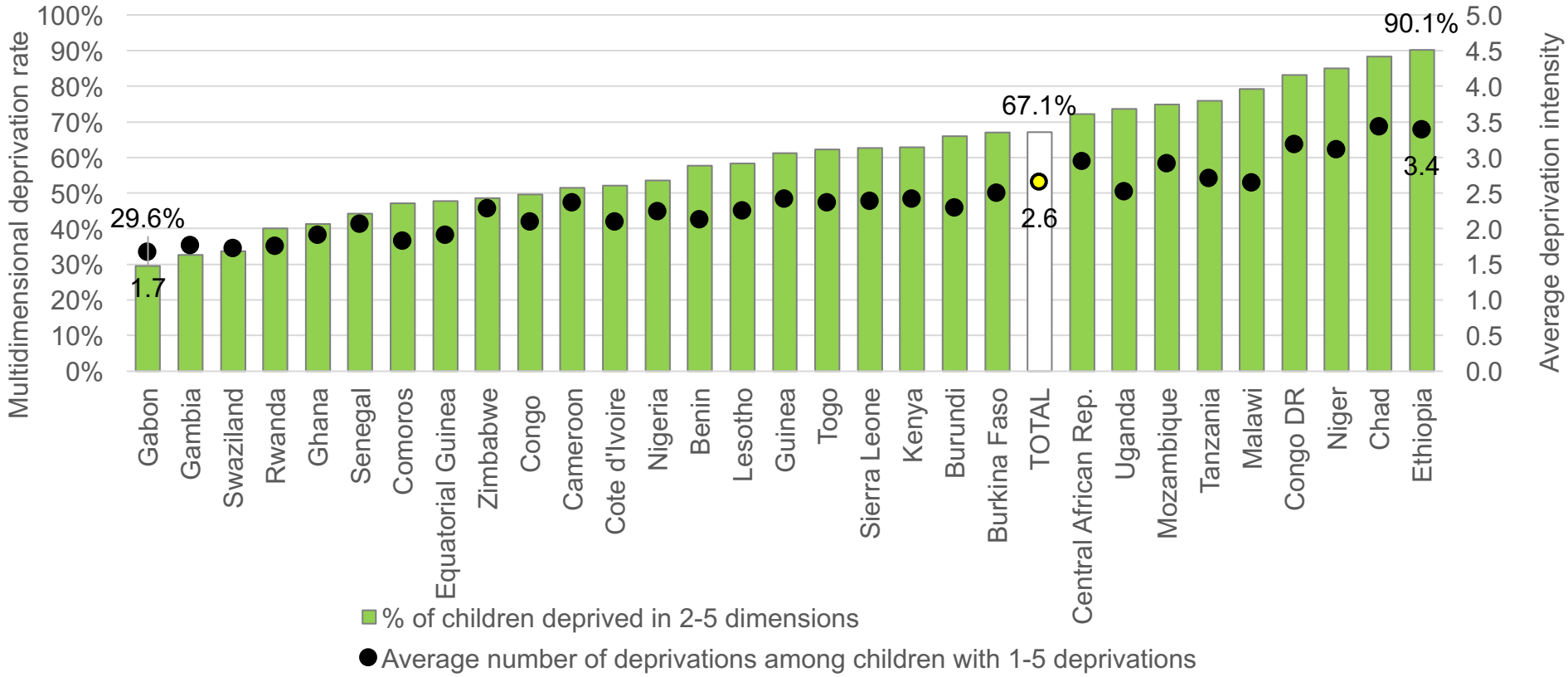

Rwanda (DHS 2010-11)
Children under age 5 in rural areas




Tanzania (DHS 2010)
Children under age 5 in rural areas

# Multidimensional deprivation incidence & intensity

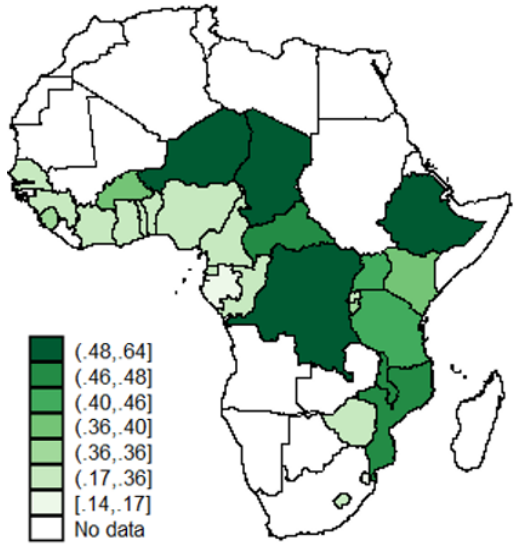
- **67%** of all children <18 experience 2-5 deprivations, equal to **247 millions** of children
- Large differences in multidimensional deprivation incidence across countries (30% in Gabon → 90% in Ethiopia)
- Deprivation intensity (average no. of deprivations experienced simultaneously): **1.7 → 3.4**
  Highest in Chad, Ethiopia, Congo DR, Niger, CAR, and Mozambique

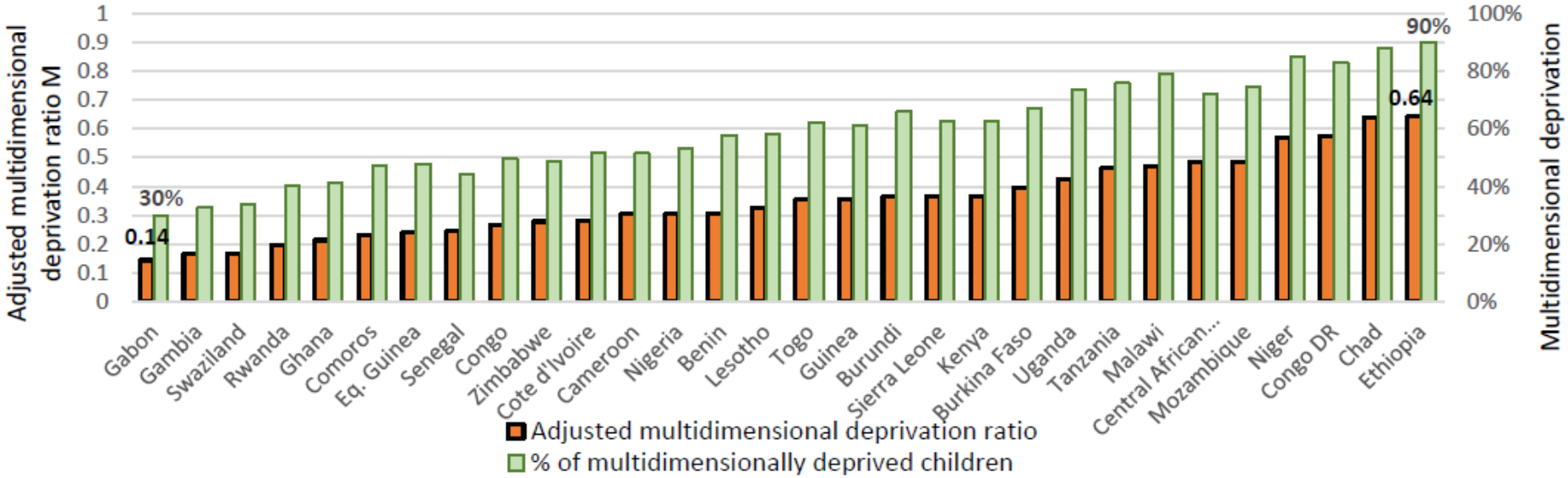


# Combining deprivation incidence and intensity

- Ranking changes slightly when taking into account the average deprivation intensity children experience, ranking the countries with a higher depth of multidimensional deprivation as worse off
- The highest multidimensional deprivation levels are found in Ethiopia, Chad, Congo DR, Niger, Mozambique, CAR, Malawi, and Tanzania
- *Note: calculation based on Alkire and Foster (2011) methodology of calculating adjusted multidimensional poverty index (M)*

$$M_0 = H * A = \frac{\sum_1^{q_K} c_K}{n_a * d}$$

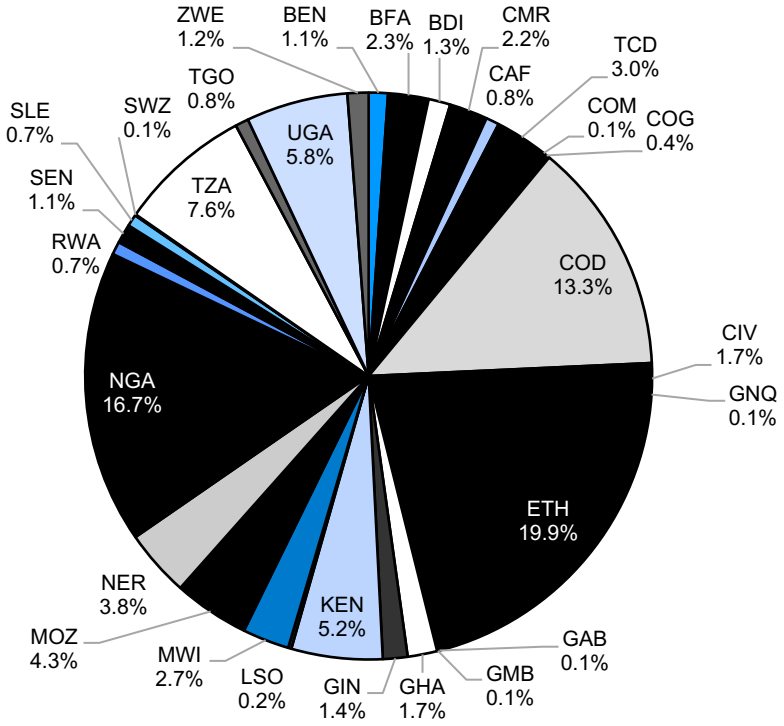


# Contribution of each country to the total adjusted multidimensional deprivation ratio

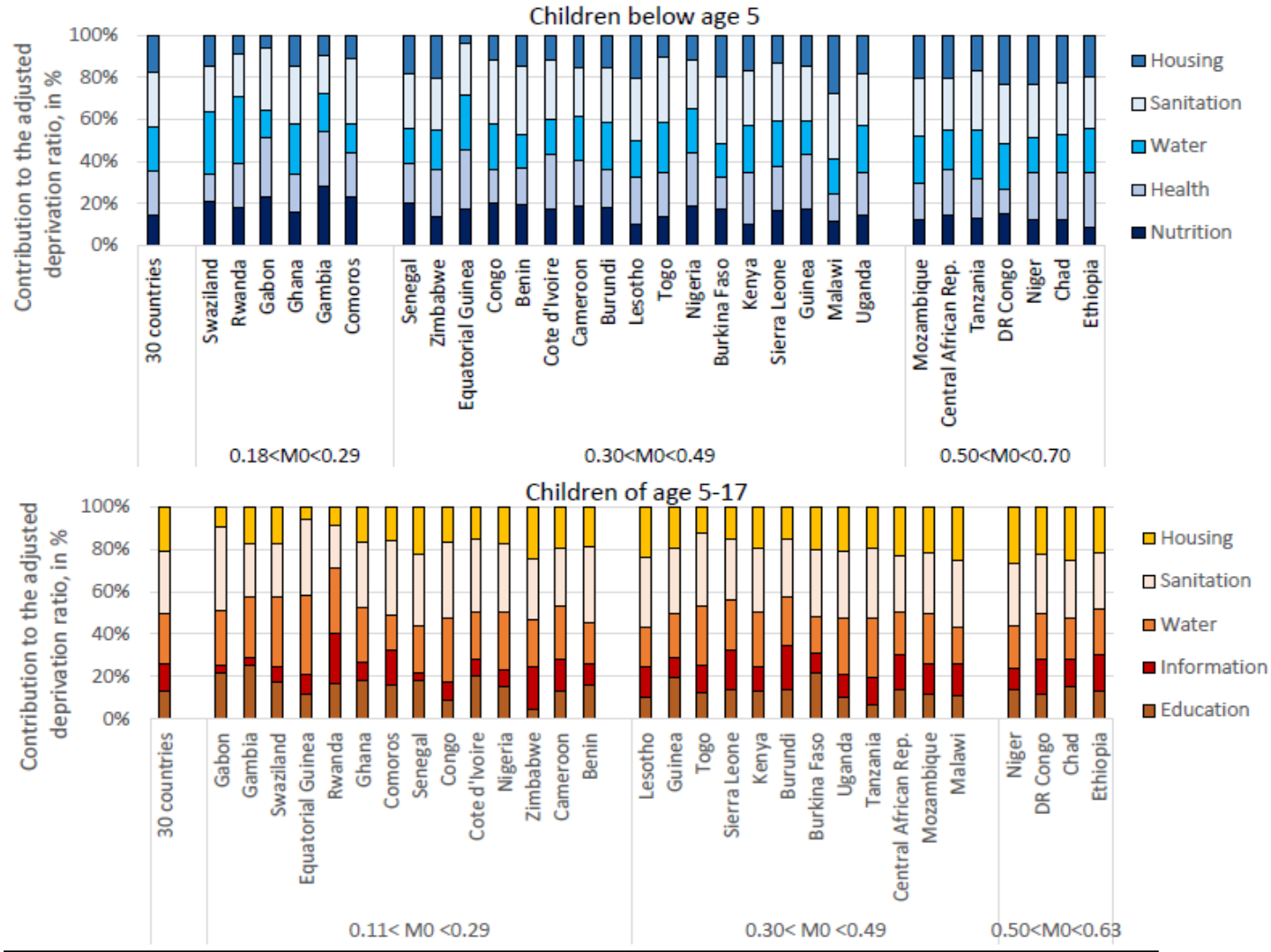
- Ethiopia, Nigeria, and DR Congo together contribute 50% of the total adjusted multidimensional deprivation ratio from the 30 selected countries in SSA

- The largest numbers of multidimensionally deprived children in absolute terms: Ethiopia, Nigeria, and DR Congo, home to 118 million multidimensionally deprived children (40% of all children)



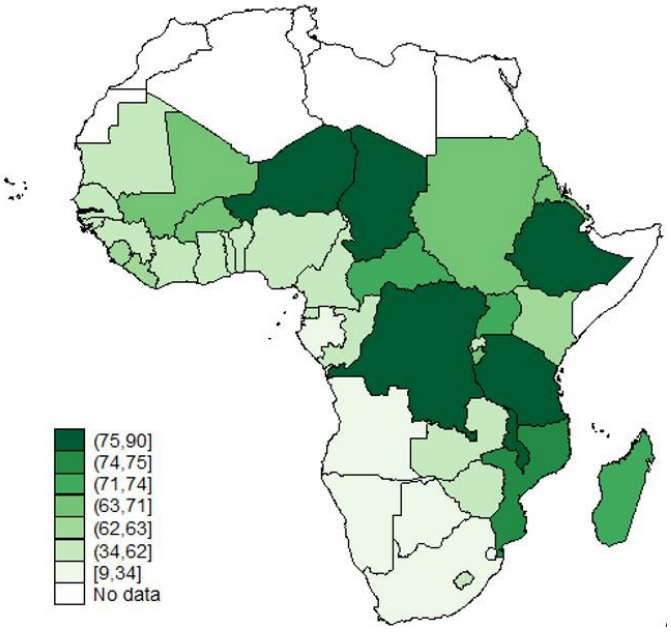
# Decomposition by dimension

*Contribution of each dimensional deprivation to the overall multidimensional deprivation ratio M*



# Estimations of the total number of multidimensionally deprived children in SSA

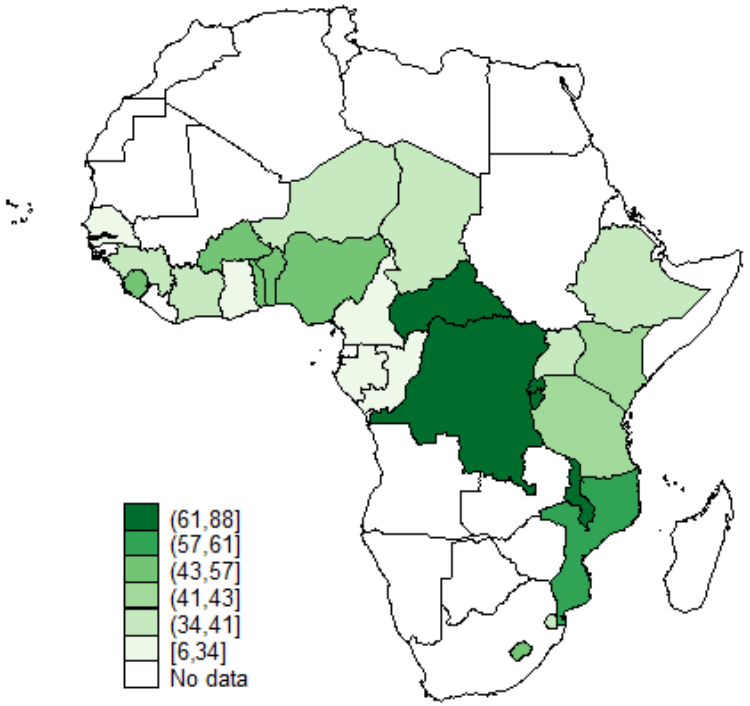
- OLS regression model has been used to predict multidimensional deprivation rates of the remaining 15 countries in SSA (model includes countries' GDP p.c., urban population share, and population size)
- Out of a total of 468 million children across **45 countries** in sub-Saharan Africa, **298 million (63%)** have non-fulfilled basic rights in two or more dimensions
- The highest multidimensional child deprivation rates: Ethiopia, Chad, Niger, DR Congo (83%-90%), Malawi, Tanzania, Mozambique, and Madagascar (74%-79% of the total child population)



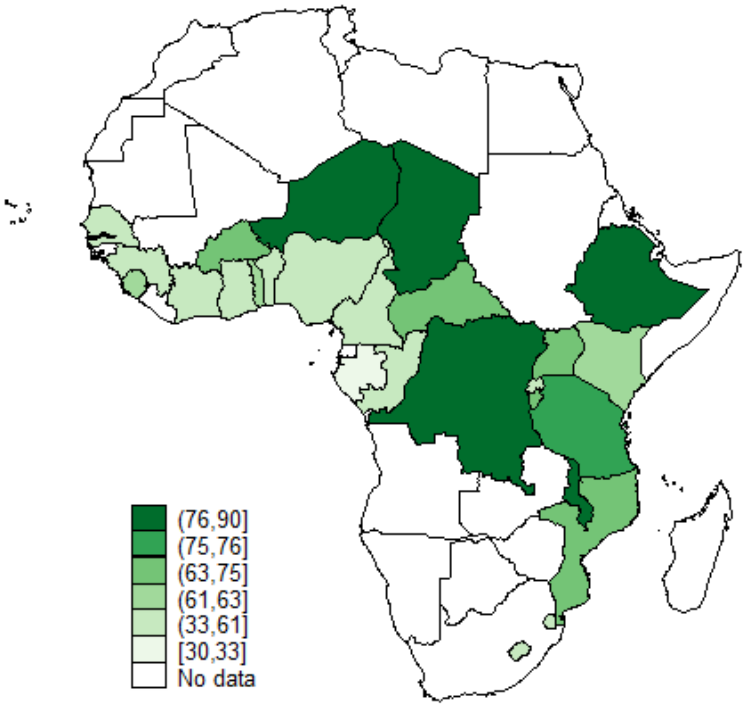
# Comparing multidimensional deprivation rates and monetary poverty rates in SSA

- MODA includes monetary poverty analysis whenever information on income or consumption is available
- Impossible for this study as most DHS/MICS datasets do not contain data on household budget/consumption.
- CC-MODA results compared with monetary poverty rates based on $1.25 PPP poverty line (WB Databank)

*Monetary poverty rates at $1.25 PPP a day (total population)*

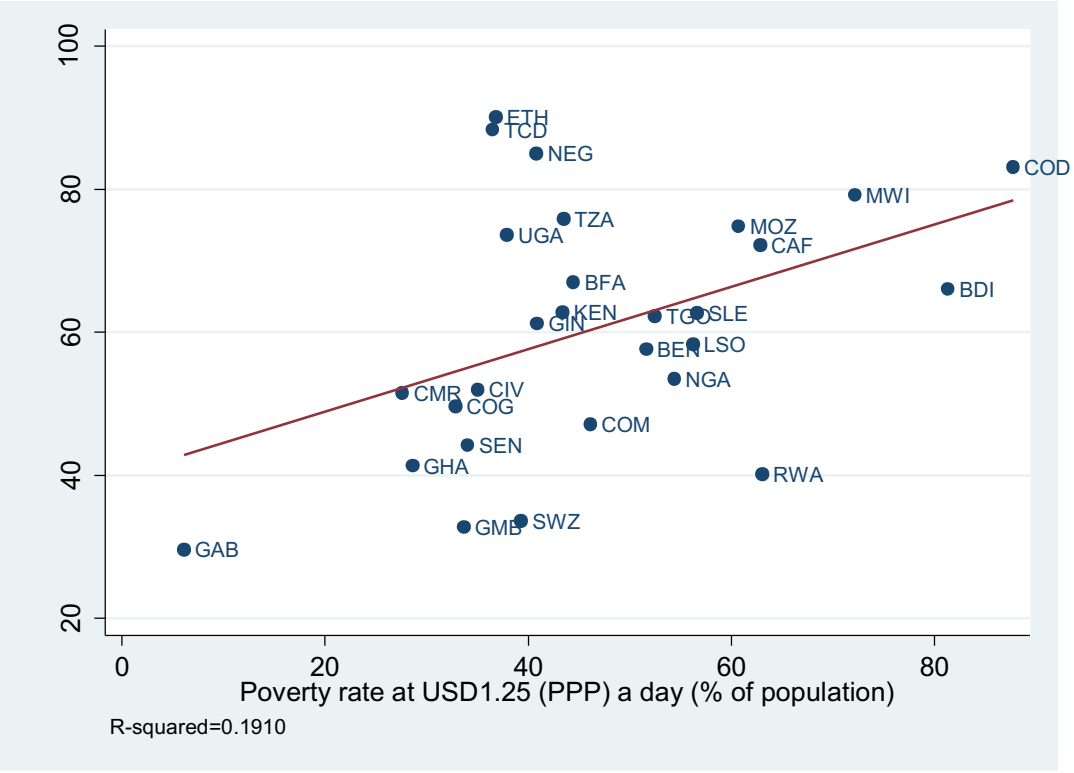



*Multidimensional deprivation rates (2-5 dim.) (children under age 18)*



# Correlation between multidimensional deprivation and monetary poverty

- Moderate correlation between monetary poverty ($1.25 PPP) & multidimensional deprivation (2-5 dimensions)
- Relatively high margin of unexplained variance between the two measures ($R^2$=0.19) suggests that the absolute monetary poverty measure is not a good predictor of child deprivation rates in SSA
- Other factors beyond monetary poverty that predict child deprivation rates in this region should be considered

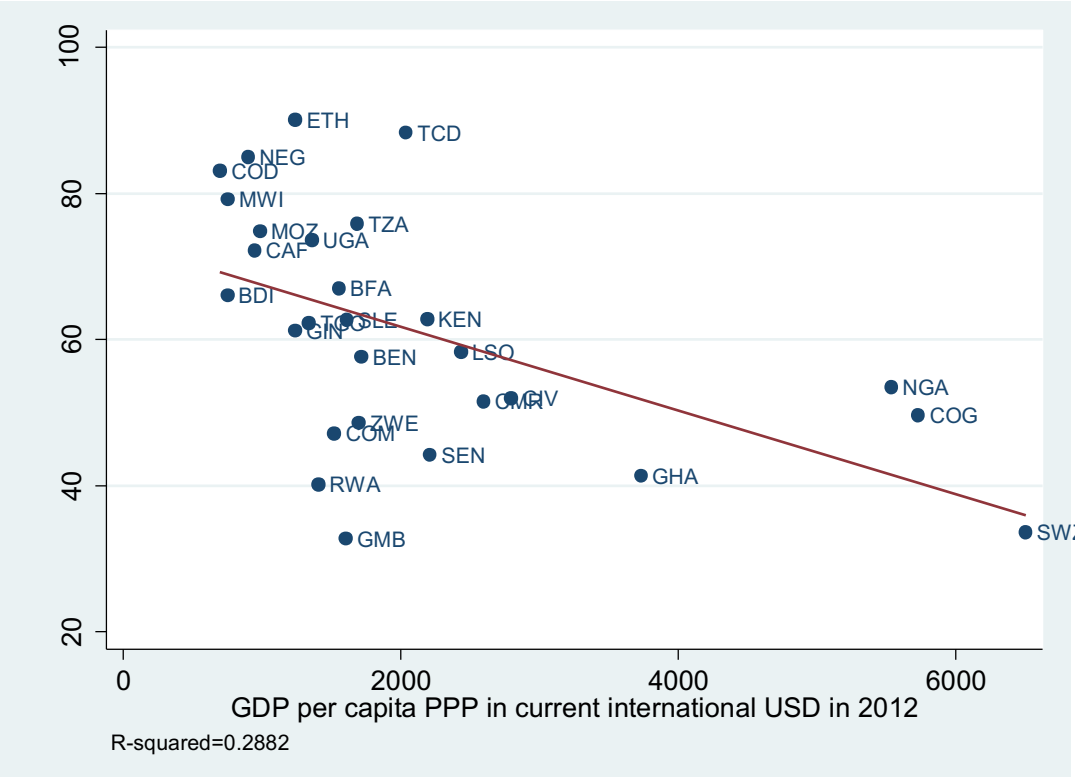


# Correlation between multidimensional deprivation and GDP per capita

A higher average economic activity is correlated with lower child deprivation levels, but not a perfect predictor ($R^2$=0.29)

Other possible factors for a more accurate prediction of child deprivation should be considered

E.g. resource use and distribution in the society, availability and affordability of public and private goods and services, legislation and legislative accountability, societal behaviours, beliefs and traditions, among others



# Concluding remarks

- Children on average experience more than one dimensional deprivation simultaneously (2.6 on average); An integrative approach to alleviate deprivations could lead to more efficient and effective results

- Out of a total of 468 million children across **45 countries** in sub-Saharan Africa, **298 million (63%)** have non-fulfilled basic rights in two or more dimensions

- Multidimensional deprivation and monetary poverty are complementary poverty measures but conceptually different

- Monetary poverty is not a perfect predictor of child deprivation in SSA, correlating only moderately

- The study finds stronger correlation between multidimensional child deprivation and GDP per capita

- Other important factors in addition to monetary poverty and country's average economic activity determine child deprivation rates in the region

- Child-centred and rights-based approach to measuring child poverty helpful for better identification

Thank you!

# Related papers


- De Neubourg, C., M. de Milliano, I. Plavgo, (2014). 'Lost (in) Dimensions: Consolidating progress in multidimensional poverty research', Working Paper 2014-04, UNICEF Office of Research, Florence.

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

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

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

- MODA web portal: http://www.unicef-irc.org/MODA/