

Distr.  
LIMITED  
E/ESCWA/EDID/2017/CP.2  
20 November 2017  
ORIGINAL: ENGLISH

**Economic and Social Commission for Western Asia (ESCWA)**

# **Country Background Paper**

## **Multidimensional Poverty in Sudan**



United Nations  
Beirut, 2017

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## **Acknowledgments**

This paper has been prepared by the Multidimensional Poverty Team of the Economic Development and Globalization Division (EDID) of ESCWA. The team members are Khalid Abu-Ismaïl, Bilal Al-Kiswani, Dina Armanious, Verena Gantner, Sama El-Haj Sleiman, Ottavia Pesce, and Maya Ramadan. It serves as a country background paper to the Arab Multidimensional Poverty Report, a joint publication by the League of Arab States, ESCWA, UNICEF and Oxford Poverty and Human Development Initiative. The team members are grateful to Sabina Alkire and Bilal Malaeb from OPHI for their technical advice and collaboration on the construction of the regional Arab Multidimensional Poverty Index, which we apply in this paper using the household level data from the Sudan MICS (2014). We are also grateful to Ali Abdel Gadir for his detailed comments and feedback on an earlier version of this paper.

# 1. Introduction

- 1.1. Sudan is a lower middle-income country<sup>1</sup> in Sub-Saharan Africa. Table 1 shows some of the main socio-economic indicators for Sudan. The Human Development Index (HDI) – a measure of basic human development achievements in a country – for Sudan stood at 0.490 in 2015, which puts the country in the low human development category, positioning it at 165 out of 188 countries and territories. Money metric poverty is high in Sudan, with 46.5% of the population living below the national poverty line in 2009 (the most recent year for which data is available).
- 1.2. Following its independence in 1956, Sudan has seen periods of conflict and civil war for most of the time (except for the period 1972-1983). In 2005, a peace agreement with Southern Sudan was reached, however, conflict persisted in the region of Darfur (WHO, 2010). The peace agreement with South Sudan eventually resulted in the secession of the South in 2011 which impacted immediately on the economic growth and the political and security situation in Sudan.
- 1.3. The objective of the present paper is to provide in-depth analysis of the prevalence, distribution (geographical and by gender among other household socio-economic characteristics), and severity of multi-dimensional poverty in Sudan. It is one of ten country profiles prepared by ESCWA as background papers for the Arab Multidimensional Poverty Report<sup>2</sup> making use of the new Multidimensional Poverty Index proposed for the Arab States (Arab MPI).

**Table 1: Main socio-economic indicators for Sudan**

| Indicators                                  | Value (2015 unless otherwise indicated) |
|---------------------------------------------|-----------------------------------------|
| Population                                  | 38,647,803                              |
| GDP (current US\$)                          | US\$ 97.156 billion                     |
| GNI per capita, Atlas method (current US\$) | US\$ 2,000                              |
| Human Development Index (HDI <sup>3</sup> ) | 0.490                                   |
| Life expectancy at birth                    | 63.7 years                              |
| Expected years of schooling                 | 7.2 years                               |
| Mean years of schooling                     | 3.5 years                               |
| GNI per Capita (2011 PPP\$)                 | 3,846                                   |
| Human Development 2015 rank                 | 165 (over 188 countries)                |
| Gender Development Index                    | 0.839                                   |
| Inequality adjusted HDI                     | n.a.                                    |
| Gini coefficient                            | 35.4 (2009)                             |

<sup>1</sup> Country classification corresponds to the World Bank standards for the fiscal year 2017 as follows: lower middle-income economies are those with a GNI per capita, calculated using the World Bank Atlas method, between \$1,026 and \$4,035; upper middle-income economies are those with a GNI per capita between \$4,036 and \$12,475; high-income economies are those with a GNI per capita of \$12,476 or more.

<sup>2</sup> Arab Multidimensional Poverty Report was launched in September 2017 as a joint publication of the League of Arab States' Council of Arab Ministers for Social Affairs, the United Nation's Economic and Social Commission for Western Asia (ESCWA), the United Nations Children's Fund (UNICEF), and Oxford Poverty and Human Development Initiative (OPHI).

<sup>3</sup> The HDI is a summary measure for assessing long-term progress in three basic dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living. A long and healthy life is measured by life expectancy. Knowledge level is measured by mean years of education among the adult population, which is the average number of years of education received in a life-time by people aged 25 years and older; and access to learning and knowledge by expected years of schooling for children of school-entry age. The standard of living dimension is measured by GNI per capita.

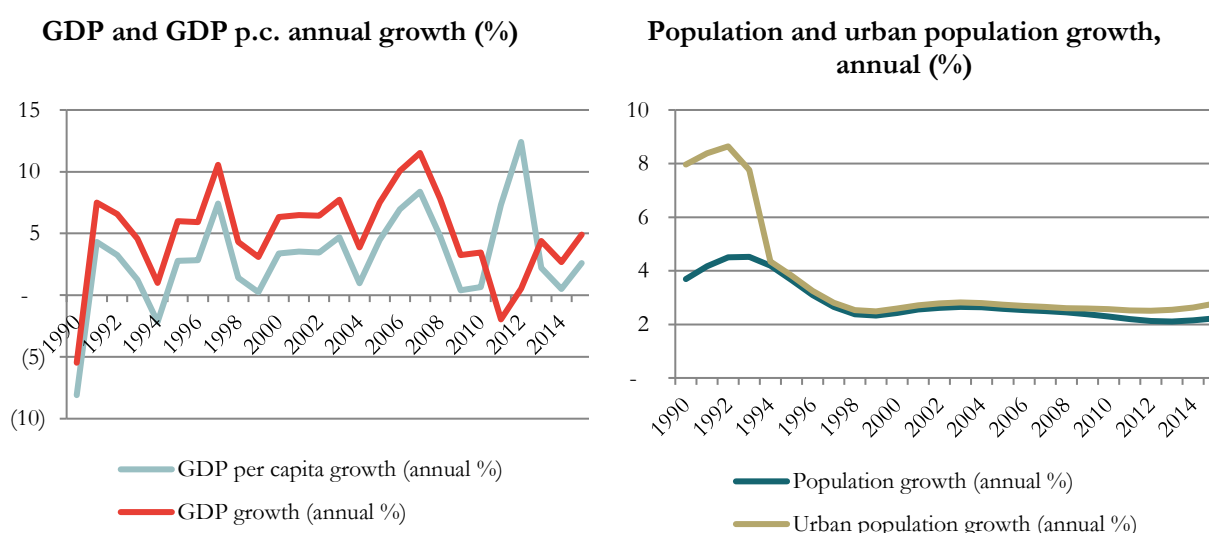
[http://hdr.undp.org/sites/all/themes/hdr\\_theme/country-notes/SDN.pdf](http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/SDN.pdf)

|                                                                     |              |
|---------------------------------------------------------------------|--------------|
| Poverty headcount ratio at national poverty line (% of population)  | 46.5% (2009) |
| Gross enrolment ratio, primary (% of primary school-age population) | 70.4% (2013) |

Sources: for population, GDP, GNI p.c., Gini Index, poverty headcount, gross enrolment ratio: World Bank World Development Indicators data accessed October 2017. For HDI, life expectancy, expected years of schooling, mean years of schooling, gender development index and inequality adjusted HDI: UNDP Human Development Reports accessed October 2017.

- 1.4. As shown in **Error! Reference source not found.** below, Sudan's GDP growth has faced several crises and volatility over the past decade, most notably the secession of the Southern States in July 2011. The secession of South Sudan induced multiple economic shocks, chiefly the loss of 70 percent of its oil revenues. Sudan's economy has been highly dependent on the oil sector: over half of government revenues and 95% of exports originated from it. As a result, the economy suffers from a lack of diversification and has neglected the development of the agriculture and livestock sectors which is the main source of livelihood for many of the (monetary) poor in Sudan (World Bank, 2013).

**Figure 1: GDP, GDP p.c. and population growth (%)**



Source: World Bank (2017)

- 1.2 Our findings reflect that areas affected by conflict and internal displacement have particularly high prevalence of poverty and that nutrition is a major source of poverty. The findings in this country profile are based on 2014 data, and as such it captures the effect of the South's secession and of the first year of conflict which erupted in 2013 in the neighbouring country. However, the results are likely to underestimate the prevalence of poverty as the humanitarian situation in Sudan has been deteriorating ever since 2014.
- 1.3 As of 2017, Sudan faces several humanitarian challenges: due to the deteriorating security situation in Darfur as well as ongoing conflicts in the Kordofans, the Blue Nile States, and Abyei with around 2.3 million people have been displaced internally. In addition, Sudan hosts around 800.000 refugees and asylum seekers, among them around 300,000 from South Sudan. While Sudan is not facing a famine, there is severe food insecurity and acute malnutrition among children. In 2017, 3.6 million people were suffering from food insecurity and around 2.2 million Sudanese children under 5 are acutely malnourished. Malnutrition and food insecurity in Sudan are exacerbated by the ongoing conflict which prevents access to arable land, conflict induced displacements, epidemics, floods and droughts (UNICEF, 2017). Thus, the findings of

this country profile do not fully reflect the current situation in Sudan and should be interpreted in the context of the country's situation in 2014 when the data was collected.

## 2. Methodology and Data

- 2.1. Multi-dimensional poverty measures multiple deprivations in basic services and capabilities, such as poor health, lack of education or illiteracy, and lacking access to safe drinking water. The multi-dimensional poverty approach complements monetary measures of poverty by considering these multiple deprivations and their overlap. The conceptual framework of multidimensional poverty measures draws from Sen's capability approach which states that development is realised not only through increased incomes and share in assets, but also through people's increased capabilities to lead lives that they have reason to value. Sen contends that capability deprivation is a more complete measure of poverty than income as it captures the aspects of poverty which may get lost or hidden in aggregate statistics (Sen 1985, 1999). In recent years, this conceptual framework was translated into practice to measure household poverty through the Multidimensional Poverty Index (MPI).
- 2.2. The methodology of the MPI is based on the Alkire-Foster (AF) Method offering a comprehensive methodology for counting deprivation and analysing multidimensional poverty. The AF-methodology builds on the Foster-Greer-Thorbecke poverty measure, but it considers multiple dimensions. The AF-methodology includes two steps: first, it identifies the poor using a dual cut-off approach and by "counting" the simultaneous deprivations that a person or a household experiences across the different poverty indicators. And the second step is to aggregate this information into the adjusted headcount ratio (or MPI value) which can be decomposed and disaggregated geographically, by socio-economic characteristics, and by indicator.
- 2.3. Under the first step, to identify multidimensionally poor people, the AF-methodology uses a dual cut-off identification approach. The first cut-off sets a deprivation threshold for each indicator which determines whether a household or a person is considered as deprived or non-deprived in the respective indicator. After the cut-offs have been applied for each indicator, the deprivations of each person in all indicators are counted to calculate a deprivation score for that household or person. Weights are assigned to the indicators which reflect a normative value judgement to assess the relative importance of a given indicator as compared to the other indicators in constructing the deprivation score for a household or person. As a result, the deprivation score is a weighted sum of all deprivations. The second cut-off (the poverty cut-off) is set at a value say 20% or 30% against which the deprivation score is compared to in order to define and distinguish multidimensionally poor (those whose deprivation score is equal to or more than the poverty cut-off) from non-poor (whose deprivation score falls below the poverty cut-off).
- 2.4. In the aggregation step of the AF Method, two indices are calculated; the headcount ratio and intensity of poverty. The headcount ratio (H) is the proportion of multidimensionally poor people to the total population. The headcount ratio is a useful measure to learn about the incidence of poverty, but it is insensitive to increases in the number of deprivations a poor person is deprived in. However, utilizing the information on the number of deprivations that poor people experience, the intensity of poverty can be calculated. The intensity of poverty (A), is the average deprivation score that multidimensionally poor people experience. The product of the poverty headcount and poverty intensity is the MPI, which "adjusts" the headcount for the average intensity of poverty that poor people experience.
- 2.5. The use of Multidimensional Poverty Index (MPI) to describe the application of AF Method was coined with the Global MPI launched in 2010 by OPHI and the United Nations Development Program (UNDP). However, the Global MPI has a major shortcoming: it is not very effective in capturing the less severe forms of poverty that characterise many Arab middle-income countries such as Jordan,

Egypt or Morocco and thus underestimates the prevalence of less severe forms of multidimensional poverty. However, the AF-Method offers flexibility and it can be tailored to a variety of situations by selecting different dimensions, indicators of poverty within each dimension, and poverty cut offs<sup>4</sup>.

- 2.6. In order to capture a broader spectrum of level and intensity of deprivation that better reflects the conditions of Arab countries, ESCWA and OPHI proposed an Arab MPI with two different levels: poverty and acute poverty. The Arab MPI is composed of three dimensions and twelve indicators. The education dimension has two indicators: school attendance and years of schooling. The health dimension includes three indicators: nutrition, child mortality, and early pregnancy combined with female genital mutilation. The living standard indicators are: access to electricity, improved sanitation facility, safe drinking water, clean cooking fuel, having suitable floor and roof, no overcrowding, and minimum assets of information, mobility, and livelihood (the deprivation cut-offs for the Arab MPI are presented in Table 2). Each of these indicators has two associated deprivation cut-offs, one reflects the deprivation of acute poverty which is similar (but not identical) to the global MPI. And the other, a higher cut-off denoting a slightly higher standard to measure poverty which is inclusive of acute poverty. While the cut offs usually vary across indicators for acute poverty and poverty, in case of the aggregate score for identifying a poor household, the cut off is the same. A household is considered acutely poor or poor if its total level of deprivation (total of weighted deprivations in all indicators) is higher than one-third of the total possible deprivation ( $k=33.3\%$ ). Similar to the Global MPI, the Arab MPI assigns equal weights to the three dimensions (one third), and indicators within each dimension are equally weighted. To obtain the set of multidimensionally poor people only, all information of deprivation of non-poor persons is censored from the data. Thus, the focus of the MPI measure is purely on the profile of the multidimensionally poor people and the indicators/dimensions in which they are deprived.
- 2.7. The MPI can be decomposed by population sub-groups, such as sub-national regions, or any socio-economic characteristic of a household that is available from the data. Another feature of the MPI is that it can be decomposed to show how much each indicator contributes to poverty. Furthermore, the MPI can also give insight into the percentage of people that are deprived in multiple indicators, but below the poverty cut-off. This percentage of the population is considered vulnerable to poverty. In the case of the Arab MPI, population whose deprivation score is between 20-33.3% is considered as vulnerable to poverty. On the other side of the scale, the MPI can also give insight into how many people are deprived in for example more than half of all the weighted indicators. This percentage share of the population is considered to be in severe poverty. In the Arab MPI, poor people who are deprived in 50% or more of the indicators are considered as severely poor.
- 2.8. The results of this background paper are based on data from the Multiple Indicator Cluster Survey (MICS), a survey conducted by countries with the support of UNICEF<sup>5</sup>. The survey for Sudan, conducted in 2014, covers 86,433 individuals. It provides data on education, health and working status for all members of the household; nutrition status of children and women; child mortality; housing conditions (availability of safe drinking water, sanitation facilities, electricity, cooking fuel etc.); and information on ownership of assets (refrigerator, motorbike, cattle, radio, TV etc.). Some of the information in this country profile is reported by “head of household”, which is the individual in the household who identified themselves or was identified as such in the survey.

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<sup>4</sup> See Alkire et al, 2016 for more details

<sup>5</sup> For more information see [www.mics.unicef.org](http://www.mics.unicef.org)

**Table 2: Deprivation definitions and indicator weights**

| Dimension         | Indicator           | Deprived at Acute Poverty if                                                                                                                                           | Deprived at Poverty if                                                                                                                                                                                                                                    | Weight |
|-------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Education         | Years of Schooling  | No household member has completed primary schooling <sup>6</sup> .                                                                                                     | No household member has completed secondary schooling.                                                                                                                                                                                                    | 1/6    |
|                   | School Attendance   | Any child of primary school age is not attending school.                                                                                                               | Any school-age child is not attending school <b>or</b> is 2 years or more behind the right school grade.                                                                                                                                                  | 1/6    |
| Health            | Child Mortality     | Any child less than 60 months has died in the family during the 59 months prior to the survey.                                                                         | Same as acute poverty                                                                                                                                                                                                                                     | 1/9    |
|                   | Nutrition           | Any child (0-59 months) is stunted (height for age < -2) <b>or</b> any adult is malnourished (BMI < 18.5). <sup>7</sup>                                                | Any child (0-59 months) is stunted (height for age < -2) <b>or</b> any child is wasted (weight for height < -2) <b>or</b> any adult is malnourished (BMI < 18.5).                                                                                         | 1/9    |
|                   | FGM/Early Pregnancy | A woman less than 28 years old got her first pregnancy before 18 years old <b>and</b> has undergone a female genital mutilation (FGM).                                 | A woman less than 28 years old got her first pregnancy before 18 years old <b>or</b> has undergone a female genital mutilation (FGM).                                                                                                                     | 1/9    |
| Living Conditions | Electricity         | Household has no electricity.                                                                                                                                          | Same as acute poverty                                                                                                                                                                                                                                     | 1/21   |
|                   | Sanitation          | Household sanitation is not improved, according to MDG guidelines, <b>or</b> it is improved but shared with other household.                                           | Same as acute poverty                                                                                                                                                                                                                                     | 1/21   |
|                   | Water               | Household does not have access to safe drinking water, according to MDG guidelines, <b>or</b> safe drinking water is 30-minutes roundtrip walk or more away from home. | Household does not have piped water into dwelling or yard.                                                                                                                                                                                                | 1/21   |
|                   | Floor/Roof          | Floor is earth, sand, dung or roof is not available <b>or</b> made of thatch, palm leaf or sod                                                                         | Floor is earth, sand, dung, rudimentary (woodplanks/bamboo/reeds/grass/canes), cement floor (not slab or tiles/asphalt strips) <b>or</b> roof is not available <b>or</b> made of thatch, palm leaf, sod, rustic mat, palm, bamboo, wood plank, cardboard. | 1/21   |
|                   | Cooking Fuel        | Household cooks with solid fuels: wood, charcoal, crop residues <b>or</b> dung <b>or</b> no food is cooked in the household.                                           | Household cooks with solid fuels: wood, charcoal, crop residues or dung <b>or</b> no food is cooked in the household <b>or</b> does not have a separate room for cooking.                                                                                 | 1/21   |

<sup>6</sup> According to UNESCO guidelines, the definition of primary schooling and secondary schooling is country-specific. In Sudan, primary education consists of 8 years of education and secondary education of an additional 3 years (11 years in total). The entry age for primary education is 6 years, which means that a child of primary school age is between 6-14 years and a child of school-age is between 6-17 years.

<sup>7</sup> The nutrition indicator depends only on the nutrition of children under 5 years since the anthropometric measurements were not collected for women 15-49 years.

|  |              |                                                                                                                                                                           |                                                                                                                                                                                                       |      |
|--|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
|  | Overcrowding | Household has 4 or more people per sleeping room.                                                                                                                         | Household has 3 or more people per sleeping room.                                                                                                                                                     | 1/21 |
|  | Assets       | Household has not access to information <b>or</b> has access to information <b>and</b> no access to easy mobility <b>and</b> no access to livelihood assets. <sup>8</sup> | Household has less than two assets for accessing information, <b>or</b> there is more than one information asset <b>and</b> less than two mobility assets <b>and</b> less than two livelihood assets. | 1/21 |

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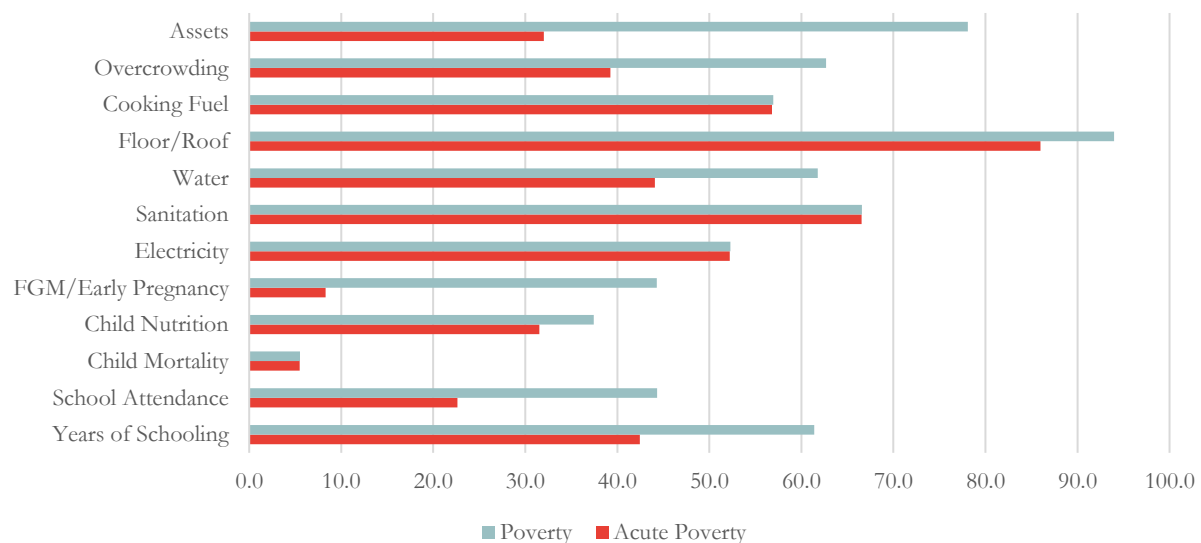
<sup>8</sup> In Sudan, assets of Information are: phone (mobile or fixed), radio, TV, internet, computer. Assets of Mobility are: bicycle, motorbike, motorboat, car, truck or animal wheel cart and assets of Livelihood are: refrigerator, agricultural land, and livestock (at least one cattle or at least one horse or at least two goats or at least two sheep, or at least 10 chickens).

### 3. Poverty Analysis

#### 3.1. Incidence of Deprivation in the indicators of the Arab MPI

3.1.1. First, we examine the prevalence of deprivation among the Sudanese population in each of the Arab MPI indicators using the poverty and acute poverty respective cut-off points as shown in Figure 2. This percentage share is also called the uncensored (or raw) headcount ratio, as it considers the deprivations of the total population before identifying the poor.

**Figure 2: Incidence of Deprivation in the Arab MPI indicator (% of population)**



3.1.2. At acute poverty, the highest deprivation incidence is found in the living standards dimension's indicators; with 86.0% of the population deprived, the highest incidence of deprivation is found in the floor/roof indicator. Deprivations in sanitation and cooking fuel follows with 66.6% and 56.8% respectively. While 52.2% of the population in Sudan do not have electricity in their household. Within the education dimension, we see that 42.5% of the population is deprived in years of schooling, i.e. living in a household where no member has completed primary education, and 22.6% of the population are deprived in school attendance, i.e. living in a household where a child of a primary school age is not attending school. The prevalence of deprivation is lower among the health dimension's indicators with deprivation in nutrition showing the highest prevalence with 37.4% of the population living in a household where a child under five years of age is stunted or an adult is malnourished.

3.1.3. Moving to poverty the same pattern across dimensions is witnessed but the prevalence of deprivation is higher as the cut-off points applied capture a moderate (i.e. less severe) forms of deprivation, except for sanitation, overcrowding, and child mortality where the cut-off point is the same as that of acute poverty. 94.0% of the total population are deprived in the floor/roof indicators. Asset deprivation is the second largest when using the poverty cut-off, with more than 78.1% of households deprived. Sanitation is the third indicator with incidence of deprivation at 66.6%. For the education dimension, the percentage of the population deprived in years of schooling is 61.4% living in a household where no member has completed secondary education, and 44.2% are deprived in school attendance, living in a household where a school-age child is not attending school or is 2 years or more behind the age-appropriate school grade.

- 3.1.4. The indicators that show the largest increase in deprivation headcount when moving from acute poverty to poverty are assets, FGM/early pregnancy and overcrowding. While acute poverty defines deprivation in FGM/early pregnancy when a woman at the household younger than 28 years old got her first pregnancy before 18 years of age and has undergone a female genital mutilation (FGM), poverty defines it as either early pregnancy or FGM or both. This difference drives a large jump in the indicator between the two levels, from 8.3% deprived for acute poverty to 44.3% deprived for poverty. This means that 44.3% of the population live in a household in which a women less than 28 year of age have either undergone an early pregnancy or an FGM or both.
- 3.1.5. The prevalence of deprivation in rural areas is significantly higher than in urban areas. The spider diagram in **Figure 3** shows the uncensored headcount for the different Arab MPI indicators for urban and for rural areas. This figure provides a clear visual presentation of the rural disadvantage where across most indicators the prevalence of deprivation is higher than urban areas and the line connecting these deprivation headcounts is situated further away from the centre (equivalent to zero deprivation) than that for urban areas. At acute poverty, the biggest differences in headcount between urban and rural population are in electricity, sanitation and cooking fuel. At poverty, the biggest differences in headcount between urban and rural population are in electricity, sanitation and years of education. The rural population is significantly more deprived in electricity than the urban one at both levels, indicating a wide disparity in the availability of electricity in rural areas. Assets is the only indicator in which the urban population is more deprived than the rural population (at poverty) in Sudan<sup>9</sup>.

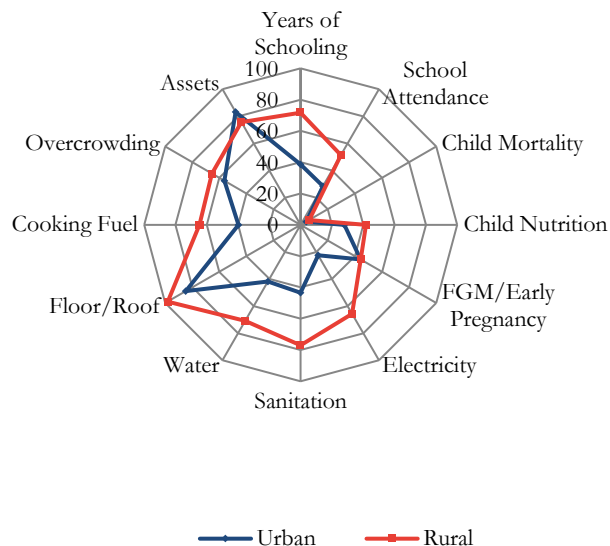
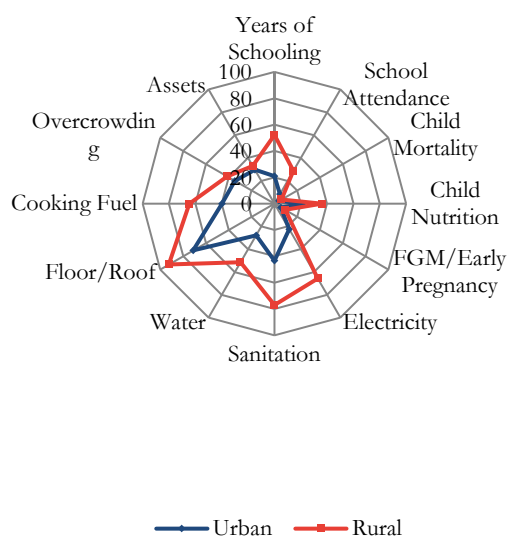
**Figure 3: Deprivation by indicator (% of population) at Acute Poverty and Poverty by urban and rural areas**

Acute Poverty

Poverty

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<sup>9</sup> This latter result, which may be puzzling at first, as we generally expect urban population to be less deprived than the rural one, is explained by the fact that urban dwellers generally do not own agricultural land or livestock as defined in the MPI.



### 3.2. Incidence of Censored Deprivation in MPI indicators

- 3.2.1. Table 3 **Error! Reference source not found.** compares the incidence of uncensored and censored deprivations. As we saw above, the uncensored headcount ratios give the percentage of population who is deprived in an indicator regardless of their multidimensional poverty status. While the censored headcount ratio measures the proportion of the population who is identified as multidimensionally poor, according to the selected poverty (and acute poverty) cut-off point (set here at  $k=33.3\%$ ), and deprived of each of the indicators. By definition, the uncensored headcount ratio of an indicator is equal to or higher than the censored headcount of that indicator (Alkire *et al.* 2015). Assessing the difference between censored and uncensored headcount ratios allows the assessment of the extent of overlap between deprivation and multidimensional poverty.

**Table 3: Uncensored and Censored Deprivation Headcount Ratios**

| Indicator                  | Acute Poverty                        |                                                        | Poverty                              |                                                    |
|----------------------------|--------------------------------------|--------------------------------------------------------|--------------------------------------|----------------------------------------------------|
|                            | % of total population deprived in... | % of multidimensionally poor people and deprived in... | % of total population deprived in... | % of multidimensionally poor people deprived in... |
| <i>Years of Schooling</i>  | 42.5                                 | 38.5                                                   | 61.4                                 | 58.3                                               |
| <i>School attendance</i>   | 22.6                                 | 21.5                                                   | 44.3                                 | 43.2                                               |
| <i>Child Mortality</i>     | 5.5                                  | 4.4                                                    | 5.5                                  | 5.2                                                |
| <i>Nutrition</i>           | 31.5                                 | 24.4                                                   | 37.4                                 | 33.5                                               |
| <i>FGM/Early Pregnancy</i> | 8.3                                  | 6.8                                                    | 44.3                                 | 34.4                                               |
| <i>Electricity</i>         | 52.2                                 | 41.2                                                   | 52.3                                 | 50.5                                               |
| <i>Sanitation</i>          | 66.6                                 | 44.4                                                   | 66.6                                 | 59.1                                               |

|                     |      |      |      |      |
|---------------------|------|------|------|------|
| <i>Water</i>        | 44.1 | 33.3 | 61.8 | 57.0 |
| <i>Floor/Roof</i>   | 86.0 | 49.2 | 94.0 | 72.9 |
| <i>Cooking Fuel</i> | 56.8 | 41.9 | 56.9 | 53.9 |
| <i>Overcrowding</i> | 39.3 | 25.9 | 62.7 | 52.1 |
| <i>Assets</i>       | 32.0 | 23.5 | 78.1 | 60.7 |

3.2.2. At acute poverty, the difference between the uncensored and censored headcount ratios in the health and education dimension are relatively small which shows that most people who are deprived in the respective indicators are also identified as multidimensionally poor. The nutrition indicator shows a larger difference between the two ratios indicating the extent to which the deprivation in nutrition is prevalent among the non-poor. In the living standard dimension' indicators, the differences between the two headcount ratios are large: the biggest gap is observed in the indicator floor/roof. Out of the total population, 86.0% are deprived in this indicator. However, only 49.2% of the Sudanese population are identified as multidimensionally poor and deprived in the floor/roof indicator.

3.2.3. At poverty, the differences between the uncensored and the censored headcount decrease. Almost all of the people that are considered deprived in the education and health dimension, are also identified as poor. Again, there is one exception: at poverty, the indicator FGM/Early Pregnancy shows that not all of the people that are deprived in this indicator are also considered as multidimensionally poor.

### 3.3. Multidimensional Poverty Headcount, Intensity, and the MPI

3.3.1. In Sudan, 49.9% of the population suffers from acute multidimensional poverty and 73.5% of the population suffers from multidimensional poverty (Table 4). The intensity of poverty is high, at 52.7% for acute poverty and 60.4% for poverty. Poverty headcount and intensity are higher in rural<sup>10</sup> than in urban areas. People in rural areas are 2.5 times more likely to be acutely poor than those in urban areas. The MPI value, which ranges from 0-100, is high at 0.263 for acute poverty and 0.444 for poverty.

**Table 4: Poverty headcount, intensity and MPI at national level and by urban and rural areas**

| Acute Poverty |               |               |       |
|---------------|---------------|---------------|-------|
|               | Headcount (%) | Intensity (%) | MPI   |
| Total         | 49.9          | 52.7          | 0.263 |
| Urban         | 24.0          | 48.1          | 0.115 |
| Rural         | 61.6          | 53.5          | 0.329 |
| Poverty       |               |               |       |
|               | Headcount (%) | Intensity (%) | MPI   |
| Total         | 73.5          | 60.4          | 0.444 |
| Urban         | 52.5          | 53.7          | 0.282 |
| Rural         | 82.9          | 62.3          | 0.517 |

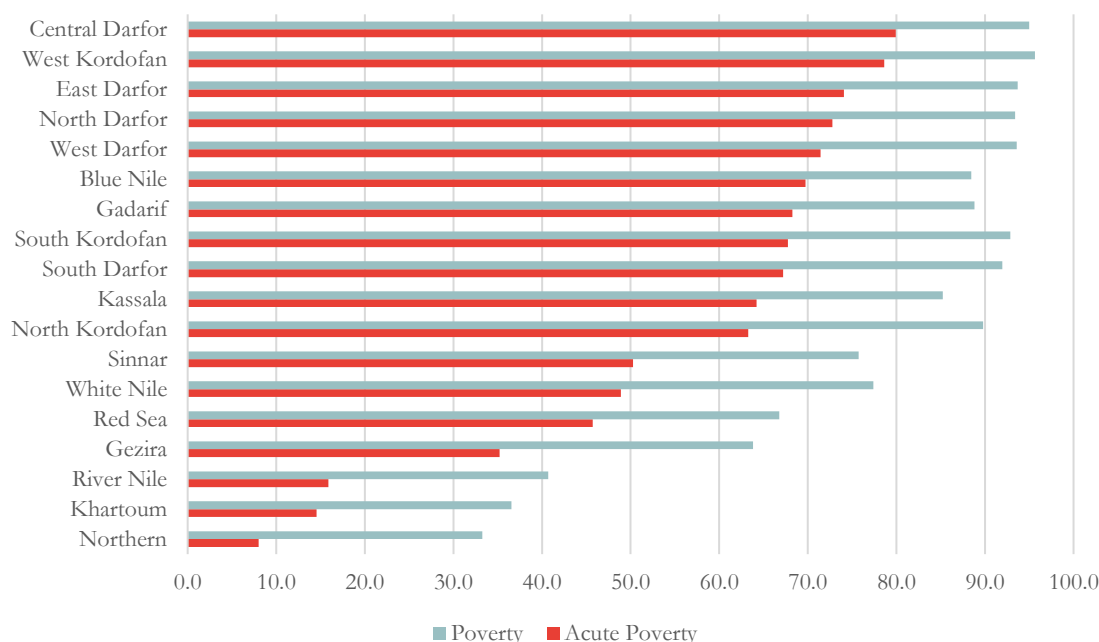
3.3.2. As shown in **Error! Reference source not found.**, the Northern state, the capital city of Khartoum, and the River Nile state have the lowest multidimensional poverty headcount, while the states of Central Darfor, West Kordofan and East, North, and West Darfor have the highest poverty headcount<sup>11</sup>. In these States, acute poverty affects over 70% of the population and poverty affects over 90% of the population. States that have been most affected by conflict, such as Darfor, South

<sup>10</sup> The definition of rural and urban areas follows the national definitions used in the MICS.

<sup>11</sup> The MICS 2014 Survey was designed to provide statistically representative estimates at the national level, in urban and rural areas, and in the 18 states of Sudan (see Central Bureau of Statistics (CBS), UNICEF Sudan, 2016)

Kordofan and the Blue Nile tend to have a higher poverty headcount. Central Darfor is the state with the highest acute poverty headcount among all the states examined in the 10 Arab countries examined in the Arab Multidimensional Poverty Report, and West Kordofan is the third. 9 out of the 15 poorest states within the 10 Arab countries covered are States in Sudan. The areas least affected by acute poverty in Sudan have nonetheless high poverty headcount: the smallest is 33.2% in the Northern state

**Figure 4: Headcount poverty by Sudanese States (%) at Acute Poverty and Poverty**



3.3.3. Table 5 shows the distribution of the national population and of acutely poor and poor people across Sudanese states. The last two columns of the table calculate the ratio of acutely poor and poor people over the total population. States with a ratio above 1 carry a disproportionate share of multidimensionally poor people relative to their share of national population. This is the case, at the bottom of the table, for Central Darfor, West Kordofan and East Darfor States, which have the highest ratios. At the other end of the scale, the Northern State, the capital State of Khartoum and the River Nile State have the lowest ratios. The geographical disparity of poverty across states is considerable, with ratios ranging from a maximum of 1.58 (Central Darfor) to a minimum of 0.16 (Northern State) for acute poverty

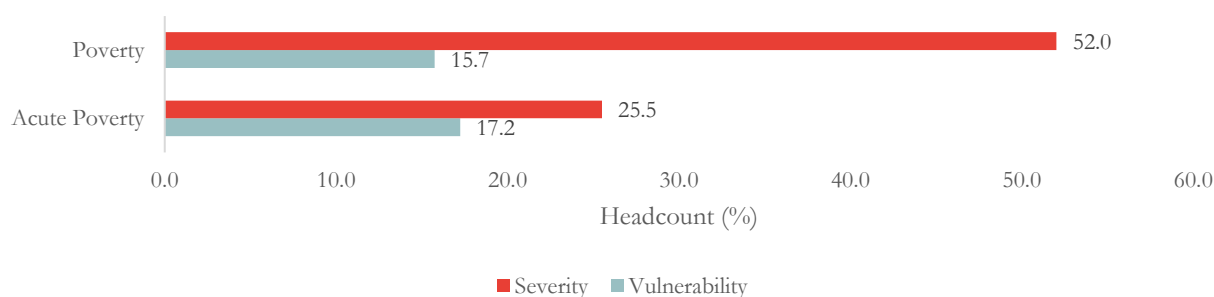
**Table 5: Population and Headcount Poverty Shares at Acute Poverty and Poverty for Sudan states**

|            | Share of survey population (%) (1) | Share of <b>ACUTE POVERTY</b> poor population (%) (2) | Share of <b>POVERTY</b> poor population (%) (3) | 2/1  | 3/1  |
|------------|------------------------------------|-------------------------------------------------------|-------------------------------------------------|------|------|
| Northern   | 2.2                                | 0.3                                                   | 1.0                                             | 0.16 | 0.45 |
| Khartoum   | 14.0                               | 4.0                                                   | 6.9                                             | 0.29 | 0.49 |
| River Nile | 3.8                                | 1.2                                                   | 2.1                                             | 0.31 | 0.55 |
| Gezira     | 16.5                               | 11.4                                                  | 14.2                                            | 0.69 | 0.86 |
| Red Sea    | 2.5                                | 2.3                                                   | 2.3                                             | 0.90 | 0.90 |
| White Nile | 5.1                                | 4.9                                                   | 5.3                                             | 0.96 | 1.04 |

|                |     |      |     |      |      |
|----------------|-----|------|-----|------|------|
| Sinnar         | 3.8 | 3.8  | 3.9 | 0.99 | 1.02 |
| North Kordofan | 6.4 | 8.0  | 7.8 | 1.25 | 1.21 |
| Kassala        | 4.2 | 5.3  | 4.8 | 1.27 | 1.15 |
| South Darfor   | 7.8 | 10.3 | 9.7 | 1.33 | 1.24 |
| South Kordofan | 3.0 | 4.0  | 3.8 | 1.34 | 1.25 |
| Gadarif        | 5.1 | 6.8  | 6.1 | 1.35 | 1.20 |
| Blue Nile      | 4.1 | 5.7  | 4.9 | 1.38 | 1.19 |
| West Darfor    | 3.1 | 4.3  | 3.9 | 1.41 | 1.26 |
| North Darfor   | 7.9 | 11.3 | 9.9 | 1.44 | 1.26 |
| East Darfor    | 3.2 | 4.7  | 4.0 | 1.46 | 1.26 |
| West Kordofan  | 5.8 | 9.0  | 7.5 | 1.55 | 1.29 |
| Central Darfor | 1.7 | 2.6  | 2.1 | 1.58 | 1.28 |

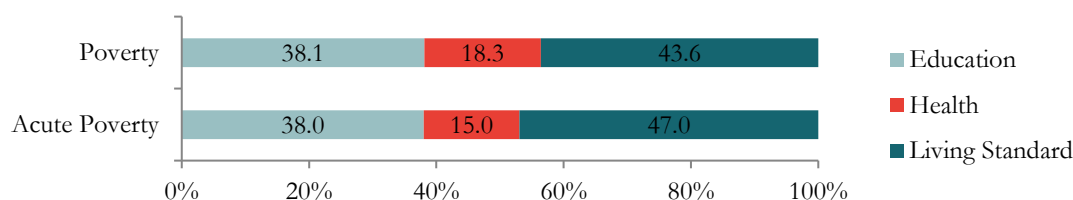
- 3.4. Someone is defined as poor if she or he is living in a household deprived in at least one third of the weighted indicators. Following OPHI's definition, individuals are 'vulnerable to poverty' when they are deprived in 20% – 33.33% of the weighted indicators. Individuals are defined as in 'Severe Poverty' when they are deprived in 50% or more of the weighted indicators.<sup>12</sup> As shown in Figure 5, in Sudan, at acute poverty, 25.5% are severely poor. This implies that, at acute poverty, one quarter of the population suffers from a deprivation level higher than 50% of the total possible deprivation. For poverty, the share of severely poor is more than half (52.0%). 17.2% are vulnerable to falling into acute poverty (experiencing a deprivation level between 20% and 33% of total possible deprivation), while 15.7% are vulnerable to falling into poverty.

**Figure 5: Vulnerable and severely poor population at Acute Poverty and Poverty (%)**



- 3.5. The percentage contribution of each of the three dimensions to the Multidimensional Poverty Index<sup>13</sup> for acute poverty and poverty is a useful summary indicator. As shown in Figure 8, at acute poverty, the living standards dimension contributes nearly half of total deprivation, while at poverty the contribution of the health dimension increases. The contribution of education is similar at both levels.

**Figure 6: Contribution of Dimensions to Acute Poverty and Poverty (%)**

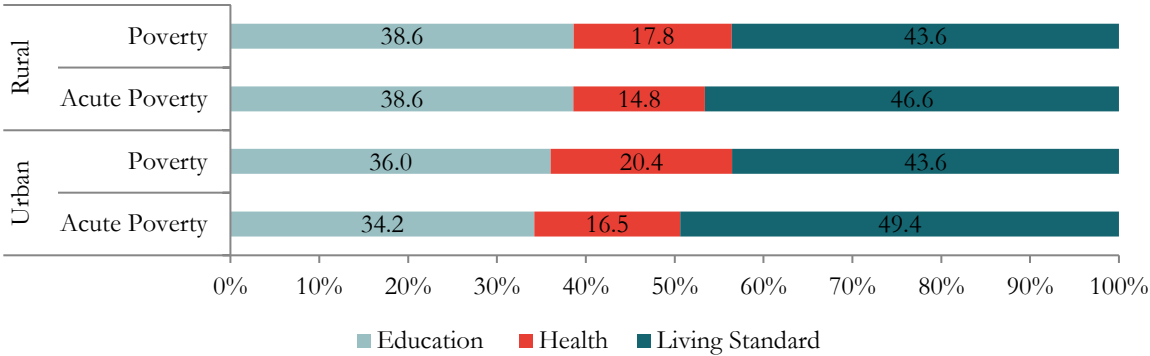


<sup>12</sup> Alkire et al., 2016

<sup>13</sup> Refer to the technical note of the Human Development Report 2014 for a complete explanation of how the percentage contribution of each dimension is calculated.

3.6. As shown in **Error! Reference source not found.**, the contribution of education to poverty does not change between acute poverty and poverty in rural areas, while it changes slightly in urban areas.

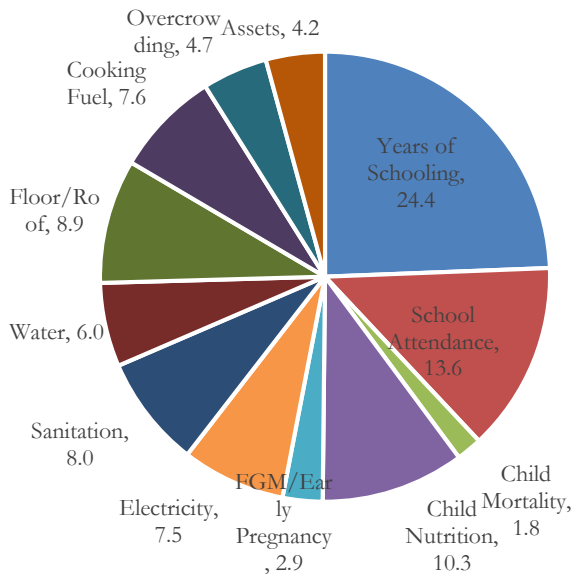
**Figure 7: Contribution of dimensions to acute poverty and poverty by rural and urban areas (%)**



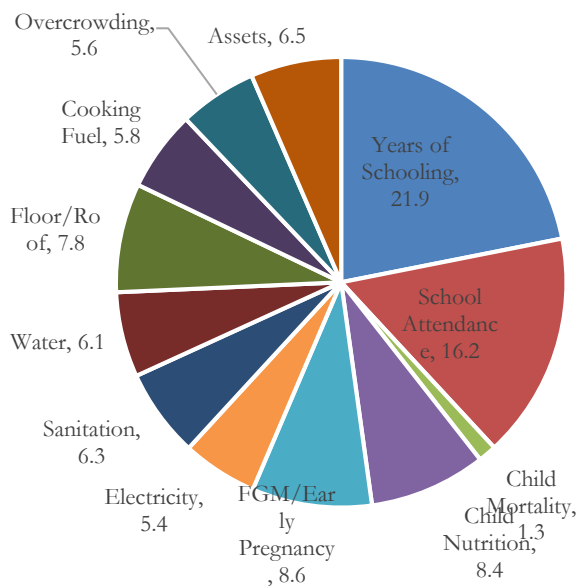
3.7. Figure 8 shows the percentage contribution of each indicator to acute poverty and poverty. Years of education make the highest contribution at both levels, followed by child school attendance. This means that education should be a priority area for poverty-reduction interventions in the country. When looking at poverty, the contribution of years of education is lower, while that of school attendance is higher (relative to their contribution to acute poverty). At acute poverty, the third indicator with the highest contribution to poverty is nutrition, meaning that child stunting and malnourishment are significant issues in Sudan. At poverty, FGM/early pregnancy is the third most significant contributor to deprivation

**Figure 8: Percentage contribution of indicators to acute poverty and poverty**

**Acute Poverty**



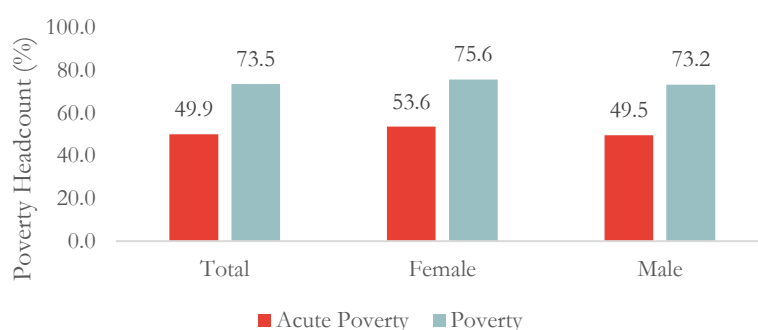
**Poverty**



## 4. Inequality in Deprivation

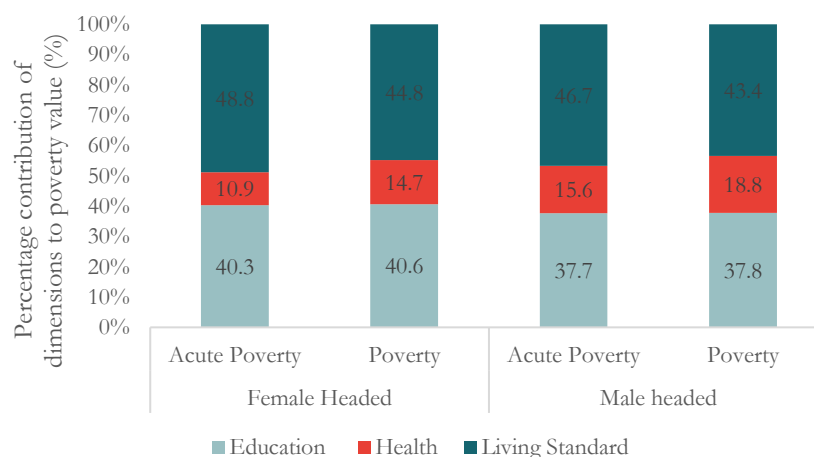
- 4.1. Figure 9 shows the difference in incidence of poverty between male-headed households (MHH) and female-headed households (FHH). In Sudan, FHH have a slightly higher poverty headcount at both levels of poverty, but the difference is relatively small. This is in line with the findings from recent literature on poverty in FHHs and MHHs in Africa. For example, Milazzo and van de Valle (2015) find that the share of FHHs has been growing in Africa (due to changes in marriage behaviour, family formation, health and education) and that this has happened alongside a decrease in aggregate poverty incidence. In most countries in their data, poverty has declined faster for FHHs. The reasons behind this pattern are varied (better education of women, support received from male migrant worker members of the family) and differ across countries. Several money metric poverty assessment reports for Arab countries also confirm this trend.<sup>14</sup>

**Figure 9: Poverty headcount by gender of household head (%)**



- 4.2. Figure 10 shows the contribution of each dimension to the overall MPI by gender of the household head. In Sudan, education has a higher contribution to poverty in FHHs than in MHHs, but the health dimension has a lower contribution in FHHs. FHHs are also relatively more deprived in living standards.

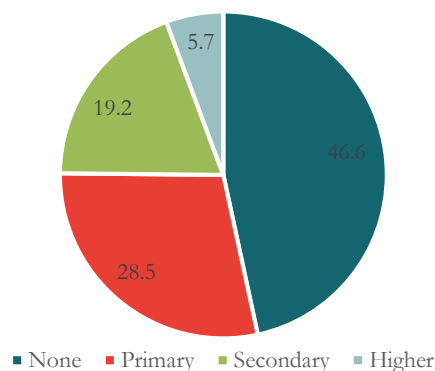
**Figure 10: Contribution of each dimension to acute poverty and poverty by gender of the household head (%)**



<sup>14</sup> See for example, El Laithy and Abu-Ismael (2008;2007 and 2005)

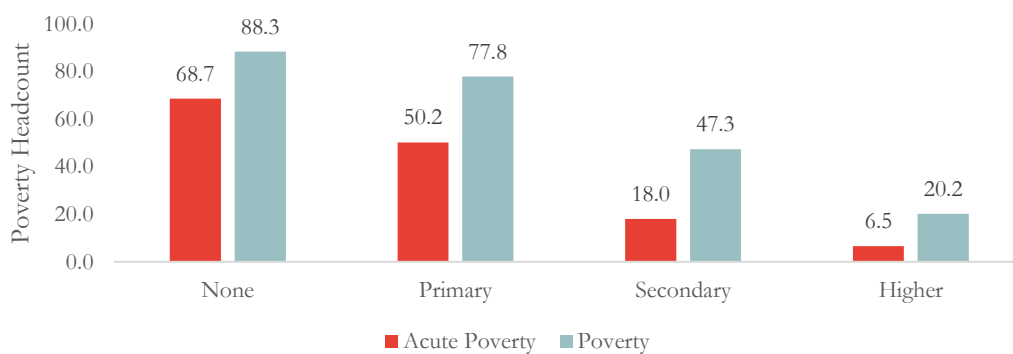
- 4.3. Figure 11 shows the distribution of households by education of the head of household in Sudan. In 46.6% of HHs in Sudan, the head of household has not received any formal education. Overall, only 24.9% of households in Sudan have a head with more than primary education.

**Figure 11: Education level of household head (% of total population)**



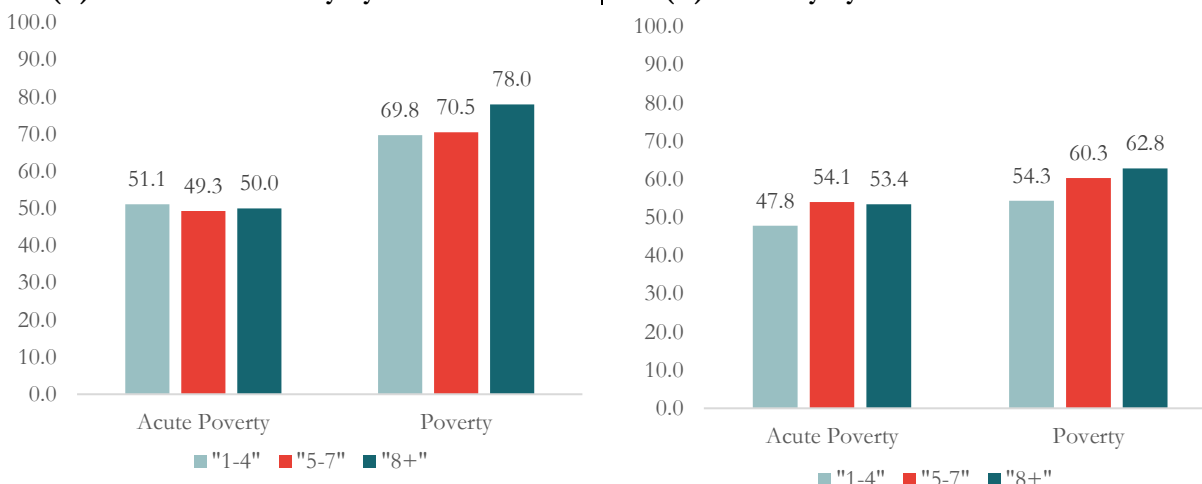
- 4.4. As shown in Figure 12, multidimensional poverty headcount decreases largely as the education of the head of household increases, in particular for acute poverty. While 68.7% of people in a household whose head has no education are acutely poor, only 18% of people in a household whose head has secondary education are, and only 6.5% in a house where the head has higher than secondary education are acutely poor. Though lower, the trend is the same for poverty. The same trend (poverty dropping as education increases) goes for the intensity of poverty. While the poverty and acute poverty headcount drops when comparing household where the head has no education to those where the head has primary education, the drop is larger when comparing households where the head has secondary education.

**Figure 12: Headcount acute poverty and poverty by education of household head (%)**



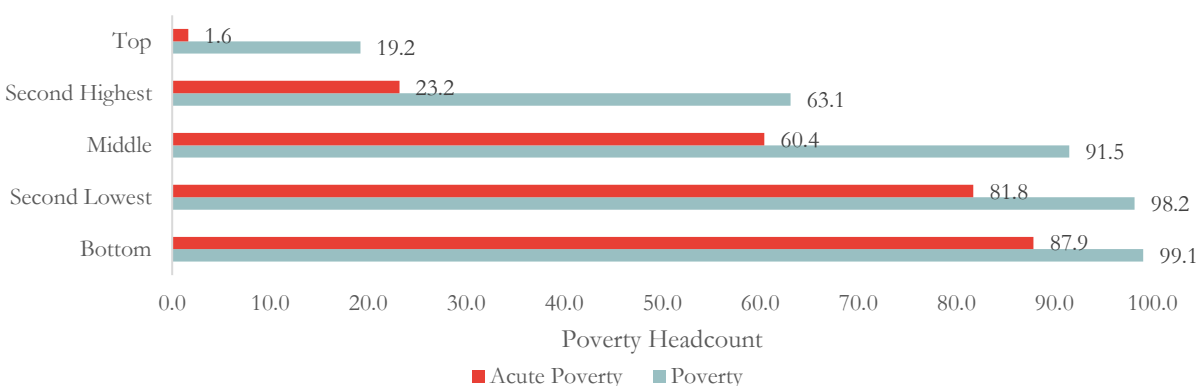
- 4.5. As shown in Figure 13, large households (with more than 8 members) are only slightly more likely to be poor than smaller ones, but they are not more likely to be acutely poor.

**Figure 13: Headcount poverty (A) and intensity (B) for acute poverty and poverty by household size**  
**(A) Headcount Poverty by Household Size | (B) Intensity by Household Size**



- 4.6. The MICS survey also provides information about the Wealth Index (WI) of each household, which is an indicator of the economic wellbeing and living standards of a household. The WI measures the household's ownership of assets and the housing characteristics. As shown in Figure 14, this information allows us to map the incidence of poverty across the different wealth quintiles. The numbers illustrate the depth of inequality in Sudan: while it is expected for multidimensional poverty to have a different incidence in the highest (richest) and lowest (poorest) wealth quintiles of the population due to the overlap between the WI and some indicators of multidimensional poverty (in the living standards dimension), the ratio between the top and bottom quintiles is staggering. Houses in the bottom quintile are over 5 times more likely to be poor, and almost 55 times more likely to be acutely poor than those in the top quintile. This result illustrates that, for poverty, inequality across the WI quintiles is high but is lower than that for acute poverty.

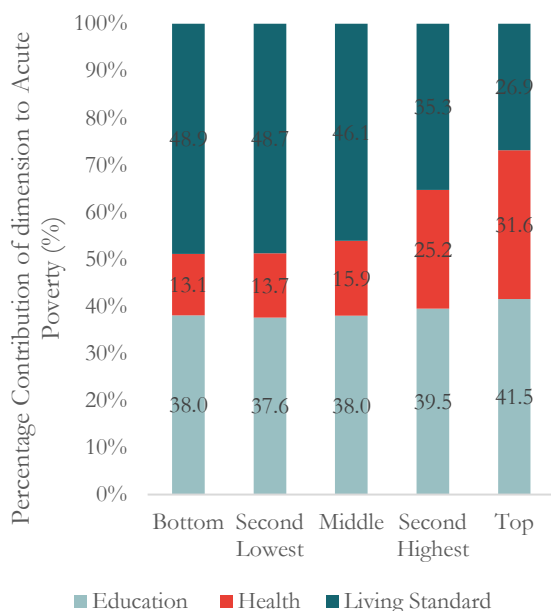
**Figure 14: Headcount poverty (%) by wealth quintiles**



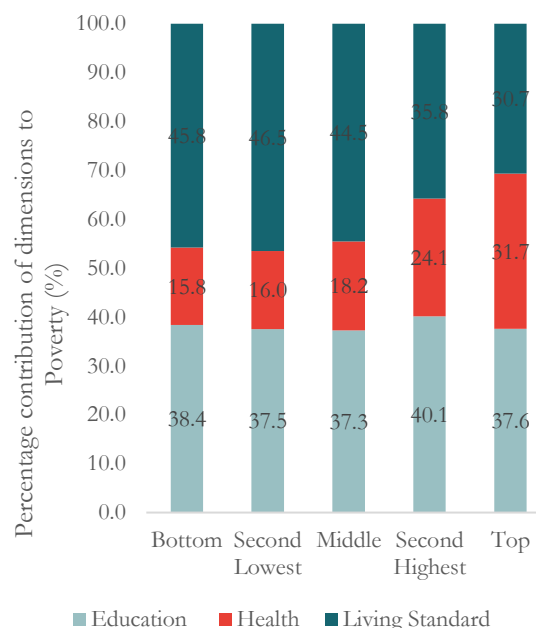
- 4.7. As shown in **Error! Reference source not found.**, the contribution of living standards to overall deprivation declines as the wealth of the household increases. This is expected as the WI overlaps with the some of the indicators of the living standards dimension (for example assets ownership). As the contribution of living standards goes down with wealth, it is interesting to look at which dimension, education or health, fills the gap more. In Sudan, the contribution of health to poverty increases with wealth. This is especially the case for acute poverty. The contribution of education to poverty also increases with wealth, but the increase is smaller than that of health.

**Figure 15: Contribution of Dimensions to acute poverty and poverty by Wealth Quintiles,**

**Acute Poverty (A)**



**Poverty (B)**



## 5. Policy considerations

- 5.1. In Sudan, an extremely high share of the population suffers from acute poverty or poverty. 49.93% are acutely poverty and 73.49% are poor. The intensity of poverty is high, at 52.68% for acute poverty and 60.41% for poverty. Sudan urgently needs action to reduce poverty, and policies need to be wide-ranging.
- 5.2. People in rural areas of Sudan are 2.5 times more likely to be acutely poor than people in urban areas. This difference is striking, implying that policy-reduction strategies should give special consideration to rural areas.
- 5.3. In Sudan, at acute poverty, 25.51% are severely poor (suffer from a deprivation level higher than 50% of the total possible deprivation). At poverty, 52.03% are severely deprived. These numbers are extremely high and indicate that policies would need to address a level of poverty that is not only widespread across the country, but also severe and encompasses many indicators of deprivation.
- 5.4. The high contribution of schooling and nutrition to multidimensional poverty suggests that any poverty reduction strategy in Sudan should have a strong focus on children and their deprivation, in particular through better education and nutrition.
- 5.5. Policies in Sudan should devote more attention to women's health and take measures to decrease FGM and early pregnancies.

- 5.6. Geographic disparities are sharp in Sudan, with some states exhibiting strikingly higher levels of poverty than the national average. While these geographic differences point to the need for a targeted approach to poverty reduction, it is important to keep in mind that poverty is widespread all over Sudan. In more than half of the Sudanese states, acute poverty affects two thirds or more of the population and poverty affects more than 85% of the overall population in these states. Therefore, while potentially intervening more in areas particularly affected by deprivation, poverty reduction strategies in Sudan need to be inclusive and encompass the vast majority of the population.
- 5.7. Inequality in multidimensional poverty between the highest and lowest wealth quintiles in Sudan is sharp, suggesting an enormous gap in access to resources and services between rich and poor households. While nearly all (99%) of the bottom quintile population is poor, less than one-fifth of the top quintile is.
- 5.8. Given the wide reach and intensity of poverty and inequality in Sudan, development strategies for the country should put poverty reduction at the forefront. In order to address these challenges, the country is likely to require substantial external help from the development community. However, sustained and multiple conflicts undermine opportunities for economic and social development<sup>15</sup>. This is also evident in the fact that the heaviest poverty burden is borne by the states that are most affected by conflict (Darfur, South Kordofan and Blue Nile regions).

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<sup>15</sup> <http://www.worldbank.org/en/country/sudan/overview>

## Appendix

**Table 1: Standard Errors and Confidence Intervals for multidimensional poverty indices using acute poverty definition by urban and rural areas**

|                  |       | <b>Value</b> | <b>Standard error</b> | <b>95% confidence interval</b> |         |
|------------------|-------|--------------|-----------------------|--------------------------------|---------|
| <b>Headcount</b> | Total | 49.9         | 0.2235                | 49.4952                        | 50.3715 |
| <b>Intensity</b> | Total | 52.7         | 0.0785                | 52.5281                        | 52.8359 |
| <b>MPI</b>       | Total | 0.263        | 0.0012                | 0.2607                         | 0.2655  |
| <b>Headcount</b> | Urban | 24.0         | 0.3118                | 23.3570                        | 24.5791 |
| <b>Intensity</b> | Urban | 48.1         | 0.1632                | 47.8107                        | 48.4504 |
| <b>MPI</b>       | Urban | 0.115        | 0.0015                | 0.1123                         | 0.1184  |
| <b>Headcount</b> | Rural | 61.6         | 0.2728                | 61.0612                        | 62.1305 |
| <b>Intensity</b> | Rural | 53.5         | 0.0873                | 53.3064                        | 53.6485 |
| <b>MPI</b>       | Rural | 0.329        | 0.0015                | 0.3264                         | 0.3324  |

**Table 2: Standard Errors and Confidence Intervals for multidimensional poverty indices using poverty definition by urban and rural areas**

|                  |       | <b>Value</b> | <b>Standard error</b> | <b>95% confidence interval</b> |         |
|------------------|-------|--------------|-----------------------|--------------------------------|---------|
| <b>Headcount</b> | Total | 73.5         | 0.2040                | 73.0906                        | 73.8904 |
| <b>Intensity</b> | Total | 60.4         | 0.0764                | 60.2650                        | 60.5643 |
| <b>MPI</b>       | Total | 0.444        | 0.0013                | 0.4414                         | 0.4466  |
| <b>Headcount</b> | Urban | 52.6         | 0.3876                | 51.7918                        | 53.3110 |
| <b>Intensity</b> | Urban | 53.7         | 0.1392                | 53.4299                        | 53.9755 |
| <b>MPI</b>       | Urban | 0.282        | 0.0022                | 0.2780                         | 0.2865  |
| <b>Headcount</b> | Rural | 82.9         | 0.2173                | 82.4849                        | 83.3367 |
| <b>Intensity</b> | Rural | 62.3         | 0.0875                | 62.1572                        | 62.5001 |
| <b>MPI</b>       | Rural | 0.517        | 0.0015                | 0.5138                         | 0.5197  |

**Table 3: Standard Errors and Confidence Intervals for poverty headcount using acute poverty definition by different household characteristics**

|                                        |           | <b>Value</b> | <b>Standard error</b> | <b>95% confidence interval</b> |         |
|----------------------------------------|-----------|--------------|-----------------------|--------------------------------|---------|
| <b>Gender of the Head of Household</b> | Female    | 53.6         | 0.6994                | 52.1880                        | 54.9298 |
|                                        | Male      | 49.5         | 0.2358                | 49.0112                        | 49.9357 |
| <b>Education of the</b>                | None      | 68.7         | 0.2961                | 68.0801                        | 69.2408 |
|                                        | Primary   | 50.2         | 0.4431                | 49.3345                        | 51.0715 |
|                                        | Secondary | 18.0         | 0.3912                | 17.2269                        | 18.7604 |

|                          |         |      |        |         |         |
|--------------------------|---------|------|--------|---------|---------|
| <b>Head of Household</b> | Higher  | 6.5  | 0.4124 | 5.7385  | 7.3551  |
| <b>Household Size</b>    | "1-3"   | 51.1 | 0.5184 | 50.1272 | 52.1594 |
|                          | "4-7"   | 49.3 | 0.3509 | 48.6421 | 50.0176 |
|                          | "8+"    | 50.0 | 0.3493 | 49.3492 | 50.7184 |
| <b>Wealth Quintile</b>   | Poorest | 87.9 | 0.2968 | 87.3107 | 88.4741 |
|                          | Second  | 81.8 | 0.3503 | 81.0666 | 82.4399 |
|                          | Middle  | 60.4 | 0.4652 | 59.5098 | 61.3334 |
|                          | Fourth  | 23.2 | 0.5233 | 22.1688 | 24.2200 |
|                          | Richest | 1.6  | 0.1292 | 1.3839  | 1.8903  |

**Table 4: Standard Errors and Confidence Intervals for poverty headcount using poverty definition by different household characteristics**

|                                           |           | <b>Value</b> | <b>Standard error</b> | <b>95% confidence interval</b> |         |
|-------------------------------------------|-----------|--------------|-----------------------|--------------------------------|---------|
| <b>Gender of the Head of Household</b>    | Female    | 75.6         | 0.6225                | 74.3929                        | 76.8330 |
|                                           | Male      | 73.2         | 0.2159                | 72.7988                        | 73.6452 |
| <b>Education of the Head of Household</b> | None      | 88.3         | 0.2153                | 87.9272                        | 88.7710 |
|                                           | Primary   | 77.8         | 0.3772                | 77.0972                        | 78.5759 |
|                                           | Secondary | 47.3         | 0.5212                | 46.3165                        | 48.3595 |
|                                           | Higher    | 20.2         | 0.6902                | 18.8822                        | 21.5877 |
| <b>Household Size</b>                     | "1-3"     | 69.8         | 0.4920                | 68.8092                        | 70.7377 |
|                                           | "4-7"     | 70.5         | 0.3306                | 69.8579                        | 71.1538 |
|                                           | "8+"      | 78.0         | 0.2992                | 77.4392                        | 78.6120 |
| <b>Wealth Quintile</b>                    | Poorest   | 99.1         | 0.0903                | 98.9142                        | 99.2681 |
|                                           | Second    | 98.2         | 0.1149                | 97.9709                        | 98.4212 |
|                                           | Middle    | 91.5         | 0.2468                | 91.0575                        | 92.0249 |
|                                           | Fourth    | 63.1         | 0.5225                | 62.0710                        | 64.1193 |
|                                           | Richest   | 19.2         | 0.4144                | 18.3902                        | 20.0146 |

**Table 5: Standard Errors and Confidence Interval for uncensored deprivation headcount of MPI indicators using the acute poverty definition**

|                           | <b>Value</b> | <b>Standard error</b> | <b>95% confidence interval</b> |         |
|---------------------------|--------------|-----------------------|--------------------------------|---------|
| <b>Years of Schooling</b> | 42.5         | 0.1660                | 61.0584                        | 61.7090 |
| <b>School attendance</b>  | 22.6         | 0.1694                | 43.9900                        | 44.6539 |
| <b>Child Mortality</b>    | 5.5          | 0.0778                | 5.3640                         | 5.6691  |

|                            |      |        |         |         |
|----------------------------|------|--------|---------|---------|
| <b>Child Nutrition</b>     | 31.5 | 0.1650 | 37.1206 | 37.7674 |
| <b>FGM/Early Pregnancy</b> | 8.3  | 0.1693 | 43.9512 | 44.6151 |
| <b>Electricity</b>         | 52.2 | 0.1703 | 51.9487 | 52.6162 |
| <b>Sanitation</b>          | 66.6 | 0.1608 | 66.2654 | 66.8958 |
| <b>Water</b>               | 44.1 | 0.1657 | 61.4617 | 62.1111 |
| <b>Floor/Roof</b>          | 86.0 | 0.0811 | 93.8175 | 94.1354 |
| <b>Cooking Fuel</b>        | 56.8 | 0.1688 | 56.6161 | 57.2778 |
| <b>Overcrowding</b>        | 39.3 | 0.1649 | 62.3525 | 62.9989 |
| <b>Assets</b>              | 32.0 | 0.1410 | 77.8014 | 78.3543 |

**Table 6: Standard Errors and Confidence Interval for uncensored deprivation headcount of MPI indicators using the poverty definition**

|                            | <b>Value</b> | <b>Standard error</b> | <b>95% confidence interval</b> |          |
|----------------------------|--------------|-----------------------|--------------------------------|----------|
| <b>Years of Schooling</b>  | 61.4         | 0.168                 | 42.1263                        | 42.7854  |
| <b>School attendance</b>   | 44.3         | 0.1423                | 22.3542                        | 22.91214 |
| <b>Child Mortality</b>     | 5.5          | 0.0775                | 5.3379                         | 5.641571 |
| <b>Child Nutrition</b>     | 37.4         | 0.1580                | 31.2013                        | 31.82067 |
| <b>FGM/Early Pregnancy</b> | 44.3         | 0.0939                | 8.1222                         | 8.490189 |
| <b>Electricity</b>         | 52.3         | 0.1699                | 51.8670                        | 52.53301 |
| <b>Sanitation</b>          | 66.6         | 0.1605                | 66.2420                        | 66.87104 |
| <b>Water</b>               | 61.8         | 0.1689                | 43.7429                        | 44.40483 |
| <b>Floor/Roof</b>          | 94.0         | 0.1181                | 85.7414                        | 86.20438 |
| <b>Cooking Fuel</b>        | 56.9         | 0.1685                | 56.4756                        | 57.13608 |
| <b>Overcrowding</b>        | 62.7         | 0.1661                | 38.9371                        | 39.58826 |
| <b>Assets</b>              | 78.1         | 0.1587                | 31.7142                        | 32.33634 |

**Table 7: Standard Errors and Confidence Intervals for poverty headcount using acute poverty definition by State**

|                        | <b>Value</b> | <b>Standard error</b> | <b>95% confidence interval</b> |         |
|------------------------|--------------|-----------------------|--------------------------------|---------|
| <b>Northern States</b> | 8.0          | 0.4122                | 7.1900                         | 8.8059  |
| <b>River Nile</b>      | 15.9         | 0.5622                | 14.7756                        | 16.9794 |
| <b>Red Sea</b>         | 45.7         | 0.8932                | 43.9702                        | 47.4717 |
| <b>Kassala</b>         | 64.2         | 0.8165                | 62.6125                        | 65.8130 |
| <b>Gadarif</b>         | 68.3         | 0.7018                | 66.8900                        | 69.6412 |
| <b>Khartoum</b>        | 14.6         | 0.5222                | 13.5413                        | 15.5884 |
| <b>Gezira</b>          | 35.2         | 0.7320                | 33.7909                        | 36.6602 |
| <b>White Nile</b>      | 48.9         | 0.7754                | 47.3897                        | 50.4294 |
| <b>Sinnar</b>          | 50.3         | 0.7486                | 48.7967                        | 51.7314 |
| <b>Blue Nile</b>       | 69.7         | 0.6845                | 68.3914                        | 71.0748 |

|                       |      |        |         |         |
|-----------------------|------|--------|---------|---------|
| <b>North Kordofan</b> | 63.3 | 0.8059 | 61.7067 | 64.8659 |
| <b>South Kordofan</b> | 67.8 | 0.7665 | 66.2493 | 69.2540 |
| <b>West Kordofan</b>  | 78.6 | 0.7451 | 77.1768 | 80.0976 |
| <b>North Darfor</b>   | 72.8 | 0.6806 | 71.4635 | 74.1312 |
| <b>West Darfor</b>    | 71.5 | 0.7452 | 69.9990 | 72.9203 |
| <b>South Darfor</b>   | 67.2 | 0.6825 | 65.8835 | 68.5590 |
| <b>Central Darfor</b> | 79.9 | 0.6731 | 78.6210 | 81.2598 |
| <b>East Darfor</b>    | 74.1 | 0.6221 | 72.8735 | 75.3119 |

**Table 8: Standard Errors and Confidence Intervals for poverty headcount using poverty definition by State**

|                        | <b>Value</b> | <b>Standard error</b> | <b>95% confidence interval</b> |         |
|------------------------|--------------|-----------------------|--------------------------------|---------|
| <b>Northern States</b> | 42.8         | 0.3754                | 42.0425                        | 43.5139 |
| <b>River Nile</b>      | 49.2         | 0.4852                | 48.2020                        | 50.1039 |
| <b>Red Sea</b>         | 50.0         | 0.2896                | 49.4256                        | 50.5608 |
| <b>Kassala</b>         | 54.4         | 0.2812                | 53.8026                        | 54.9050 |
| <b>Gadarif</b>         | 54.4         | 0.2390                | 53.9777                        | 54.9147 |
| <b>Khartoum</b>        | 46.0         | 0.3541                | 45.3527                        | 46.7406 |
| <b>Gezira</b>          | 48.2         | 0.2857                | 47.6332                        | 48.7531 |
| <b>White Nile</b>      | 49.8         | 0.2806                | 49.2795                        | 50.3796 |
| <b>Sinnar</b>          | 51.7         | 0.2618                | 51.2113                        | 52.2376 |
| <b>Blue Nile</b>       | 51.6         | 0.1957                | 51.2024                        | 51.9694 |
| <b>North Kordofan</b>  | 52.0         | 0.2489                | 51.4689                        | 52.4446 |
| <b>South Kordofan</b>  | 57.1         | 0.3472                | 56.3852                        | 57.7464 |
| <b>West Kordofan</b>   | 55.4         | 0.3202                | 54.8138                        | 56.0689 |
| <b>North Darfor</b>    | 51.9         | 0.2595                | 51.4384                        | 52.4556 |
| <b>West Darfor</b>     | 56.4         | 0.2468                | 55.9327                        | 56.9001 |
| <b>South Darfor</b>    | 55.2         | 0.2720                | 54.6294                        | 55.6955 |
| <b>Central Darfor</b>  | 55.9         | 0.2540                | 55.3575                        | 56.3531 |
| <b>East Darfor</b>     | 57.2         | 0.2474                | 56.7260                        | 57.6958 |

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