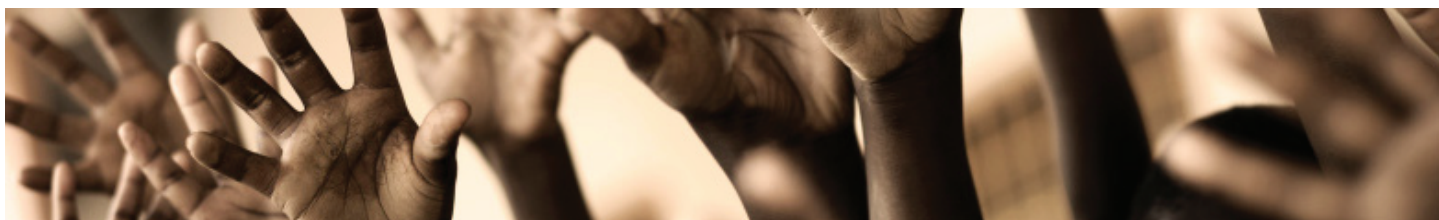


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Situation Analysis of  
**Child Poverty and Deprivation**  
in Uganda

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**Working Paper**

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## FOREWORD

With 57% of our population below the age of 18, Uganda is a young country and there is no doubting that our future lies with our children. In 2040, when our national Vision is to be a middle income country, children being born now will be the productive engine of our economy.

The Child Poverty Reports look in detail at how our children are progressing, and places the issue of Child Poverty at the front and centre of the agenda. It makes the case that where children experience poverty, they will not be able to unleash their potential for themselves, their communities and our country as a whole.

First, and most importantly, the Report shows that for children poverty is about more than just income: it is about growing up with good healthcare, and education, a strong family and community environment. So while the data shows us that household income poverty is dropping substantially in the country, the question remains how are our children fairing?

The Child Poverty Reports look in depth at this question. Asking our children themselves directly about their experiences of poverty as well as developing an indicator – based on the Convention on the Rights of the Child – to measure Child Poverty in Uganda. The results show that over half of our young children (55%) live in multidimensional poverty, and are deprived in at least two crucial areas of their rights, and around 1 in 4 (24%) live in extreme poverty.

As well as focussing on the challenges faced, the reports look towards the solutions. One important conclusion is that the issues and measurement of Child Poverty should be included as a national target, including in the National Development Plans. In the most developed countries in the world Child Poverty is a government target and is an explicit part of the national policy discussion. In Uganda as we work towards Vision 2040 and middle income status we have an opportunity to follow suit.

We hope you find the Reports useful in your work as we work together towards the fulfilment of the rights of Uganda's most precious resource – our children.



**Mary Karoro Okurut**

Minister of Gender, Labour and Social Development

## **EXECUTIVE SUMMARY**

Poverty is different for children than for adults. This becomes very clear when we listen to children themselves talking about their experiences of poverty, as they do in the companion piece to this report, “The Voices of Children.” In their own way, children have the ability to cut right to the very core of the crucial problems they face, from worrying how a lack of education will erode their futures, to seeing poor health taking their families livelihoods; of how the hunger they face can be devastating, or their how their experience of violence evaporates hope. Using traditional income poverty measures will not adequately capture these experiences of childhood.

The importance of effectively measuring child poverty is underlined by the fact that its impacts are particularly devastating; for children, poverty can last a lifetime. The impacts of poor nutrition, a missed education or poor child health cannot be easily remedied and will change a child’s life chances forever. Further, where child poverty is widespread it can impact on all of society and the economy. As Uganda looks towards middle income status in Vision 2040, ensuring a strong start for Uganda’s children will lay an essential foundation.

Despite the pressing importance of child poverty, there was previously no single measure that captures the poverty children experience in Uganda. Without such a measure policy makers are left either to consider children isolated within separate sectors or use inadequate measures of adult income poverty. Both approaches miss the holistic experience of childhood, and the impacts of child poverty which can be so pernicious. The conceptualization of poverty in terms of children is even more important for Uganda given that about 57% of the total population is under the age of 18, suggesting that development policy should be heavily focused on children.

It is for these reasons that the Ministry of Gender, Labour and Social Development, supported by UNICEF, commissioned the Economic Policy Research Centre to undertake this analysis. In preparing this report, the research team has adapted an internationally recognised approach to child poverty based on the Convention on the Rights of the Child to the Ugandan context. The methodology is designed to be updated on a regular basis, as new nationally representative data become available.

The objectives of this report are to: (i) develop a set of comprehensive indicators to measure child poverty and disparities in Uganda using an adapted and modified Bristol deprivation approach; (ii) investigate the key determinants of child wellbeing in Uganda; (iii) analyse the policy frameworks associated with the major child indicators to identify gaps and opportunities for policy advocacy; and (iv) draw policy recommendations for addressing child poverty in Uganda.

## **METHODOLOGY**

Traditional analyses of poverty have concentrated on monetary approaches, focusing on either incomes or expenditure. However, it is recognized that children experience poverty as an environment that is damaging to their mental, physical, emotional and spiritual development. This makes it particularly

important to expand the definition of child poverty beyond traditional household income- or consumption-oriented approaches. This study adapts the Bristol multidimensional approach to measuring child deprivation to the Ugandan context. These dimensions are: (i) Nutrition; (ii) Water; (iii) Sanitation; (iv) Health; (v) Shelter; (vi) Education; and (vii) Information. **Child poverty is defined as children deprived in 2 or more of these dimensions, and extreme child poverty as children extremely deprived in two or more dimensions.** The full indicators to capture child poverty and extreme child poverty can be found in Box 1 of the report. The study also features a complete analysis of child monetary poverty and its comparison with the results from the adapted Bristol approach.

Most of the analysis is based on calculations performed by the authors using five household survey data sets: Three Uganda demographic and health surveys (UDHS, 2000, 2006 and 2011) and two Uganda national household surveys (UNHS, 2005/06 and 2009/10). The multidimensional analysis only uses the UDHS because the UNHS does not collect data on several dimensions. References to existing studies are included to complete the picture and put the results into context. The analysis is presented at the national level and then broken down along various socio-economic grounds: regions and location (rural vs. urban); sex; age; relationship to the household head (identified by the household) and orphan status of the child; sex and education of the household head; wealth and household size.

## MAJOR FINDINGS

**55% of children 0-4 in Uganda live in child poverty.** This means they are deprived in two or more of the dimensions identified as vital to their lives. 24% of children 0-4 can be characterised as living in extreme poverty, experiencing extreme deprivation in two or more areas. Child poverty rates for 0-4 year olds are highest in West Nile and Karamoja where 68% are in poverty. The lowest rates are in the South West, although there 41% of 0-4 year olds remain in child poverty. Even in Kampala, where rates are lowest, around 1 in 5 children experience child poverty.

**38% of children aged 6-17 in Uganda live in poverty. Extreme poverty for this age group is 18%.** Regional patterns are similar for this cohort, although deprivation is by far the highest in Karamoja where 82% of children are deprived in two or more dimensions. Deprivation is lowest in the Western and South Western regions.

The most common forms of extreme deprivation among children are in terms of information (lack of radio, television and mobile phone: 20%), shelter (overcrowding: 17%), nutrition (stunting, wasting or underweight for 0-4 year olds only: 15%), health (a composite of DPT3 vaccination and unattended birth rates: 15%; 0-4 year olds only), and education (children who have never attended school: 15%; 6-17 year olds only). Extreme deprivation in access to sanitation (unimproved toilet) or water (more than 60-minute return trip to unimproved water source) affects about 12% of children nationwide. Figures broken down by regions show a large degree of heterogeneity across the country with the highest

deprivation rates in the North and East with the exception of health and access to safe water. Significant improvements are noted in rates of multiple extreme deprivations and in each of the dimensions between 2000 and 2011.

**More than 28% of children lived in monetary poverty in 2009.** This is lower than national child poverty rates for 0-4 year olds of 54%, but higher than extreme poverty rates of 23.8%. It is also less than the percentage of children who are deprived in terms of nutrition (38%), shelter (32%), information (32%) and sanitation (29%). The socio-economic profile of monetary poverty in 2009 also closely tracks the socio-economic profile of multiple deprivations outlined above: highest for children in the North, rural areas, primary school age and orphans. However, whereas rates of multiple deprivations have no clear relationship with household size, monetary poverty increases dramatically. It is noteworthy that monetary poverty increased in the West between 2006 and 2009, whereas it fell in all other regions. Inequality remained relatively constant.

**Malnutrition is widespread in Uganda.** Rates of malnutrition vary from 5 to 33% in 2011 depending on the indicator – stunting (height-for-age), underweight (weight-for-age) or wasting (weight-for-height). Extreme malnutrition rates vary from 2 to 14%. While there were substantial reductions in stunting and underweight rates between 2000 and 2011, wasting rates stagnated indicating that weight gains (short-term) are lagging behind height gains (long-term). Malnutrition is most acute in the Western and Northern regions. While urban children are still less likely to suffer from stunting or being underweight in 2011, no clear difference appears in terms of wasting. Mother's education and household wealth are shown to have strong positive impacts on child nutrition.

**Over the past 10 years, there has been a substantial reduction in the proportion of children deprived in terms of access to water.** In 2000, at least 39% of children were deprived of access to safe water and the rate had reduced to 30% by 2011. This finding is consistent with a general decline in poverty and deprivation in Uganda over the decade. The Western region, followed by Central region, has the largest proportion of children deprived of a source of improved water in all survey years (46% and 38%, respectively, in 2011), statistics that are two to three times that of Eastern region (14% in 2011). Indeed, the Eastern region has shown the greatest improvement, with a deprivation rate that was cut by more than one half (from 32% to 14%) between 2000 and 2011. The 20 percentage point reduction in Northern Uganda was the greatest absolute reduction, whereas it only fell by 5 percentage points in Western region. Children in rural areas are about three times more likely to lack access to improved water sources than their urban counterparts in 2011. Overall, the water deprivation rates have been cut by one quarter in rural areas and by about 10 per cent in urban areas since 2000.

While the share of children with access to an improved water source fell from 39 to 30.5%, the share of children living more than 30 and 60 minutes (return) from the nearest source of water has remained close to 60 and 36%, respectively. Distances to the nearest source of water are greatest in the North (73% requiring more than 30 minutes) and rural Uganda (66% requiring more than 30 minutes).

**More than one in ten children, almost all located in rural areas, lack access to any toilet, down from 14.6% in 2000.** Nearly one third (29%) use an unimproved toilet (generally uncovered pit latrines) and over 40% use either an unimproved or shared toilet. There are substantial disparities in sanitation deprivation in Uganda. For instance, the proportion of children with no toilet in the North is more than seven times that of the Central region, with Eastern Uganda roughly in the middle. The poorest quintile is by far the most affected (e.g. 36% without any toilet).

**The utilization of health services by infants has improved over time** with the proportion of children not immunized reducing and the proportion using bed nets increasing substantially. The proportion of children under the age of five who were never immunized fell from 17.2% in 2000 to 9.2% in 2011. A remarkable result is the dramatic improvements in health indicators (vaccination rates, medical treatment, and use of bed nets) in the North during this period, catapulting it ahead of all other regions. Mother's education and wealth improve all health indicators. Recent figures indicate that the proportion without bed nets reduced further to 23% by 2011.

**Child immunization programmes are among the key child health interventions to be affected by inadequate health funding.** Over the past 5 years, Uganda has registered a decline in immunization coverage rates. The proportion of children who received the DPT 3/Pentavalent vaccine declined from 89% in 2004/5 to 76% by 2009/10. Inadequate funding for the expanded programme on immunization (EPI) and the lack of child health cards are highlighted as some of the reasons for the decline in overall immunization coverage rates. The share of the Ministry of Health budget allocated to immunization programs declined from 7.7% in 2006/7 to 3.6% by 2009/10.

**Infant and child mortality rates have dramatically improved in the last five years, but infant feeding practices and the maternal mortality rate remain a concern.** The infant and child mortality rates have dramatically improved (55 deaths per 1000 for infants; and 84 deaths per 1000 for children under-five in 2011). These rates are below the sub-Saharan African (SSA) averages of 69 and 109, respectively, in 2011 (UNICEF, 2013). In contrast, at 395 per 100,000 live births in 2011, the maternal mortality ratio is below the SSA average of 500 for 2010 (UNICEF, 2013).

Delivery conditions are better than average for SSA in Uganda, with only 4% lacking prenatal care (24% in SSA) and 41% of births unattended (54% in SSA), despite the fact that 42% of children are born at home. Conditions are worst in the West and rural areas (rates three times those of urban areas). Half of Ugandan children are breastfed less than two years and, counter to WHO recommendations, more than half received other sources of food in their first three days of life. Infant feeding practices are worst in the Centre, but there is no substantial rural-urban divide. Mother's education, wealth and household size greatly reduce child mortality and improve delivery conditions, but have a negative impact on breastfeeding.

**A significant population of children in Uganda are currently suffering from HIV/AIDS and many others are HIV/AIDS orphans.** The virus is partly responsible for the roughly 2.5% of Ugandan children (approximately 500,000) who have lost both parents. The figure shows HIV/AIDS

prevalence among infants and youth in 2011. Nationally, 0.7% of children under the age of five are infected with HIV and the prevalence is highest in the relatively better off subregions of Central 1 (1.3%) and South Western (1.2%). Of youth aged 15-24, 3.7% were infected with HIV in 2011 up from 2.9% in 2005; infection rates among female youths (4.9%) were more than double that of male youths (2.1%).

**Uganda maintains a very large population of parentless children.** At least 2.3 million children (12.7% of children under the age of 18) have lost at least one parent. Orphanhood rates increase with age and children are more than two times more likely to report having lost a father than a mother at any given age. About 2.5% of children (an estimated 500,000 children) have lost both parents and these deaths can partly be attributed to HIV/AIDS. Orphan status is significantly higher in Northern Uganda (at least 16.8% of children in the region have lost a parent) than in the rest of the country. The gaps in orphan rates between Northern Uganda and rest of the country begin at the age of 4 and the gap is maintained up to the age of 14. This suggests that children in Northern Uganda whose date of birth lies between 1995/96 and 2005/06 consistently show higher orphan rates than the rest of the country. The above period coincides with the intensification of the Northern Uganda conflict and it is reasonable to assume that some parents lost their lives during the civil war.

**The proportion of children aged 6-17 who never attended school has remained more or less the same at 15% since 2000.** In rural areas, 16.4% of the children were deprived of education in 2000 compared to 12.5% of urban children. The proportion of deprived children in rural and urban areas respectively fell to 15.7% and 11.3% in 2011. The Northern region had the largest proportion of deprived children in all survey years followed by the Central region, while the Eastern region had the lowest proportion. Orphans are, however, less likely to be education-deprived than children with living parents. The results further show that boys are more likely to be behind in school than girls and that children from male-headed households have a higher risk of dropping out of school than their counterparts from female-headed households.

**There is currently no comprehensive child protection policy in Uganda,** but the country has a number of laws that safeguard child rights. Furthermore, although Uganda has ratified a number of international conventions relating to child protection, enforcement of the numerous conventions and policies is very weak. One of the hallmarks of a good child protection system is the ability to accurately verify a child's date of birth. Although Uganda has a number of laws that make it mandatory for a child to be registered at birth, the implementation of birth registration laws has been lukewarm, in part due to the costs of acquiring registration certificates. At the same time, Uganda has initiated programmes such as social cash transfer schemes where birth certificates are a major input into the means testing process.

**A large number of children in Uganda remain victims of crime.** Although the number of reported cases of juveniles being suspects in crime is on a downward trend, an increasing number of children are victims of crime. Based on the Uganda Police crime statistics, an increasing share of juveniles are

suspects in defilement cases. Defilement remains an immense risk to the safety of children in Uganda, accounting for over 7% of the annual crimes reported in Uganda.

**Nationwide, according to the Ministry of Gender, Labour and Social Development's Adolescent Girls Index (AGI), 20.6% of adolescent girls experience extreme vulnerability, with the highest rates in Karamoja where more than one in two girls are vulnerable.** 24% of Ugandan girls had experienced a pregnancy, 30% had married and 50.5% had engaged in sexual intercourse before 18 years of age. These rates have nonetheless fallen since 2000 by roughly ten percentage points.

Regionally Uganda falls in the middle of the ranking using the AGI when compared to fellow members of the East African Community. Uganda performs significantly better than Burundi and Tanzania where 33.5% of and 28.6% of adolescent girls are vulnerable respectively, but significantly worse than Rwanda, where 8.5% are vulnerable and Kenya where vulnerability is at 12% (MoGLSD, 2013).

## Key recommendations

Detailed sectoral recommendations are available at the end of the report. The four key overarching areas of recommendation are:

### 1. Including children in national plans

The key to ensuring the child's place in national development policy lies with including children's issues, and the measure of child poverty in particular, in key national plans and guiding documents. The next National Development Plan (NDP II) will outline the government's vision and priorities for development. Giving children a prominent place in the document should pave the way for addressing the structural causes of child poverty and the multiple deprivations they face. The next development plan should include a measure of children's deprivation by regions, geographic areas and other socioeconomic characteristics. It should provide an overall policy and programming approach to overcoming these deprivations with measurable targets for improvement. The NDP should also aim to progressively eliminate disparities in access to basic services across the country and within groups to promote equitable chances for children. This approach mainstreams children in national development policy and addresses their well-being in its entirety, rather than in a sectoral way that is often the case.

### 2. Children and the budget process

The national budget is the single most important tool at the disposal of the Ugandan government to fulfil children's rights. It is important to ensure that the rights and needs of children are sufficiently addressed in the budget. Current trends however indicate that the national budget is failing to address child poverty and deprivation. For example, some programmes directly affecting children



under the Ministry of Gender, Labour and Social Development saw sharp reductions of 50 per cent or more in the budget for the fiscal year 2012-13.

Ensuring that the national budget responds to the rights and needs of children requires a budgetary process that is transparent and participatory. It also necessitates an awareness of budgeting for children among governments and the general public, and a clear system to track down public expenditure. Addressing child poverty and deprivation in fiscal policy does not mean creating a separate budget for children, but rather it is about mainstreaming children in every aspect of the budgetary process to achieve their well-being. What is needed is a policy framework that mainstreams children and promotes the awareness of budgeting for them in the fiscal process.

### **3. Child-focussed and friendly laws**

Protecting children is a critical determinant of their well-being. While it is not straightforward to measure deprivations in this aspect, it is important that there is an enabling legal environment that prevents abuse and violence, and a justice system that protects the rights of children in conflict with the law. There has been some progress in this area including having a National Plan for Orphans and Vulnerable Children and concrete approaches to violence against children in 33 districts. However, there are still many challenges that prevent a fully functioning child protection system in Uganda.

The Children Act needs several key amendments that have been pending in Parliament since 2005. The reforms provide a legal foundation to child protection and send a signal of policy makers' commitment to children. The amendments include incorporating the welfare principal and the principle of the best interest of the child into the Act, strengthening the law to curb abuses related to adoption and care and preventing trafficking, protecting the rights of the children in conflict with the law, prohibiting corporal punishment and reinforcing government responsibility towards the protection of child rights.

One law will not address all the challenges to child protection in the country and other key reforms are necessary. These include developing a comprehensive child protection strategy with appropriate budget allocations, improving the ways the justice system deals with children and stopping violence in schools. These reforms and a strengthened Children Act establish an enabling environment that protects children and promotes their rights and well-being.

### **4. Service delivery and addressing disparities**

Children's experiences of poverty and deprivation in Uganda vary widely across regions, geographic locations and within socioeconomic groups. While these require national-level responses, there should be an explicit goal to progressively eliminate disparities in access to basic needs and social services. Strengthened service delivery is critical to addressing the multiple deprivations children face. The interventions however should not only target "low hanging fruit"—those in better-off households or less remote areas—but there should be a clear strategy for reaching the poorest and most vulnerable children.

Districts with the highest numbers of extreme deprivations should be identified as priority districts and costed strategies with targets to reduce these disparities should be drafted. The strategies should come with sufficient resource allocation and progress against targets should be monitored regularly. Credible disaggregated data should also be collected at regular intervals to provide check changes in disparities across the country and within groups over time.

## 1. CONTEXT: CHILD POVERTY AND WHY IT MATTERS

### 1.1. Situating child poverty in relation to adult poverty

Child poverty is the poverty experienced by children and young people during their childhood. Such children and young people grow up without access to economic, social, cultural, physical, environmental and political resources which are vital for their wellbeing. Child poverty means that a child grows up with inadequate means or livelihood, opportunities for development, and family and community structures to nurture and protect them. It also leaves them without opportunities for a voice in society (Marshall 2003).

Although many of the causes and manifestations of child poverty are common to poverty experienced by adults, child poverty may have lifelong consequences. There are four main reasons why child poverty matters as much and, in some cases, more than adult poverty: first, childhood is a critical period of physical, intellectual and psychological development in life; second, children are particularly vulnerable to exploitation and abuse and have particular developmental needs and rights; third, individuals within households do not necessarily have equal access to resources, and children may face discrimination in many cases; fourth, children can and do actively contribute to development of the household, community and the nation from an early age, although their current and future contributions may be compromised by poverty.

The importance of child poverty is not always recognized by policy makers. Since child poverty is usually linked to poverty in families and in the community, it is sometimes assumed that policies that improve the livelihoods and wellbeing of poor communities will enable communities and households to meet the needs of children in terms of survival, development and protection, and to guarantee children's rights. This perspective overlooks the potentially differential impact of economic growth and poverty reduction policies *within* the household (Jones et al., 2006). While some policies that are good for adults and households may be good for children, sometimes children (or specific groups of children) need more targeted policies that recognize their needs and rights to survival, protection, development and participation (Marshall 2003).

It is important to conceptualize child poverty appropriately as this determines both the type of policy strategies adopted and the related resource allocations (Marcus et al., 2002). Viewing investment in children as an investment in the development of future human capital allows their needs to be primarily viewed in terms of education and health, and in terms of breaking intergenerational transmission of poverty. Adopting a 'trickle-down' approach implies that manifestations of child poverty are addressed via strategies that target households in the aggregate rather than child poverty in particular (Jones et al., 2006). In the Ugandan policy framework, child poverty is conceptualized in both respects. Some policy interventions use a 'one fits all' approach where child poverty is not addressed separately from broader poverty reduction strategies. In other cases, for instance in health and education, some policy interventions are specific to children.

This report conceptualizes child poverty as distinct from general household poverty. Such a view supports consideration of child welfare interventions together with broader macroeconomic and social sector development policies. This is important because economic development policies may lead to different outcomes for women and men, adults and children. For instance, in the absence of alternative childcare services and measures to reduce the domestic reproductive responsibilities, broader development policies aimed to increase women's labour market opportunities may have a negative impact on childcare for younger children and may impose additional household labour demands on older children. The conceptualization of poverty in terms of children is even more important for Uganda given that about 56% of the total population is composed of children, suggesting that development policy should be focused on children more so than adults. The report also conceptualizes child poverty as a multidimensional phenomenon. Addressing one aspect of childhood poverty without addressing other aspects is likely to be much less effective at lifting children out of poverty.

Focusing on child poverty also has important implications for the intergenerational transmission of poverty because child poverty has significant long-term consequences. Children born in poor households are more likely to become impoverished adults and, in turn, to have poor children. Food poverty (nutritional deficiencies) in children contributes to high rates of disability, illness and death. They also affect the long-term physical growth and development of children, and may lead to high levels of chronic illness and disability in adult life. In addition, high rates of malnutrition jeopardize future economic growth by reducing the intellectual and physical potential of the entire population (Kabubo-Mariara et al., 2009).

## **1.2 Why child poverty matters**

Uganda's very high birth rate and elevated prime-age adult mortality have resulted in an increasing share of children (defined as under the age of 18) in the Ugandan population. The 2002 national census shows that 56% of the Ugandans were children, up from 51% in 1969 (UBoS, 2002). Such a large population of children has implications for both public and private resource allocation. The fact that 23% of the Ugandan population is aged 6-12 implies that the government must accommodate roughly 7.3 million children who require primary schooling at any given time. On the other hand, at the household level, the large population of children implies a heavy burden of dependents, which stretches limited household resources even further. Indeed, based on the 2009/10 Uganda National Household Survey, at least 27% of all children (about 4.8 million in total) live in a household categorized as income poor (UBoS, 2010).<sup>1</sup> This large population of impoverished children also faces other constraints, especially in relation to health and education.

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<sup>1</sup> According to UBoS, an individual is classified as poor if residing in a household whose real private consumption per adult equivalent is below the absolute poverty line for Uganda (Uganda Bureau of Statistics, 2010).

The current National Development Plan (2010-2015) highlights a number of key issues currently faced by children in Uganda. First, a large population of children (2.1 million) are under the care of the elderly (aged 60 years and above) who are generally economically inactive. Second, there are high rates of early child bearing – with at least 24% of teenagers having already initiated child bearing in 2011 (Uganda Bureau of Statistics and ICF International, 2012) – and this has sustained the very high fertility rate.<sup>2</sup> Third, child labour is pervasive across the country, especially among communities that depend heavily on mining activities. According to the 2009/10 Uganda National Household Survey, at least 27% of boys and 24% of girls aged 5-17 years were child labourers (Uganda Bureau of Statistics, 2010). Worse still, children aged 5-11 years old had the highest incidence of child labour – 36% for boys and 32% for girls. Finally, children are among those suffering the most from the effects of HIV/AIDS. Specifically, HIV/AIDS accounts for 500,000 orphans, and children aged 15 years and under account for 12% of the estimated 915,000 persons in Uganda infected with HIV (Government of Uganda, 2010a).

Although the health status of children remains relatively poor, Uganda has made significant progress in reducing childhood illness. For instance, the proportion of children aged 6-59 months who are anaemic fell from 73% in 2006 to 49% by 2011 (Uganda Bureau of Statistics and ICF International, 2012), while the proportion of children under the age of five who sleep under an insecticide-treated net increased from 10% to 43% during the same period (Uganda Bureau of Statistics and IFC Macro, 2012). Children in Uganda nevertheless continue to face a challenging environment. For instance, the 2011 Uganda Demographic and Health Survey (UDHS) shows that the country's infant mortality rate remains high despite a significant decline in the past five years, at 54 deaths per 1000 live births in 2011 (Uganda Bureau of Statistics and ICF International, 2012) – a rate that is about 20% above that of the average rate of less developed countries, which stands at 45 deaths per 1000 live births (Population Reference Bureau, 2012).

### **1.3 Social and economic context**

#### **1.3.1 Population and economic growth**

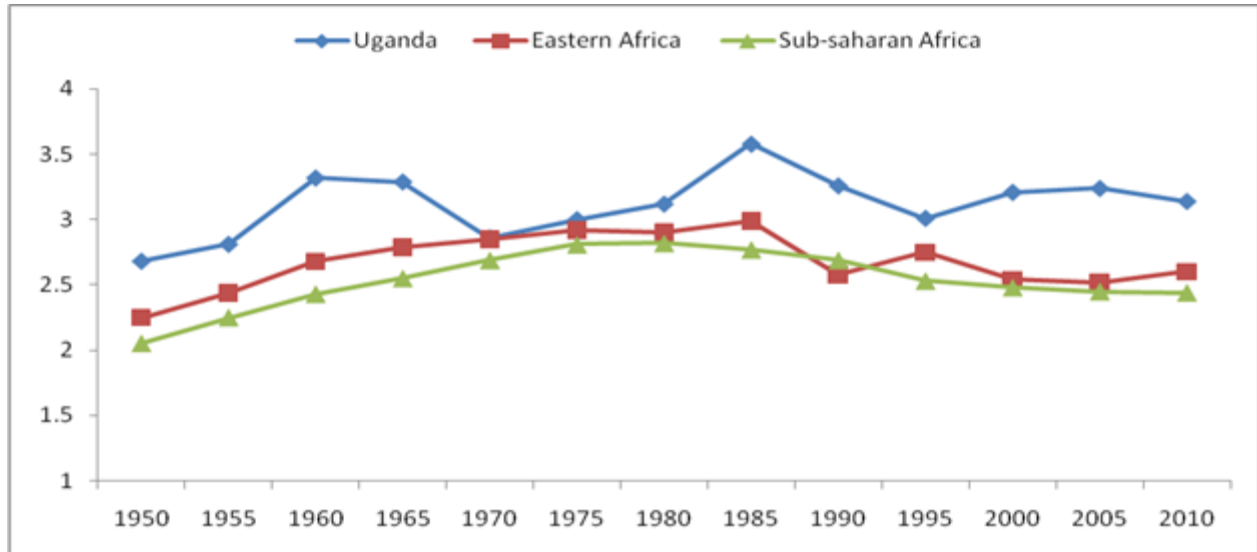
Uganda has one the largest and most rapidly expanding populations in sub-Saharan Africa (SSA). Estimates by the Uganda Bureau of Statistics indicate that Uganda's population was 34.1 million in 2012 – up from 24.2 million in 2002 (MFPED, 2012). Indeed, as shown in Figure 1, Uganda has one of the highest population growth rates in the developing world. Although Uganda's population growth rate peaked at 3.6% in 1985 and started to decline, they remain above both the Eastern Africa and sub-Saharan Africa average growth rates. Based on current growth rates, Uganda's population is projected to reach 60 million by 2030. Uganda's very high population growth rate can be partly explained by the cultural norm of considering having many children as a type of 'social

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<sup>2</sup> However the rates of teenage child bearing show a declining trend – from 43% in 1995 to 31% in 2001 and 25% by 2006 (Uganda Bureau of Statistics and ICF International, 2012).

security net” when caretakers reach old age, and limited use of family planning methods. The 2006 UDHS shows that at least 41% of currently married Ugandans have an unmet need for family planning services. This figure is highest in West Nile (47%) and lowest in Kampala (23%).

**Figure 1: Population growth rate trend, 1950-2010 (%)**

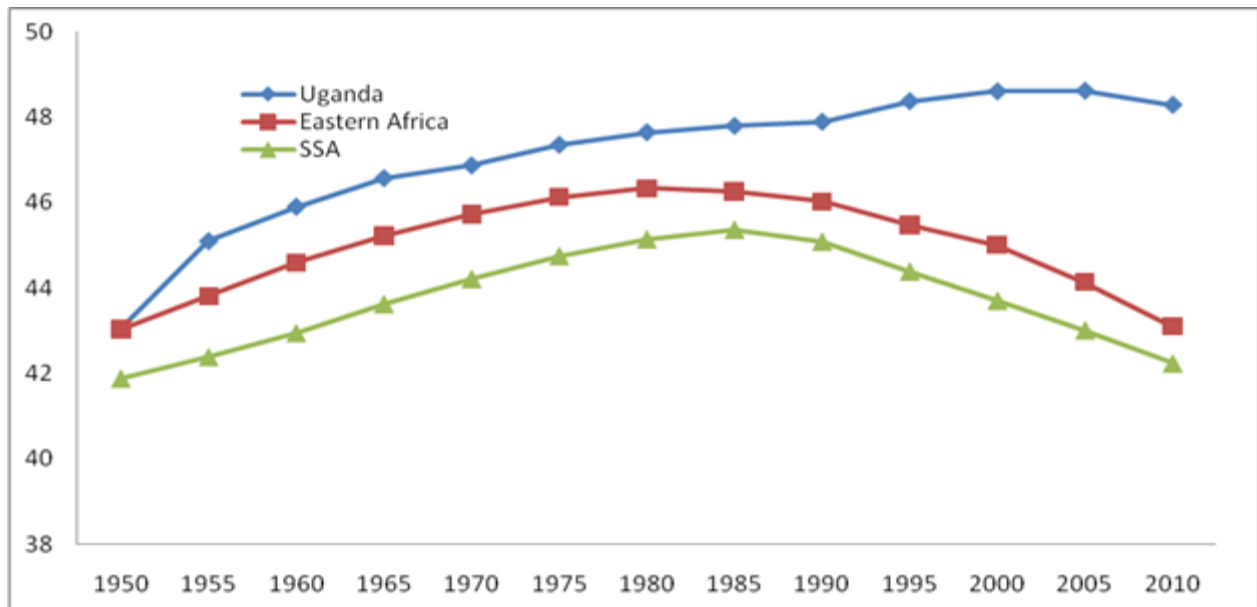


**Source:** United Nations World Population Prospects 2010

The major implication of Uganda’s very high population growth rate is an increasing dependency burden with a related increase in demand for social services, which are not keeping pace with the growth in the population. Figure 2 shows the trends in the share of children aged 0-14 years in the population and indicates that Uganda’s dependency ratio has continued to rise while other African countries registered declines in child dependency ratios after 1985. Efforts to improve the provision of public social services have been hampered by increasing demand from the rapidly rising population. As a result, classrooms in public primary schools remain congested.<sup>3</sup> The current National Development Plan (NDP) recognizes that rapid population growth presents a extreme challenge to future economic growth in Uganda and calls for increased focus on the provision of family planning services to women and girls in rural areas (Government of Uganda, 2010).

<sup>3</sup> Although the stock of classrooms in public primary schools increased by 67% between 2000 and 2008, the pupil classroom ratio only declined by 27% due to the increase in the primary school population (Ministry of Education and Sports, 2008).

**Figure 2: Trends in the proportion of children aged 0-14 years in the total population, 1950-2010 (%)**



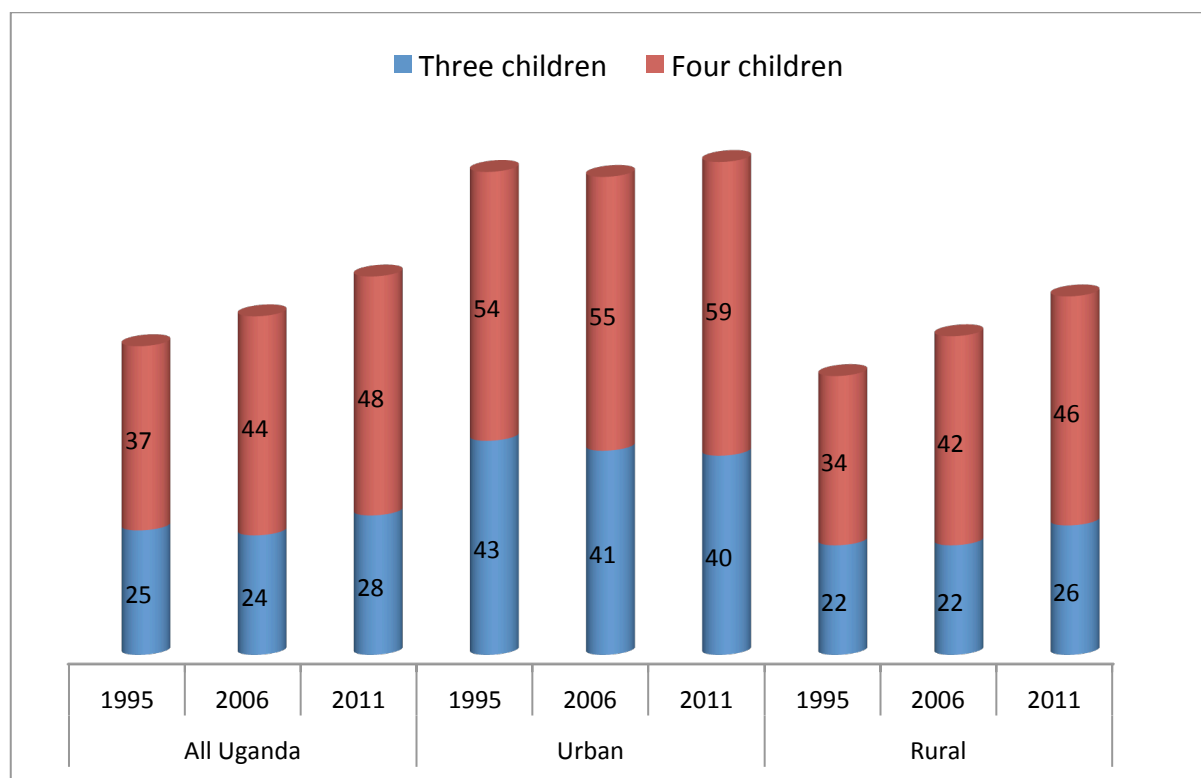
**Source:** United Nations World Population Prospects 2010

### 1.3.2 Fertility in Uganda

According to the 2011 UDHS, a Ugandan woman has an average of 6.2 children delivered alive in her lifetime. Compared to the 2001 UDHS, there have been marginal changes in Uganda’s fertility rates. During the 2001 and 2006 surveys, the total fertility rate was 6.7 children compared to 6.2 in 2011 (Uganda Bureau of Statistics and ICF International Inc, 2012).

Although the average ideal number of children desired by women declined from 6.2 in 1988/89 to 4.8 by 2011 for unmarried women under the age of 25, the desire remains very high among women who are currently married. Figure 3 shows the trend in the percentage of currently married women aged 15-49 years with three or four children who do not want any more children. This figure indicates that, between 1995 and 2011, the share of women with at least four children and who want no more children increased by about 10 percentage points. One of the possible explanations for a sustained high rate of fertility, despite a large share of women reporting no desire for more children, is the issue of unwanted births; that is, children born when the parents desire no more children. In 1998/99, only 4.6% of births were unwanted by women, a proportion that increased to 13.3% by 2006 and decreased marginally to 11.9% by 2011 (Uganda Bureau of Statistics and ICF International Inc., 2012).

**Figure 3: Trends in the Percentage of Married Women with Three or Four Children Who Want No More Children**



Source: UDHS 1995, 2006, and 2011

### 1.3.3 Structure of the economy

Although Uganda has managed to maintain positive economic growth throughout the implementation of PRSP programs, the structure of this growth has not favoured the majority of the population. Between 2002 and 2010, the GDP growth rate averaged 7.2% (MFPED, 2011). However, growth in the agricultural sector (which employs 75% of the active population) averaged 1.6% over the same period, while industry and services grew by an average of 9 and 8%, respectively. The worst performance for agriculture was registered in 2006, when the sector slid by 1.8%, while the industry and services sectors registered growth rates above 6%. The most cited reasons for the poor performance of agriculture include crop diseases and drought conditions (MFPED, 2006). As such, the Ugandan economy has relied heavily on sectors that account for a small share of employment to spur growth while the majority of Ugandans – who are employed in agriculture – have only witnessed marginal changes in their incomes.



## 2 CHILD POVERTY, DEPRIVATION AND DISPARITIES IN UGANDA

### 2.1 Introduction and overview

Traditional measures of poverty have concentrated on the monetary dimension by focusing on either income or expenditure. This approach to identifying and measuring poverty has been challenged by multidisciplinary approaches, including the child deprivation approach (Minujin 2009). It is recognized that children experience poverty as an environment that is damaging to their mental, physical, emotional and spiritual development. Yet, these aspects are rarely distinguished in child poverty analysis (UNICEF, 2005).

The present section begins with a monetary analysis of child poverty, inequality and vulnerability. This is followed by a multidimensional deprivation analysis using the Bristol approach adapted to the Ugandan context. The section concludes with a more in-depth look at each of the non-monetary dimensions of deprivation, complemented by wellbeing indicators that are not covered by the Bristol approach.

Most of the analysis is based on calculations performed by the authors using five household survey data sets: three Uganda demographic and health surveys (UDHS, 2000, 2006, and 2011) and two Uganda national household surveys (UNHS, 2005/06 and 2009/10). The multidimensional analysis only uses the UDHS because the UNHS does not collect data on several dimensions. The monetary analysis uses only the UNHS, as the UDHS does not have income/expenditure data. References to existing studies are included to complete the picture and put the results into context.

The analysis is presented at the national level and then broken down along various socio-economic grounds: regions and location (rural vs. urban); sex, age, relationship to the household head (identified by the household) and orphan status of the child; sex and education of the household head; wealth<sup>4</sup> and household size.

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<sup>4</sup> The wealth index is estimated by factor analysis on household assets: ownership of durable goods such as a radio, television, bicycle, motorcycle, car, refrigerator and telephone. Households are subdivided into quintiles of wealth on the basis of this index.

## 2.2 Monetary poverty and inequality

### 2.2.1 Monetary poverty

Table 1 presents the monetary poverty status of children in Uganda based on the 2006 and 2009 UNHS. Adult rates are also provided at the bottom of the table for reference.<sup>5</sup> The proportion of children living in households with an aggregate consumption below the poverty line<sup>6</sup> was 28.3% in 2009. This is almost five percentage points higher than the rate of poverty among adults (23.4%) in 2009, reflecting the fact that poor households have proportionately more children.

The Northern **region** had the largest proportion of monetarily poor children in 2009 (50.8%), followed by the East (27.4%), whereas the Centre had the lowest proportion (13%). Child headcount indices are also much higher in **rural** Uganda (30.5% vs. 12.4% in urban Uganda) and slightly higher for **boys** (29.6% vs. 27.1% for girls). The child-adult gap is relatively uniform across regions and locations.

Monetary poverty increases dramatically with **household size**, as consumption must be shared between all the members of the household. Differences according to child's **age**, **orphanstatus**, **relationship to head**, as well as the **sex of household head** are not significant. Ssewanyana et al. (2006) also find that households in Northern Uganda that receive orphans are not significantly worse off than households without orphans; the authors attribute this to fact that orphans are more likely to end up in relatively well-to-do households. Results for the poverty gap and poverty severity index, while of much less magnitude, represent a similar profile.

In comparison to 2006, monetary poverty in 2009 fell substantially (from 34.2 to 28.3%). This aggregate change disguises larger reductions in monetary poverty in the North, East and Centre, as well as an **increase** in monetary poverty in the West. Otherwise, the reduction in poverty was relatively evenly distributed according to the various child/household characteristics examined.

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<sup>5</sup> Rates were also calculated for the elderly (aged 60 and over), but did not differ substantially from adult rates.

<sup>6</sup>“The absolute poverty line is calculated as the cost of meeting caloric needs, given the food basket of the poorest half of the population and some allowance for non-food needs” (p.63, Uganda Bureau of Statistics 2010).

**Table 1: Child monetary poverty, by various characteristics (%)**

	2006			2009		
	Headcount	Gap	Severity	Headcount	Gap	Severity
<b>Children</b>						
<b>National</b>	34.2	9.7	4.0	28.3	8.0	3.4
<b>Region</b>						
Central	20.0	4.4	1.6	12.9	3.1	1.0
Eastern	38.9	9.6	3.7	27.4	6.6	2.4
Northern	65.1	23.1	10.4	50.8	17.8	8.7
Western	22.1	5.9	2.3	25.0	6.3	2.3
<b>Location</b>						
Rural	36.7	10.5	4.3	30.5	8.8	3.7
Urban	17.8	4.8	1.9	12.4	2.5	0.8
<b>Sex of child</b>						
Male	34.6	10.0	4.1	29.6	8.2	3.4
Female	33.8	9.5	3.8	27.1	7.9	3.3
<b>Child age group</b>						
Preschool age	36.0	10.1	4.1	27.6	7.8	3.2
Primary school age	34.9	10.0	4.1	29.8	8.6	3.6
Secondary school age	30.3	8.7	3.6	26.8	7.5	3.0
<b>Relationship to household head</b>						
Son/daughter	34.8	10.0	4.1	29.7	8.6	3.7
Other relatives	32.6	9.0	3.7	24.1	6.2	2.5
<b>Parents alive</b>						
Both parents alive	33.8	9.4	3.8	27.8	8.0	3.4
Mother or father deceased	34.9	10.5	4.3	32.6	8.6	3.2
Both parents deceased	33.5	10.5	4.5	32.3	9.7	4.2
<b>Sex of household head</b>						
Male	38.9	12.5	5.5	28.4	8.2	3.5
Female	32.9	9.0	3.6	28.2	7.7	3.1
<b>Household size</b>						
1 or 2 members	8.4	1.8	0.6	7.7	1.4	0.4
3 or 4 members	24.1	6.3	2.4	15.1	3.7	1.4
5 or 6 members	31.4	8.9	3.5	24.3	6.7	2.7
7 or 8 members	34.8	10.2	4.2	33.3	9.9	4.3
9 or more members	37.4	10.5	4.3	30.0	8.4	3.5
<b>Adults</b>						
<b>National</b>	29.5	8.2	3.2	23.4	6.4	2.6
<b>Region</b>						
Central	15.0	3.2	1.1	9.2	2.0	0.7
Eastern	36.0	9.1	3.5	24.7	5.9	2.1
Northern	57.8	19.5	8.5	44.3	14.6	6.8
Western	20.5	5.4	2.0	21.9	5.5	2.0
<b>Location</b>						
Rural	32.7	9.1	3.7	26.2	7.2	2.9
Urban	13.8	3.4	1.2	8.6	1.7	0.6

**Source:** Authors' calculations based on Uganda 2006 and 2009 National Health Surveys.

**Notes:** Headcount: Headcount index; Gap: Poverty Gap; Severity: Poverty Severity Index.

## 2.2.2 Inequality

Table 2 explores monetary inequality among children in 2006 and 2009. The results indicate that inequality for the two periods remained almost the same. Inequality was greatest in the Centre and in urban areas in both years. Inequality is not found to vary substantially with the other child/household characteristics. Results are very similar to national estimates (UBS, 2010; UNHS, 2009/2010 Socio-Economic Module).

**Table 2: Income inequality among children: Gini coefficient (2006-2009)**

	<b>UNHS 2006</b>	<b>UNHS 2009</b>
<b>National</b>	<b>0.39</b>	<b>0.38</b>
<b>Region</b>		
Central	0.39	0.41
Eastern	0.34	0.30
Northern	0.32	0.35
Western	0.34	0.35
<b>Location</b>		
Rural	0.36	0.35
Urban	0.41	0.41
<b>Sex of child</b>		
Male	0.38	0.39
Female	0.39	0.38
<b>Sex of the head of household</b>		
Male	0.38	0.39
Female	0.41	0.41
<b>Child age group</b>		
Preschool age	0.37	0.38
Primary school age	0.39	0.37
Secondary school age	0.42	0.40

**Source:** Authors' calculations based on Uganda 2006 and 2009 National Health Surveys.

## 2.3 Vulnerability

Poverty and inequality are not sufficient to measure risk and insecurity as these are dynamic phenomena. It is thus useful to know the likelihood that individuals identified as poor will escape poverty, or the chances that non-poor individuals will fall into poverty, i.e. their respective vulnerability. In the absence of panel data, regression-based analyses can be used to obtain estimates of vulnerability using cross-sectional surveys. The approach used is based on Chaudhuri (2003) and Chaudhuri et al (2002)<sup>7</sup>. It involves the estimation of an econometric model of household expenditure and its main determinants (material possessions, household composition, region, etc.) and its use to predict expenditures. This makes it possible to distinguish between the chronic poor (observed and predicted to be poor), transient poor (observed to be poor, but predicted

<sup>8</sup>. See Annex 3.

to be non-poor), vulnerable non-poor (observed to be non-poor, but predicted to be poor) and those who are not vulnerable (observed and predicted to be non-poor).

Nationwide, we had seen that the monetary poverty rate was 28.3% in 2009 (Table 1). In Table 3, we see that nearly half (12.8%) of these are chronic poor. We also note that 8.8% of the population is non-poor, but vulnerable to falling into poverty given their characteristics.

**Table 3: Vulnerability among children, 2009**

	<b>Chronic poor</b>	<b>Transient poor</b>	<b>Vulnerable non poor</b>	<b>Non vulnerable non poor</b>
<b>National</b>	12.8	15.5	8.8	62.9
<b>Region</b>				
Central	1.1	11.8	3.3	83.8
Eastern	9.2	18.2	7.4	65.2
Northern	38.5	12.2	19.6	29.6
Western	6.6	18.4	6.5	68.5
<b>Location</b>				
Rural	14.3	16.2	9.6	59.9
Urban	1.9	10.4	2.5	85.1
<b>Sex of child</b>				
Male	12.9	16.7	8.6	61.9
Female	12.8	14.3	9.0	63.9
<b>Child age group</b>				
Preschool age	13.0	14.6	8.8	63.6
Primary school age	13.5	16.3	9.0	61.2
Secondary school age	11.3	15.5	8.4	64.8
<b>Parents alive</b>				
Both parents alive	12.7	15.2	8.5	63.6
Mother or father deceased	14.2	18.3	10.2	57.2
Both parents deceased	16.2	16.1	11.5	56.2
<b>Sex of household head</b>				
Male	13.5	14.9	8.5	63.1
Female	10.9	17.3	9.6	62.2
<b>Household size</b>				
1 or 2 members	0.9	6.7	3.8	88.6
3 or 4 members	3.8	11.3	3.2	81.7
5 or 6 members	8.2	16.0	4.5	71.2
7 or 8 members	12.8	20.5	7.4	59.3
9 or more members	17.8	12.2	13.9	56.1

**Source:** Authors' calculations based on Uganda 2009 National Health Survey.

These rates vary substantially by region. In the North, most of the poor are chronic and a large share of the non-poor is vulnerable. In contrast, in the Centre and East, most of the poor are transient poor and only a small share of the non-poor is vulnerable. Urban areas are also characterized by lower

chronic poverty and lower vulnerability among the non-poor. There are only small differences by age and sex, but children in male-headed households are more likely to be chronically poor. Orphans are also more likely to be chronic or transient poor, especially when both of their parents are deceased. Finally, we earlier observed that monetary poverty rates increase with household size, and we note here that the share of chronically poor – as well as the share of non-poor who are vulnerable – also increases.

When we estimate vulnerability indices based on the age category of the children (not shown), we find minimal differences by various characteristics, e.g. gender of the child, orphan status, sex of the household head and geographical location.

## 2.4 Deprivation Analysis

### 2.4.1 The Bristol Approach

The Bristol approach arose from the realization that, while monetary poverty and deprivation are closely linked, the concept of deprivations integrates conditions experienced by the poor that are independent of income (Gordon et al., 2003a, 2003b). The Bristol approach permits deprivation to be measured within an internationally agreed upon framework of children's rights by using a definition that was agreed to by 117 governments at the World Summit for Social Development held in Copenhagen (UN, 1995). The approach defines thresholds for extreme deprivation that conform to internationally agreed standards and conventions. These are deprivations that are highly likely to have serious adverse consequences for the health, wellbeing and development of children. The Bristol indicators cover seven types of deprivation and define children as living in poverty when they face two or more types of extreme deprivation. The dimensions are: nutrition, health, water, sanitation, shelter, education and information. The definition of deprivation in each dimension is provided below, along with the basis for the adaptations to the Ugandan context.

**Nutrition:** Children aged 0-4 years who are stunted, wasted **or** underweight by two standard deviations – relative to the median of the WHO's international reference population by age and sex – are considered to be faced with a deprivation in nutrition. Extreme nutritional deprivation refers to children who are stunted, wasted **or** underweight by three standard deviations.

**Health:** Initially, we considered a variety of child health indicators including a child suffering from diarrhoea who did not receive treatment. Unfortunately, the "diarrhoea without treatment" indicator applies to only a subsample of the children, aged 0-4 years, who suffered from diarrhoea in the period covered by the survey. Its inclusion would thus have substantially reduced the sample size for our calculations. Furthermore, as children suffering from diarrhoea are not representative of the child population as a whole, estimates of deprivation rates in other dimensions would have been (upward) biased if based on this subsample. Another health indicator considered was the distance to the nearest health facility; but this is not available in the Uganda DHS. Instead, we settled for a

composite indicator of unattended births and immunizations. Specifically, a child aged under 5 years is classified as facing a deprivation in health if s/he also has not received the DPT3 vaccination. On the other hand, a child is faced with an extreme deprivation in health if her/his birth was unattended **and** the child has never been immunized for DPT3.

**Water:** Extreme deprivation in terms of access to water is defined as using water from an unimproved source (open wells/springs or surface water) **and** having a return trip to collect water of 60 minutes or longer. For the deprivation criterion, we included children using an unimproved source of water **and** having a return trip to collect water of 30 minutes or longer

**Sanitation:** For sanitation, we consider access to an improved sanitation source, i.e. a flush toilet, ventilated pit latrine, a pit latrine with a slab or an open/covered latrine without a slab. UNICEF and the WHO consider open/covered latrines without slabs as unimproved. However, in the case of Uganda, this would imply 90% deprivation rates and have limited informational content. We consider open/covered latrines as improved, even if they are without a slab.

**Shelter:** Experimentation was led with various deprivation indicators based on roof and floor material, but in the Ugandan case this led to too high deprivation rates, eliminating the informational content of this indicator. Instead, extreme deprivation in shelter is defined as living in a residence with four or more people per room. For extreme deprivation, this cut-off is increased to five or more people per room.

**Education:** children aged between 6 and 17 years who are not currently attending school and who have not completed primary education are considered to be deprived of education (they may have some schooling, but dropped out before completing primary school). Those who have never attended school are considered to be extremely deprived.

**Information:** For access to information, we considered household access to a mobile telephone, radio or television. Children are deprived of information in a household with no access to either a radio or a television. We dropped lack of access to a landline phone from the information indicator because these phones were not widely available. Instead, we included mobile phones for the extreme deprivation cut-off ("i.e. no possession of radio, television or mobile phone").

**Other Issues:** Some indicators are age-group specific, such as nutrition and health (0-4 years olds) and education (6-17 years olds). As a result, our multidimensional index includes six dimensions for 0-4 year-olds, four dimensions for 5 year olds and five dimensions for 6-17 year olds. We thus decided to show the results for children 0-4 and 6-17 separately.

**Box 1: Adaptation of Bristol Indicators to the Context of Uganda**

<b>Dimension</b>	<b>Ages</b>	<b>Indicator</b>	<b>Deprivation cut-off</b>	<b>Extreme deprivation cut-off</b>
<b>Food and nutrition</b>	<5	Height for age	2 standard deviations below reference median	3 standard deviations below reference median
		Weight for age	OR 2 standard deviations below reference median	OR 3 standard deviations below reference median
		Height for weight	OR 2 standard deviations below reference median	OR 3 standard deviations below reference median
<b>Health</b>	<5	Immunization	Not received dpt3	Never received DPT3
		Attended birth		AND unattended birth
<b>Water</b>	0-17	Source of drinking water	Using water from an unimproved source: open wells/springs or surface water	Using water from an unimproved source: open wells/springs or surface water
		Distance to water	AND return trip to collect water of 30 minutes or longer	AND return trip to collect water of 60 minutes or longer
<b>Sanitation</b>	0-17	Type of toilet	Children using unimproved sanitation facilities: pour flush latrines, open pit latrines and buckets or no toilet i.e. using the bush	Children having no toilet i.e. using the bush
<b>Shelter</b>	0-17	Overcrowding	More than four people per room	More than five people per room
<b>Education</b>	6-17	School attendance	Children of schooling age (aged 6-17) not currently attending school who did not complete their primary education	Children of schooling age (aged 6-17) who have never been to school
<b>Information</b>	0-17	radio or television	No possession of radio or television	No possession of radio, television and mobile phone



**Other Issues (Cont'd)** We have the additional challenge that nutrition indicators are available only for a subsample of 0-4 year olds, as only one out of every three households was surveyed for anthropometrics. Fortunately, this subsample appears to be unbiased as indicators for dimensions other than nutrition show very similar rates irrespective of whether they are estimated on the full sample of children 0-4 or only on children selected for the nutritional questionnaire.

**Deprivation analysis - Global context** The Bristol approach classifies any child who suffers from two or more different severe/extreme deprivations of basic human needs as living in absolute poverty (Gordon et al., 2003a). Using this approach, Gordon et al., (2003b) found that over one third of children in developing countries suffered from severe/extreme shelter deprivation; over 31% had no toilet facilities; almost 25% lacked access to radio, television, telephone or newspapers at home; over 20% had to walk more than 15 minutes to obtain water or used unsafe water sources; 15% had not been immunised against any diseases or had an episode of diarrhoea and had not received any medical advice or treatment; and 13% of children aged between 7 and 18 were severely deprived in education.

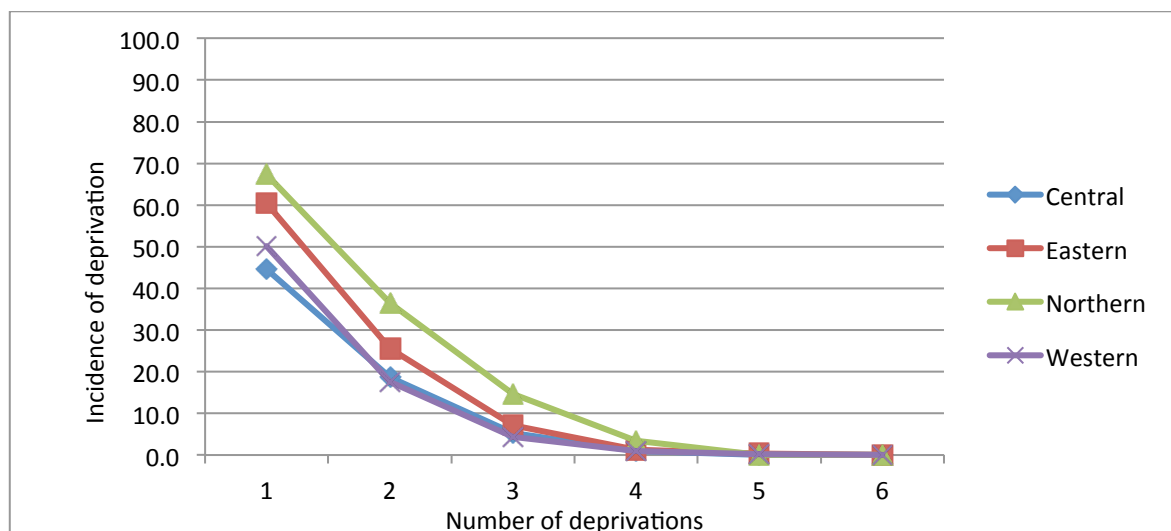
They further found that sub-Saharan Africa had the highest rates of severe deprivation with respect to four of the seven dimensions: shelter, water, education and health. Rural children were much more likely than urban children to be deprived for every one of the seven areas of basic human needs, particularly for severe sanitation deprivation. The study also found that over 15% of children under the age of five in the developing world experienced severe food deprivation, over half of whom (91 million children) were in South Asia. The study concluded that about 56% of children in low- and middle-income countries suffer from one or more forms of severe deprivation, but South Asia and sub-Saharan Africa have more severe deprivation rates, sometimes exceeding 90%.

The Bristol approach has also been used with adjustments to study child deprivation in several countries in South Asia and sub-Saharan Africa. For example, Delamonica and Minujin (2007) explored the depth and severity of child poverty using an extension of the Bristol approach. They calculated average deprivation rates among children identified as multidimensionally poor then incorporated this calculation into an adjusted headcount ratio. Notten (2008, 2009) studied deprivation in the Republic of Congo and found it to be greatest in monetary terms and in education, particularly for children. She also found that high risk monetary poverty characteristics do not necessarily correspond to high risk deprivation characteristics. She concluded that monetary poverty indicators are a blunt tool for identifying groups that are vulnerable in terms of their physical environment. Another application of the Bristol approach is a situation analysis of child poverty in Mozambique (UNICEF, 2006). The study revealed severe levels of child poverty and various forms of deprivation in Mozambique in spite of notable improvements in some key indicators of child development in the years prior to the study.

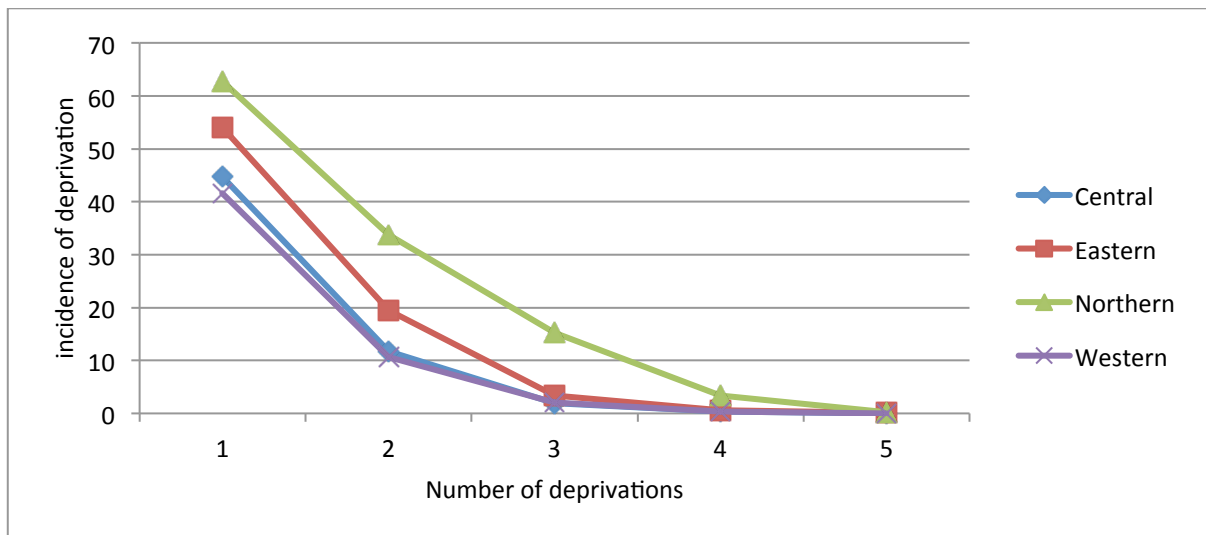
### 2.4.2 Multiple deprivations

The following two figures give an overview of the rates of multiple deprivations for the four principal regions of Uganda using the extreme cut-offs indicated in Box 1, for children aged 0-4 years and 6-17 years using the UDHS 2011 data. Rates of extreme deprivation (Figure 4) are particularly high in Northern and Eastern Uganda and lower in Western and Central Uganda. Roughly 18% of 0-4 year olds in the latter two regions are extremely deprived in two or more dimensions – defined as living in absolute poverty according to the Bristol approach – compared to over 36% for Northern and 25% for Eastern Uganda. Rates of absolute poverty for children aged 6-17 years are lower than 0-4 year olds in the West and Central regions, identical in the East and higher in the Northern region (Figure 5), although the regional ordering remains unchanged. In Northern Uganda, at least two thirds of children are suffering from one or more extreme deprivations. This is within range of the percentage of children aged less than 18 years living in monetary poverty in the region in 2009 based on the UNHS data (51%).

**Figure 4: Share of children with extreme multiple deprivations (0-4 years) by region (2011)**



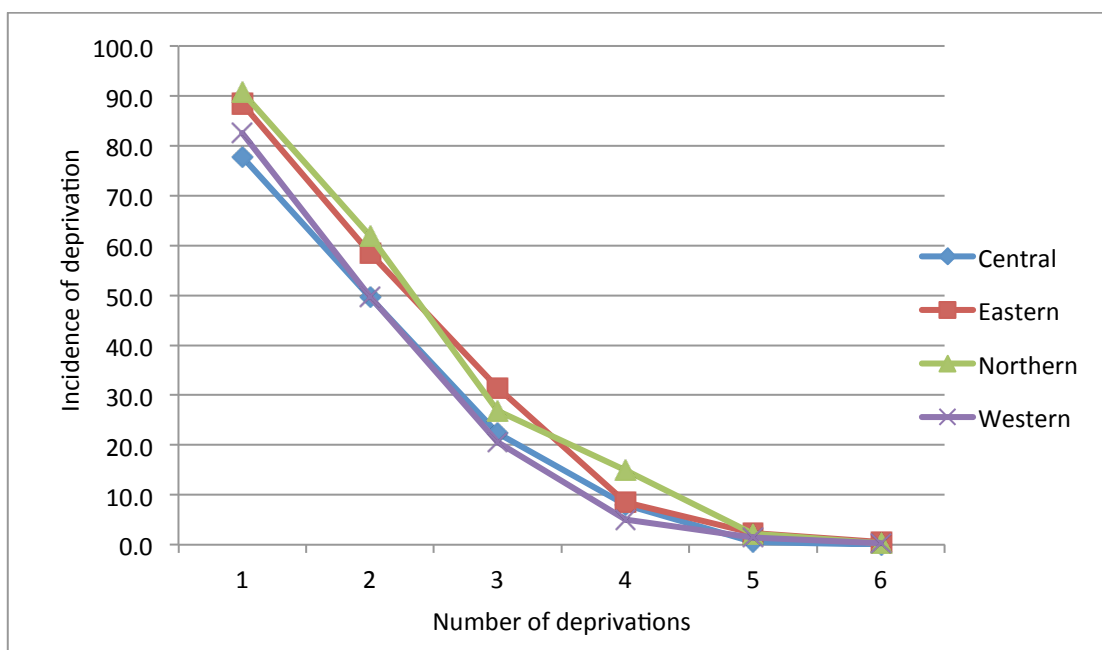
**Figure 5: Share of children with extreme multipledeprivations (6-17 years) by region (2011)**



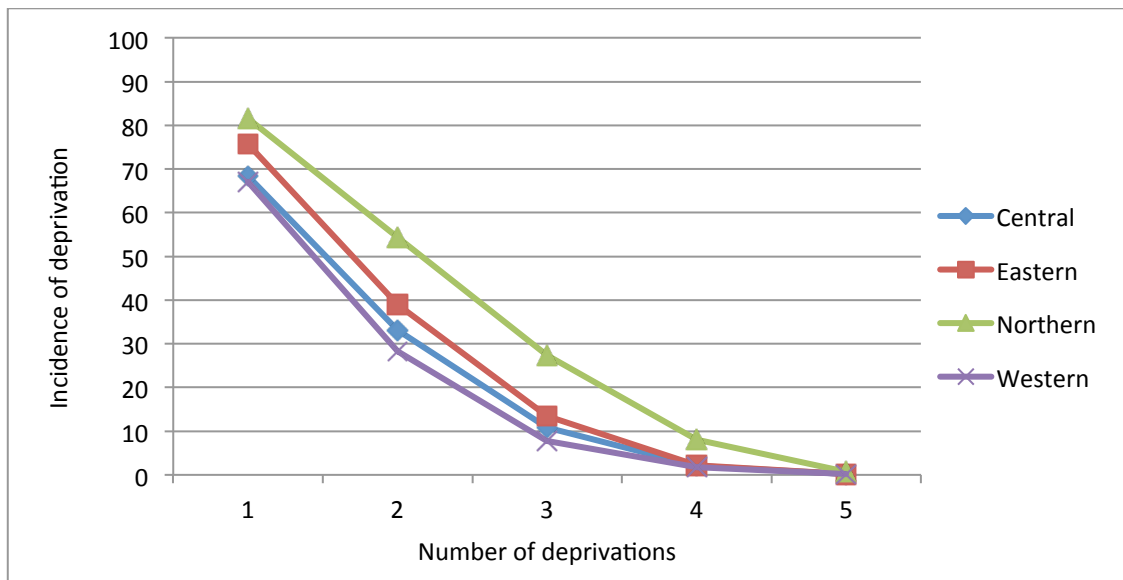
**Source:** Authors' calculations based on Uganda 2011 Demographic and Health Survey.

Figures 6 and 7 consider the rates of multiple deprivations, which are naturally higher than for extreme deprivations. Again, the regional ordering remains unchanged. In particular, children aged 0-4 years in Northern and Eastern Uganda have higher rates of multiple deprivations than in Central and Western Uganda. About 60% of all children suffer from two or more deprivations in Northern and Eastern Uganda, as compared to roughly 50% in Central and Western Uganda (Figure 6). When children aged 6-17 years are considered, we note that children in Western Uganda exhibit lower rates of multiple deprivations than those in Central Uganda (Figure 7).

**Figure 6: Percentage of children with multiple deprivations (0-4 years), by region (2011)**



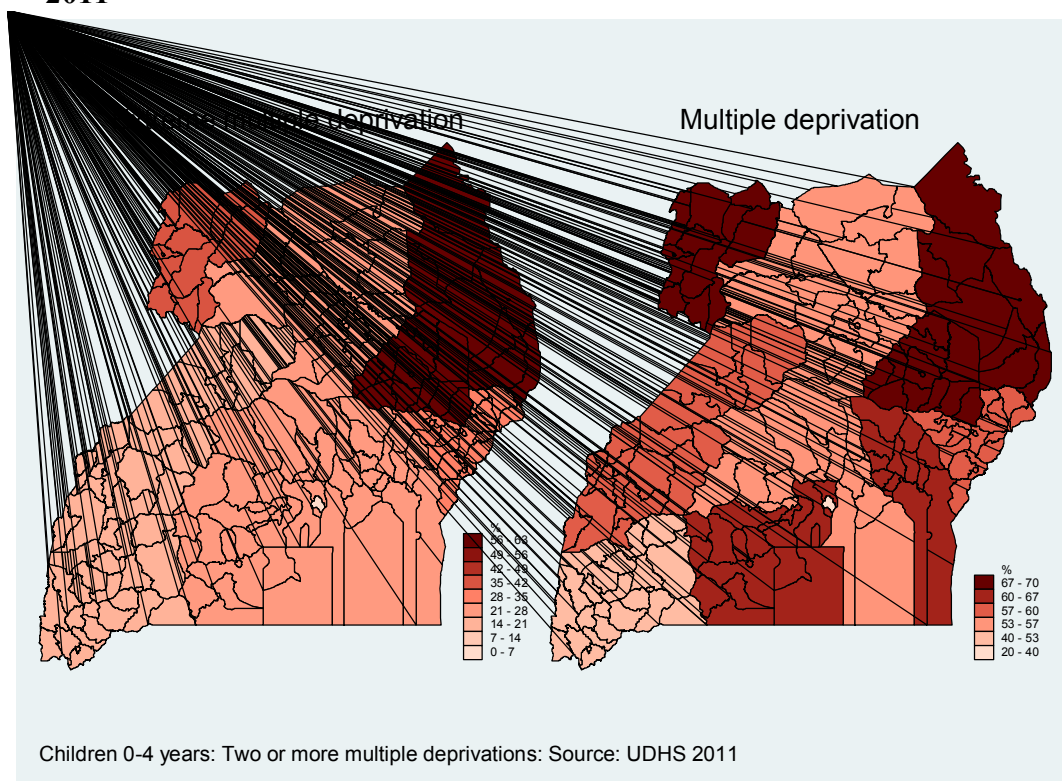
**Figure 7: Percentage of children with multiple deprivations (6-17 years), by region (2011)**



**Source:** Authors' calculations based on Uganda 2011 Demographic and Health Survey.

Map 1 shows a slightly more detailed geographic distribution of multiple deprivations in Uganda based on the ten subregions identified in the 2011 DHS survey.

**Map 1: Proportion of children aged 0-4 years suffering from 2 or more deprivations in 2011**



**Source:** Authors' calculations based on Uganda 2011 Demographic and Health Survey.

Table 4 and 5 go into more detail in exploring the profile of multiple deprivations according to various characteristics of children and their households. **Nationally**, around 55% of children aged 0-4 years are extremely deprived in at least one of the six dimensions. Slightly less than half (23.8%) of these children are extremely deprived in at least two dimensions, i.e. living in absolute poverty according to the Bristol approach. Seven per cent of all children aged 0-4 years are extremely deprived in three or more dimensions. As we saw above, deprivation rates are highest in the Northern **region** and lowest in Central Uganda. There is also a clear **urban-rural** divide with higher deprivation rates in rural areas. About 60% of rural children suffer from at least one or more deprivations compared to 26.7% in urban areas. Only a small proportion of urban children suffer from three or more deprivations (1.3%).

**Girls** are less likely to be multidimensionally deprived than boys. At least 25% of girls aged 0-4 years are deprived in three dimensions compared to 29% for boys. In terms of their **relationship to the household head**, children aged 0-4 years are more likely to have multiple deprivations if they are adopted or foster children than if they are the children of the household head, or are otherwise related. Children from **male-headed households** face a higher risk of being multidimensionally extremely deprived than children from **female-headed households**.

**Table 4: Percentage of children suffering from multiple deprivations (0-4 years), by various characteristics**

	Number of extreme deprivations						Number of deprivations					
	1	2	3	4	5	6	1	2	3	4	5	6
<b>National</b>	55.2	23.8	7.3	1.5	0.1	0.0	84.8	54.6	27.4	8.6	1.6	0.3
<b>Region</b>												
Central	44.6	18.7	5.3	1.0	0.0	0.0	77.8	49.6	22.4	8.0	0.5	0.0
Eastern	60.4	25.5	7.1	1.3	0.3	0.0	88.4	58.4	31.5	8.5	2.3	0.5
Northern	67.4	36.5	14.7	3.4	0.0	0.0	90.8	61.9	26.9	14.9	2.2	0.3
Western	50.2	17.6	4.4	0.9	0.2	0.0	82.6	49.7	20.5	5.0	1.4	0.3
<b>Location</b>												
Rural	59.6	26.7	8.3	1.7	0.2	0.0	87.6	58.3	30.0	9.6	1.8	0.3
Urban	26.7	4.8	1.3	0.2	0.0	0.0	66.5	31.0	10.6	2.5	0.3	0.0
<b>Sex of Child</b>												
Male	54.9	24.9	7.6	1.4	0.1	0.0	84.8	54.9	29.4	9.2	2.0	0.5
Female	55.5	22.6	7.1	1.5	0.2	0.0	84.8	54.4	25.4	8.1	1.2	0.0
<b>Relationship to household head</b>												
Sons/daughter	55.0	23.5	7.6	1.5	0.2	0.0	85.1	54.6	26.6	8.7	1.6	0.3
Adopted/foster child	73.1	49.7	0.0	0.0	0.0	0.0	100.0	86.7	43.5	0.0	0.0	0.0
Other relatives	55.9	25.0	5.7	1.4	0.0	0.0	82.1	53.6	30.1	8.4	1.8	0.0
<b>Parents alive</b>												
Both parents alive	54.8	23.3	7.1	1.5	0.1	0.0	84.8	54.4	27.0	8.7	1.6	0.3
Mother or father deceased	68.3	36.5	14.7	0.0	0.0	0.0	85.0	62.5	38.3	8.1	2.6	0.0
<b>Sex of household head</b>												
Male	63.5	27.9	7.9	1.2	0.5	0.0	89.1	63.5	32.7	8.1	2.1	0.2
Female	52.7	22.6	7.2	2.3	0.0	0.0	83.5	52.0	25.8	8.8	1.5	0.3
<b>Wealth Quintile</b>												
Quintile 1	83.7	52.2	21.2	5.6	0.4	0.0	97.4	82.2	53.3	21.5	4.8	1.1
Quintile 2	63.8	25.8	7.6	0.5	0.2	0.0	90.3	61.5	33.0	8.7	1.6	0.2
Quintile 3	54.3	20.3	4.1	0.7	0.0	0.0	86.9	56.9	25.0	7.9	1.0	0.0
Quintile 4	40.6	10.8	0.7	0.0	0.0	0.0	80.1	38.9	13.8	1.7	0.0	0.0
Quintile 5	24.8	3.3	0.5	0.0	0.0	0.0	64.0	25.5	4.9	0.5	0.0	0.0
<b>Household size</b>												
3 or 4 members	44.2	16.2	5.4	0.8	0.0	0.0	79.0	44.0	15.4	4.1	0.0	0.0
5 or 6 members	60.5	26.8	6.8	1.3	0.0	0.0	88.8	62.6	33.5	10.9	0.3	0.8
7 or 8 members	57.3	28.1	12.8	3.2	0.3	0.0	85.4	54.7	29.3	10.7	1.7	0.0
9 or more members	59.3	24.8	3.7	0.4	0.3	0.0	85.3	55.7	30.9	8.4	1.3	0.3

Source: Authors' calculations based on Uganda 2011 Demographic and Health Survey.

Multiple deprivations are strongly related to household **wealth**. Indeed, around 84% of all children in the poorest quintile are extremely deprived in at least one dimension, 52% in at least two dimensions and 5.6% in four or more dimensions. In contrast, only 24.8% of children in the wealthiest quintile suffer from one or more extreme deprivations and practically nobody experiences three or more deprivations. Finally, deprivation rates fall with **household size** for one or more deprivations, although the pattern is far less clear among children living with 5 and more members. We will come back to the role of household size in the following section.

When the **deprivation cut-offs** rather than extreme deprivation cut-offs in Box 1 are adopted, deprivation rates increase significantly. Around 85% of children suffer from at least one deprivation (compared to 55.2% who suffer from at least one extreme deprivation) and about 27% suffer from three or more (compared to 7.3% for extreme deprivations). Otherwise, the overall pattern is similar with generally higher rates in the Northern region, rural areas, among females and orphans, and for children in male-headed, less wealthy and larger households.

Table 5 shows the same profile of multiple deprivations for children in the school-going age category. **Nationally**, 73% of these children are found to be deprived in at least one of the five dimensions. About half (37.6%) of these children are extremely deprived in at least two dimensions, i.e. living in absolute poverty. Roughly 14% of all children aged 6-17 years are deprived in three or more dimensions. Deprivation rates fall substantially with household wealth status; for example, 95% of children from households in the bottom quintile suffer from a deprivation in at least one dimension, whereas the rate for children from the top quintile is less than half (45%). The highest rates of deprivation are in the Northern and Eastern regions and in rural areas.

**Table 5: Percentage of children suffering from multiple deprivations (6-17 years), by various characteristics**

	Number of extreme deprivations					Number of deprivations				
	1	2	3	4	5	1	2	3	4	5
National	50.0	18.0	5.1	1.0	0.1	72.7	37.6	14.0	3.2	0.3
<b>Region</b>										
Central	44.7	11.7	1.9	0.3	0.0	68.4	33.1	10.9	2.1	0.2
Eastern	54.0	19.5	3.4	0.6	0.1	75.7	38.9	13.4	2.2	0.2
Northern	62.8	33.7	15.2	3.4	0.2	81.6	54.3	27.4	8.1	0.7
Western	41.6	10.6	2.1	0.3	0.0	67.1	28.2	7.7	1.7	0.2
<b>Location</b>										
Rural	52.3	19.7	5.7	1.2	0.1	74.9	39.8	15.3	3.6	0.3
Urban	32.8	5.1	0.5	0.0	0.0	56.1	21.3	4.4	0.8	0.1
<b>Sex of Child</b>										
Male	50.1	17.5	4.4	0.8	0.1	73.1	38.0	14.5	3.5	0.3
Female	49.9	18.4	5.7	1.2	0.1	72.3	37.3	13.6	3.0	0.3
<b>Child age group</b>										
Primary school age	55.8	21.0	6.0	1.3	0.1	75.1	40.4	15.6	3.9	0.4
Secondary school age	38.8	12.0	3.3	0.5	0.0	68.0	32.3	11.0	1.9	0.2
<b>Relationship to household head</b>										
Sons/daughter	51.4	18.9	5.6	1.1	0.1	73.3	38.8	14.7	3.6	0.4
Adopted/foster child	44.4	13.1	2.4	1.1	0.0	71.3	35.2	12.7	2.3	0.1
Other relatives	46.9	16.0	3.9	0.8	0.0	72.0	31.3	9.6	2.9	0.0
<b>Parents alive</b>										
Both parents alive	49.5	17.5	4.7	1.0	0.1	72.2	36.8	13.6	3.3	0.3
Mother or father deceased	52.1	20.6	6.5	0.8	0.0	74.6	41.0	16.0	3.0	0.0
Both parents deceased	50.5	18.2	7.9	2.1	0.0	76.7	43.5	15.2	3.8	0.8
<b>Sex of household head</b>										
Male	52.4	21.5	6.1	1.3	0.0	75.7	41.5	16.6	3.6	0.3
Female	48.9	16.3	4.6	0.9	0.1	71.3	35.9	12.8	3.1	0.3
<b>Wealth Quintile</b>										
Quintile 1	85.4	50.4	20.2	4.5	0.2	95.5	74.7	41.2	11.4	1.1
Quintile 2	58.0	17.8	3.2	0.4	0.1	81.5	43.9	13.1	2.4	0.2
Quintile 3	43.1	10.8	0.6	0.0	0.0	74.2	31.4	7.8	1.5	0.1
Quintile 4	36.3	6.3	0.2	0.0	0.0	62.6	22.0	4.1	0.3	0.0
Quintile 5	23.2	2.0	0.4	0.1	0.0	45.6	12.3	2.2	0.2	0.0
<b>Household size</b>										
3 or 4 members	48.2	14.1	2.8	0.2	0.0	69.4	31.5	8.4	1.0	0.0
5 or 6 members	51.9	20.5	5.5	0.9	0.2	75.2	41.5	17.3	4.2	0.4
7 or 8 members	52.0	20.4	7.3	1.9	0.0	70.2	36.4	14.6	3.6	0.4
9 or more members	46.9	14.7	3.3	0.6	0.0	74.4	37.8	12.9	3.1	0.3

**Source:** Authors' calculations based on Uganda 2011 Demographic and Health Survey.



## Multiple deprivation rates by subregion

Table 6 shows the distribution of multiple deprivations for children 0-4 years for 10 subregions in 2011. For at least 5 subregions, about nine out of ten children are deprived in one dimension (Karamoja, West Nile, East Central, Eastern, and the North subregions). However, when deprivation rates based on two or more dimensions are considered, significant differences emerge. Specifically, 68% of children in Karamoja and West Nile are deprived in at least two dimensions while the corresponding rates for subregions that follow—i.e. East Central, and Central 1—are about 60%. Indeed, children in Karamoja and West Nile display a nearly identical distribution in deprivation rates.

When the extreme deprivation criterion is considered, large differences emerge between Karamoja and the other subregions. For instance, whereas over 96% of children 0-4 years in Karamoja are extremely deprived in at least one dimension, the corresponding rates for West Nile and Eastern subregions are about 65%. Overall, children in Karamoja remain the most deprived, whereas those in Kampala are least deprived regardless of the criterion considered.

Table 7 examines the distribution of multiple deprivations for children aged 6-17 years based on the UDHS of 2011. In this case, five types of deprivation are considered with the education dimension replacing the health and nutrition dimensions considered for children aged 0-4 years. The table indicates that, based on the number of deprivations, children 6-17 in Karamoja again stand out as the most deprived, followed by those from West Nile – at least 94% of children ages 6 to 17 in Karamoja and 82% in West Nile are deprived in at least one dimension.

For the extreme deprivation criterion, differences in deprivation rates between Kampala and other subregions are relatively small for children aged 6-17 years, compared to those for children aged 0-4 years. For instance, 26% of children aged 6-17 years in Kampala are extremely deprived in at least one dimension, and the subregion with the second lowest extreme deprivation rate is Western, at 38% – a difference of about 12 percentage points. The corresponding gap of extreme deprivations for children aged 0-4 years between Kampala and the subregion with the second lowest rate (Western) is 26 percentage points (Table 6).

It is also worth noting that in the Karamoja subregion, the difference in the rates for children ages 6-17 suffering either one or two deprivations is relatively small – 12 percentage points difference in Karamoja compared to at least 30 percentage points difference for children in the other subregions. This result is explained by the relatively high deprivation rates in sanitation (76%) and information (86%) in Karamoja.

**Table 6: Percentage of children suffering from multiple deprivations (0-4 years), by subregions**

	Number of extreme deprivations						Number of deprivations					
	1	2	3	4	5	6	1	2	3	4	5	6
National	55.2	23.8	7.3	1.5	0.1	0.0	84.8	54.6	27.4	8.6	1.6	0.3
<b>Sub Region</b>												
Kampala	19.0	2.0	0.6	0.0	0.0	0.0	58.2	22.6	4.7	1.2	0.0	0.0
Central 1	54.8	25.3	8.0	0.8	0.0	0.0	81.3	60.4	25.3	11.9	0.7	0.0
Central 2	50.9	22.7	5.6	1.7	0.0	0.0	86.7	56.1	30.7	8.7	0.6	0.0
East Central	55.0	22.1	5.7	0.0	0.0	0.0	90.0	60.6	30.6	8.0	1.4	0.0
Eastern	63.6	27.5	7.9	2.0	0.4	0.0	87.4	57.1	32.0	8.8	2.8	0.8
North	57.4	27.2	10.0	2.9	0.0	0.0	87.0	54.6	28.6	13.9	1.5	0.0
Karamoja	96.4	57.2	25.7	5.1	0.2	0.0	99.6	68.0	47.1	14.5	1.8	0.0
West Nile	64.9	37.7	14.8	3.2	0.0	0.0	91.0	68.3	42.3	16.4	3.4	0.7
Western	44.9	14.7	3.5	0.4	0.0	0.0	85.5	57.5	22.4	5.0	1.3	0.2
South Western	50.5	20.9	5.5	1.4	0.4	0.0	79.4	40.9	18.4	5.0	1.4	0.4

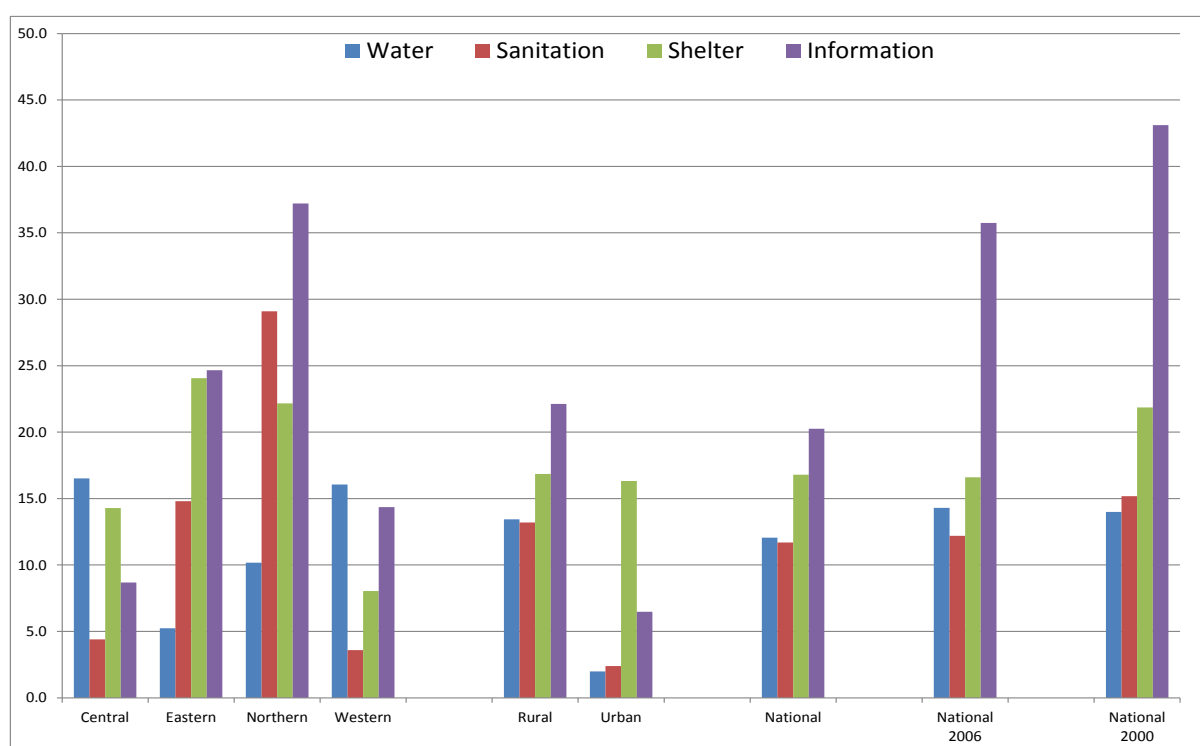
**Table 7: Percentage of children suffering from multiple deprivations (6-17 years), by various characteristics**

	Number of extreme deprivations					Number of deprivations				
	1	2	3	4	5	1	2	3	4	5
National	50.0	18.0	5.1	1.0	0.1	72.7	37.6	14.0	3.2	0.3
<b>Sub Region</b>										
Kampala	26.2	2.4	0.0	0.0	0.0	53.5	15.6	3.2	0.1	0.0
Central 1	49.4	13.3	2.3	0.3	0.0	74.3	33.9	11.0	1.4	0.4
Central 2	46.7	13.6	2.3	0.4	0.0	68.0	39.1	13.6	3.6	0.1
East Central	52.3	18.0	2.3	0.3	0.0	75.1	39.9	13.3	1.7	0.1
Eastern	55.3	20.5	4.2	0.9	0.2	76.7	39.4	13.9	2.7	0.4
North	56.2	25.3	8.8	2.0	0.2	76.6	45.4	19.8	5.1	0.3
Karamoja	88.1	71.1	43.8	10.6	0.5	93.9	81.6	56.2	18.2	2.4
West Nile	57.0	23.1	7.0	1.1	0.0	81.6	51.2	20.9	6.3	0.2
Western	37.9	8.9	1.8	0.2	0.0	64.9	29.5	9.1	2.2	0.2
South Western	46.0	12.8	2.4	0.5	0.0	69.9	26.7	6.0	1.2	0.1

### 2.4.3 Most common forms of deprivation

The following three figures (Figures 8-10) present extreme deprivation rates for each of the seven dimensions separately. As mentioned earlier, the dimensions covered differ for each age group. Only four dimensions are measured for children of all ages (Figure 8). Among these, shelter and information emerge as the most common forms of extreme deprivation, affecting around 17% and 20% of 0-17 year olds respectively, while around 12% of children are affected by extreme water and sanitation deprivation. The highest rates are in the Northern and Eastern regions, except for deprivation in the access to water. Deprivation rates are much lower in rural areas, except for shelter where the difference is minimal. Over the past 10 years, the well-being of children in Uganda improved significantly in all dimensions, especially information. The only exception is shelter, where the extreme deprivation rate increased slightly between 2006 and 2011, although it remains substantially below 2000.

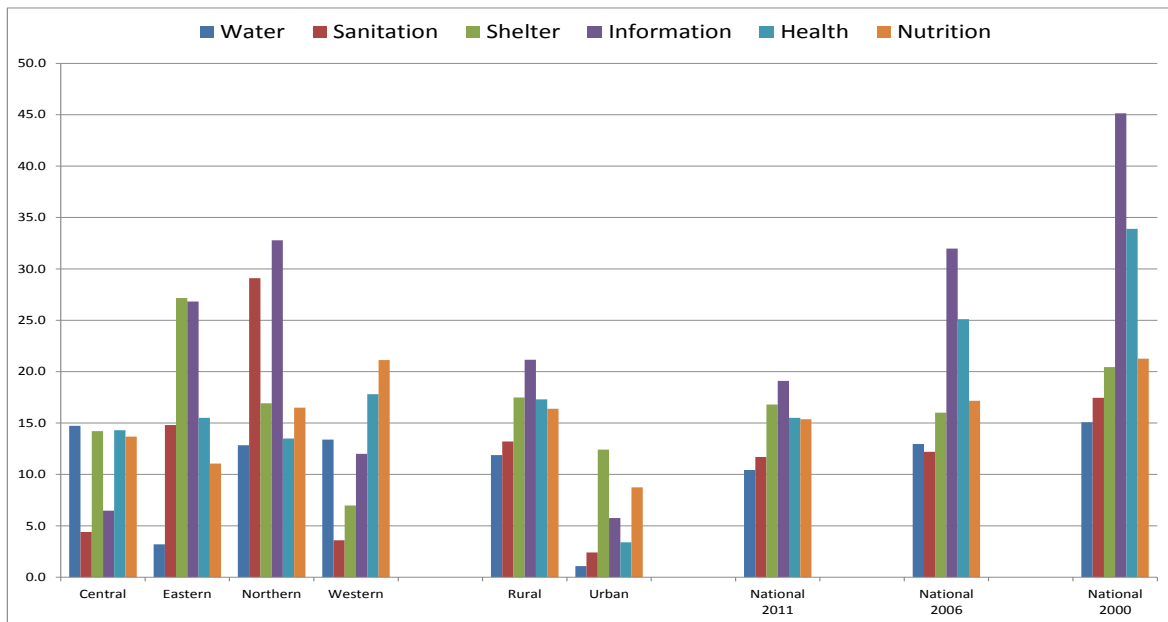
**Figure 8: Extreme deprivation rates for children aged 0-17 by region (2011)**



**Source:** Authors' calculations based on Uganda 2011 Demographic and Health Survey.

For 0-4 year olds, extreme deprivation in terms of health (no DPT3 vaccination and unattended birth) and nutrition (z-scores for any of the three anthropometric measures equal to 3 or more) are also analysed (Figure 9). While shelter and information remain the most common forms of extreme deprivation, the results for health and nutrition are worrying, with around 15% of children suffering from such extreme deprivation. Extreme deprivation rates are again highest in rural and the North and East regions, with the exception of water and health, which are highest in the West. When deprivation rates are compared over the last decade, we again find an encouraging improvement in all dimensions, except for shelter between 2006 and 2011 (as discussed for children 0-17).

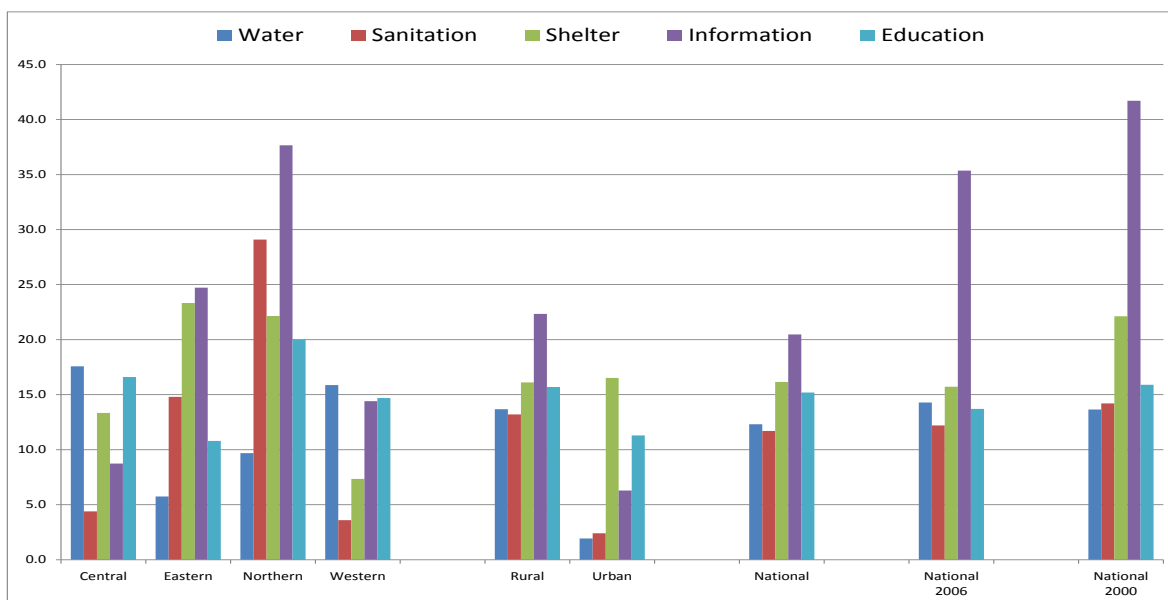
**Figure 9: Extreme deprivation rates for children aged 0-4 years by region (2011)**



**Source:** Authors’ calculations based on Uganda 2011 Demographic and Health Survey.

Finally, in the 6-17 age group (Figure 10), the analysis includes extreme deprivation in terms of education (never attended school), which affects around 15% of children, nearly the same amount as for shelter. The geographic profile for the four core dimensions is similar to what we have already observed for 0-4 year olds and children as a whole, except that shelter deprivation is actually more prevalent in urban areas than in rural areas. Extreme education deprivation is more common in rural areas and in the North and Centre. The same improvements over time are noted for 6-17 year olds, with the exception of access to water – which deteriorates slightly between 2000 and 2006, only to improve significantly in 2011 – and education – which, after an initial improvement in 2006, returns to 2000 levels.

**Figure 10: Extreme deprivation rates for children aged 6-17 years region (2011)**



**Source:** Authors’ calculations based on Uganda 2011 Demographic and Health Survey.

Tables 8 and 9 delve deeper into the most common forms of deprivation by child/household characteristics. Table 8, which covers children aged 0 to 4, confirms that information, shelter, and nutrition are the most common **extreme deprivations**. Nationally, 20% and 18% of children aged 0-4 years were respectively extremely deprived of information and shelter in 2011 and 15% of children were extremely deprived in terms of nutrition and health. The proportions of children extremely deprived in terms of access to water (surface water or too distant source), and sanitation (access to a toilet) are comparatively small, ranging between 11 and 12%.

The pattern is different for **deprivations**. Nutrition becomes the most common form of deprivation (38%) and is more than twice as high when compared to its extreme figure. Health, shelter (over-crowding) and information follow. Deprivations in sanitation increase threefold.

In conformity with the results for multiple deprivations, deprivation rates for children aged 0-4 years tend to be quite heterogeneous across the country. If deprivations in sanitation and information are higher in the Northern **region**, children are more likely to be deprived in nutrition, health and water in the Western region and in shelter in the Eastern region. Although at higher rates, deprivation rates by regions follow the same order as observed for the extreme cut-offs, with the exception of health, for which children living in the Central region are much more likely to be affected.

**Rural** children are more deprived in all six dimensions, with the largest rural-urban gaps for extreme deprivation occurring in terms of sanitation (13.2% vs. 2.4%), water (12.8% vs. 2.1%) and health (17.3% vs. 3.4%). With the exception of nutrition (girls seem to show substantially lower deprivation rates in nutrition), there are minimal differences in the deprivation rates between boys and girls. Except for water and health, we observe higher extreme deprivation rates among **adopted/foster children**. **Orphans** have higher extreme deprivation rates for water, sanitation and information.

The results suggest that children from **female-headed households** are much less likely to be extremely deprived than in male-headed households in information, and slightly less likely in water, and sanitation. For all dimensions except health, the proportion of extremely deprived children declines with **wealth**, often dramatically, indicating that the least wealthy are also more deprived in non-monetary terms. The differences in extreme deprivation rates between the first and fifth wealth quintile are often enormous: 38% vs. 0.8% for sanitation, 33.2% vs. 8.8% for shelter, and 53.2% vs. 0.7% for information. The results for health suggest that vaccination campaigns have successfully targeted the poorest quintiles, to the point that children from the third and fourth quintiles have extreme deprivation rates that are similar to the bottom two quintiles.

**Household size** has varied impacts on the different dimensions. For sanitation, shelter and education, children in mid-size households are the most extremely deprived, whereas deprivation rates generally fall with household size in terms of water access and information. Several of these dimensions – health, access to water, sanitation, shelter and information – are more akin to public goods, which benefit all members regardless of household size. Recall that monetary poverty rates increased dramatically with household size, as income and expenditures must be allocated between a larger number of members.

**Table 8: Deprivation rates for each dimension, by various characteristics, children aged 0-4 years**

	Extreme deprivation						Deprived					
	Water	Sanitation	Shelter	Information	Health	Nutrition	Water	Sanitation	Shelter	Information	Health	Nutrition
<b>National</b>	11.4	11.7	18.4	19.6	15.5	15.4	18.5	29.7	32.3	32.1	34.1	37.9
<b>Region</b>												
Central	13.6	4.4	16.2	8.5	14.3	13.5	23.3	17.5	30.2	20.2	41.9	34.9
Eastern	3.9	14.8	25.2	24.0	15.5	11.1	6.9	38.1	41.9	37.8	33.6	33.5
Northern	11.4	29.1	23.4	35.2	13.5	16.5	16.4	50.2	41.2	48.4	26.4	38.2
Western	17.1	3.6	9.7	14.4	17.8	21.3	27.6	18.0	18.2	25.8	32.6	45.5
<b>Location</b>												
Rural	12.8	13.2	18.9	21.6	17.3	16.4	20.7	32.8	33.0	34.0	34.7	39.8
Urban	2.1	2.4	15.2	6.2	3.4	8.8	3.9	9.4	28.0	19.7	30	25.7
<b>Sex of Child</b>												
Male	11.0	11.5	18.2	19.1	15.6	16.9	18.4	29.6	32.0	31.8	34.3	42.0
Female	11.7	12.0	18.6	20.1	15.3	13.9	18.5	29.9	32.7	32.4	33.8	33.8
<b>Relationship to household head</b>												
Sons/daughter	11.3	11.7	18.7	18.6	16.0	15.7	18.6	30.3	33.0	30.8	33.4	38.5
Adopted/foster child	2.3	23.1	31.2	28.7	11.2	24.2	3.9	43.1	47.2	44.6	44.5	53.9
Other relatives	12.5	11.9	15.6	25.8	12.2	12.9	18.4	25.3	27.5	39.8	37.6	33.0
<b>Parents alive</b>												
Both parents alive	11.3	11.5	18.5	19.1	15.5	15.3	18.5	29.6	32.5	31.6	33.9	37.9
Mother or father deceased	13.2	23.0	16.5	36.5	15.9	14.1	17.0	34.5	25.3	51.8	39.5	36.5
<b>Sex of household head</b>												
Male	12.6	14.3	15.7	32.5	15.2	14.7	17.9	30.6	26.5	48.5	37.6	36.6
Female	11.1	11.2	19.1	16.3	15.5	15.6	18.6	29.5	33.8	27.9	33.1	38.3
<b>Wealth Quintile</b>												
Quintile 1	11.5	37.7	33.2	53.2	19.4	17.4	18.5	58.0	53.0	66.5	32.7	40.3
Quintile 2	14.2	8.7	19.0	18.4	19.0	15.7	22.1	33.5	32.1	32.7	36.2	37.5
Quintile 3	14.4	4.2	13.8	9.5	18.2	21.8	24.8	28.1	25.1	22.8	35.8	49.0
Quintile 4	11.1	1.1	13.2	7.3	14.8	12.6	18.3	15.6	24.9	18.3	35.9	33.2
Quintile 5	4.5	0.8	8.8	0.7	3.6	7.8	6.8	3.8	21.3	10.6	29.1	27.1
<b>Household size</b>												
3 or 4 members	9.1	12.1	0.0	17.5	14.2	13.8	15.1	27.9	0.0	29.7	34.8	33.3
5 or 6 members	12.2	11.6	21.8	21.9	16.5	16.1	20.5	28.5	49.9	35.4	34.6	40.1
7 or 8 members	12.5	13.0	29.8	19.8	15.2	15.7	20.3	34.7	29.8	31.4	31.5	38.4
9 or more members	11.3	10.7	21.5	17.6	16.1	16.0	17.2	28.6	47.3	30.1	35.1	38.2

**Table 9: Deprivation rates for each dimension, by various characteristics; children aged 6-17 years**

	Extreme deprivation					Deprived				
	Water	Sanitation	Shelter	Information	Education	Water	Sanitation	Shelter	Information	Education
<b>National</b>	12.3	10.1	16.2	20.5	15.2	20.4	28.3	27.2	31.9	20.0
<b>Region</b>										
Central	17.4	2.6	13.4	8.8	16.6	28	18.6	25.8	20.2	22.5
Eastern	5.7	13.1	23.3	24.7	10.8	8.8	35	36.1	36.4	14.3
Northern	9.7	25.9	22.1	37.7	20	15.2	48.1	35	48.8	25.0
Western	15.9	2.2	7.3	14.4	14.7	28.8	16.3	14.3	25.9	19.7
<b>Location</b>										
Rural	13.6	11.1	16.1	22.3	15.7	22.5	30.6	27.2	33.6	20.2
Urban	1.9	2.5	16.5	6.3	11.3	4.8	11.5	27.8	19.5	19.0
<b>Sex of Child</b>										
Male	12.1	9.7	16.0	20.2	14.9	20.7	28.88	27.45	31.61	19.4
Female	12.5	10.5	16.3	20.7	15.4	20.18	27.79	27.05	32.26	20.7
<b>Relationship to household head</b>										
Sons/daughter	12.3	10.4	18.1	20.4	15.9	20.9	29.2	29.7	32.1	18.9
Adopted/foster child	11.0	7.5	18.3	10.0	14.1	16.6	22.2	31.5	23.5	22.1
Other relatives	12.4	9.3	11.1	21.4	13.4	19.6	26.7	20.6	32.2	22.6
<b>Parents alive</b>										
Both parents alive	12.1	9.4	16.7	18.7	15.9	20.3	27.9	28.2	29.8	20.0
Mother or father deceased	13.5	13.0	13.2	28.6	11.7	20.1	31.4	22.5	42	18.6
Both parents deceased	12.8	13.5	12.6	29.6	10.4	23.4	29.4	20.6	41	24.8
<b>Sex of household head</b>										
Male	12.6	12.3	13.0	29.6	13.8	20.1	31.2	23	43.6	19.8
Female	12.1	9.0	17.6	16.3	15.8	20.6	27.1	29.2	26.6	20.1
<b>Wealth Quintile</b>										
Quintile 1	12.3	35.1	33.0	58.4	22.1	18.7	58.9	48.9	70.2	27.3
Quintile 2	14.2	7.5	17.3	24.9	15.8	22.9	32.8	28.6	36.8	20.2
Quintile 3	15.3	4.7	10.6	10.4	13.6	27.5	25	20.9	23.5	18.2
Quintile 4	13.4	1.0	10.4	5.2	12.8	21.6	15.7	18.4	17	16.4
Quintile 5	4.9	0.6	8.3	0.8	11	9.6	5.9	18.3	8.7	17.9
<b>Household size</b>										
3 or 4 members	13.2	10.6	0.0	26.7	14.7	21.5	29.9	0	35.3	23.7
5 or 6 members	12.1	9.9	16.6	23.0	17.5	21	26.9	34	35.2	21.7
7 or 8 members	12.9	11.0	21.8	20.3	15.8	21.6	30.5	21.8	32.1	19.2
9 or more members	11.4	8.9	18.1	14.6	12.7	18	27	40.4	26.3	16.9

Source: Authors' calculations based on Uganda 2011 Demographic and Health Survey.



**Table 10: Deprivation rates for each dimension, by sub region, children 0-4 years**

	Extreme deprivation						Deprived					
	Water	Sanitation	Shelter	Information	Health	Nutrition	Water	Sanitation	Shelter	Information	Health	Nutrition
National	11.4	11.7	18.4	19.6	15.5	15.4	18.5	29.7	32.3	32.1	34.1	37.9
<b>Sub Region</b>												
Kampala	0.0	0.7	13.0	5.1	2.9	5.4	0.1	3.6	26.8	14.7	29.3	18.9
Central 1	21.3	4.8	10.2	9.3	21.1	14.4	33.5	18.0	22.6	21.5	46.3	37.1
Central 2	13.5	5.7	23.2	9.6	14.0	17.6	25.7	24.4	38.6	21.8	44.2	42.7
East Central	4.5	8.4	26.2	18.1	15.0	15.8	8.2	34.7	43.2	32.3	43.0	38.4
Eastern	3.5	18.9	24.6	27.9	15.8	8.2	6.1	41.4	41.0	41.3	27.4	30.6
North	12.4	22.0	23.3	21.8	12.9	11.6	16.8	43.5	44.7	34.2	27.1	29.4
Karamoja	3.4	71.8	19.4	79.0	17.8	23.3	7.5	76.1	34.2	87.9	23.4	47.9
West Nile	14.8	13.1	26.0	27.8	11.7	19.4	21.5	44.3	40.2	45.3	27.4	44.7
Western	11.9	3.7	11.8	12.0	17.4	19.3	20.8	27.2	21.6	24.7	33.7	45.9
South Western	23.2	3.5	7.3	17.2	18.4	23.5	35.6	7.4	14.3	27.0	31.3	45.2

**Source:** Authors' calculations based on Uganda 2011 Demographic and Health Survey.

**Table 11: Deprivation rates for each dimension, by sub region, children 6-17**

	Extreme deprivation					Deprived				
	Water	Sanitation	Shelter	Information	Education	Water	Sanitation	Shelter	Information	Education
National	12.3	10.1	16.2	20.5	15.2	20.4	28.3	27.2	31.9	20.0
<b>Sub Region</b>										
Kampala	0.0	0.9	14.0	3.3	10.6	0.1	5.2	28.4	15.1	23.7
Central 1	27.9	3.0	7.8	9.9	16.7	41.9	18.4	18.6	20.5	21.8
Central 2	13.2	3.0	18.8	9.6	18.8	24.3	24.0	32.0	21.9	22.7
East Central	6.3	7.5	25.8	19.2	14.0	10.4	30.9	38.1	32.9	18.0
Eastern	5.3	17.2	21.5	28.7	8.5	7.7	40.3	34.6	38.9	11.6
North	11.0	18.9	22.1	27.5	13.2	15.8	41.0	36.8	36.0	17.9
Karamoja	3.5	66.4	21.5	75.7	47.0	7.8	75.8	33.3	85.9	49.5
West Nile	11.7	11.0	22.6	29.4	13.4	19.0	41.8	33.4	45.4	20.6
Western	10.8	2.2	9.4	12.1	14.2	19.2	24.0	17.0	26.3	19.4
South Western	22.0	2.3	4.8	17.2	15.3	40.5	6.8	11.0	25.4	20.2

**Source:** Authors' calculations based on Uganda 2011 Demographic and Health Survey.

For 6-17 year olds (Table 11), information on health and nutrition deprivations are not included, but education deprivation is added. The overall profile is similar to that described for 0-4 year olds with a few exceptions. First, adopted/foster children have lower deprivation rates to sons/daughters of the household head with the exception of shelter. These may be children who have moved to live with urban or wealthier relatives in order to pursue schooling.

Just over 15% of 6-17 year olds have never attended school (extreme deprivation) and 20% are not currently attending and have not completed primary school (deprivation). These rates are highest in the North and Central regions, and in rural areas, although the differences are not dramatic. Girls and children in female-headed households suffer slightly more from education deprivation, although no clear pattern emerges with regard to the child's relation to the household head or orphan status. Deprivation rates fall monotonically with household wealth and, with the exception of extreme deprivation rates among 3-4 member households, with household size.

As earlier mentioned, it is important to understand the possible drivers for deprivation rates by subregion. Table 10 shows the distribution of uni-dimensional indices for children aged 0-

4 years based on the 2011 UDHS. The most common forms of deprivations differ markedly by subregion. For instance, nutrition is the most common form of deprivation for children in Western and South Western subregions. On the other hand, it is children from the Central 1 and Central 2 subregions that are most deprived of health. Given that DPT3 immunization is a key constituent of the health deprivation measure, the latter results suggest that the two subregions perform poorly regarding child immunizations. Children are most deprived of information in Karamoja and West Nile subregions whereas deprivation in health is the leading cause in Kampala, while shelter leads in the East Central subregion. It is also worth noting that for the Eastern subregion, children appear to be nearly equally deprived in sanitation, shelter and information. Similarly in the North subregion, sanitation appears as important as shelter among the leading causes of deprivation in children.

For the extreme deprivation criterion, water becomes as important as nutrition as the most common form of deprivation in South Western Uganda. Similarly, water and health replace health and nutrition as the most common forms of deprivation in the Central 1 sub-region when we consider extreme deprivation. Shelter replaces health in the Central 2 sub-region.

Table 11 considers the most common form of deprivations by subregions for children aged 6-17 years in 2011. Overall, the most common forms of deprivation for children aged 6-17 years are similar to those of children aged 0-4 years (shown in Table 10). For instance, information remains the most common form of deprivation for children in Karamoja and West Nile subregions. Similarly, shelter remains the most common for children in Kampala and East Central subregions while for the Eastern subregion, children are most deprived in sanitation. In the absence of the nutrition and health dimensions, water becomes the most common form of deprivation in the South Western subregion.

The switch from deprivation to extreme deprivation in some cases leads to changes in the leading deprivation dimension by subregion. For instance, for the Eastern and North subregions, sanitation is replaced by information as the most common form of extreme deprivation. Also, education replaces information as the most common form of extreme deprivation in the Western subregion.

#### **2.4.4 Comparison of Multiple Deprivation in 2000, 2006, and 2011**

Multiple deprivation rates for the year 2000 and 2006 are contrasted with the 2011 in Figure 11 and Tables 12 and 13. There was a significant decline in multidimensional child deprivation over the ten-year period. The percentage of children suffering from at least one deprivation decreased from 94% to 85%. The share of children aged 0-4 years suffering from at least one extreme deprivation fell from 77.8% to 55.2% between 2000 and 2011. Among children aged 6-17 years, rates were somewhat lower, but the general evolution is the same. Similar improvements are noted for the shares of children suffering multiple deprivations.

These improvements are found across the board with a few notable exceptions. While the situation of children (sons/daughters) and other relatives of the household head improved in both age groups, the situation of **adopted/foster children** differed greatly. Deprivation rates

stagnated among 0-4 year olds, yet improved dramatically among 6-17 year olds. The gains by the 6-17 year olds may be partly explained by improvement in education outcomes – especially the reduction in proportion of children who have never been to school between 2000 and 2011.

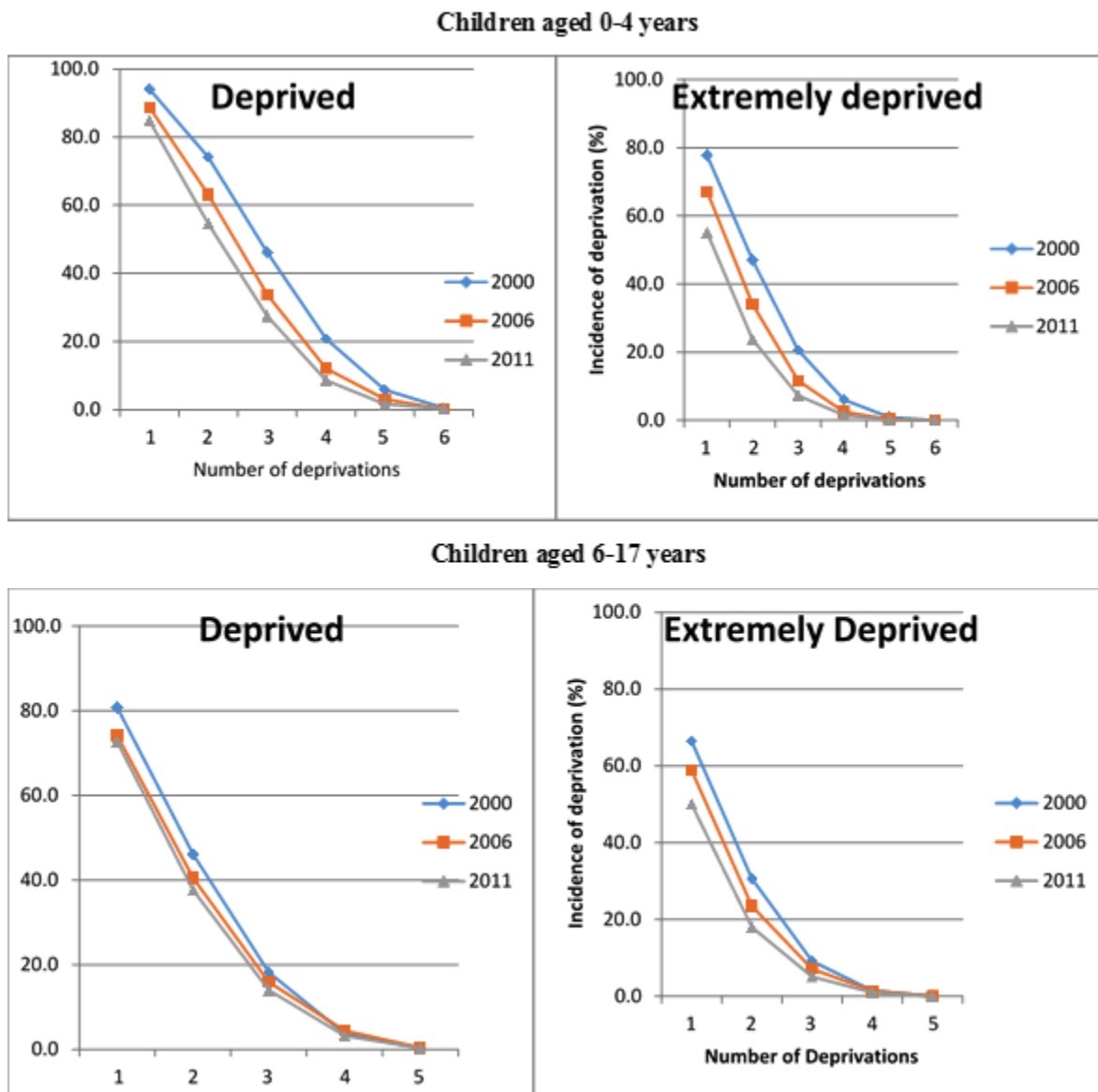
Most importantly, the greatest reductions in deprivations are concentrated among the **wealthiest** quintiles. Whereas, deprivation rates were very similar across quintiles in 2000, a clear and dramatic reduction in deprivations appears in 2006 and 2011. This is a result of an increase in deprivation rates among children in the poorest quintile at the same time as there are vast improvements in the richest quintiles. As we will see later in the analysis of single dimensions, these results reflect strong gains posted by the richest quintiles in several dimensions: sanitation, health, shelter and access to information.

### **Trends in extreme deprivation rates**

We also consider how the trends in extreme deprivations vary by subregions for children aged 0-4 years (Table 14). For most of the subregions, there were only minimal changes registered in the extreme deprivation rates during 2000 and 2006. Most of the changes were registered between 2006 and 2011. For instance, there are large drops in extreme deprivation rates for Kampala in the last 5 years. Specifically, 40% of children in Kampala were extremely deprived in at least one dimension in 2006 and this reduced by about one half by 2011. The only exception is the Central 2 sub-region, which registered a large drop in extreme deprivation rates between 2000 and 2006. For Karamoja subregion, the extent of extreme deprivation for children 0-4 years in at least one dimension remained fairly constant at about 95% over the ten-year period. Indeed, for Karamoja, changes are only visible when one considers deprivation in two or more dimensions—at least 57% of children were extremely deprived in two or more dimensions in 2011 compared to about 80% in 2000 and 2006.

For children aged 6-17 years, Table 15 shows that most progress in Kampala was made between 2000 and 2006. Specifically, extreme deprivation in at least one dimension declined from 48% in 2000 to 30% in 2006, then down to 26% by 2011. Other subregions—e.g. Central 1 and East Central—show stagnation in extreme deprivation rates after the year 2006. Finally, whereas the Western subregion showed signs of stagnation between 2000 and 2006 in extreme deprivation in at least one dimension, the subregion registered significant gains by 2011, reducing the extent of deprivation in at least one dimension by about 23 percentage points.

**Figure 11: Percentage of children suffering multiple deprivations in 2000, 2006, and 2011, including by wealth quintiles.**



**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

**Table 12: Percentage of children (0-4 years) suffering from multiple extreme deprivations in 2000, 2006 and 2011, by various characteristics**

	Number of extreme deprivations (2000)						Number of extreme deprivations (2006)						Number of extreme deprivations (2011)						
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	
<b>National</b>	77.8	47.1	20.6	6.1	0.9	0.0	67.2	34.1	11.7	2.5	0.3	0.0	55.2	23.8	7.3	1.5	0.1	0.0	
<b>Region</b>																			
Central	66.9	33.7	13.1	3.9	0.7	0.0	55.0	20.9	5.8	0.9	0.0	0.0	44.6	18.7	5.3	1.0	0.0	0.0	
Eastern	81.4	52.2	23.3	5.8	0.8	0.2	68.4	37.9	12.7	2.5	0.3	0.0	60.4	25.5	7.1	1.3	0.3	0.0	
Northern	90.4	66.9	35.3	12.7	1.9	0.2	81.8	49.3	21.4	6.3	1.0	0.0	67.4	36.5	14.7	3.4	0.0	0.0	
Western	75.7	41.1	14.9	4.1	0.4	0.0	65.4	30.8	8.4	1.0	0.0	0.0	50.2	17.6	4.4	0.9	0.2	0.0	
<b>Location</b>																			
Rural	80.2	50.0	22.1	6.6	1.0	0.1	66.9	36.7	12.6	2.6	0.3	0.0	59.6	26.7	8.3	1.7	0.2	0.0	
Urban	53.7	18.8	5.1	0.5	0.1	0.0	44.2	12.0	3.6	0.9	0.0	0.0	26.7	4.8	1.3	0.2	0.0	0.0	
<b>Sex of Child</b>																			
Male	78.3	47.3	20.7	6.6	0.9	0.0	67.5	34.7	12.6	2.3	0.2	0.0	54.9	24.9	7.6	1.4	0.1	0.0	
Female	77.3	47.0	20.5	5.5	0.9	0.0	66.8	33.5	10.6	2.6	0.4	0.0	55.5	22.6	7.1	1.5	0.2	0.0	
<b>Relationship to household head</b>																			
Sons/daughter	77.3	46.8	20.3	5.9	0.9	0.0	66.1	34.3	12.1	2.6	0.3	0.0	55.0	23.5	7.6	1.5	0.2	0.0	
Adopted/foster child	75.3	45.8	26.4	2.7	0.0	0.0	68.2	42.4	22.3	13.6	0.0	0.0	73.1	49.7	0.0	0.0	0.0	0.0	
Other relatives	81.7	50.2	23.3	7.5	0.7	0.0	74.2	32.4	8.1	0.7	0.3	0.0	55.9	25.0	5.7	1.4	0.0	0.0	
<b>Parents alive</b>																			
Both parents alive	77.7	53.9	20.6	6.1	0.9	0.1	67.0	33.8	11.6	2.3	0.3	0.0	54.8	23.3	7.1	1.5	0.1	0.0	
Mother or father deceased	82.3	47.0	21.7	2.3	0.1	0.0	77.7	47.0	13.0	0.0	0.0	0.0	68.3	36.5	14.7	0.0	0.0	0.0	
<b>Sex of household head</b>																			
Male	82.6	54.2	21.8	6.3	0.9	0.1	74.1	41.1	13.8	2.5	0.0	0.0	63.5	27.9	7.9	1.2	0.5	0.0	
Female	76.7	45.6	20.3	6.0	0.8	0.0	65.2	32.1	11.0	2.4	0.4	0.0	52.7	22.6	7.2	2.3	0.0	0.0	
<b>Wealth Quintile</b>																			
Quintile 1	81.0	49.7	23.4	7.7	1.4	0.0	95.4	74.3	34.7	9.3	1.4	0.0	83.7	52.2	21.2	5.6	0.4	0.0	
Quintile 2	71.6	38.3	14.2	3.4	0.4	0.0	80.1	38.0	11.2	1.4	0.0	0.0	63.8	25.8	7.6	0.5	0.2	0.0	
Quintile 3	79.6	48.0	22.1	6.5	0.7	0.0	65.0	28.1	5.3	0.6	0.0	0.0	54.3	20.3	4.1	0.7	0.0	0.0	
Quintile 4	79.0	51.0	21.1	6.1	1.1	0.4	54.5	15.9	3.3	0.5	0.0	0.0	40.6	10.8	0.7	0.0	0.0	0.0	
Quintile 5	76.7	47.6	21.3	6.2	0.8	0.0	33.1	7.9	1.5	0.1	0.0	0.0	24.8	3.3	0.5	0.0	0.0	0.0	
<b>Household size</b>																			
3 or 4 members	74.7	43.7	15.7	3.5	0.3	0.0	59.4	26.0	8.2	1.7	0.0	0.0	44.2	16.2	5.4	0.8	0.0	0.0	
5 or 6 members	78.1	44.4	19.6	4.5	0.5	0.0	69.0	38.5	13.9	2.4	0.2	0.0	60.5	26.8	6.8	1.3	0.0	0.0	
7 or 8 members	78.1	50.0	23.5	8.4	1.5	0.3	73.7	40.3	16.0	4.2	0.8	0.0	57.3	28.1	12.8	3.2	0.3	0.0	
9 or more members	80.6	52.6	25.2	9.1	1.5	0.0	64.1	27.0	6.4	1.3	0.4	0.0	59.3	24.8	3.7	0.4	0.3	0.0	

**Table 13: Percentage of children (6-17 years) suffering from multiple extreme deprivations in 2000, 2006 and 2011, by various characteristics**

	Number of extreme deprivations (2000)					Number of extreme deprivations (2006)					Number of extreme deprivations (2011)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>National</b>	66.4	30.6	9.2	1.5	0.1	58.8	23.5	7.1	1.5	0.1	50.0	18.0	5.1	1.0	0.1
<b>Region</b>															
Central	58.7	19.9	4.7	0.9	0.1	46.3	13.0	2.1	0.1	0.0	44.7	11.7	1.9	0.3	0.0
Eastern	70.6	34.8	9.3	1.4	0.0	59.4	24.1	7.4	1.3	0.0	54.0	19.5	3.4	0.6	0.1
Northern	83.7	56.6	24.3	3.2	0.1	75.5	40.0	16.4	4.7	0.4	62.8	33.7	15.2	3.4	0.2
Western	60.6	23.3	5.3	0.4	0.0	56.0	19.2	3.9	0.5	0.0	41.6	10.6	2.1	0.3	0.0
<b>Location</b>															
Rural	68.3	32.8	10.2	1.5	0.1	61.4	25.5	7.7	1.7	0.1	52.3	19.7	5.7	1.2	0.1
Urban	53.2	15.2	2.1	0.1	0.0	37.9	8.1	2.1	0.4	0.0	32.8	5.1	0.5	0.0	0.0
<b>Sex of Child</b>															
Male	66.1	30.5	9.1	1.3	0.0	59.7	23.9	7.2	1.7	0.1	50.1	17.5	4.4	0.8	0.1
Female	66.7	30.7	9.2	1.2	0.1	57.9	23.1	7.1	1.4	0.1	49.9	18.4	5.7	1.2	0.1
<b>Child age group</b>															
Primary school age	69.7	33.9	11.1	1.7	0.1	63.4	27.1	8.6	1.9	0.1	55.8	21.0	6.0	1.3	0.1
Secondary school age	59.7	24.0	5.3	0.4	0.0	49.6	16.6	4.3	0.8	0.0	38.8	12.0	3.3	0.5	0.0
<b>Relationship to household head</b>															
Sons/daughter	64.8	26.9	6.6	0.8	0.0	60.2	24.8	8.0	1.8	0.1	51.4	18.9	5.6	1.1	0.1
Adopted/foster child	69.9	26.3	7.6	0.8	0.0	58.5	19.5	5.9	0.7	0.0	44.4	13.1	2.4	1.1	0.0
Other relatives	66.9	32.3	10.2	1.5	0.1	55.6	20.8	5.2	1.0	0.0	46.9	16.0	3.9	0.8	0.0
<b>Parents alive</b>															
Both parents alive	68.0	32.6	10.5	1.8	0.1	58.8	23.6	7.3	1.7	0.1	49.5	17.5	4.7	1.0	0.1
Mother or father deceased	70.2	30.6	8.7	0.6	0.0	58.9	24.0	7.2	1.1	0.0	52.1	20.6	6.5	0.8	0.0
Both parents deceased	60.3	25.7	6.0	0.0	0.0	57.5	20.2	3.5	0.5	0.0	50.5	18.2	7.9	2.1	0.0
<b>Sex of household head</b>															
Male	72.1	33.7	9.1	1.0	0.0	63.6	26.7	8.5	1.5	0.0	52.4	21.5	6.1	1.3	0.0
Female	64.2	29.4	9.2	1.4	0.1	56.6	22.1	6.5	1.6	0.1	48.9	16.3	4.6	0.9	0.1
<b>Wealth Quintile</b>															
Quintile 1	68.6	33.7	10.2	2.2	0.1	94.3	63.0	27.1	6.9	0.5	85.4	50.4	20.2	4.5	0.2
Quintile 2	60.7	23.0	5.9	0.4	0.0	73.8	29.6	6.3	0.9	0.0	58.0	17.8	3.2	0.4	0.1
Quintile 3	70.2	35.5	11.0	1.4	0.1	58.8	16.4	2.3	0.2	0.0	43.1	10.8	0.6	0.0	0.0
Quintile 4	66.9	31.1	8.9	1.5	0.0	42.3	7.6	0.7	0.0	0.0	36.3	6.3	0.2	0.0	0.0
Quintile 5	65.5	29.7	9.7	1.0	0.0	27.1	3.7	0.4	0.0	0.0	23.2	2.0	0.4	0.1	0.0
<b>Household size</b>															
3 or 4 members	68.5	29.9	6.9	0.5	0.0	57.9	19.4	4.8	0.9	0.0	48.2	14.1	2.8	0.2	0.0
5 or 6 members	66.1	28.8	7.2	0.6	0.0	62.5	27.5	9.8	2.0	0.2	51.9	20.5	5.5	0.9	0.2
7 or 8 members	64.2	32.9	11.8	1.9	0.1	60.2	26.0	8.0	2.0	0.1	52.0	20.4	7.3	1.9	0.0
9 or more members	67.4	30.8	10.0	1.7	0.1	53.9	18.9	4.7	1.0	0.1	46.9	14.7	3.3	0.6	0.0

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

**Table 14: Percentage of children (0-4 years) suffering from multiple deprivations in 2000, 2006 and 2011, by sub regions**

	Number of extreme deprivations (2000)						Number of extreme deprivations (2006)						Number of extreme deprivations (2011)						
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	
National	77.8	47.1	20.6	6.1	0.9	0.0	67.2	34.1	11.7	2.5	0.3	0.0	55.2	23.8	7.3	1.5	0.1	0.0	
<b>Sub Region</b>																			
Kampala	44.9	10.1	0.4	0.0	0.0	0.0	40.1	10.4	2.8	0.4	0.0	0.0	19.0	2.0	0.6	0.0	0.0	0.0	
Central 1	69.5	37.1	15.0	4.1	0.8	0.0	64.7	24.4	9.3	1.9	0.0	0.0	54.8	25.3	8.0	0.8	0.0	0.0	
Central 2	72.2	38.8	15.7	5.0	0.9	0.0	52.5	22.9	3.5	0.0	0.0	0.0	50.9	22.7	5.6	1.7	0.0	0.0	
East Central	76.9	40.4	16.6	4.9	0.7	0.0	64.3	32.5	8.0	1.4	0.3	0.0	55.0	22.1	5.7	0.0	0.0	0.0	
Eastern	84.1	59.2	27.3	6.3	0.9	0.4	71.5	41.0	16.0	3.3	0.4	0.0	63.6	27.5	7.9	2.0	0.4	0.0	
North	85.1	54.5	27.8	8.9	0.9	0.0	83.2	42.7	15.5	3.5	0.3	0.0	57.4	27.2	10.0	2.9	0.0	0.0	
Karamoja	94.8	79.7	43.9	13.0	0.0	0.0	95.6	80.4	57.6	22.9	4.4	0.0	96.4	57.2	25.7	5.1	0.2	0.0	
West Nile	94.7	74.9	41.6	18.4	3.9	0.0	71.9	45.3	13.5	2.7	0.7	0.0	64.9	37.7	14.8	3.2	0.0	0.0	
Western	71.5	34.9	12.4	4.5	0.5	0.0	64.4	32.5	10	0.6	0.0	0.0	44.9	14.7	3.5	0.4	0.0	0.0	
South Western	78.2	44.9	16.4	3.8	0.4	0.0	66.5	28.8	6.5	1.4	0.0	0.0	50.5	20.9	5.5	1.4	0.4	0.0	

**Table 15: Percentage of children (6-17 years) suffering from multiple deprivations in 2000, 2006 and 2011, by sub regions**

	Number of extreme deprivations (2000)					Number of extreme deprivations (2006)					Number of extreme deprivations (2011)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
National	66.4	30.6	9.2	1.5	0.1	58.8	23.5	7.1	1.5	0.1	50.0	18.0	5.1	1.0	0.1
<b>Sub Region</b>															
Kampala	48.3	11.8	0.6	0.0	0.0	30.3	6.0	1.4	0.1	0.0	26.2	2.4	0.0	0.0	0.0
Central 1	60.5	20.4	4.6	0.7	0.1	48.8	12.5	2.3	0.0	0.0	49.4	13.3	2.3	0.3	0.0
Central 2	61.5	23.1	6.6	1.6	0.2	51.0	16.7	2.2	0.3	0.0	46.7	13.6	2.3	0.4	0.0
East Central	65.7	24.4	5.7	1.2	0.0	53.5	16.7	3.9	0.7	0.0	52.3	18.0	2.3	0.3	0.0
Eastern	73.7	41.3	11.5	1.5	0.0	63.7	29.4	9.9	1.7	0.1	55.3	20.5	4.2	0.9	0.2
North	78.0	47.1	17.1	2.2	0.0	74.5	34.5	8.7	1.3	0.0	56.2	25.3	8.8	2.0	0.2
Karamoja	90.6	67.8	30.1	4.2	0.0	91.1	78.8	57.9	22.8	2.2	88.1	71.1	43.8	10.6	0.5
West Nile	85.2	56.8	24.5	4.5	0.3	67.2	26.7	6.5	0.6	0.0	57.0	23.1	7.0	1.1	0.0
Western	58.2	24.3	6.4	0.8	0.0	60.6	21.0	4.6	0.8	0.0	37.9	8.9	1.8	0.2	0.0
South Western	61.9	22.8	4.7	0.2	0.0	50.3	17.0	3.1	0.1	0.0	46.0	12.8	2.4	0.5	0.0



#### 2.4.5 Determinants of multidimensional deprivation

This section delves deeper into the determinants of multidimensional deprivation – defined as simultaneously suffering from two or more deprivations –separately among children aged 0-4 years and 6-17 years (6.

Table 16). A logit model was adopted. Analysis (not shown) was also conducted with 3 or more, and 4 or more, deprivations with very similar results. Methodological details are provided in Annex 1.

Children's own characteristics influence their probability of being multidimensionally deprived. Age is positively correlated to multiple deprivations, as the estimated odds ratios (respectively 0.57 for deprivation and 0.75 for extreme deprivation) imply that secondary school-aged children are less likely to suffer multiple extreme deprivations than primary school-aged children. Other odds ratios can be interpreted similarly. For example, being fostered/adopted or being a relative other than the son or daughter of the household head reduces the odds of multiple deprivations, which is in line with results found elsewhere in this study. One interpretation is that households that take in foster/adopted children and other relatives tend to be richer. In contrast, orphan status increases the odd of extreme deprivation but this is only significant for children aged 6-17 years.

The characteristics of the household head are also important. Her/his age and education are inversely correlated with the probability of being extremely or less extremely deprived in a multidimensional context. The odds ratios suggest that having a head with tertiary, secondary or primary levels reduces the chance for the children to be extremely deprived respectively by 10 (1/0.1), 5 (1/0.21) and 2.2 (1/0.44) times, in comparison to children whose head has no education. Our results also suggest that the odds of multiple extreme deprivations increase with the age of the household head. The sex of the head is generally not statistically significant with the exception of deprivation among children aged 0-4 years.

Household size also proves to be a significant determinant. It appears that each additional household member increases the odds that a child will suffer multiple extreme deprivations. This conclusion is in line with what often emerges from studies on the determinants of monetary poverty, where larger households tend to be more afflicted.

The results also suggest the importance of geographical variables. In fact, the odds of children living in urban areas being extremely deprived in two or more dimensions is 2.2 times (1/0.4) lower than for rural children. Moreover, relative to Central region, children in all other regions are more likely to be multidimensionally deprived. Children from the North face the greatest risk, with odds that are more than twice those of children from the Central region. Finally, the results suggest that the multidimensional welfare of children improved between 2000 and 2011. Indeed, the odds of children aged 0-4 years suffering multiple extreme deprivations in 2006 are about 1.6 times lower than for children in 2000, while the odds in 2011 are about 2.3 times lower than 2000. Similarly, the odds of children aged 6-17 years of being deprived are 1.4 and 2.2 times lower in 2006 and respectively, indicating further improvement between 2006 and 2011. In contrast, their odds of being

extremely deprived are 1.4 times lower in both 2006 and 2011, implying little change after 2006.

**Table 16: The determinants of child multidimensional poverty (2 or more dimensions), 2011**

Comparators	Drivers	Odds ratios			
		Children 0-4 years		Children 6-17 years	
		Extremely Deprived	Deprived	Extremely Deprived	Deprived
Age 6-12	School age (13-17 years)			0.75***	0.57***
Female	Sex of child (male)	1.06	1.07	1.04	0.96
Both parents alive	Mother or father dead	1.19	1.08	1.05*	1.01
Biological child	Child is adopted/fostered	0.91	1.13	0.90***	0.79***
Biological child	Child is other relative	1.31	1.7	0.75***	0.68***
	Age of household head	0.71***	0.44***	0.42***	0.47***
Female	Sex of head (male)	1.24***	1.14*	0.99	1.04
No education	Head has primary level	0.46***	0.41***	0.44***	0.35***
No education	Head has secondary level	0.20***	0.20***	0.23***	0.18***
No education	Head has tertiary level	0.09***	0.11***	0.12***	0.08***
	Household size	1.06***	1.09***	1.04***	1.03***
Rural	Location (urban)	0.35***	0.49***	0.43***	0.41***
Central	Eastern region	1.55***	1.23**	1.12***	1.42***
Central	Northern region	2.8***	1.57***	2.38***	3.70***
Central	Western region	1.04***	0.67***	0.73***	0.82***
	Dummy (2006)	0.56***	0.59***	0.74***	0.61***
	Dummy (2011)	0.35***	0.44***	0.70***	0.46***
	Number of obs. (N)	9,526	9,526	42,134	42,134
	LR Chi2(16)	1,564	1,436		
	LR Chi2(17)			6,571	7,619
	Prob > Chi2	0	0	0	0

#### 2.4.6 Summary

Deprivation is quite widespread among children in Uganda with about half extremely deprived in at least one dimension in 2011. Nearly 20% are deprived in two or more dimensions, and 5% in three or more. The North (over 60% suffering one or more extreme deprivations) and rural areas are much more affected. There are no significant differences between girls and boys, and between orphans and non-orphans. Wealth substantially reduces deprivation rates. The most common forms of extreme deprivation among children are information (20%) and shelter (16%). The North has the highest rates of extreme deprivation, except for health and access to water. Significant reductions are noted in rates of multiple

deprivations and in each of the dimensions between 2000 and 2011 with a few exceptions, notably among the poorest quintiles.

We now turn our attention to a more in-depth analysis of deprivations in each of the dimensions of child well-being.

## 2.5 Nutrition

Data on child anthropometrics – height and weight – are only available from the UDHS surveys (2000, 2006, and 2011) and were obtained for a subset of children whose mother was in the surveyed household (one child for each mother). The children are aged 0 to 59 months and represent a sample of 7113 children in UDHS 2000 and 8369 children in UDHS 2006.

The literature suggests that it is important to take into account several indicators of child nutrition to capture different dimensions: child height-for-age reflects accumulated health and nutrition, while weight-for-height and weight-for-age capture more current nutritional conditions. The literature also suggests that anthropometric indicators may capture some factors affecting body size beyond nutrition, such as genetic factors (Lawson and Appleton, 2007).

Deprivation for each measure of malnutrition is defined as a z-score less than or equal to -2 (i.e. at least two standard deviations below median levels according to WHO tables) and deprivation is defined as extreme if the z-score is equal to or below -3. To lighten the text we focus our discussion on deprivation, mentioning extreme deprivation only where results differ qualitatively.

### 2.5.1 Stunting

Table 17 presents the proportion of children under five suffering from stunting (low height-for-age, reflecting chronic malnutrition) by child/household characteristics. Previous studies in Uganda have shown a strong correlation between these characteristics and child nutritional status in Uganda. The incidence of stunting among children under the age of five<sup>8</sup> fell from 45% to 33% between 2000 and 2011, while severe stunting went from 19% to 14%.

The Western **region** had the largest proportion of children suffering from chronic malnutrition in all three years (see Map 2), although its situation improved substantially in 2006 (a drop of 10 percentage points in stunting rates). Children in the East and Centre have the lowest rates of stunting in both years (9.7% and 12.2% severe stunting in 2011), with the Central region posting a particularly strong improvement between 2000 and 2006, and the Eastern region progressing primarily between 2006 and 2011. Stunting is substantially higher in **rural** areas, where it affects nearly half of all children in 2000, 40% in 2006, and 35% in 2011. Severe malnutrition rates are roughly twice as high as in urban areas – 14.9 vs. 6.1% in 2011 – in all years.

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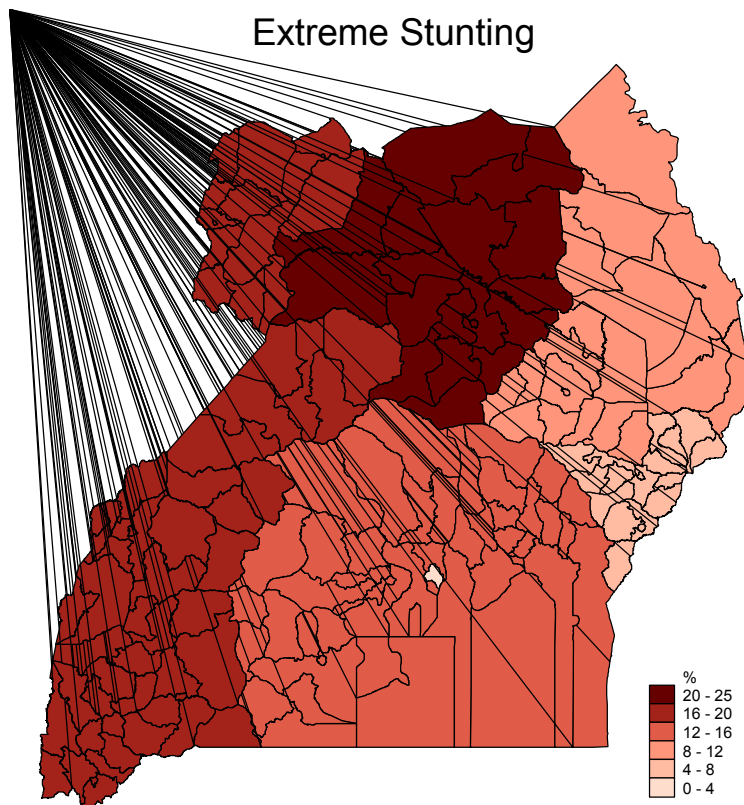
<sup>8</sup> Anthropometric data is only collected for children aged 0 to 60 months in the UDHS.

**Table 17: Stunting (proportion of children aged under five, %)**

	2000		2006		2011	
	Z-score≤-2	Z-score≤-3	Z-score≤-2	Z-score≤-3	Z-score≤-2	Z-score≤-3
<b>National</b>	45.0	19.2	38.0	15.1	33.0	13.7
<b>Region</b>						
Central	41.5	16.5	30.8	10.8	29.7	12.2
Eastern	41.8	15.4	37.7	12.5	28.2	9.7
Northern	43.5	19.0	41.0	18.4	31.6	14.6
Western	53.5	26.6	42.2	18.6	42.4	19.1
<b>Location</b>						
Rural	46.3	20.1	39.5	15.9	35.0	14.9
Urban	32.6	10.6	25.6	8.4	19.7	6.1
<b>Sex of child</b>						
Male	47.4	21.7	40.9	17.1	37.9	15.9
Female	42.7	16.7	35.1	13.0	28.1	11.5
<b>Child age group</b>						
0-12 months	26.7	8.5	22.2	9.0	15.7	4.9
13-24 months	51.0	24.4	43.5	14.0	37.6	16.4
25-36 months	54.1	25.8	45.2	21.8	45.7	21.0
37-48 months	50.4	20.4	44.2	16.3	35.7	14.4
49-60 months	46.5	18.4	39.0	16.1	34.4	13.8
<b>Sex of household head</b>						
Male	44.6	18.7	37.6	14.6	31.2	12.9
Female	47.1	21.7	39.7	16.8	34.9	13.9
<b>Relationship to household head</b>						
Son/daughter	43.5	21.9	42.1	19.2	33.3	13.8
Other relatives	45.1	19.1	37.8	14.9	29.3	12.8
<b>Mother's education</b>						
No education	52.0	23.5	41.4	15.9	41.7	18.4
Primary	44.0	18.8	40.0	16.4	33.8	14.1
Secondary and more	35.3	11.8	23.7	8.0	25.2	9.6
<b>Wealth quintile</b>						
Quintile 1	50.4	23.4	43.6	18.8	35.3	16.6
Quintile 2	48.6	20.4	36.8	16.5	30.6	12.6
Quintile 3	49.3	21.7	45.2	15.6	44.2	20.1
Quintile 4	38.0	15.8	36.8	14.9	30.2	11.0
Quintile 5	33.9	11.2	24.4	8.1	22.5	6.7
<b>Household size</b>						
3 or 4 members	44.1	19.0	41.4	14.9	27.9	12.2
5 or 6 members	47.4	20.2	35.9	14.5	34.2	13.7
7 or 8 members	46.9	19.7	39.5	16.8	33.8	14.5
9 or more members	40.4	17.1	37.1	14.8	34.9	14.9

Source: Authors' calculations based on Uganda Demographic and Health Surveys.

**Map 2: Geographic distribution of severe stunting rates in 2011**



**Source:** Authors' calculations based on Uganda 2011 Demographic and Health Survey.

**Boys** suffer from more chronic malnutrition than **girls** in Uganda in all years: 38 vs. 28% (16 vs. 11.5% for severe stunting) in 2011. The prevalence of stunting portrays an inverted Ushaped relationship with **age of the child** in all years. The prevalence rises up to 25-36 months – 21% severe stunting and 45.7% less severe stunting in 2011 – and declines thereafter. In contrast, children under the age of one are much less likely to suffer from chronic malnutrition: 5% severe and 15.7% less-severe in 2011. These results are consistent with the expected detrimental nutritional effects of weaning on children aged 12-24 months (FANTA-2, 2010; Gray, Akol, and Sundal, 2009; Kabubo-Mariara et al., 2009; Alderman, 2007; Bahiigwa and Younger, 2005). Thereafter, children aged two and over are likely to get more nutrients from a wider range of foodstuffs, which appears to gradually and partially resorb the problem. These results could be used to better target nutrition programs.

Children from **female-headed households** also suffer a higher prevalence of chronic malnutrition than children from male-headed households. **Children who are sons/daughters of the household head** suffer more from severe chronic malnutrition (14% in 2011) than other relatives (which includes orphans/foster children) in the household (13%) in all the three years, although the inverse is observed for malnutrition in 2000. The underlying explanation of this result is not immediately clear.

The prevalence of stunting declines dramatically with **mother's education** for all survey years. In all the three years, children of mothers with no education were roughly twice as

likely to suffer severe chronic malnutrition as those whose mothers had post-primary education (18.4% vs. 9.6% in 2011). These results confirm Ssewanyana and Kasirye (2012) as well as Lawson and Appleton (2007), who find beneficial effects of parental education on the nutritional status of children.

Stunting rates decline strongly with **wealth**. In 2011, for example, severe chronic malnutrition rates range from 16.6% in the poorest quintile to 6.7% in the richest quintile. Previous studies in Uganda found that higher income households have taller children and greater weight-for-height ratios (Ssewanyana and Kasirye, 2012; Lawson and Appleton, 2007; Alderman, 2007; Bahiigwa and Younger 2005). Chronic malnutrition increases with **household size** in 2011, suggesting greater sharing of limited food resources, although the pattern is less clear in the preceding years.

### 2.5.2 Underweight

A child is defined as underweight if her/his weight is at least two standard deviations below WHO median weights for her/his age. This proportion declined significantly from 19% in 2000 to 13.5% in 2011 (Table 18). The proportion of severely underweight children – three standard deviations or more below normal – also fell (from 5.5% to 3.5%) during this period.

These rates vary by **region**. Unlike stunting, where the highest rates were in the West, it is the North that posts the highest share of underweight children (17.4% in 2011) with the lowest rate in the Centre (10.6%). Furthermore, the gap has increased since 2000, with rates falling strongly in the Centre between 2000 and 2006 and stagnating thereafter. In the North, the rates decreased only between 2006 and 2011. This suggests that problems of malnutrition in the North may be linked to the experience of the 1987-2007 conflict.

**Rural** children are twice as likely to be severely underweight than their **urban** counterparts. Although the gap fell dramatically in 2006 as conditions deteriorated in urban areas and improved in rural areas, it increased once again by 2011 as urban gains outstripped rural gains. As is the case for stunting, **boys** were more likely to be underweight than **girls** in Uganda in 2006 – 19% vs. 14% – with both experiencing moderate reductions between 2000 and 2006. However, by 2011, the gender differences appear to have been eliminated through substantial improvements for boys. The analysis by **age of the child** suggests that malnutrition is more prevalent in the younger age groups – between 0 and 36 months – although the gap appears to be decreasing as younger children post greater progress than their older counterparts.

Children in **female-headed households** generally show a higher likelihood of being underweight, although it is noteworthy that this relationship is reversed in the case of severe malnutrition in 2011. Since 2006 and particularly in 2011, children of the **household head** fare worse than other relatives.

**Table 18: Underweight (proportion of children aged under five, %)**

	2000		2006		2011	
	Z-score≤-2	Z-score≤-3	Z-score≤-2	Z-score≤-3	Z-score≤-2	Z-score≤-3
<b>National</b>	19.1	5.5	16.5	4.9	13.5	3.5
<b>Region</b>						
Central	17.3	5.1	10.7	3.2	10.6	2.4
Eastern	19.2	5.0	18.0	4.3	12.6	2.5
Northern	21.6	6.6	21.1	7.9	17.4	5.8
Western	19.1	5.9	16.5	4.5	14.7	4.1
<b>Location</b>						
Rural	20.0	5.9	17.1	4.9	14.4	3.8
Urban	10.1	2.3	11.6	4.4	7.9	1.5
<b>Sex of child</b>						
Male	20.9	6.4	19.0	5.6	13.1	3.7
Female	17.2	4.7	13.9	4.1	13.9	3.2
<b>Child age group</b>						
0-12 months	20.1	6.2	20.7	7.0	13.3	3.4
13-24 months	22.1	7.3	18.0	5.8	15.6	4.2
25-36 months	18.9	5.4	16.8	4.0	16.7	3.9
37-48 months	16.0	3.8	11.6	3.3	9.5	3.4
49-60 months	16.9	4.1	13.7	3.2	12.1	2.2
<b>Sex of household head</b>						
Male	18.4	5.3	16.5	4.7	13.2	3.6
Female	22.2	6.5	16.7	5.4	14.5	3.3
<b>Relationship to household head</b>						
Son/daughter	16.9	4.7	19.1	6.7	37.8	3.6
Other relatives	19.2	5.6	16.4	4.8	21.4	2.6
<b>Mother's education</b>						
No education	26.0	8.6	21.4	7.1	18.7	6.5
Primary	17.5	4.8	16.1	4.6	13.3	3.2
Secondary and more	12.3	2.9	10.6	2.8	11.1	2.6
<b>Wealth quintile</b>						
Quintile 1	24.6	7.4	20.8	5.7	17.8	4.7
Quintile 2	19.9	6.2	16.7	4.5	15.7	4.0
Quintile 3	21.0	6.5	17.7	4.9	17.5	5.1
Quintile 4	14.6	3.5	16.4	6.6	8.7	2.1
Quintile 5	11.2	2.7	9.4	2.2	9.7	1.0
<b>Household size</b>						
3 or 4 members	17.9	5.4	17.1	5.5	12.0	2.6
5 or 6 members	20.6	5.2	15.7	4.0	13.3	3.4
7 or 8 members	19.0	6.2	18.2	5.4	13.8	4.4
9 or more members	17.9	5.6	16.0	5.3	14.9	3.8

Source: Authors' calculations based on Uganda Demographic and Health Surveys.

**Mother's education** is inversely and strongly correlated with child malnutrition, as expected (e.g. Silva, 1995). Indeed, 19% of children of mothers with no education were underweight, compared to only 11% of children of mothers with post-primary education in 2011. Unlike stunting, significant improvements are noted even among children whose mother only had primary education. The greatest reductions between 2000 and 2011 were among children whose mother had no education, where rates were highest.

The likelihood of a child being underweight tends to fall with **wealth**, as has been found in other studies (Sahn and Alderman, 1997). However, we note some variations in this relationship, particularly for the third quintile. Improvements over time are noted in all quintiles, with some reversals in specific years and quintiles. There are no clear patterns in underweight rates with regard to **household size**.

### 2.5.3 Wasting

There was a marginal *increase* in the prevalence of wasting (height-for-weight) between 2000 and 2006 (Table 19). However, these rates returned to 2000 levels by 2011. This result suggests that wasting rates are volatile and should be monitored carefully.

The **regional** distribution varies markedly between wasting and severe wasting, and between years, making it impossible to draw clear generalizations. For instance, the North and Centre suffer the highest rates of wasting in 2011 (5.7 and 6%, respectively), whereas severe wasting is actually most prevalent in the West. As wasting is measured by the ratio of weight to height, it is the relative improvement in each that determine how wasting evolves. However, a common result is an increase in wasting and severe wasting in all regions between 2000 and 2006. The statistics from 2011 generally show reductions in both wasting and severe wasting, indicating an improvement in nutrition throughout Uganda. **Rural-urban** comparisons are also generally inconclusive. For example, in 2011 severe wasting is more widespread in urban areas (2.4 vs. 1.5%), whereas wasting is more prevalent in rural areas (5.1 vs. 4.5%). However, it is clear that wasting rates increased dramatically in 2006, particularly in urban areas, and then recovered by 2011; partially in urban areas and fully in rural areas.

As was the case for stunting and being underweight, **boys** are also more likely to suffer from wasting than girls, indicating that their weight lag is even more substantial than their height lag. Perhaps most alarmingly, wasting rates are highest for the youngest children and subsequently decline with **age** with the exception of the oldest group. This pattern was particularly evident in 2006, when wasting rates among the youngest children rose dramatically relative to 2000. This reinforces the earlier point about the need for careful monitoring of wasting rates – possibly through a monthly or quarterly rapid monitoring survey – especially among the youngest and most nutritionally vulnerable children aged 0-24 months.



**Table 19: Wasting (proportion of children aged under five, %)**

	2000		2006		2011	
	Z-score≤-2	Z-score≤-3	Z-score≤-2	Z-score≤-3	Z-score≤-2	Z-score≤-3
<b>National</b>	5.1	1.6	6.7	2.3	5.0	1.6
<b>Region</b>						
Central	4.3	1.8	5.2	2.2	5.7	1.5
Eastern	5.7	1.1	6.6	2.7	5.0	1.1
Northern	5.2	1.6	7.5	2.2	6.0	2.1
Western	5.3	2.0	7.5	2.2	3.8	2.2
<b>Location</b>						
Rural	5.4	1.6	6.6	2.3	5.1	1.5
Urban	2.9	0.9	8.0	3.1	4.5	2.4
<b>Sex of child</b>						
Male	6.4	1.5	8.4	2.6	5.3	2.2
Female	3.9	1.7	5.0	2.1	4.7	1.1
<b>Child age group</b>						
0-12 months	9.8	3.5	14.4	5.4	11.1	3.6
13-24 months	7.2	1.6	9.2	3.6	5.6	1.4
25-36 months	2.5	1.0	4.1	0.6	2.3	0.5
37-48 months	1.7	0.5	1.1	0.5	1.1	0.4
49-60 months	2.5	0.7	1.8	0.4	3.1	2.0
<b>Sex of household head</b>						
Male	5.4	1.7	6.5	2.2	5.1	1.7
Female	4.0	1.1	7.6	3.1	4.6	1.6
<b>Relationship to household head</b>						
Son/daughter	4.9	2.2	7.6	2.4	5.1	1.7
Other relatives	5.1	1.5	6.7	1.1	4.5	1.6
<b>Mother's education</b>						
No education	6.2	1.8	6.7	2.6	7.4	2.9
Primary	5.1	1.7	6.7	2.4	4.6	1.6
Secondary and	3.0	0.6	7.0	1.8	4.9	1.1
<b>Wealth quintile</b>						
Quintile 1	5.1	1.4	6.8	1.9	6.8	1.5
Quintile 2	6.7	2.3	6.4	2.3	5.4	2.5
Quintile 3	5.3	2.0	7.9	3.1	2.1	1.2
Quintile 4	4.3	1.0	6.1	2.8	4.2	1.9
Quintile 5	3.9	1.1	6.2	1.5	8.9	1.1
<b>Household size</b>						
3 or 4 members	5.1	1.9	8.0	3.6	4.3	1.1
5 or 6 members	4.9	1.3	5.5	1.8	5.5	2.4
7 or 8 members	5.3	1.9	7.5	3.0	6.1	1.4
9 or more members	5.5	1.3	6.8	1.3	3.6	1.3

Source: Authors' calculations based on Uganda Demographic and Health Surveys.

Children in **female-headed households** were more prone to wasting in 2006, while the opposite held in 2000 and 2011, although the differences are not large. Wasting is somewhat more prevalent among **children of the household head** than among children with other relationships to the household head. As was the case for stunting and being underweight, the likelihood of wasting and severe wasting falls consistently with **mother's education**. An exception in this regard occurred in 2006 where wasting actually appears to increase slightly for children of highly educated mothers. It is noteworthy that, while wasting and severe wasting rates increased in all groups in 2006, they recovered by 2011 among children of educated mothers, the situation further deteriorated for children of uneducated mothers. The prevalence of wasting and severe wasting varies by quintile of **wealth** with no clear pattern. The results suggest that the weight gains of children in richer households do not always keep up with their height gains. There is no clear pattern by **household size** either.

Generally, these results are consistent with previous studies for Uganda (Gray, Akol, and Sundal, 2009; Alderman, 2007; Bahiigwa and Younger, 2005). Gray, Akol, and Sundal (2009) for instance, in a study on growth of Karamojong children, find that the age cohort of the child and characteristics of the mother influence children's growth. Mackinnon (1995) found that nutrition responds to real expenditures, while sex of the child (girls did better than boys), parental education, and relative food prices are important determinants of nutrition. Isolation (remote rural areas) was also found to endanger child nutritional status.

As in the literature, some individual factors only have a small effect. Other factors that are advanced in the literature as affecting nutrition include: disease burden (malaria, diarrhoeal disease, acute respiratory infections and the risk of HIV/AIDS contribute significantly to disease in young children, exacerbating malnutrition and precipitating child mortality); inadequate dietary intake; vitamin fortification; infant/young child feeding practices; poverty, food security and access to food; gender inequality, gender roles and social cohesion, which lead to persistent food insecurity; and poor health and nutrition infrastructure.

A child's overall health status is expected to play a critical role in their growth and this tends to compound the effect of other factors such as age. Scarcity of safe water for human consumption and lack of adequate hygiene in the home are also major factors for weight loss as a result of children's exposure to gastrointestinal infections. Immunization is a factor for enhancing weight gain, although it is not sufficient to buffer children from multiple stressors during teething and weaning (Gray, Akol, and Sundal 2009; Bahiigwa and Younger, 2005).

Finally, Table 20 shows nutritional status by sub-regions. Large interregional disparities emerge, with the subregion of Karamoja being among the poorest performers in terms of all nutritional indicators, while Kampala shows far better outcomes. The South Western and West Nile subregions also consistently post higher deprivation rates than the national average. In some cases, children's nutritional status varies substantially according to the dimension analysed. For example, the Western region has among the highest rates of stunting, yet its underweight and wasting rates are near or below the national average. This suggests that this region has faced important long-term nutritional challenges, as captured by stunting rates, but suggests that things may be improving more recently.

**Table 20: Nutrition status of children by subregions in 2011 (proportions of children aged under 5 years (%))**

	Stunting		Underweight		Wasting	
	Z-score $\leq$ -2	Z-score $\leq$ -3	Z-score $\leq$ -2	Z-score $\leq$ -3	Z-score $\leq$ -2	Z-score $\leq$ -3
<b>National</b>	32.9	13.7	14.0	4.0	5.1	1.7
<b>Subregion</b>						
Kampala	14.5	3.6	6.8	2.3	4.6	1.5
Central 1	33.0	14.0	13.5	4.1	6.1	0.5
Central 2	36.0	15.2	10.8	1.5	6.2	2.4
East Central	32.4	13.4	17.1	5.1	5.1	1.9
Eastern	25.2	7.6	10.5	1.6	4.9	0.6
North	26.0	10.8	11.7	4.0	3.6	0.8
Karamoja	41.1	21.0	28.8	13.4	8.5	2.9
West Nile	34.3	16.2	20.2	6.1	7.8	3.4
Western	43.1	18.5	14.3	3.4	2.8	1.2
South Western	42.1	20.2	16.4	6.4	5.1	3.1

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

#### 2.5.4 Summary

To summarize, a key finding is that malnutrition is widespread in Uganda. The most common form of severe malnutrition is, by far, stunting (13.7% of children in 2011, vs. 3.5% underweight and 1.6% wasting). While there were modest reductions in stunting and underweight rates between 2000 and 2006, wasting became more prevalent, indicating that weight gains (short-term) lagged behind height gains (long-term). However, data from 2011 shows improvements in all three nutritional indicators, indicating unambiguous progress in combatting malnutrition.

Malnutrition is most acute in the Northern and Western **regions** for all three indicators. It is also generally more widespread in **rural** areas, especially in terms of stunting and underweight, suggesting that nutritional programs should target rural areas particularly. When child height and weight are brought together in terms of wasting, the portrait is somewhat less clear with severe deprivation rates in urban areas actually exceeding rural areas in 2011.

**Boys** generally have somewhat higher malnutrition rates across the three years and three indicators. Whereas stunting and underweight percentages are highest among children **aged** 13-36 months, wasting particularly affects children from 0 to 12 months. **Mother's education** and **household wealth** are shown to generally have strong positive impacts on child nutrition. Children in **female-headed households** and **sons/daughters** of the household head tend to fare worse than their counterparts. Female-headed households may be poorer, whereas other relatives are more likely to be taken in to households that are wealthy. The role of **household size** is not clear, although there is some indication in the 2011 stunting results that a larger household size corresponds to an increase in child malnutrition.

## 2.6 Access to water

The three tables below present the proportion of children under 18 who are deprived in terms of access to water according to various definitions and characteristics. We compare deprivation rates using three different surveys: UDHS 2000, 2006 and 2011.

### 2.6.1 Unimproved source of water

Table 21 shows the share of children without access to an improved source of water. We note a substantial reduction between 2000 (39%) and 2011 (30%). Western and Central Uganda are the regions that have the largest proportion of children deprived of a source of improved water since 2006 (46% and 38%, respectively, in 2011), twice or three times Eastern Uganda (14% in 2011). Indeed, access has improved dramatically in the Eastern and the Northern regions, with deprivation rates falling by roughly 20 percentage points, whereas they only fell by 5 percentage points (from 51%) in the Western Uganda and actually increased 3 percentage points in Central Uganda.<sup>9</sup> Children in **rural** areas are nearly three times more likely (33% vs. 12% in 2011) to lack access to improved water sources than their urban counterparts, although the gap has been falling, particularly between 2006 and 2011, as rural areas continue to post gains – albeit smaller than between 2000 and 2006 – while urban areas actually saw a fall in access.

We do not uncover any clear pattern in the extent of deprivation by **sex**, **orphan status** or **relationship to the head of the household**. Children in **male-headed households** are equally likely to be water-deprived as their counterparts in female-headed households. The relationship between the prevalence of water deprivation by **wealth quintile** is an inverted-U-shape, with the lowest rates among the richest and poorest quintiles. This surprising result is explained by the fact that the poorest quintiles use boreholes as the main water source more compared to any other group. For instance in 2011, 64% of households in the poorest quintile used boreholes while 10% used unprotected springs. The corresponding rates for the second poorest quintile are 48% boreholes and 17% unprotected springs. There is no clear relationship between access to an improved water source and **household size**, although the largest households (9 or more members) have the lowest deprivation rates in 2011.

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<sup>9</sup> The large reduction in access to unimproved sources of water in the North witnessed between 2000 and 2006 can be partially explained by large movements of people into internally displaced person (IDP) camps. The government created about 200 protected IDP camps, which at one time held 1.8 million Ugandans, when the civil war intensified in Northern Uganda after 2002. With the support of international aid agencies, these camps had access to improved water sources, especially boreholes. However, as highlighted by Ssewanyana et al. (2006), the incidence of water-borne diseases among children was higher in IDP camps despite their relatively shorter proximity to boreholes because of congestion at the water points.

**Table 21: No access to improved water source (proportion of children under 18, %)**

	UDHS 2000	UDHS 2006	UDHS 2011
<b>National</b>	39.2	33.1	30.5
<b>Region</b>			
Central	34.6	38.6	37.6
Eastern	32.4	21.8	14.4
Northern	41.3	25.5	21.5
Western	51.3	45.0	46.3
<b>Location</b>			
Rural	42.5	35.8	32.9
Urban	14.2	11.1	12.5
<b>Sex of Child</b>			
Male	40.0	33.1	31.1
Female	38.3	33.1	29.8
<b>Relationship to household head</b>			
Sons/daughter	39.8	33.5	30.7
Adopted/foster child	38.9	33.4	25.8
Other relatives	37.1	32.2	30.0
<b>Parents alive</b>			
Both parents alive	39.2	33.3	30.5
Mother or father deceased	39.9	32.8	28.7
Both parents deceased	39.4	29.5	32.0
<b>Sex of household head</b>			
Male	38.4	32.7	29.9
Female	39.4	33.3	30.7
<b>Wealth Quintile</b>			
Quintile 1	41.7	31.6	26.0
Quintile 2	31.9	38.4	34.3
Quintile 3	47.5	42.8	40.2
Quintile 4	41.1	33.3	32.3
Quintile 5	33.2	18.0	17.3
<b>Household size</b>			
3 or 4 members	39.6	32.8	31.8
5 or 6 members	42.4	34.6	31.2
7 or 8 members	36.2	32.7	30.4
9 or more members	38.0	31.8	28.7

Source: Authors' calculations based on Uganda Demographic and Health Surveys.

## 2.6.2 Distance to nearest source of water

In Table 22, a child is defined as water deprived if s/he lives in a household where the nearest source of water is more than a 30 minute return trip. In some instances, the results according to this measure of deprivation differ from those based on the use of an unimproved source of water. We will analyse these differences below.

Overall, deprivation rates tend to be somewhat higher. Furthermore, the rate of improvement between 2000 and 2011 is lower and we note stagnation between 2000 and 2006. This reflects the fact that investments in increasing water sources (e.g. by drilling wells) has been limited. Contrary to the previous results, the Northern **region** has the highest deprivation rates based on this second definition. The relatively higher deprivation rates in Northern Uganda may be partly explained by the larger waiting time at water points in Northern Uganda compared to the rest of the country. Ssewanyana et al (2006) show that although households in Northern Uganda are nearer to water points, the average waiting time at water points is about 60 minutes.

Although at much higher levels, **rural** deprivation is still twice that of urban children when defined in terms of distance to water: 65.6% vs. 25.3% in 2011. The results further show no significant difference in deprivation by the child's **sex**, **relationship to the household head**, **orphan status** and **gender of the household head**. Unlike the previous section, deprivation falls continuously with increasing **wealth** since 2006, although this effect is by far the greatest for the richest quintile, which is the only quintile to have posted significant gains over time (reduction from 69.4% in 2000 to 33.5% in 2011). The relationship with **household size** is also different, as deprivation rates generally increase as households get bigger, possibly because larger households generally tend to live in more remote areas.

In Table 23, a child is defined as extremely water deprived if s/he lives in a household where the nearest source of water is more than a 60-minute return trip. Deprivation rates are nearly half those when the threshold is set at 30 minutes, but the general geo-socio-economic profile is very similar. While some deterioration was noted between 2000 and 2006, the national deprivation rate recovers to slightly below its 2000 level by 2011. Although at lower levels, the pattern of deterioration and subsequent recovery – which is also found to a lesser degree at the lower threshold – is reproduced for all the geo-socio-economic categories except the Central region and the wealthiest quintile, where extreme deprivation rates fall continuously over the whole period, and significantly so in the case of the wealthiest quintiles.

**Table 22: More than 30 minutes (return trip) to nearest source of water (proportion of children under 18, %)**

	<b>UDHS 2000</b>	<b>UDHS 2006</b>	<b>UDHS 2011</b>
<b>National</b>	64.6	66.0	60.8
<b>Region</b>			
Central	62.0	56.1	55.6
Eastern	66.2	67.2	59.5
Northern	73.7	73.5	72.6
Western	60.3	67.5	58.3
<b>Location</b>			
Rural	69.4	69.7	65.6
Urban	28.6	35.5	25.3
<b>Sex of Child</b>			
Male	64.4	66.6	60.9
Female	64.9	65.3	60.6
<b>Relationship to household head</b>			
Sons/daughter	64.5	66.6	61.5
Adopted/foster child	63.6	61.9	65.1
Other relatives	65.1	64.5	58.2
<b>Parents alive</b>			
Both parents alive	65.2	66.0	60.7
Mother or father deceased	64.8	65.0	61.3
Both parents deceased	65.4	68.4	62.2
<b>Sex of household head</b>			
Male	65.0	64.1	61.4
Female	64.5	66.7	59.1
<b>Wealth Quintile</b>			
Quintile 1	63.3	75.0	72.1
Quintile 2	52.9	69.9	66.7
Quintile 3	70.1	68.0	63.4
Quintile 4	66.8	67.0	63.2
Quintile 5	69.4	48.3	33.5
<b>Household size</b>			
3 or 4 members	62.7	59.6	53.0
5 or 6 members	64.2	65.7	60.3
7 or 8 members	66.1	67.3	64.7
9 or more members	66.1	69.2	62.4

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

**Table 23: More than 60 minutes (return trip) to nearest source of water (proportion of children under 18 years, %)**

	<b>UDHS 2000</b>	<b>UDHS 2006</b>	<b>UDHS 2011</b>
National	36.4	42.4	35.8
<b>Region</b>			
Central	35.8	33.2	32.5
Eastern	38.8	40.6	36.0
Northern	43.1	52.6	42.9
Western	30.2	44	33.6
<b>Location</b>			
Rural	39.4	45	38.9
Urban	14.2	21.4	12.8
<b>Sex of Child</b>			
Male	36.1	42.5	35.7
Female	36.7	42.3	35.9
<b>Relationship to household head</b>			
Sons/daughter	36.3	42.9	36.4
Adopted/foster child	39.8	37.9	31.8
Other relatives	36.6	41.4	34.4
<b>Parents alive</b>			
Both parents alive	36.7	42	35.6
Mother or father deceased	38.1	44.3	38.3
Both parents deceased	32.4	48.7	33.8
<b>Sex of household head</b>			
Male	37.4	41.2	35.5
Female	36.1	42.9	35.9
<b>Wealth Quintile</b>			
Quintile 1	33.9	54	45.0
Quintile 2	28.5	44	41.0
Quintile 3	42.2	45.4	35.6
Quintile 4	37.8	40.7	37.1
Quintile 5	39.3	26.4	16.8
<b>Household size</b>			
3 or 4 members	34.0	36.3	30.9
5 or 6 members	35.1	43.2	34.0
7 or 8 members	37.4	44.1	38.2
9 or more members	39.6	43.6	38.6

Source: Authors' calculations based on Uganda Demographic and Health Surveys.



### 2.6.3 Bristol definition: Deprivation in water

Table 24 presents the proportion of children who are deprived of water using the Bristol definition for deprivation and extreme deprivation in water access (Box 1), which combines variants of the previous definitions. **Deprivation** is defined as using water from an **unimproved water source** AND the return trip to collecting water taking **30 minutes** or longer. On the other hand, the **extreme cut off** is defined as using water from an **unimproved water source** AND the return trip to collect water taking **60 minutes** or longer.

The geo-socio-economic profile resembles more the one obtained for use of an unimproved water source, than those obtained with the distance definitions. In particular, the West and Central regions post the highest deprivation rates, suggesting that a larger share of children in these regions combined the two types of deprivation, whereas even if children in the North and East lived in households that were further from the nearest source of water, a large share of these sources were nonetheless improved. This suggests that efforts to increase improved water sources in the West and Centre would contribute most to reducing deprivation in the access to water.

At the national level, rates of less severe water deprivation fell by only five percentage points between 2000 and 2011 – from 25.4% in 2000 to 20% by 2011. Severe deprivation rates also fell, but by only two percentage points.

Improvements are relatively evenly shared among the different categories with some notable exceptions. The most dramatic improvements took place in Eastern **region**, where rates fell by more than half, whereas the Central region stands out for the fact that deprivation rates actually *increased* by roughly three percentage points during this period. Children from the **wealthiest** households registered the largest drops in deprivation rates, whereas children in quintile 2 registered *increases* in deprivation rates, likely because a large share of these children is located in the Northern region.

### 2.6.4 Summary

In conclusion, key findings are that water deprivation rates remain high in Uganda despite the significant investment in expanding infrastructure. This may be partly explained by increased overcrowding at new water points as earlier mentioned. Water deprivations reflect both the use of unimproved sources of water (surface water) and long distances to the nearest source of water. Regardless of the type of deprivation, **rural** areas are much more affected, although the **regional** pattern varies: use of unimproved sources of water is highest in West and Central Uganda, whereas distances are greater in Northern Uganda, possibly due to overcrowding at water sources. Whereas children in middle-income households suffer most from the use of unimproved water sources, distance to the nearest source falls continuously with **wealth**, especially for the wealthiest quintile. There are no clear patterns according to the **sex, orphan status or relationship to the head** of the child, nor by **sex of household head**. Finally, while large households tend to have greater access to improved water sources, the distance to this source tends to be larger, possibly because these larger households are disproportionately found in the North.

**Table 24: Water deprivation, Bristol definition**

	Less Severe Deprivation			Severe Deprivation		
	2000	2006	2011	2000	2006	2011
National	25.4	22.0	20.0	14.0	14.3	12.0
<b>Region</b>						
Central	23.0	25.9	26.5	13.7	16.9	16.3
Eastern	20.5	13.6	8.5	11.2	7.7	5.2
Northern	27.9	16.0	15.9	15.0	10.0	10.2
Western	32.4	31.2	28.3	16.9	21.6	16.1
<b>Location</b>						
Rural	27.8	24.2	22.1	15.3	15.6	13.4
Urban	7.3	4.6	4.7	4.4	3.7	2.0
<b>Sex of Child</b>						
Male	25.8	22.0	20.2	14.2	14.2	11.9
Female	24.9	22.1	19.8	13.8	14.4	12.2
<b>Relationship to household head</b>						
Sons/daughter	25.6	22.5	20.1	14.0	14.6	11.8
Adopted/foster child	24.2	18.9	14.9	13.2	12.9	10.4
Other relatives	24.7	21.0	20.0	13.9	13.6	12.7
<b>Parents alive</b>						
Both parents alive	25.5	22.3	19.9	14.2	14.4	11.8
Mother or father deceased	26.2	20.3	19.5	14.2	14.4	13.1
Both parents deceased	27.3	19.9	23.9	13.1	11.8	13.4
<b>Sex of household head</b>						
Male	26.3	21.3	19.8	14.9	14.3	12.8
Female	25.1	22.3	20.0	13.7	14.3	11.7
<b>Wealth Quintile</b>						
Quintile 1	27.9	19.4	18.8	14.3	13.3	12.2
Quintile 2	20.5	26.7	23.0	10.9	15.8	14.2
Quintile 3	31.7	27.7	26.5	18.6	19.3	14.8
Quintile 4	25.0	22.9	20.9	14.9	14.6	13.0
Quintile 5	21.4	12.6	8.8	11.0	7.8	4.7
<b>Household size</b>						
3 or 4 members	26.2	20.6	18.8	14.0	12.7	11.4
5 or 6 members	27.8	22.6	21.0	15.4	15.8	12.1
7 or 8 members	24.1	22.5	21.5	13.8	15.0	12.9
9 or more members	23.3	21.4	17.8	12.7	12.5	11.3

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

There have been considerable improvements in the share of children using improved sources of water since 2000, as deprivation rates fell from 39.2 to 30.5%, with the gains focused almost entirely in the East and North. In contrast, the share of children living far from the nearest source of water initially increased in 2006 and then recovered to slightly below 2000 levels by 2011. Improvements for both types of deprivations are disproportionately concentrated – almost exclusively in the case of distance – among children in the wealthiest quintile, indicating that policies must urgently target the poorest children, for whom the situation has even deteriorated in terms of distance to the nearest source of water.

Finally, Table 25 shows water and sanitation outcomes by subregions. Large interregional disparities emerge, with the subregion of South West showing the worst performance in terms of access to improved water source (which is reflected in the deprivation measures following the Bristol definition, together with the subregion of Central 1), while households living in the North and Karamoja subregions are those most far away to water sources. Karamoja is also the worst performing subregion in terms of sanitation, as proxied by the indicators described in the table below; interestingly, Kampala has one of the highest rates of shared toilets in the country, as this is primarily an urban phenomenon.

**Table 25: Access to water and sanitation by subregions in 2011 (proportions of children aged under 18 years (%))**

	Water					Sanitation		
	No access to improved water source	More than 30 minutes (return trip) to nearest source of water	More than 60 minutes (return trip) to nearest source of water	Bristol Definition		No toilet facility	Unimproved Toilet	Unimproved Toilet/Shared Toilet
				Deprived	Extremely deprived			
<b>National</b>	30.5	60.8	35.8	20.0	12.0	10.0	10.6	40.1
<b>Subregion</b>								
Kampala	8.5	9.0	3.2	0.1	0.0	0.2	0.8	69.0
Central 1	52.4	64.8	39.5	39.3	26.0	3.1	3.4	23.4
Central 2	34.5	65.4	37.5	24.5	13.3	3.7	3.8	27.0
East Central	16.5	56.1	34.3	9.8	5.8	6.7	7.8	42.6
Eastern	12.9	61.8	37.2	7.6	4.8	16.3	18.0	45.2
North	22.9	73.6	45.9	16.3	11.3	20.0	20.0	54.6
Karamoja	10.2	74.5	36.6	7.6	3.5	68.5	68.8	90.8
West Nile	26.2	69.9	42.1	20.3	12.8	11.6	12.0	60.4
Western	33.4	58.9	33.2	19.4	11.0	2.6	2.8	28.6
South Western	61.9	57.7	34.0	39.0	22.2	2.1	2.5	23.1

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

## 2.7 Sanitation

Table 26 presents the proportion of children under 18 who have no access to a toilet facility and those using unimproved toilet facilities (pour flush latrines, open pit latrines and buckets).

### 2.7.1 No access to toilet facility

In the first three columns, a child is defined as deprived of sanitation if s/he has no access to a toilet of any kind in the vicinity of their dwelling, including communal toilets or latrines. The table indicates that the rates of children without a toilet facility have fallen by about one-third from 14.6% in 2000 to 10% by 2011. Children in the Northern **region** are by far the most deprived with more than one quarter lacking access to a toilet in 2006 and 2011. In contrast, less than 3% of children in Central and Western region, and 12.3% of children in the East, lack any access to a toilet facility. Whereas the situation improved between 2006 and 2011 in the East, it stagnated in all three other regions where improvements occurred instead between 2001 and 2006. Virtually all **urban** children have some form of sanitation, while 11% of their rural counterparts had no access to a toilet in 2011, down from 16% in 2000.

The results further show that children more from **male-headed households**, who have **lost at least one parent**, and from **large households** are more likely to be deprived of sanitation. The most striking result is that children in the **poorest quintile** are far more likely (36% vs. 7% and less for the wealthier quintiles) to lack access to a toilet. Less than one per cent of children in the richest two quintiles lack access. No significant difference is noted according to a child's **sex, relationship to the household head or household size**.

### 2.7.2 Unimproved sanitation source

The last two columns of Table 26 show the percentage of children who live in households that lack access to an improved toilet facility. In addition to those lacking any toilet facility, this definition includes those using an uncovered latrine (pour flush latrines, open pit latrines and buckets). Given that the 2000 data do not distinguish between improved and unimproved toilets, estimates are not available for this year. Our results show that in 2006 and 2011 about 30% of children were using unimproved sanitation facilities, with only a slight improvement – 1.2 percentage points – between 2006 and 2011.

Once again, the Northern and Eastern **regions** post by far the highest rates, with nearly half of all children in the North using unimproved toilets. Interestingly, deprivation rates declined for all regions – by between 2 and 5.5 percentage points – with the exception of Northern Uganda where they instead increased by 10 full percentage points. This particular result may be explained by the substantial movement of people from IDP camps back to their homesteads after 2006. As IDP camps were relatively well resourced in terms of water and sanitation infrastructure (Ssewanyana et al, 2006), former IDPs may not have found facilities of similar quality on their return to former homesteads in Northern Uganda.

**Table 26: The proportion of children under 18 years deprived of sanitation in 2000, 2006, and 2011 (%)**

	No toilet facility			Unimproved Toilet		Unimproved Toilet/ Shared Toilet	
	2000	2006	2011	2006	2011	2006	2011
<b>National</b>	14.6	12.0	10.0	30.1	28.9	47.3	40.6
<b>Region</b>							
Central	5.3	1.1	2.9	22.3	18.3	32.8	32.6
Eastern	17.1	19.5	12.3	41.7	36.2	54.3	44.1
Northern	37.8	25.2	26.8	38.9	48.9	78.6	63.6
Western	8.2	3.9	2.4	18.9	16.9	27.8	26.1
<b>Location</b>							
Rural	16.2	13.1	11.1	32.7	31.3	44.6	37.2
Urban	2.3	3.1	2.0	8.6	11.1	68.9	61.2
<b>Sex of Child</b>							
Male	14.2	12.0	9.7	30.0	29.1	46.8	39.5
Female	14.9	12.0	10.4	30.1	28.6	47.7	40.6
<b>Relationship to household head</b>							
Sons/daughter	15.2	12.8	10.3	31.1	29.7	48.2	38.8
Adopted/foster child	13.3	7.5	8.5	29.0	25.2	49.5	46.5
Other relatives	12.7	10.0	9.3	27.3	26.6	44.6	40.3
<b>Parents alive</b>							
Both parents alive	14.9	12.2	9.6	30.5	28.5	46.7	39.5
Mother or father deceased	14.9	11.8	13.2	29.1	32.0	49.4	43.3
Both parents deceased	13.0	6.8	12.7	20.5	29.7	51.9	48.6
<b>Sex of household head</b>							
Male	17.8	13.0	12.1	30.2	31.4	44.9	37.6
Female	13.5	11.6	9.2	30.0	27.9	53.3	46.2
<b>Wealth Quintile</b>							
Quintile 1	14.1	40.7	36.0	58.7	59.2	79.3	61.8
Quintile 2	9.0	13.5	7.0	39.4	32.9	49.2	37.2
Quintile 3	18.0	3.4	3.7	25.1	25.8	32.4	29.2
Quintile 4	15.1	1.1	0.8	20.9	16.0	32.3	28.2
Quintile 5	16.3	0.1	0.1	3.9	5.3	42.7	43.5
<b>Household size</b>							
3 or 4 members	19.4	12.9	9.9	30.8	29.0	59.2	57.4
5 or 6 members	15.8	12.8	9.6	30.4	27.6	51.9	43.0
7 or 8 members	15.9	12.5	11.5	32.8	31.8	43.9	35.7
9 or more members	8.2	9.9	9.2	26.2	27.2	36.2	28.8

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

**Rural** children are three times more likely to lack access to an improved toilet than their urban counterparts, as uncovered latrines are more common here, although the gap fell somewhat in 2011 as the rural situation slightly improved and sanitation in urban areas deteriorated. No major differences are noted according to the **sex**, **relationship to the head**, **orphan status**, and **household size** of the child, but children in male-headed households are more deprived. Once again, the most dramatic result is the strong link between household **wealth** and the use of unimproved toilets: ranging from nearly 60% of children in the poorest quintile to 5.3% of the richest children.

The right section of Table 26 further includes children who share improved toilet facilities with other households. Although the rates of deprivation based on this criterion have reduced between 2006 and 2011, they remain substantially high: at least 41% of children in 2011. The profile across child/household characteristics is similar to the results for no toilet facility. The most remarkable difference is that children in urban areas are now more likely to be considered deprived than children in rural areas given the widespread practice of sharing toilets in rental lodging or shared concessions. In 2011, roughly 60% of urban children used shared toilets, as compared to less than 30% of rural children.

### **2.7.3 Summary**

Sanitation deprivation rates vary substantially according to the definition used, ranging in 2011 from 10% of children with no toilet facility to 28.9% when considering the use of unimproved or shared toilets. Children in the Northern **region** were the most sanitarily deprived in 2011 for all definitions, and the situation had actually deteriorated since 2006. While rural children are more likely to lack any toilet or use an unimproved toilet, toilet sharing is by far more common for urban children. Improvements overall have been very limited over time. Children in male-headed households have higher deprivation rates. The most striking result is the concentration of sanitation deprivation among children in the **poorest** quintiles: 36% without access to any toilet and 59.2% using unimproved sources.

## **2.8 Health**

In this section, we consider a number of dimensions of child health. First, we consider a child as health-deprived if s/he is less than 5 years of age if s/he has had a recent illness involving diarrhoea and did not receive any medical advice or treatment. It should be noted that data on illness may be subject to various reporting biases (Lawson and Appleton 2007). Next we consider the adjusted Bristol definitions adopted. In particular, a child is characterized as health-deprived if s/he has never been immunized against DPT3 and if his/her birth was not attended by qualified health personnel. The cut-off for extreme health deprivation restricts this further to children who have never been immunized for any diseases and whose birth was not attended by qualified health personnel. In this section, we analyse the extent of health deprivation based on the above two Bristol definitions. As data for these indicators are only collected for children aged under five, the analysis is restricted to this age group. Finally, we also examine other important indicators of child health, notably the use of bed nets and HIV/AIDS prevalence among children.

### **2.8.1 Diarrhoea prevalence and treatment**

The proportions of children aged less than 5 years who contracted diarrhoea are presented for 2000, 2006, and 2011 in Table 27. At least one in four infants contracted diarrhoea in 2006 and 2011, up from one in five children in 2000. However, the proportion of affected children receiving no medical treatment fell strongly from 54.5% in 2000 to 29.9% in 2006 and 27.7% by 2011.

**Table 27: The proportion of children under five who recently suffered from diarrhoea and received no medical treatment, by various characteristics (%)**

	2000		2006		2011	
	Diarrhoea	No med.	Diarrhoea	No med.	Diarrhoea	No med.
<b>National</b>	20.6	54.5	26.8	29.9	24.8	27.7
<b>Region</b>						
Central	15.3	40.7	22.6	29.9	23.9	30.8
Eastern	24.4	52.0	26.3	34.1	33.9	25.3
Northern	28.2	59.7	32.6	15.5	22.6	14.0
Western	16.6	66.9	25.9	41.0	17.3	41.1
<b>Location</b>						
Rural	21.0	56.5	27.5	29.7	24.9	27.5
Urban	17.0	33.6	20.8	32.6	23.9	29.5
<b>Sex of the child</b>						
Male	21.1	55.3	27.9	29.1	25.5	28.9
Female	20.0	53.6	25.8	30.8	24.0	26.4
<b>Relationship to household head</b>						
Son/daughter	24.5	52.0	30.2	29.7	23.9	28.1
Other relatives	20.4	54.6	26.6	29.9	29.9	25.9
<b>Parents alive</b>						
Both parents alive	20.9	55.4	27.5	30.1	24.6	27.9
Mother or father deceased	19.7	46.9	31.2	19.7	32.5	21.8
<b>Sex of the household head</b>						
Male	20.6	55.3	25.8	31.0	24.4	27.6
Female	20.2	50.4	30.8	26.3	26.3	28.2
<b>Wealth quintile</b>						
Quintile 1	25.2	57.4	34.8	22.0	29.4	26.6
Quintile 2	24.0	54.6	28.1	31.3	26.4	27.4
Quintile 3	20.6	55.9	24.0	38.5	23.1	25.3
Quintile 4	18.2	53.9	24.6	31.7	22.0	27.6
Quintile 5	10.6	39.1	19.5	31.2	21.3	33.3
<b>Household size</b>						
3 or 4 members	24.0	59.1	29.6	36.2	27.1	25.6
5 or 6 members	20.8	51.6	27.9	26.5	24.5	27.3
7 or 8 members	19.7	49.5	25.6	29.0	23.2	29.8
9 or more members	17.5	60.1	23.7	29.7	24.2	26.9

**Notes:** Diarrhoea – children having suffered a recent bout of diarrhoea; no-med – proportion, among children who suffered diarrhoea, who did not receive medical treatment. UDHS: Uganda Demographic and Health Survey



**Regions** rank differently using the two indicators of health. The North and East had the highest proportion of children suffering from diarrhoea in all three periods, although the differences were not dramatic. However, by 2011, the East had bypassed Northern Uganda as the region with the highest prevalence of diarrhoea among infants. The West has the highest share of children with diarrhoea not receiving medical treatment despite a reduction between 2000 and 2006 (from 67% to 41%). While all regions reduced this share substantially between 2000 and 2006, the North again stands out, becoming the region with the lowest rate of non-treatment (14% in 2011). **Rural** children are more likely to contract diarrhoea than urban. The only exception is access to medical treatment since 2006, where rural children fared better, possibly due to treatment offered in IDP camps in the rural North.

## 2.8.2 Immunization and unattended births

The proportions of health-deprived children using the three constituent components of our Bristol definition are presented for 2000, 2006 and 2011 in Table 28. The proportion of children under the age of five who were never immunized against any disease fell from 17.2% in 2000 to 9.2% in 2011. Similarly, the proportion of children who were never immunized for DPT3 was reduced from 53% in 2000 to 34% by 2011. The proportion of unattended births fell from 61.6% in 2000 to 41.8% by 2011.

**Table 28: The proportion of children under five: without immunization, who have never received DPT3, and whose birth was non-attended, by various characteristics (%)**

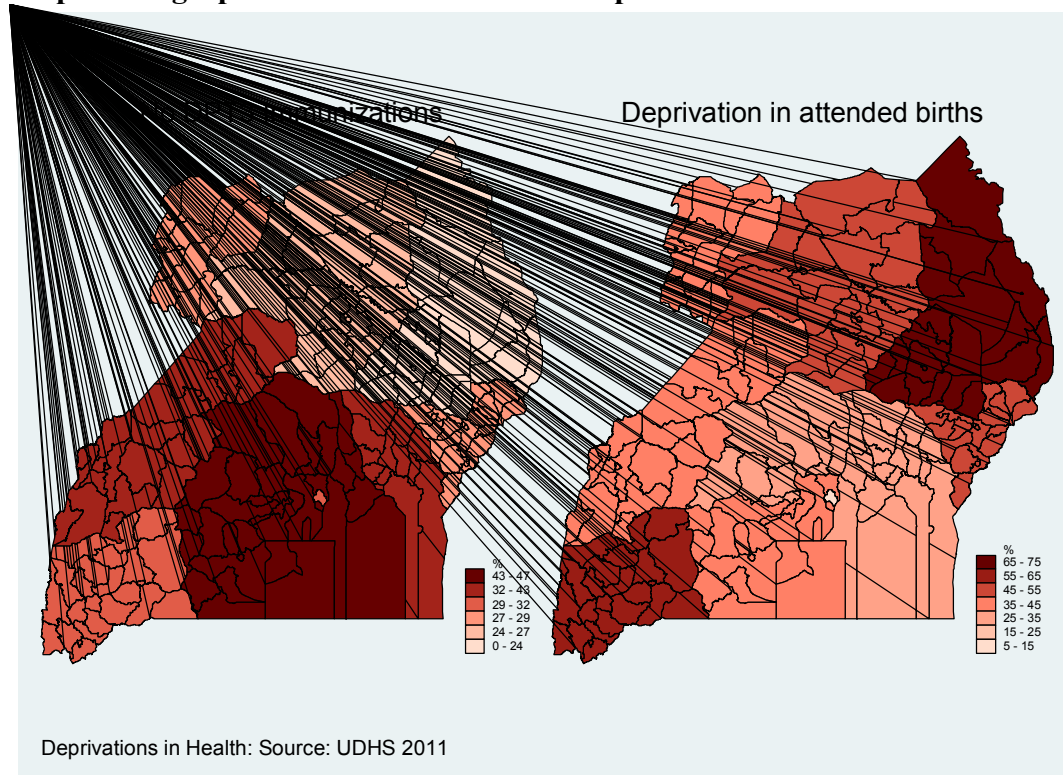
	No immunization of any disease			No immunization of DPT3			Deprived of attended Birth		
	2000	2006	2011	2000	2006	2011	2000	2006	2011
National	17.2	11.6	9.2	52.8	41.0	34.1	61.6	57.9	41.8
<b>Region</b>									
Central	25.4	17.0	12.8	59.7	47.0	41.9	40.4	40.1	27.8
Eastern	12.8	10.6	6.0	54.5	40.8	33.6	59.1	53.3	40.7
Northern	18.0	7.0	6.3	58.1	37.7	26.4	72.9	68.2	48.4
Western	13.4	12.0	11.3	39.5	39.1	32.6	80.1	68.2	51.1
<b>Location</b>									
Rural	17.7	11.9	9.2	53.8	41.7	34.7	66.4	62.6	46.6
Urban	13.3	9.6	9.0	43.0	35.6	30.1	18.1	19.1	9.3
<b>Sex of Child</b>									
Male	17.4	11.9	9.2	52.1	41.3	34.3	62.8	56.2	41.6
Female	17.0	11.3	9.2	53.5	40.8	33.9	60.3	59.5	41.9
<b>Relationship to household head</b>									
Sons/daughter	17.0	11.5	9.1	52.4	40.1	33.5	63.1	58.9	43.4
Adopted/foster child	13.7	14.0	9.8	63.3	57.8	44.5	54.4	50.3	37.5
Other relatives	18.9	12.5	10.2	55.1	45.4	37.6	50.0	51.7	30.8
<b>Parents alive</b>									
Both parents alive	17.4	11.8	9.3	53.0	41.1	33.9	61.7	57.8	41.8
Mother or father deceased	9.6	6.9	4.4	41.9	38.0	39.5	57.8	60.2	40.3
<b>Sex of household head</b>									
Male	17.4	11.1	8.6	53.4	42.7	37.6	62.4	54.7	37.4
Female	16.4	11.8	9.4	49.9	40.6	33.2	58.1	58.8	42.9
<b>Wealth Quintile</b>									
Quintile 1	16.2	9.5	7.5	53.6	41.1	32.7	62.1	71.3	56.1
Quintile 2	12.1	12.4	9.2	48.7	42.8	36.2	54.1	68.2	50.0
Quintile 3	20.5	12.3	11.7	52.6	41.6	35.8	64.8	65.2	45.5
Quintile 4	19.5	11.8	9.6	54.3	41.4	36.0	65.4	50.3	40.2
Quintile 5	17.1	12.5	8.3	54.2	37.2	29.2	60.2	23.2	10.0
<b>Household size</b>									
3 or 4 members	18.4	12.2	9.6	53.9	43.5	34.8	53.6	50.2	34.6
5 or 6 members	16.3	11.7	9.3	51.0	40.3	34.6	66.4	57.1	43.4
7 or 8 members	17.8	10.7	8.5	54.0	41.8	31.5	63.6	64.2	47.7
9 or more members	16.6	12.0	9.2	52.1	38.8	35.1	61.3	60.5	41.2

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

**Regions** rank differently regarding the level and the progress made in improving the three indicators of children's health. Central Uganda has the highest rates of children with no immunization and with no DPT3 immunization in 2011. Western Uganda also has high rates, in particular for no immunization, and has shown the least improvement between 2000 and 2011. In contrast, Northern Uganda posts the lowest deprivation rates and the strongest improvements, cutting deprivation rates by more than half, primarily between 2000 and 2006. The Western and Northern regions have the highest proportion of unattended births – roughly half of all children in 2011 – but also posted the greatest improvements since 2000, when their rates were 80% and 73%, respectively. Map 3 provides a slightly more detailed portrait of the geographic distribution in health deprivations.

**Rural** children are more likely to be deprived in all health dimensions than urban children, although the gap has considerably narrowed in terms of immunization rates. In contrast, rural children were five times more likely to have unattended births in 2011. **Gender, sex of the household head, household size and relationship to household head** do not play a clear role in health deprivations, although adopted/foster children are more likely to lack DPT3 immunization. This latter result confirms Deininger, Crommelynck and Kempaka (2005), who found that young foster children are less likely to access health care than other children. **Orphans** were less likely to lack immunizations, although this situation abruptly reversed in 2011 in the case of DPT3. Their attended births rates do not differ significantly. **Wealth** reduces the likelihood of having an unattended birth, particularly for the richest quintile, but has a less clear link to vaccination rates, possibly because some vaccination campaigns target the poorest regions.

**Map 3: Geographic distribution of health deprivations in 2011**



**Source:** Authors' calculations based on 2011 Uganda Demographic and Health Survey.

### 2.8.3 Bed nets

Table 29 indicates that the proportion of children with bed nets increased from 13.7% in 2000 to 77.3% in 2011 nationwide, a very large improvement. The increase in net ownership between 2006 and 2011 is attributed to the support from the Global Fund to procure and distribute nets across Uganda. Specifically, Uganda received about US\$ 190 million for malaria control efforts, which was used to procure and distribute 17.7 million nets during 2008 and 2010 (PMI, 2010).

Although ownership of nets has tremendously increased in the recent past, consistent use is lagging behind. Across the country, less than half of children who own nets – and one-third of all children – slept under a bed net in the night prior to the survey. This nonetheless represents a six-fold increase over 2000.

The Western **region** showed the largest improvement in bednet ownership, going from the lowest rate (5.6%) in 2000 to the highest (80.6%) in 2011, although usage rates remained below other regions despite some catching up between 2006 and 2011.

The situation among **rural** children improved even more than the national average, closing the important rural-urban gap noted in 2000. As of 2011, 76% of rural children have a bednet and 32.6% of them used them the night before they were surveyed. This suggests that rural areas benefited immensely from the recent nationwide campaign to use of bed nets.

No significant differences are noted by child's **sex** or **household size**. Whereas **orphans** tend to have less access, those who are **adopted/fostered** actually fare better than children who are relatives of the household head. This may be due to the fact that it is wealthier households who tend to adopt/foster more. Children in **male-headed households** are more deprived. Access to bed nets increases with **wealth** but, with the exception of the richest households, usage does not.

#### **2.8.4 HIV/AIDS prevalence**

A large population of children in Uganda are currently suffering from HIV/AIDS and many other children have been orphaned by HIV/AIDS. HIV is partly responsible for the roughly 2.5% of orphaned Ugandan children (approximately 500,000) who have lost both parents. Figure 12, based on the 2011 Uganda AIDS Indicator Survey (UAIS), compares the prevalence of HIV/AIDS among infants (aged less than 5 years) and youth (aged 15-24 years) by geographical sub-region. Nationally, 0.7% of children under the age of five are infected with HIV and the prevalence is highest in the relatively well-to-do subregions of Central 1 (1.3%) and South Western (1.2%). Indeed, infants account for a large proportion of new HIV infections in the country. A previous study by Wabwire-Mangeni et al. (2009) showed that at least 20 per cent of new HIV infections in Uganda are due to mother-to-child transmission of the virus.

**Table 29: The proportion of children under 18 years with a bed net (%) by various characteristics (%)**

	Have a bednet			Slept under a bednet last night		
	2000	2006	2011	2000	2006	2011
National	13.7	35.4	77.3	5.7	13.2	33.6
<b>Region</b>						
Central	16.0	40.0	79.6	6.0	15.8	34.4
Eastern	16.9	38.9	70.4	8.2	16.1	34.1
Northern	16.3	42.1	79.3	6.6	15.0	36.8
Western	5.6	22.4	80.6	1.8	6.8	30.1
<b>Location</b>						
Rural	10.7	31.6	76.3	4.3	11.0	32.6
Urban	36.1	65.9	84.6	16.1	31.1	41.4
<b>Sex of Child</b>						
Male	12.9	34.4	77.0	5.4	12.6	32.9
Female	14.5	36.3	77.6	5.9	13.9	34.3
<b>Relationship to household head</b>						
Sons/daughter	12.9	34.7	78.5	5.8	14.2	37.0
Adopted/foster child	19.4	36.3	84.8	7.8	13.9	38.2
Other relatives	15.7	37.2	73.5	5.2	10.5	23.6
<b>Parents alive</b>						
Both parents alive	13.4	35.2	78.0	5.9	13.6	34.6
Mother or father deceased	12.5	34.1	72.2	4.9	10.6	26.6
Both parents deceased	16.6	44.8	70.3	4.6	12.1	21.8
<b>Sex of household head</b>						
Male	13.9	33.6	73.5	4.6	11.7	27.4
Female	13.6	36.0	78.8	6.0	13.8	36.0
<b>Wealth Quintile</b>						
Quintile 1	8.8	30.6	70.7	2.8	12.0	35.9
Quintile 2	15.6	30.2	75.7	6.1	11.9	33.4
Quintile 3	12.5	23.1	75.7	5.8	7.7	28.5
Quintile 4	13.5	32.4	79.2	6.1	9.7	30.2
Quintile 5	18.3	63.2	87.2	7.7	26.0	41.2
<b>Household size</b>						
3 or 4 members	12.1	32.6	74.2	5.3	14.4	36.0
5 or 6 members	12.9	34.0	77.3	6.4	14.1	33.9
7 or 8 members	11.8	35.5	79.5	5.0	13.3	36.0
9 or more members	17.8	39.5	77.8	5.9	12.0	30.4

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

Finally, Table 30 shows different health indicators for children by subregions. Again, large interregional disparities emerge varying by type of outcome: South West shows the largest ratio of children without immunization against any disease, while Central 1 is the worst in terms of DPT3 vaccination. Concerning the deprivation in skilled attended birth, Karamoja shows the highest share.

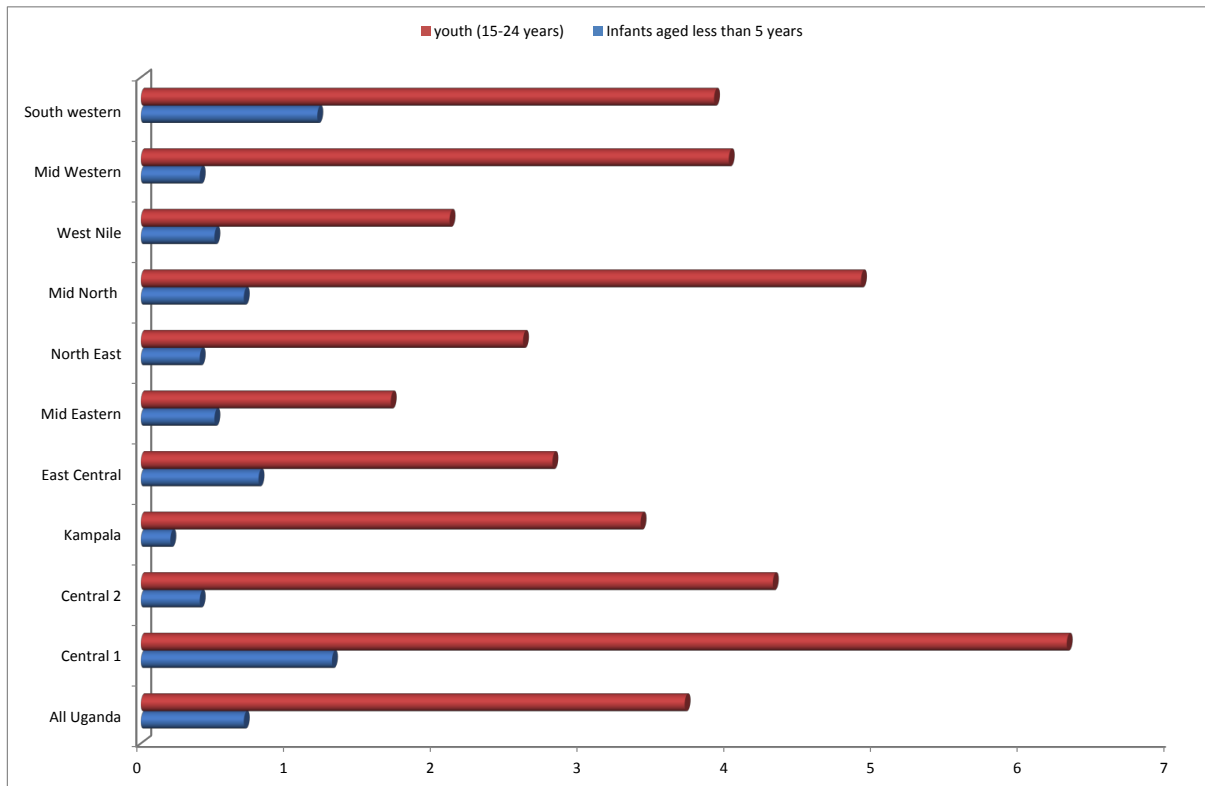
**Table 30: Health status of children by subregions in 2011 (proportions of children aged under 5 years (%))**

	Children under five who recently suffered from diarrhoea and received no medical treatment		No immunization against any disease	No DPT3 immunization	Deprived of attended Birth	Proportion of children under 18 without a bed net	Proportion of children under 18 who slept under a bed net last night
	Diarrhoea	No med.					
<b>National</b>	24.8	27.7	9.2	34.1	41.8	81.2	46.8
<b>Subregion</b>							
Kampala	27.3	31.9	9.9	29.3	5.3	89.8	68.8
Central 1	23.9	26.9	14.8	46.3	36.9	85.0	47.3
Central 2	22.3	33.9	12.4	44.2	30.9	82.1	45.8
East Central	34.1	26.2	7.6	43.0	30.1	65.6	33.0
Eastern	33.9	24.6	5.0	27.4	47.6	77.3	53.1
North	25.0	11.9	5.8	27.1	46.1	80.9	50.3
Karamoja	21.6	6.3	5.3	23.4	69.3	75.2	48.2
West Nile	19.6	23.6	7.5	27.4	38.8	95.0	50.3
Western	19.7	36.7	6.9	33.7	44.7	87.8	48.8
South Western	14.4	48.3	16.5	31.3	58.5	81.2	34.8

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys

Among youth, 3.7% were infected with HIV in 2011 – an increase from 2.9% in 2004/05. Infection rates among female youth (4.9%) were more than double that of male youth (2.1%). This particular result can be attributed to early marriages among girls and the pervasive practice of cross-generation sex in Uganda (Wabwire-Mangeni et al., 2009).

**Figure 12: HIV/AIDS prevalence among infants and youth, 2011 (%)**



**Source:** Uganda AIDS Indicator Survey 2011

### 2.8.5 Summary

Immunization rates have improved significantly since 2000, with only 9% of children without any immunization in 2011, but still 34% lacking DPT3 immunization. Unattended births were also brought down from 61.6% to 41.8% during this period, while access and use of bed nets greatly increased to reach 77.3% and 33.6%, respectively. A remarkable result is the dramatic improvements in health indicators (vaccination rates, attended births, use of bed nets) in the Northern region during this period, catapulting it ahead of some better off regions in several cases. Rural-urban gaps were also considerably reduced. With respect to HIV/AIDS, 0.7% of infants (aged under 5) and 3.7% of youths, primarily girls and children in urban areas, are infected with HIV.

## 2.9 Shelter

### 2.9.1 Overcrowding

In our adapted Bristol approach, shelter deprivation is measured in terms of overcrowding, defined as living with more than four (less-extreme deprivation) or five (extreme deprivation) people per room. Table 31 shows shelter deprivation rates in 2000, 2006 and 2009. However, data for number of rooms used for sleeping were not available for 2000, so overcrowding rates for this particular survey round were instead estimated using an econometric mapping model; consequently, the results for 2000 should be interpreted with caution.



**Table 31: The proportion of children under18 deprived in shelter, by various definitions and characteristics (%)**

	Less Severe Deprivation			Severe Deprivation		
	2000	2006	2011	2000	2006	2011
National	49.1	28.9	28.9	21.9	16.6	16.8
<b>Region</b>						
Central	49.4	24.9	27.5	24.3	12.6	14.3
Eastern	63.3	32.4	38.1	30.7	18.6	24.0
Northern	57.9	42.8	36.8	25.8	27.6	22.2
Western	26.6	17.8	15.4	6.3	9.2	8.0
<b>Location</b>						
Rural	47.9	28.8	28.9	20.5	16.4	16.9
Urban	57.6	30.3	28.5	33.0	17.8	16.3
<b>Sex of Child</b>						
Male	49.4	28.9	29.0	21.9	16.7	16.8
Female	48.8	29.0	28.8	21.9	16.5	16.8
<b>Relationship to household head</b>						
Sons/daughter	52.9	31.1	31.1	22.5	18.0	18.3
Adopted/foster child	54.8	27.4	32.3	27.6	16.3	19.9
Other relatives	36.6	23.2	22.2	19.8	12.8	12.1
<b>Parents alive</b>						
Both parents alive	52.1	29.5	29.7	22.9	17.1	17.2
Mother or father deceased	39.3	26.2	23.0	19.5	14.6	13.6
Both parents deceased	30.5	25.1	22.4	16.1	14.1	13.2
<b>Sex of household head</b>						
Male	33.4	23.4	24.0	14.9	14.2	13.6
Female	54.2	31.1	30.8	24.2	17.6	18.0
<b>Wealth Quintile</b>						
Quintile 1	49.1	52.1	49.9	23.2	34.2	32.6
Quintile 2	43.4	32.5	29.8	17.0	20.5	17.9
Quintile 3	47.1	19.9	22.4	18.2	10.2	11.6
Quintile 4	47.9	18.5	20.9	22.7	8.0	11.7
Quintile 5	57.7	20.9	19.0	28.3	9.5	8.3
<b>Household size</b>						
3 or 4 members	14.7	0.0	0.0	0.9	0.0	0.0
5 or 6 members	36.0	39.0	39.3	9.0	18.6	18.2
7 or 8 members	58.3	23.8	24.1	22.6	23.8	24.1
9 or more members	82.7	42.9	42.1	52.1	17.5	18.8

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys and estimations (2000).

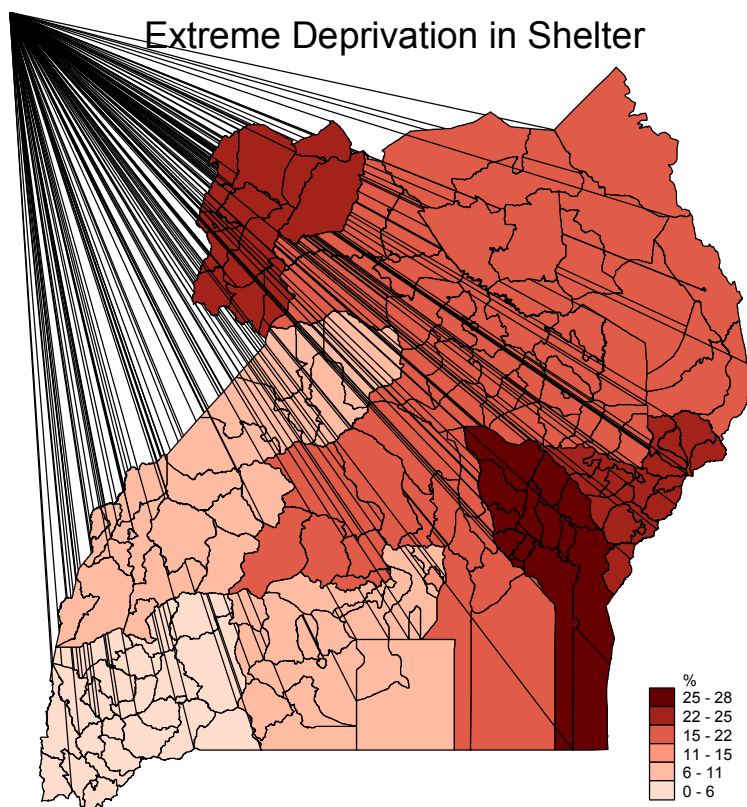
**Table 32: The proportion of children under 18 deprived in shelter, by sub regions (%)**

	Deprived			Extremely Deprived		
	2000	2006	2011	2000	2006	2011
National	49.1	28.9	28.9	21.9	16.6	16.8
<b>Sub Regions</b>						
Kampala	60.1	8.4	28.7	32.3	19.9	14.0
Central 1	45.0	14.6	19.9	22.4	26.5	8.5
Central 2	49.5	18.0	34.6	22.8	32.9	20.3
East Central	52.9	17.9	40.0	22.3	32.5	26.4
Eastern	69.9	19.1	36.8	36.1	32.4	22.4
North	53.3	29.5	39.3	20.6	44.7	21.9
Karamoja	49.1	23.6	33.6	20.8	41.8	21.2
West Nile	68.4	25.7	34.9	36.2	38.8	23.1
Western	23.4	11.1	18.4	6.4	21.8	10.1
South Western	28.3	6.9	11.7	6.3	12.8	5.5

Roughly 29% of Ugandan children lived in overcrowded homes and 17% in extremely overcrowded homes in 2011. These rates are sharply down from the estimated rates of 49.1% and 22%, respectively, in 2000, but have actually increased over the observed rates for 2006.

The **Western region** consistently has the lowest rate of overcrowding for the three survey rounds, followed by the Central region, whereas the Eastern and Northern regions have much higher rates. While all regions improved between 2000 and 2006, the evolution since is contrasting. Whereas overcrowding increased in the Central and Eastern regions, it has fallen in the North and West (see Map 4).

**Map 4: Geographic distribution of extreme shelter deprivation in 2011**



**Source:** Authors' calculations based on the 2011 Uganda Demographic and Health Survey.

Unlike most of the other deprivations studied to date, there is no clear **rural-urban** divide since 2006, as the higher cost of lodging in urban areas appears to offset lower monetary poverty.

Overcrowding affects **boys** as much as girls, but it is less prevalent for **orphans**, **other relatives** (not son/daughter) of the head and children in **female-headed households**. Overcrowding declines substantially with **wealth**, ranging from 49.9% for the poorest quintile to 19% for the richest in 2011. By definition (4 or more people per room), overcrowding only applies when **household size** is of five or more members.

## 2.10 Education

Education deprivation is measured by the proportion of school age children (aged 6-17) who never attended school, or who left school without completing primary school. Net school enrolment rates, as well as the enrolments of vulnerable children such as the disabled, are also presented.

### 2.10.1 School attendance

Table 33 shows that 15% of Ugandan children aged 6-17 had never attended school in 2011, a rate that has remained more or less the same since 2000. Although some improvement

was registered in 2000-6, this was mostly lost by 2011. When we add in those who had attended school at some time, but who left before completing 6 years of primary school, this rate rises to 20% in 2011, down slightly from 21% in 2000. These rates are rather high given that Uganda has implemented universal primary education (UPE).

The literature suggests that the introduction of UPE in Uganda in 1997 greatly boosted the enrolment of poor children and orphans (Deininger, 2003). However, the introduction of Universal Secondary Education ten years later does not appear to have had similar effects, due to the higher complementary costs associated with secondary schooling. Consequently, new initiatives have arisen to address secondary schooling of vulnerable children, especially HIV/AIDS orphans (Uganda AIDS Commission, 2009).

The North region had the largest proportions of deprived children in all survey years (one out of five had never attended school in 2011) followed by the Centre (one out of six), while the Eastern region generally had the lowest proportions (one out of ten). Partly due to the civil war and associated violence, Ssewanyana et al. (2006) also find that 14% of children aged 6-12 in Northern Uganda had never enrolled in school. Furthermore, 25% of the children who enrolled dropped out of school and girls had a slightly higher dropout rate (23%) than boys (17%), partly because girls aged 10-14 in Northern Uganda bear a disproportional burden of water collection compared to other household members. Furthermore, the results in Table 33 suggest that the Central region has very high primary school dropout rates, as deprivation rates based on the less extreme definition are closer to Northern Uganda (22.5% vs. 25.0%).

**Rural** deprivation rates are higher, although the gap is not huge. **Girls** are also slightly more likely to have never attended school or to have left early. The **relationship to head and orphan** status of the child does not have any clear relationship to education deprivation. Whereas **orphans** who have lost both parents are more likely to attend school than non-orphans, by 2011 orphans who lost both parents were more likely to drop out of school and as such had higher rates of less extreme education deprivation (24.8% vs. 20.0% for non-orphans). Deininger, Crommelynck and Kempaka (2005) found that school enrolment of foster children in Uganda had increased due to UPE. Kasirye and Hisali (2010) found that HIV/AIDS orphans are an average of three years behind the age-appropriate school grade and this schooling gap is significantly greater at lower levels of household welfare.

There is no clear relationship between the proportion of deprived children and the **sex of the household head**, but deprivation strongly falls with household **wealth** and, to some extent, **household size**. In 2011, the share of children who have never attended school was more than twice as high in the bottom wealth quintile (22%) as in the top quintile (11%).

**Table 33: The share of school age children (aged 6-17) who never attended school or left school without completing six years of the primary level, by various characteristics (%)**

	Never attended school			Never attended school or left early		
	2000	2006	2011	2000	2006	2011
<b>National</b>	15.9	13.7	15.2	21.4	20.2	20.0
<b>Region</b>						
Central	17.0	13.3	16.6	24.5	20.6	22.5
Eastern	9.4	9.3	10.8	12.9	13.4	14.3
Northern	22.9	18.2	20.0	28.0	24.5	25.0
Western	17.3	14.3	14.7	22.4	22.4	19.7
<b>Location</b>						
Rural	16.4	14.3	15.7	21.5	20.7	20.2
Urban	12.5	8.4	11.3	20.6	16.2	19.0
<b>Sex of Child</b>						
Male	15.8	13.4	15.0	20.5	19.4	19.4
Female	16.1	13.9	15.4	22.2	21.0	20.7
<b>Relationship to household head</b>						
Sons/daughter	16.8	14.2	15.9	20.2	18.6	18.9
Adopted/foster child	12.7	15.4	14.1	18.9	20.5	22.1
Other relatives	14.1	12.3	13.4	24.5	23.8	22.6
<b>Parents alive</b>						
Both parents alive	19.1	14.7	15.9	20.9	19.7	20.0
Mother or father deceased	16.4	10.6	11.7	20.4	22.2	18.6
Both parents deceased	8.5	6.6	10.4	13.3	19.6	24.8
<b>Sex of household head</b>						
Male	15.3	13.3	13.8	21.3	20.6	19.8
Female	16.2	13.9	15.8	21.4	20.0	20.1
<b>Wealth Quintile</b>						
Quintile 1	15.5	21.7	22.1	19.9	28.3	27.3
Quintile 2	16.1	14.3	15.8	23.1	21.1	20.2
Quintile 3	15.2	13.7	13.6	19.9	20.3	18.2
Quintile 4	16.1	10.4	12.8	21.9	16.5	16.4
Quintile 5	16.7	8.7	11.0	22.0	15.4	17.9
<b>Household size</b>						
3 or 4 members	16.7	14.2	14.7	25.4	23.8	23.7
5 or 6 members	18.5	15.8	17.5	23.6	21.8	21.7
7 or 8 members	16.1	14.1	15.8	20.5	19.5	19.2
9 or more members	13.2	11.1	12.7	17.0	17.1	16.9

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

## 2.10.2 School attendance rates

Table 34 presents the net primary and secondary attendance ratios for Uganda between 2000 and 2011. The results indicate low attendance ratios, respectively of 81% and 15% for primary and secondary schools in 2011, slightly *higher* than 2000 rates despite UPE policies. Enrolment rates are lowest in the Northern **region** and in **rural** areas, with the gap increasing at secondary school level.

**Table 34: Net primary and secondary enrolment rates, by various characteristics**

	Net primary enrolment ratio			Net secondary enrolment ratio		
	2000	2006	2011	2000	2006	2011
National	79.2	81.8	81.0	12.9	14.8	15.2
<b>Region</b>						
Central	77.8	84.1	83.8	20.9	28.9	25.9
Eastern	87.4	86.7	86.3	11.8	13.6	14.0
Northern	69.9	75.6	72.9	4.7	5.6	5.2
Western	77.5	80.5	79.3	7.9	8.6	13.3
<b>Location</b>						
Rural	78.7	81.1	80.5	9.1	11.6	12.1
Urban	82.7	87.9	85.2	34.5	35.8	35.1
<b>Sex of Child</b>						
Male	78.6	82.3	81.1	12.2	13.9	13.1
Female	79.7	81.3	80.9	13.6	15.6	17.2
<b>Relationship to household head</b>						
Sons/daughter	78.5	82.0	80.5	12.6	15.1	15.0
Adopted/foster child	79.8	78.7	81.4	10.9	18.2	19.5
Other relatives	81.1	81.7	82.5	13.7	14.0	15.2
<b>Parents alive</b>						
Both parents alive	78.7	81.6	80.7	3.4	14.9	15.3
Mother or father deceased	79.9	82.7	83.1	5.2	14.2	14.9
Both parents deceased	88.7	85.0	81.9	3.9	16.6	12.6
<b>Sex of household head</b>						
Male	79.0	81.6	81.6	14.2	17.4	17.2
Female	79.3	81.9	80.7	12.4	13.5	14.2
<b>Wealth Quintile</b>						
Quintile 1	80.4	72.5	72.9	8.0	2.7	3.3
Quintile 2	78.1	80.5	79.5	18.6	4.7	8.0
Quintile 3	79.7	82.1	83.7	10.9	7.6	10.7
Quintile 4	79.9	86.5	84.3	11.3	13.0	20.3
Quintile 5	77.8	88.7	86.7	15.0	37.4	31.9
<b>Household size</b>						
3 or 4 members	78.5	80.7	82.0	12.7	13.7	18.0
5 or 6 members	76.6	80.4	78.9	10.9	15.0	15.5
7 or 8 members	79.8	82.1	80.9	9.2	14.6	14.0
9 or more members	81.7	83.8	83.1	16.9	15.0	13.9

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

We also note that **girls** have *higher* secondary school enrolment rates. This confirms Wells (2009) who attributed the result to the relatively large proportion of boys who leave secondary school to participate in the labour market, particularly in North and East Uganda. **Adopted/foster** children also have higher secondary school enrolment rates, possibly because some were taken in specifically to attend secondary school where none existed in their village. **Orphan** status does not appear to play an important role.

Children in **female-headed** households have slightly lower enrolment rates, as do children in **larger** households (secondary school only). A marked increase in enrolment rates is noted as household wealth increases, especially at secondary school level where these rates rise from 3.3% for the poorest quintile to 32% for the richest.

### 2.10.3 School enrolment and disability

Data from the 2006 and 2011 UDHS gives us some insight concerning the relationship between disability among children and their school enrolment. Table 35a shows that, in 2011, disabled children have slightly lower net enrolment rates (NER) than the general population in primary school (80.5% vs. 81.0%) and secondary school (11.5% vs.15.2%). This confirms previous research showing that disabled persons in Uganda have some of the worst welfare outcomes (Hoogeveen, 2005). This result is fairly consistent across regions.

**Table 35: Net Primary Enrolment Rates among Disabled Children, 2006 and 2011**

	All disabled children				General population			
	Net primary ratio		Net secondary ratio		Net primary ratio		Net secondary ratio	
	2006	2011	2006	2011	2006	2011	2006	2011
National	78.2	80.5	10.2	11.4	81.8	81.0	14.8	15.2
Region								
Central	81.2	78.0	20.0	25.2	84.1	83.8	28.9	25.9
Eastern	83.1	79.6	13.1	12.1	86.7	86.3	13.6	14.0
Northern	73.4	78.9	5.9	2.1	75.6	72.9	5.6	5.2
Western	74.9	85.5	3.9	5.2	80.5	79.3	8.6	13.3
Location								
Rural	77.8	80.4	8.4	8.8	81.1	80.5	11.6	12.1
Urban	84.0	82.3	25.5	30.3	87.9	85.2	35.8	35.1

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

Table 36 provides results by subregion for 2011. In some subregions, disabled children are actually less deprived than the general population of children. For example, their primary enrolment rates are higher in the Karamoja, South Western, Western and North subregions.

**Table 36: Education status of children by subregions in 2011**

	All children				Disabled children			
	Never attended school	Never attended school or left early	Net primary enrolment ratio	Net secondary enrolment ratio	Never attended school	Never attended school or left early	Net primary enrolment ratio	Net secondary enrolment ratio
<b>National</b>	20.0	15.2	81.0	15.2	22.8	17.4	80.5	11.4
<b>Subregion</b>								
Kampala	23.7	10.6	85.0	43.8	29.5	20.6	79.7	31.9
Central 1	21.8	16.7	87.4	22.5	31.5	24.6	79.5	25.3
Central 2	22.7	18.8	79.6	21.3	31.5	22.5	75.4	22.9
East Central	18.0	14.0	84.5	17.3	28.6	23.4	81.6	14.5
Eastern	11.6	8.5	87.6	11.5	20.0	15.4	76.8	8.9
North	17.9	13.2	78.7	4.4	18.2	13.3	80.3	2.1
Karamoja	49.5	47.0	51.3	5.2	36.1	34.3	69.5	0.0
West Nile	20.6	13.4	78.9	6.7	28.0	18.9	77.0	2.4
Western	19.4	14.2	80.0	13.6	13.7	11.0	83.4	5.9
South	20.2	15.3	78.6	12.9	14.9	9.1	88.7	4.3
Western								

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

Table 37 shows that roughly 4% of children cite disability as a reason for never attending school over the period 1999-2009. This rate has risen dramatically among 13-17 year olds to reach 17.8% in 2009. While there is some variation, disability appears to be a relatively more important impediment to school attendance for the richest quintile, although this may be due to their access to alternative forms of schooling (private tutor, etc.). Overall, the estimated number of disabled children who have never attended school doubled to 48,400 between 1999 and 2009.

#### 2.10.4 Summary

Despite the availability of UPE, education deprivation rates remain high in Uganda. The North had the largest proportions of education-deprived children followed by the Centre while the Eastern region generally had the lowest proportions. Girls are also slightly more likely to have never attended school or to have left early. Secondary school attendance rates are much lower compared to primary school attendance (81% vs. 15% in 2011) and the primary school attendance rates have stagnated since 2001.

Disability remains a major constraint to school attendances, especially among children of secondary school-going age. The results show that disabled children have lower secondary school attendance rates than other children (11% vs. 15%). Indeed, among children aged 13-17 years who have never been to school, about one in five children cite disability as the major reason for never enrolling in school.



**Table 37: Disability as a reason for never attending school: 1999-2009 (%)**

	Proportion of children who cite disability as reason for school non-ever attendance			
	1999	2002	2005	2009
Children aged 6-12 years	2.6	3.7	6.1	2.4
Children aged 13-17 years	3.5	6.4	21.2	17.8
<i>All children aged 6-17 years</i>	2.8	4.1	7.6	3.9
Rural	3.6	3.9	7.4	4.1
Urban	2.3	7.4	11.4	2.4
Q1	1.8	3.2	5.3	4.7
Q2	3.2	4.6	7.4	4.8
Q3	2.8	2.6	6.2	0.6
Q4	2.7	6.9	12.7	2.8
Q5	4.9	11.6	20.7	6.7
Central	5.6	9.3	15.1	5.1
Eastern	8.7	4.7	9.8	3.9
Northern	0.8	1.4	3.4	4.2
Western	4.4	4.9	8	2.9
<i>Proportion of children who have never attended school (%)</i>	<i>10.4</i>	<i>7.4</i>	<i>6.4</i>	<i>10.9</i>
<i>Estimated number of children who have never attended school</i>	<i>861,500</i>	<i>696,200</i>	<i>622,500</i>	<i>1,219,900</i>
<i>Estimated number of children disabled who have never attended school</i>	<i>24,000</i>	<i>28,200</i>	<i>47,500</i>	<i>48,400</i>
<i>Estimated schooling population (aged 5-17 years)</i>	<i>8,313,800</i>	<i>9,433,600</i>	<i>9,838,000</i>	<i>11,158,000</i>

Source: Author's calculations from the 1992/93 HIS, 1999/2000 UNHS, 2002/03 UNHS, 2005/06 UNHS, and 2009/10 UNHS

## 2.11 Information

A child is defined as deprived in terms of information if s/he lives in a household that lacks a radio and television, and as extremely deprived if her/his household also lacks access to a mobile phone. As mobile phones were not common in 2000 and 2006, it is only in 2011 that we note a large difference between deprivation (32%) and extreme (20%) deprivation rates (Table 38). This constitutes a significant improvement over 2000, when both rates were near 43%. The Northern and Eastern **regions** have, by far, the largest proportions of information-deprived children – one third and one quarter extremely deprived, respectively, in 2011 – while the Centre had the lowest proportion (8.6%). Map 5 shows the geographical distribution of information deprivation in 2011. Deprivation rates are many times higher in **rural** areas (e.g. 22% vs. 6.4% for extreme deprivation in 2011). We note marked improvements in both rural and urban areas with the notable exception of less-extreme information deprivation in urban areas, which has actually increased over time.

While there are no significant **sex** differences, **orphans** have much greater information deprivation, except those **adopted/fostered** by other households, who actually fare better than other children. Again, this likely reflects the greater wealth of adopting/foster households. Information deprivation is also markedly greater among **male-headed households**, and falls significantly with household **wealth** and **size**. The difference in the proportions for the lowest and highest quintiles is quite significant. For instance, 56.7% of children in the lowest quintile were extremely information-deprived in 2011, compared to

only 0.9% in the top quintile. These results indicate that there are significant inequalities among child geo-socio-economic groups in access to information.

**Table 38: The proportion of children aged 6-17 years deprived in information, by various characteristics (%)**

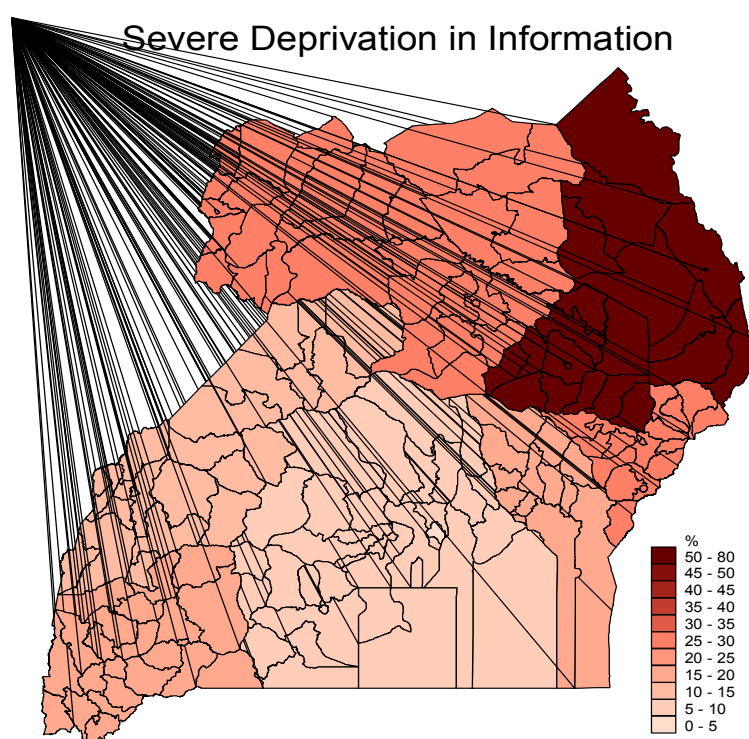
	Less Severe Deprivation			Severe Deprivation		
	2000	2006	2011	2000	2006	2011
National	43.1	37.2	32.1	43.0	35.8	20.2
<b>Region</b>						
Central	26.0	21.2	19.8	25.9	18.2	8.6
Eastern	49.2	41.1	37.0	49.2	39.3	24.7
Northern	65.1	56.9	49.1	65.1	56.4	37.2
Western	43.0	31.6	26.5	43.0	31.2	14.4
<b>Location</b>						
Rural	46.4	39.2	33.8	46.4	38.1	22.1
Urban	18.0	20.6	19.9	17.9	17.1	6.4
<b>Sex of Child</b>						
Male	43.1	38.0	31.9	43.0	36.7	19.9
Female	43.1	36.4	32.4	43.1	34.9	20.6
<b>Relationship to household head</b>						
Sons/daughter	43.2	37.4	31.8	43.2	35.9	19.7
Adopted/foster child	39.1	32.3	25.8	39.1	30.8	11.8
Other relatives	43.0	37.0	33.3	42.9	35.6	22.3
<b>Parents alive</b>						
Both parents alive	43.1	36.2	30.6	43.1	34.7	18.9
Mother or father deceased	48.6	42.1	43.2	48.4	40.8	29.2
Both parents deceased	39.9	43.0	42.2	39.9	42.6	31.6
<b>Sex of household head</b>						
Male	55.0	47.9	44.3	55.0	46.8	30.3
Female	39.2	33.0	27.3	39.1	31.5	16.3
<b>Wealth Quintile</b>						
Quintile 1	49.2	80.7	69.3	49.2	80.7	56.7
Quintile 2	37.6	43.0	36.1	37.6	42.6	23.1
Quintile 3	48.4	31.6	23.7	48.4	30.8	10.3
Quintile 4	42.9	18.4	17.2	42.9	16.2	5.6
Quintile 5	36.9	9.4	9.2	36.8	5.7	0.9
<b>Household size</b>						
3 or 4 members	52.9	40.6	33.1	52.9	39.6	22.7
5 or 6 members	46.3	40.8	35.2	46.2	39.7	22.6
7 or 8 members	45.6	34.5	32.1	45.6	33.5	20.1
9 or more members	28.4	33.0	27.4	28.4	30.6	15.4

**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

**Table 39: The proportion of children under 18 years deprived in information, by sub region (%)**

	Deprived			Extreme Deprivation		
	2000	2006	2011	2000	2006	2011
National	43.1	37.2	32.1	43.0	35.8	20.2
<b>Sub Regions</b>						
Kampala	11.7	21.6	15.2	11.7	18.5	4.0
Central 1	27.2	23.9	20.3	27.1	21.6	9.7
Central 2	31.1	14.6	21.2	30.9	10.0	9.5
East Central	46.8	32.0	33.0	46.8	31.3	19.0
Eastern	50.7	47.6	39.9	50.7	45.1	28.8
North	56.1	55.7	36.1	56.1	55.4	26.4
Karamoja	77.5	81.3	86.3	77.5	80.2	76.5
West Nile	67.0	42.5	46.0	66.9	42.3	29.4
Western	38.8	35.9	26.7	38.8	35.3	11.9
South Western	45.3	26.2	26.3	45.3	26.1	17.4

**Map 5: Geographical distribution of information deprivation among children in 2011**



**Source:** Authors' calculations based on Uganda Demographic and Health Surveys.

## 2.12 Child and maternal mortality

### 2.12.1 Child mortality

Infant and under-five mortality rates in Uganda in 2000, 2006 and 2011 are presented in table 40<sup>10</sup>. Infant mortality rates have fallen from 83 per 1000 live births in 2000 to 55.1 in 2011. At the same time, under-five mortality rates declined from 135.6 per 1000 live births to 90.1 per 1000 live births.

Child mortality rates are highest in the North and West and lowest in the East and Centre. **Rural** areas also experience substantially higher infant and under-five mortality rates. While mortality rates have progressively fallen in rural areas, they initially increased between 2000 and 2006, before recovering to below-2000 rates by 2011<sup>11</sup>. A previous study that examined opportunities for human development (EPRC, 2008) showed that there are marked imbalances between **regions** and between urban and rural areas in the distribution of health facilities such as hospitals and higher health centres. This may explain the regional differences in mortality rates.

Mortality rates are much higher for **boys** and, especially since 2006, and for children in **female-headed households**. **Mother's education**, even if only a primary-level education is acquired, dramatically reduces mortality rates, as does **household size**. Children in the wealthiest quintile have mortality rates that are much lower than poorer children, although the pattern is less clear among the other quintiles. It is not immediately clear why mortality rates fall so dramatically – three to fourfold between the smallest and largest households – with household size.<sup>12</sup>

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<sup>10</sup> Infant and under-five mortality rates are calculated based on the direct method and a 5-year recall in a questionnaire applied to all 15- to 49-year old women as part of the UDHS survey.

<sup>11</sup> There is no apparent explanation for the surge in urban mortality rates during 2000 and 2006. However, the UDHS report also notes that there was a jump in post neonatal mortality rates in urban areas, from 32 to 41 deaths per 1000 live births between 2000 and 2006 (UBoS and Macro International, 2007).

<sup>12</sup> One possible explanation is that the category of 1-2 household members is a relatively small sample (7.6% in 2011). Previous studies note that mortality is a rare and statistically noisy event that may not be captured with precision in relatively small samples (Ssewanyana and Younger, 2008; Mosley and Chen, 1984).

**Table 40: Child mortality rates per 1000 live births, by various characteristics**

	Infant Mortality			Under five mortality		
	2000	2006	2011	2000	2006	2011
<b>National</b>	83.0	72.1	55.1	135.6	117.8	90.1
<b>Region</b>						
Central	76.0	66.0	51.9	130.4	106.0	81.1
Eastern	77.8	62.8	46.4	149.6	95.5	79.3
Northern	103.6	87.5	59.9	153.9	141.7	100.6
Western	84.1	67.4	61.4	149.6	128.1	101.6
<b>Location</b>						
Rural	69.2	73.1	53.8	100.3	120.6	93.7
Urban	87.1	63.8	55.4	145.6	95.4	68.3
<b>Sex of Child</b>						
Male	87.3	82.5	60.6	137.6	127.6	88.5
Female	78.7	62.0	49.5	133.4	99.5	79.7
<b>Sex of household head</b>						
Male	82.1	69.7	51.8	138.7	115.3	89.2
Female	86.9	80.5	65.9	122.5	126.1	94.0
<b>Mother's Education</b>						
No education	85.0	82.3	56.5	144.1	139.6	118.8
Primary	88.4	72.1	55.9	141.2	117.5	88.8
Secondary and igher	56.2	51.9	51.6	93.5	73.3	68.7
<b>Wealth Quintile</b>						
Quintile 1	319.2	87.6	56.7	133.3	136.9	105.8
Quintile 2	86.1	75.8	59.2	111.9	121.1	104.5
Quintile 3	68.8	65.1	56.3	138.0	116.9	83.8
Quintile 4	65.6	66.6	58.0	146.5	112.3	88.5
Quintile 5	78.3	56.5	45.9	142.3	93.9	62.7
<b>Household size</b>						
1 or 2 members	94.1	269.8	173.3	461.9	227.5	158.5
3 or 4 members	79.4	91.9	71.2	185.6	157.1	119.5
5 or 6 members	78.8	84.2	47.7	111.6	119.8	97.9
7 or 8 members	83.2	59.3	45.9	90.3	101.1	78.4
9 or more members	80.5	47.1	43.7	106.6	82.8	58.5

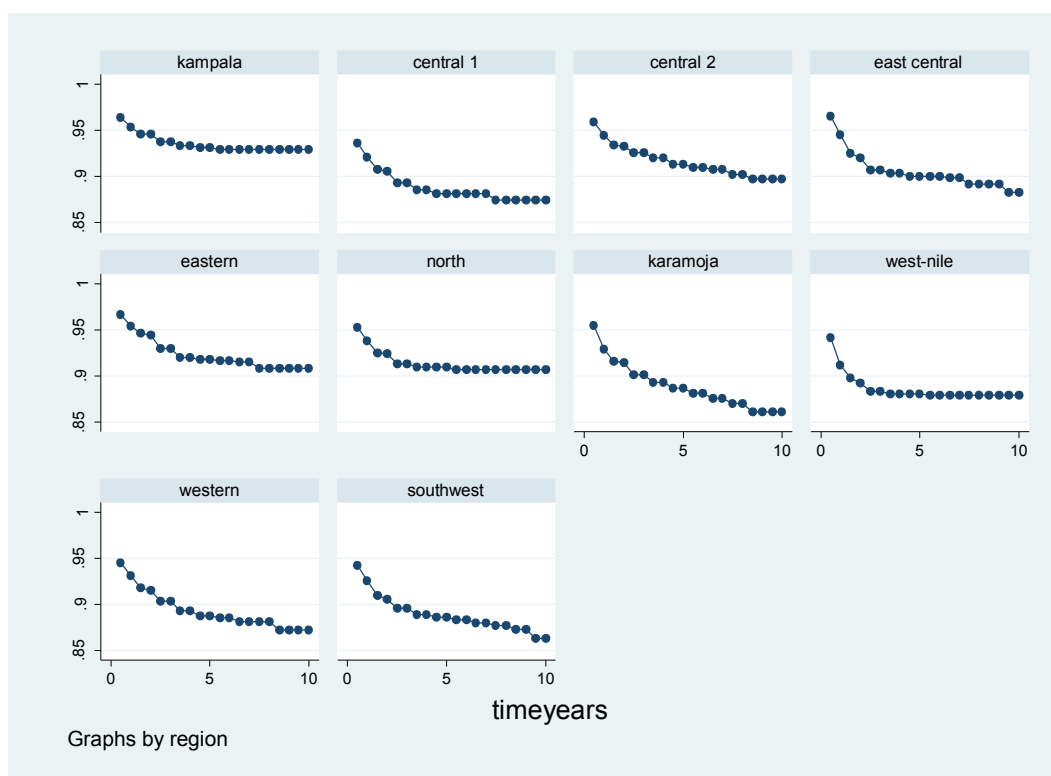
Notes: The mortality rates in the table are based on 5 year period preceeding the survey.

Source: UDHS: Uganda Demographic and Health Survey

The literature suggests that other factors that reduce child mortality rates include vaccinations and access to basic health care for pregnant women (Ssewanyana and Younger, 2008). Lack of knowledge on health is another important factor. Mackinnon (1995) argues that children of mothers with good knowledge of the causes of malaria and diarrhoea have a much lower mortality rate than children of mothers who do not understand the causes of these afflictions. Children die because their parents are not fully informed by knowledgeable medical personnel of the actions they could take to save them. Other important factors that Mackinnon finds are the use of fuel wood as the main source of energy at a community level, the number of rooms in the house (which reflects a direct environmental effect), the marital status of the mother and the cost of health services. A situation analysis of new-born health in Uganda (Republic of Uganda, 2008), found the main causes of neonatal death to include: neonatal infections, premature birth and neonatal asphyxia. These causes of death are related to poor maternal access to and utilization of health services and the high number of deliveries that take place without skilled attendants, especially: in the home, among the rural poor, in IDP camps and in parts of the Western and Central regions of Uganda. The availability, access to and quality of services are also grossly affected by lack of adequate skills among caregivers in hospitals, leading to high mortality levels.

Figure 13 shows the trends in child survival rates over a 10-year period based on the 2011 UDHS. Despite improvements, childmortality remains high in some subregions, notably Karamoja, Central 1, Western, and South Western. For example, whereas Central 1 has relatively high survival rates in the first years of life, child mortality continues even after 3 years of age, as opposed to the Kampala subregion where child survival rates stabilize after 3 years. Similarly in Karamoja, Western, and South Western subregions, substantial child mortality persists even after 5 years, highlighting health vulnerabilities faced by children in these areas—even after surviving infancy.

**Figure 13: Child Survival Rates by subregions in 2011**



**Source:** Authors calculations from UDHS 2011

### 2.12.2 Maternal mortality

Table 41 compares maternal mortality rates (MMR) during 2000 and 2011 for different age groups of women.<sup>13</sup> The results show that maternal mortality ratio stood at 542 per 100,000 live births in 2000 and dropped substantially to 405 per 100,000 live births in 2006. There were only marginal changes by 2011, bringing the total to 395 deaths per 100,000 live births. Uganda's MMR is below the average of 500 for sub-Saharan Africa (developing countries) in 2010 (UNICEF, 2013). The general fertility rate for the two periods was estimated at 0.24. For women aged 15-49, maternal deaths were estimated at 157 in 2000, but this dropped to 141 in 2006, and 128 in 2011. At the same time, exposure increased from 122,953 in 2000 to 143,336 in 2006 and finally to 146,813 woman-years in 2011. As a result, the average

<sup>13</sup> Maternal deaths are based on sister deaths in a 10-year period prior to the survey as reported by a subset of 15-49 year old women. A sister death is defined as a maternal death if it occurs during pregnancy, childbirth or within two months after delivery. Usually, two methods are used to estimate maternal mortality in developing countries. The first is an indirect method while the second is a direct method. The direct method (Rutenberg and Sullivan, 1991) is adopted in the current report. Mortality rate is estimated by dividing the number of reported maternal deaths by woman-years of exposure. Age-specific mortality rates are calculated in this way. Woman-years of exposure in any age group is the sum of the total number of years each woman belonging to this group is at risk (i.e. aged between 15 and 49) to experience maternal death over the past 10 years. MMR (maternal mortality ratio) is computed by dividing the mortality rate by the general fertility rate (GFR), where the latter is the ratio of births to woman-years of exposure calculated over the preceding three years.

maternal mortality rate also declined from 1.28 to 0.87 over the 10-year period. Whereas during 2000 and 2006 it was women aged 25-29 who faced the highest risk of maternal death in Uganda, by 2011, it was women aged 30-34 years with the highest risk.

**Table 41: Comparison of maternal mortality during 2000 and 2011**

Age	UDHS 2000			UDHS 2006			UDHS 2011		
	Maternal deaths	Exposure (woman-years)	Maternal mortality rate	Maternal deaths	Exposure (woman-years)	Maternal mortality rate	Maternal deaths	Exposure (woman-years)	Maternal mortality rate
15-19	13	28058	0.46	14	31132	0.45	10	32,675	0.31
20-24	32	28714	1.11	32	31921	1	25	32,930	0.76
25-29	51	24858	2.05	37	28196	1.31	25	28,382	0.88
30-34	32	18945	1.69	30	22307	1.34	34	21,942	1.55
35-39	19	12350	1.54	15	15722	0.95	18	15,368	1.17
40-44	8	6731	1.19	9	9326	0.97	11	9,818	1.12
45-49	2	3296	0.61	4	4735	0.84	5	5,699	0.88
<b>15-49</b>	<b>157</b>	<b>122953</b>	<b>1.28</b>	<b>141</b>	<b>143336</b>	<b>0.98</b>	<b>128</b>	<b>146,813</b>	<b>0.87</b>
<b>General fertility rate</b>	-	-	0.24	-	-	0.24			0.24
<b>Maternal mortality ratio (MMR)</b>	-	-	542	-	-	405			395

UDHS: Uganda Demographic and Health Survey

### 2.12.3 Delivery

About one half of Ugandan women deliver their babies at home (Table 42), with a large drop between 2006 (58.7%) and 2011 (42.2%). However, very few (5% in 2011) lacked prenatal care, which compares well with Sub-Saharan Africa (76% had some prenatal care in 2008).<sup>14</sup> The rates for unattended births are very similar to those for delivery at home.

Birth conditions are generally worst in the Western and Northern **regions** (50% homebirths and unattended births in 2011) and best in the Centre (27-28%), although the regional gap closed somewhat since 2000. Despite recent improvements in rural areas, a huge **urban-rural** divide persists in 2011. For example, more than 47% of all rural women delivered at home in 2011 compared to only about 9% of urban women.

Children who are the **son/daughter of the household head** are somewhat more likely to be born at home and to be deprived of prenatal care and birth assistance, although the relationship with child **sex** and **age** is less clear.

Children born into **male-headed households** are more likely to be delivered at home. Once again, **mother's education** and **household wealth** both dramatically reduce the likelihood of

<sup>14</sup><http://www.un.org/millenniumgoals/pdf/MDG%20Report%202010%20En%20r15%20-low%20res%2020100615%20-.pdf#page=32>



lacking prenatal care, having unattended births and home delivery. **Household size** presents no clear patterns.

**Table 42: Proportion of children under five whose birth received no care, was not attended and whose delivery was done at home, by various characteristics (%)**

	UDHS 2000			UDHS 2006			UDHS 2011		
	No care (prenatal)	Birth not attended	Delivery at home	No care (prenatal)	Birth not attended	Delivery at home	No care (prenatal)	Birth not attended	Delivery at home
<b>National</b>	6.2	62.9	62.7	4.2	58.5	58.7	4.7	41.2	42.2
<b>Region</b>									
Central	4.4	41.2	41.2	4.1	41.2	40.1	5.9	26.6	27.7
Eastern	5	60.1	61.7	3.3	53.7	54.8	7.9	40.1	42.1
Northern	7.1	73.9	76.6	3.7	68.5	68.9	1.5	48.1	49.7
Western	9.1	82.7	78	5.6	68.8	69	2.5	50.8	50.4
<b>Location</b>									
Rural	6.7	67.8	68	4.6	63.1	63.4	5.2	46.1	47.1
Urban	2.3	18.7	17.7	1.9	19.5	20.3	2.0	8.8	9.3
<b>The sex of child</b>									
Male	6.1	64.2	60.9	4.3	60	57.3	4.9	41.4	42.3
Female	6.3	61.6	64.4	4.2	19.5	60.2	4.5	40.9	42.1
<b>Child age group</b>									
0-12 months	6.6	63.5	64.3	4.2	58.3	58.3	5.0	40.7	41.7
13-24 months	5.7	62.3	61.9	5.7	55.6	57.2	4.5	41.6	41.7
25-36 months	6.3	59.6	59.6	3.2	59.1	60.9	1.3	39.0	40.1
37-48 months	5.4	63.7	63.2	4.7	59.6	59.9	4.8	45.7	47.6
49-60 months	7.8	65.7	64.2	0	62.1	63	1.7	45.4	45.9
<b>Relationship to the head</b>									
Son/daughter	7	64.5	55	3.9	59.5	55.4	4.3	42.9	44.0
Other relatives	6.2	51.1	63	4.3	52.2	58.9	6.6	30.5	31.1
<b>Sex of the head of household</b>									
Male	6	63.8	63.3	3.9	59.4	59.7	4.7	42.3	43.4
Female	7.2	58.6	60	5.4	54.8	55.1	4.5	36.8	37.3
<b>Mother's education</b>									
No education	11.8	78.8	78.1	7.4	74.3	74.3	6.0	61.7	62.8
Primary	5	63.7	63.4	3.6	59.7	60.2	5.1	44.3	45.5
Secondary and more	1.3	24.4	25.4	2.3	26.2	26	2.8	17.8	18.4
<b>Wealth quintile</b>									
Quintile 1	11	63.7	76.8	5.2	71.8	72.2	5.5	55.8	56.8
Quintile 2	6.2	55.2	73	5.2	68.4	67.9	4.3	49.7	50.2
Quintile 3	7.2	66.1	69.4	4.6	65.8	65.9	5.9	44.4	44.7
Quintile 4	2.3	67.2	50.1	4.1	51.3	52.4	5.3	39.9	41.7
Quintile 5	1.6	61.6	30.2	1.6	23.6	23.6	2.3	8.9	10.7
<b>Household size</b>									
3 or 4 members	5.8	55.1	55	4.2	50.9	50.4	3.1	33.8	35.3
5 or 6 members	6.6	67.7	67.4	3.8	57.8	57.8	4.1	42.8	43.8
7 or 8 members	5.9	65.3	64.5	5	64.8	65.6	4.4	47.4	48.3
9 or more members	6	62.4	61.5	3.6	60.5	60	8.0	46.7	41.3

#### UDHS: Uganda Demographic and Health Surveys

Table 43 indicates large subregional disparities. Lack of prenatal care is most problematic in the East Central and Central 1 regions, where over 10 per cent of children are affected.

Unattended births and home deliveries are particularly common in Karamoja (70 per cent) and the South West. Finally, in the East Central and Western regions, more than half of children were not exclusively breastfed in the first three days after birth.

**Table 43: Prenatal care, child birth and breastfeeding by subregions in 2011**

	No care (prenatal)	Birth not attended	Delivery at home	Never breastfed	Received other feed
<b>National</b>	4.7	41.2	42.2	1.0	41.9
<b>Subregion</b>					
Kampala	1.5	5.1	5.8	1.6	42.5
Central 1	10.6	35.3	37.1	1.3	46.5
Central 2	4.0	29.6	30.2	1.4	45.5
East Central	11.4	29.5	32.7	0.3	56.8
Eastern	5.7	47.1	48.3	1.5	28.5
North	1.3	46.1	47.8	0.3	36.0
Karamoja	1.8	69.4	71.5	0.8	17.0
West Nile	1.8	38.1	38.9	0.5	38.3
Western	3.3	44.4	44.6	1.0	50.7
South Western	1.5	58.5	57.3	1.2	43.3

#### 2.12.4 Breastfeeding

Only one per cent of children in Uganda were never breastfed, although this represents an increasing trend compared to 2000 and 2006 (Table 44).

In 2000 and 2006, where we are able to establish the duration of breastfeeding, we find that despite a sharp reduction since 2000, half of all children are breastfed for less than 2 years in 2006. Furthermore, counter to WHO recommendations, more than half received other sources of food in their first three days of life in 2006, although this rate fell to 41% by 2011.

The North stands out as the **region** with the best breastfeeding practices and the Centre generally comes out worst. Children in **rural** areas are somewhat disadvantaged, but the gap is not very big and has only emerged in 2011, possibly due to competing demands on mothers' time in urban areas.

#### 2.12.5 Summary

This section looked at child and maternal mortality, delivery conditions and breastfeeding practices. Uganda has made recent improvements in reducing **child mortality rates** (55 per 1000 for infants and 84 per 1000 for under-fives in 2011) and these are now below sub-Saharan African (SSA) averages (81 and 129, respectively, in 2009).<sup>15</sup> The situation is particularly problematic in the North and West of Uganda and rural areas. In contrast, at 395

<sup>15</sup> IGME (2010), p.16.

per 100,000 live births in 2006, the **maternal mortality ratio** exceeds the SSA average of 260 in 2008.

**Delivery conditions** are better than the average for SSA in Uganda, with only 4% lacking prenatal care (24% in SSA) and 41% of births unattended (54% in SSA), despite the fact that 42% of children are born at home. Conditions are worst in the West and rural areas (rates of deprivation three times those of urban areas).

Half of Ugandan children are **breastfed** for less than two years and, counter to WHO recommendations, more than 40% received other sources of food in their first three days of life. Conditions are worse in the Centre, but there is no substantial rural-urban divide. Mother's education, wealth and household size greatly reduce child mortality and improve delivery conditions, but have a negative impact on breastfeeding.

### 2.13 Childhood Security for Girls

#### - First sexual intercourse, early pregnancy, early marriage

The Ministry of Gender, Labour and Social Development recently completed a comprehensive assessment of the vulnerability of adolescent girls, including the development of and Adolescent Girls Vulnerability Index (AGI). The results show that nationally 20.6% of adolescent girls experience extreme vulnerability, with the highest rates in Karamoja where more than one in two girls are vulnerable. While education is a key driver of vulnerability, protection factors are also extremely important high risk sexual activity, early pregnancy and early marriage (MoGLSD, 2013).

Table 44 presents the proportion of women under the age of 25 who reported having undergone various forms of insecurity – early pregnancy, early marriage or first sexual intercourse – before the age of 18 during 2000 and 2011. The results suggest very high levels of insecurity for the girl child. In 2011, before 18 years of age, 23.7% had experienced a pregnancy, 29.8% had married and over half had engaged in sexual intercourse. These rates have nonetheless fallen since 2000 by roughly ten percentage points.

Regionally Uganda falls in the middle of the ranking using the AGI when compared to fellow members of the East African Community. Uganda performs significantly better than Burundi and Tanzania where 33.5% of and 28.6% of adolescent girls are vulnerable respectively, but significantly worse than Rwanda, where 8.5% are vulnerable and Kenya where vulnerability is at 12% (MoGLSD, 2013).

**Table 44: The proportion of children under five who never breastfed, those for whom breastfeeding duration was lower than 2 years, and those who received other additional feed, by various characteristics (%)**

	UDHS 2000			UDHS 2006			UDHS 2011**	
	Never breastfed	Breastfed <2 yrs*	Received other feed	Never breastfed	Breastfed <2 yrs*	Received other feed	Never breastfed	Received other feed
<b>National</b>	0.2	69.9	63.7	0.5	50	53.8	1.0	41.9
<b>Region</b>								
Central	0.1	76.3	66	0.5	57.2	60.6	1.4	45.2
Eastern	0.2	73.6	65.7	0.3	56.4	56.5	1.1	39.7
Northern	0.1	52.4	39.4	0.4	36.1	40.1	0.5	33.0
Western	0.3	69.7	74.7	0.8	50.1	57.3	1.1	47.3
<b>Location</b>								
Rural	0.1	69.1	64	0.5	49.6	54	0.9	41.5
Urban	0.4	77	61.3	0.3	53.4	52.7	2.1	44.6
<b>The sex of child</b>								
Male	0.3	70.1	65.1	0.6	51.1	53.9	1.0	43.1
Female	0.1	69.6	62.3	0.4	49	53.7	1.1	40.8
<b>Child age group</b>								
0-12 months	0.1	.	63.8	0.5	.	53.8	0.9	41.8
13-24 months	0.1	.	63.7	0.4	.	52.2	0.6	42.6
25-36 months	0.3	68.7	63.3	0.4	69	54.2	2.0	42.6
37-48 months	0.3	70.5	63.9	0.9	64.5	58	2.4	48.6
49-60 months	0	71.6	63.6	0.8	70.5	54.4	0.5	33.8
<b>Relationship to the head</b>								
Son/daughter	0.4	55.7	61.9	0	41.8	59.2	1.0	41.7
Other relatives	0.2	70.5	63.8	0.5	50.5	53.4	1.3	43.5
<b>Sex of the head of household</b>								
Male	0.2	71.8	63.4	0.5	50.8	53	0.8	41.1
Female	0.2	61.6	65.1	0.5	47	56.7	1.9	44.7
<b>Mother's education</b>								
No education	0.1	61.6	62.9	0.8	46.1	50.8	1.3	40.3
Primary	0.2	72.3	63.3	0.4	50.8	54.5	0.9	41.3
Secondary and more	0.1	74.3	67.5	0.4	53.3	55.6	1.3	44.7
<b>Wealth quintile</b>								
Quintile 1	0.1	62.3	63.9	0.5	42.6	42.3	0.3	33.3
Quintile 2	0.1	67.4	61.1	0.1	47.5	52.5	1.2	41.9
Quintile 3	0.2	74.1	61.2	1.1	51.5	61	1.6	47.6
Quintile 4	0.2	74.8	68.7	0.2	54.2	58.3	0.9	41.9
Quintile 5	0.2	74	63.1	0.7	58.3	57.4	1.3	45.9
<b>Household size</b>								
3 or 4 members	0.1	68.9	66.5	0.6	49.4	55.1	0.8	44.0
5 or 6 members	0	69.5	65	0.3	50.7	54	1.3	41.8
7 or 8 members	0.4	69.7	60.9	0.6	49.7	52.3	0.6	40.3
9 or more members	0.2	72.1	61.8	0.6	50.7	54.1	1.3	40.3

**Table 45: The proportion of women under 25 who experienced pregnancy, marriage and first sexual intercourse before age 18, by various characteristics (%)**

	UDHS 2000			UDHS 2006			UDHS 2011		
	Pregnancy	Marriage	First sex	Pregnancy	Marriage	First sex	Pregnancy	Marriage	First sex
National	32.2	41.4	58.8	25.8	32.7	52.3	23.7	29.8	50.5
Region									
Central	30.6	36.5	61.4	23.1	23	53.5	20.9	22.0	50.0
Eastern	39.4	50.2	67.9	30.4	36.7	59.3	31.4	38.8	59.7
Northern	35.9	46.3	58.3	28.7	42	52.3	25.1	36.9	49.8
Western	24.7	36.3	45.7	23.1	32.7	45.6	18.7	25.7	42.9
Location									
Rural	34.2	44.9	59.5	27.7	35.7	53.3	25.1	33.1	51.5
Urban	23.8	26.9	55.6	17.9	20.1	47.9	18.7	18.0	47.0
Sex of household head									
Male	35.8	46.9	62.1	27.5	36.7	54.5	25.5	33.3	52.1
Female	20.2	23.4	47.6	21.6	22.3	46.5	19.0	20.6	46.5
Wealth quintile									
Quintile 1	38.6	49.3	61.3	38	49	59.9	33.6	45.3	59.6
Quintile 2	37.3	52.3	63.5	28.7	43.3	58	31.1	40.1	54.6
Quintile 3	40	49.2	64	25.5	32.9	48.3	25.1	32.8	51.8
Quintile 4	26.6	33.9	55.4	24.9	29.5	49.9	19.2	23.6	45.7
Quintile 5	20.2	24.4	50.9	17	16.9	47.6	15.7	16.9	45.5
Household size (number of members)									
1 or 2	17.7	46	62	20.6	35.2	62.9	15.0	31.5	60.1
3 or 4	41.1	53.5	69.1	33.1	44.2	63.9	30.6	39.7	58.3
5 or 6	41.2	49.2	63.5	34	42.3	57.7	29.8	34.5	56.1
7 or 8	26.3	28.6	47.5	20.2	22.3	40.3	16.7	20.6	40.0
9 or more	16.8	19.1	42.8	14.3	16.3	39.4	16.0	18.1	39.3

## **3. POLICY FRAMEWORK FOR CHILD POVERTY**

### **3.1 General overview of Uganda's public finances**

#### **3.1.1 Structure of public revenues and expenditures**

Despite the sustained growth in national output, Uganda's tax base remains very low. Table 466 shows trends in Uganda's key public revenue and expenditure indicators, and shows that taxes as a share of GDP have only increased marginally from 11.7% in 2000/01 to 13.1% by 2011/12. Some of the reasons for the low revenue mobilization include: the subsistence nature of most agricultural activities, the large informal sector and problems in tax administration (GoU, 2004). Although the contribution of agriculture to GDP fell to less than 20% in 2007/8, the sector still employs at least 75% of the workforce. At the same time, about 50% of agricultural activities are subsistence in nature and are not amenable to taxation, so Uganda's public revenues remains low. The continued low mobilization of domestic revenues has key implications for the country's ability to finance social spending including spending on child wellbeing.

#### **3.1.2 Social spending**

Notwithstanding budgetary constraints, Uganda has significantly increased the amount of public funds devoted to social spending. Table 466 also shows that about 30% of the national budget over 2000/01 to 2005/06 was allocated to the education and health sectors. Uganda was able to commit large amounts of public resources to delivery of social services during this period, partly due to savings following debt relief under the Highly Indebted Poor Countries (HIPC) initiative in 1998 and 2001. The country's savings under the HIPC initiative were channelled into the Poverty Action Fund (PAF) – established in 1997/98. The PAF ring-fenced public expenditures in key sectors such as education and health from any budget cuts because the country was operating a cash budget. The period is also linked to both the global drive to achieve the MDG targets and the increased availability of public funds as a result of debt relief, as mentioned earlier. Indeed, Table 466 also shows that the fiscal deficit was substantial during implementation of the Poverty Eradication Action Plan (PEAP) programs. For example, the overall deficit as a share of GDP peaked at 13.7% in 2003/4 but has since receded to 3.6% in 2010/11.

On the other hand, the recent discovery of oil reserves in Uganda may change the landscape of public revenues and expenditures. In the mid-2000s, Uganda discovered significant oil reserves around Lake Albert in Western Uganda and the country began to reap oil windfalls in 2010 via capital gains taxes on exploration rights.<sup>16</sup> Once oil extraction commences, it is expected that the Ugandan economy will be in a position to finance the entire national budget without reliance on donor support. Partly as a result of the expected oil windfall

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<sup>16</sup> Official figures estimate Uganda's oil reserves at 2 billion barrels of oil equivalent (GoU, 2010a).

revenues, priorities in public spending have shifted from social services to infrastructure and other primary sectors. For example, Table 466 indicates that the share of spending on education and health in the national budget is projected to decline from 27% in 2006/7 to 17% by 2016/17. At the same time, the share of public spending on roads, energy and other public works is projected to increase from 20% (2006/7-2010/11) to an average of 27% over 2012/13-2016/17. The above reorientation of public spending will have serious implications for spending on child related issues.

### **Fiscal space for public health spending**

Public spending on health in Uganda is inadequate and the Ministry of Health is faced with additional fiscal challenges. Although Uganda spends about US\$ 300 million annually on the health sector, more than 50% of public health expenditures are contributed by donors and such external funds come earmarked for specific activities such as procuring ARV drugs for HIV/AIDS patients. Over time, per capita health expenditures in Uganda have declined. For example, Uganda's allocation to the health sector remained constant at UGX 628 billion (about US\$ 310 million) during the 2008/9-2010/11 financial years, while the population increased from 29.5 million to 31.8 million over this period of time (Ministry of Finance, Planning and Economic Development, 2011). The high annual population growth rate of 3.4% thus means that nominal per capita public spending on health declined from US\$ 11 to US\$ 9 over the same period. Furthermore, there is limited fiscal space in the domestically financed public health budget, with at least 85% of the local budget earmarked in the form of conditional grants (Okwero et al, 2010).

### **Procurement of pharmaceuticals**

Apart from inadequate funding, the MoH is faced with the challenge of operationalizing the decentralization policy within the health sector. Although the District Health Officer (DHO) is supposed to allocate funding to the various health units within the district, most of the transfers to the districts are earmarked and the DHO has no powers to enact any changes. The DHO's powers were curtailed further by the changes to Vote 116 that funds the National Medical Stores (NMS). Currently, all funds allocated for pharmaceuticals are vested with the NMS. Previously, at least 50% of the budget for pharmaceuticals was allocated to districts and once districts acquired a certificate of non-availability they could procure pharmaceuticals from either the Joint Medical Stores (JMS) or local pharmacies. Currently, the NMS supplies all pharmaceuticals and efforts have been made for the NMS to deliver the pharmaceuticals directly to the health facilities rather than to the DoH. The current arrangement carries risks in that if the NMS fails, the entire nation's drug supply chain would fail, unlike the previous situation where the failure of one district may not necessarily have affected other districts. On the other hand, having a centralized large purchasing entity affords the economies of scale to acquire pharmaceuticals at a cheaper cost.

#### **3.1.3 Foreign aid**

Uganda has been one of the top recipients of foreign aid in SSA, especially during the implementation of the PEAP programs. As indicated in Table 466, the share of the national

budget financed by foreign aid has been historically high. For instance, nearly half of the national budget in the 2003/4 financial year (FY) was financed using external grants and loans. The government's commitment towards increased social spending led to a shift in the delivery method of foreign aid from project aid to general budget support. By 2004/05, at least 62% of the foreign aid came in the form of budget support (MFPED, 2004). The share of the budget that was financed externally fell significantly as the GoU sought to increasingly rely on domestic revenue to finance public expenditures. Although the share of the national budget that is externally financed started to decline during the 2005/06 FY and reached 19% of the budget in 2010/11 FY, it is projected to return to the previous levels of 25% by the 2012/13 FY.

In order to increase control over macroeconomic fundamentals, the GoU placed a cap on the amount of foreign aid that could be absorbed in the national budget and also set annual sectoral expenditure ceilings. In 2004/5, the foreign aid cap was put at US\$ 800 million per year (MFPED, 2004). According to MFPED policy makers, the cap on foreign aid was necessitated to control adverse macroeconomic implications, notably, the requirement to control: i) money supply growth - a result of huge donor inflows - by issuing treasury bills; ii) the appreciation of the exchange rate, which adversely affects exporters; and finally, iii) the increase in prices of non-traded goods (e.g. government consumption) relative to traded goods such as expenditures on equipment (Brownbridge, 2003). In the past 10 years, the caps and ceilings have constrained resource mobilization by some social services, notably health. As a result of the various global partnerships, the amount of foreign aid resources available for health spending in Uganda has increased since 2000.<sup>17</sup> However, the health sector budget could not increase due to sectoral ceilings. Indeed, Odaga and Lochoro (2006) argued that the budget ceiling in the health sector curtailed any efforts to meet the child and maternal mortality MDGs.

### **3.1.4 Social protection**

Uganda's social protection framework is mainly founded on the principles of equity and human rights. Most policy documents on Uganda identify the major vulnerable groups as: women, widows, orphans, youth, people affected by HIV/AIDS, people affected by conflict, and the elderly. The recently launched National Development Plan (2010-2014) defines what is considered as social protection in the overall national development agenda. Specifically, social protection is considered to:

“...entail all public and private interventions that address vulnerabilities associated with being or becoming poor. Social protection is a public investment in human capital that facilitates risk taking endeavours and also enables the poor to prevent, cope with and mitigate risks. These interventions

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<sup>17</sup> Such global partnerships included: The Global Fund to Fight AIDS, Tuberculosis and Malaria; The Global Alliance for Vaccines and Immunisation (GAVI); and The U.S. President's Emergency Plan for AIDS Relief (PEPFAR).



currently include: provision of social assistance to the chronically poor; care for the elderly, orphans and other vulnerable children (OVC); special needs education and training; community based rehabilitation for persons with disabilities; social security for public sector and formal private sector employees; pensions for public sector employees and relief for disaster victims.”(pp275,GoU,2010b)

Broadly, Uganda’s social protection framework is guided by: i) the need to address extreme deprivation; ii) the need to address vulnerabilities caused by conflicts and HIV/AIDS; iii) the recognition of the limited financial capacity to roll out universal programmes; and iv) the need to promote programmes based on contributions from beneficiaries. First, as noted earlier, one of the reasons for the recent expansion in social protection (SP) programmes in Uganda has been the realisation among policy makers that the country has maintained a very large population of the poor despite a fairly stable decline in the incidence of income poverty. The National Development Plan (NDP) notes that the population of chronically poor Ugandans has stagnated at about 7 million (GoU, 2010b). Such a large population of impoverished persons requires assistance to meet their daily needs.

Consequently, in 2010, the Ministry of Gender, Labour and Social Development (MGLSD) initiated a pilot non-contributory cash transfer scheme – the Social Assistance Grants for Empowerment (SAGE) programme – targeting the poorest 10% of households in Uganda (Box 2). Through this scheme, the GoU, with support from international partners, intends to provide grants of about US\$ 10 per month for the poorest households. Prior to the SAGE programme, the GoU had mainly used geographically targeted projects to provide social protection funds to vulnerable groups. These include the Northern Uganda Rehabilitation Programme (NUREP) that operated over 1992-2002; the Northern Uganda Social Action Fund (NUSAF), operational from 2003-2014; and the Peace Recovery and Development Plan (PRDP) for Northern and Eastern Uganda.

**Table 46: Trends in sector shares of the budget, 2000/01-2011/12 and projection for 2012/13-2016/7 (%)**

Sector	Approved budget											Budget projections <sup>a</sup>					
	2000/1	2001/02	2002/03	2003/04	2004/05	2005/06	2006/7	2007/8	2008/9	2009/2010	2010/2011	2011/12	2012/13	2013/2014	2014/15	2015/16	2016/17
Social Development	0.4	0.3	0.4	0.5	0.6	0.4	0.3	0.3	0.4	0.5	0.4	0.5	0.3	0.3	0.4	0.4	0.8
Agriculture	1.4	2.2	4.8	3.4	3.4	4	3.6	4.1	3.8	4.4	4.9	4.5	4.5	4.0	4.3	4.7	6.0
Education	24.9	24.0	19.8	18.8	18.3	17.1	17.5	16.8	15.3	15.3	16.8	14.7	14.8	15.6	15.7	15.3	16.8
Health	7.3	8.5	12.2	12.3	11.3	13.7	9.3	8.6	10.7	10.4	8.9	8.3	7.5	8.5	8.6	8.6	9.1
Water	2.4	2.5	4.5	2.9	3.3	3	2.9	3.5	2.6	2.4	3.4	2.8	2.4	2.3	2.6	1.9	2.0
Energy and mineral development	3.9	5.0	10.0	7.4	7.8	9.4	8.3	9.6	7.9	9.9	5.3	13.7	16.6	13.8	12.4	11.6	15.7
Other economic functions <sup>b</sup>	0.8	1.0	1.8	1.1	1.2	1.4	1.6	1.3	0.9	1.1	1.2	1.0	0.9	1.0	0.9	1.0	1.1
Security/Defence	13.9	12.5	9.4	10.7	11	10.1	9.2	8.8	8.1	6.9	8.8	10.1	6.8	5.7	5.8	5.7	5.4
Roads and Works	9.8	8.2	11.4	8.3	11.9	10.1	11.3	12.6	18.5	17.2	14.1	13.4	16.4	19.3	19.3	18.7	11.1
Public sector management/administration	20.1	19.3	13.7	12.3	12.4	13.6	18.5	17.2	11.5	13.1	15.4	14.3	12.6	12.5	13.7	15.7	16.6
Justice/Law/Accountability/Legislature	6.5	7.8	6.2	14.4	11.3	9.6	10.9	10.8	13.8	13.4	16.1	11.2	12.5	12.7	13.3	13.5	11.2
Interest Payments Due	8.5	8.1	5.2	7.9	7.6	7.8	6.2	6.7	6.5	5.2	4.6	5.4	4.7	4.1	3.1	2.8	4.2
<i>Total</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>
Total budget (UGX, billions)	2,224	2,561	2,779	4,202	4,424	4,126	4,106	4,486	5,859	7,044	7,376	9,674	9,900	11,374	11,554	13,250	14,896
Foreign exchange rate (UGX per US\$) <sup>c</sup>	1,762	1,754	1,882	1,934	1,737	1,825	1,780	1,696	1,930	2,029	2,400	2,450	-	-	-	-	-
Total budget (US\$, billions)	1.26	1.46	1.48	2.17	2.55	2.26	2.31	2.65	3.04	3.47	3.07	3.95	-	-	-	-	-
Proportion of the budget externally financed (%)	48	52	48	43	40	28	25	25	22	24	19	22	25	25	25	23	22
Taxes as a share of GDP	11.7	11.9	12.3	12.8	13.1	13.7	12.9	12.9	12.2	12.1	12.9	13.1					
Fiscal Deficit (as % of GDP)	-10.6	-13.1	-11.3	-13.7	-11.6	-6.6	-5.2	-4.9	-4.2	-7.2	-6.6	-7.8					

Sources: Background to the Budget (various years) Ministry of Finance Planning and Economic Development (MFPED).

Notes: <sup>a</sup> The budget projections for 2012/13 to 2016/17 are based on the Medium term expenditure framework (MTEF) published in the 2012/13 Background to the Budget (GoU, 2010b)

<sup>b</sup> Other economic functions include the sectors of: tourism trade and industry; lands, housing and urban development; information and communication technology.

<sup>c</sup> The foreign exchange rates are based on the official middle rate for a given financial year as published by the Bank of Uganda. For the period 2011/12-2015/16, we assume a fixed exchange rate

One of the challenges Uganda faces is a large population of vulnerable groups with multiple sources of vulnerabilities. The combined population of chronically poor individuals, those affected by HIV/AIDS, those affected by war, people with disabilities and widows, accounts for about one half of the Ugandan population. Although the above groups overlap in some cases, the demographic characteristics reveal that one in two households require some form of help from the government. With a tax take of just 13% of GDP though, the task of meeting needs for social protection in a context of a rapidly expanding population and limited resources will remain an uphill challenge for Uganda. Indeed, direct spending on social protection in the national budget has remained dismal. As indicated earlier, spending on social protection – through the parent MGLSD–has remained less than 1% of the national budget despite the sector’s broad merit. Even after the rollout of the SAGE programme, the share of the national budget allocated directly to social protection programs is projected to remain the same, at least in the medium term. On the other hand, financing of such schemes using tax revenues remains feasible depending on the government’s commitment to provide comprehensive social protection. For instance, in order to provide monthly grants of UGX 24,000 (US\$10) to an estimated 271,000 senior citizens residing in poor households in 2012 would require an estimated UGX 86 billion (US\$ 35 million) annually and this is equivalent to about 1% of the expected UGX 7,250 billion (US\$ 3 billion) domestic revenue collection for 2012/13.<sup>18</sup>

### **Box 2: Social Assistance Grant for Empowerment (SAGE)**

SAGE is a US \$65 million pilot cash transfer scheme to run from 2010-2015. It is a targeted conditional cash transfer scheme – targeting the poorest 10% of households in Uganda in 14 districts – mainly in Northern Uganda. It is expected that, at the end of five years, at least 600,000 individuals in 95,000 chronically poor households will have benefited from the programme. The scheme is largely donor financed with DFiD contributing the largest amount, at US\$ 52 million; Irish Aid is contributing US\$10 million and UNICEF is also providing some funding for the birth registration process. The Government of Uganda provides counterpart funding to the SAGE programme and the GoU contribution to the scheme is expected to increase from 2% in 2011/12 to 15% by 2014/15. Beneficiaries of the scheme will receive a monthly grant of UGX 24,000 (about US\$ 10) per month for five years. Selected households will also receive a supplementary grant (US\$1 per month) for every school-going child (6-17 years) that is kept in school.

Children are expected to benefit through both the Vulnerable Family Grants (VGS) and Senior

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<sup>18</sup> Based on the SCG scheme under SAGE, senior citizens are defined as being at least 65 years old (or 60 years in Karamojasubregion). The calculations are based on the poverty profile of 2009/10 and assume an annual population growth rate of 3% per annum. The average monthly payout is assumed at UGX 24,000 and we also assume a 10% administration charge for such a scheme.

Citizens Grants (SCG). Within the VGS scheme, children are targeted directly based on demographic characteristics of the household including disability and orphan status of household members. The SCG—available to households with members aged at least 65 years old targets children indirectly since grandparents take on active role as child carers in Uganda. Apart from availing grants that can benefit children, the SAGE programme has the potential to significantly increase the proportion of the population with birth certificates since birth registration across the selected 14 districts is mandatory prior to establishment of eligibility for the grants.

The Ministry of Gender, Labour and Social Development (MGLSD) is coordinating the scheme and has set up a secretariat to deal exclusively with its rollout and implementation. Disbursement of funds started in October 2011 in a few pilot districts.

**Source:** MGLSD (2007) and programme documents.

The above situation suggests that the country will, at best, only implement geographically restricted social protection programmes or target just a few vulnerable groups. Overall, the limited resources imply that funding for social protection will continue to be met by donors. Recent changes in what are considered the priorities of the national development agenda are also related to funding limitations. The newly launched NDP (2010-2015) emphasizes infrastructure expenditures as the main drivers of economic growth. In this new political environment, spending on social protection programs is likely to decline, at least in real terms.

The country also faces serious institutional challenges in the delivery of SP programmes. The *modus operandi* has been for the government to set up an autonomous agency or secretariat whenever a new SP programme is introduced. While bypassing the traditional public sector is favoured on efficiency grounds, having numerous agencies may mean that the country will not be able to build the critical mass of human resources required to deliver several SP programmes at the same time.<sup>19</sup> Building capacity in local governments rather than having a separate NUSAF secretariat or a SAGE secretariat could be more beneficial overall. Similarly, with the exception for the health sector, there is limited use of non-governmental organizations (NGOs) in the delivery of public social protection programmes. Indeed, the government has only used NGOs extensively to implement social protection programmes in relation to delivery of social assistance to war affected communities in Northern Uganda, delivery of hospital health care, and the delivery of social support to those suffering from HIV/AIDS.

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<sup>19</sup> On the other hand, the MGLSD through the SAGE cash transfer, has attempted to address efficiency concerns that plagued previous schemes by using private sector actors to deliver the cash grants through mobile money.

## 3.2 ALIVE

### 3.2.1 Nutritional status

Malnutrition among children remains a major health challenge in Uganda. The proportion of children aged below 5 years classified as stunted declined from 38% in 2006 to 33% by 2011 (Table 17). Uganda has registered mixed progress regarding child nutritional health indicators and is unlikely to meet the Millennium Development Goal (MDG) 1 target of reducing the level of stunting to 19% by 2015. Despite progress in reducing child stunting rates, the progress is relatively much slower than that recorded for the decline in income poverty. In particular, the incidence of poverty in Uganda reduced from 56% in 1992/93 to 24% by 2009/10 while the population of poor persons declined by 20%, from 9.6 million persons in 1992/93 to 7.5 million by 2009/10.

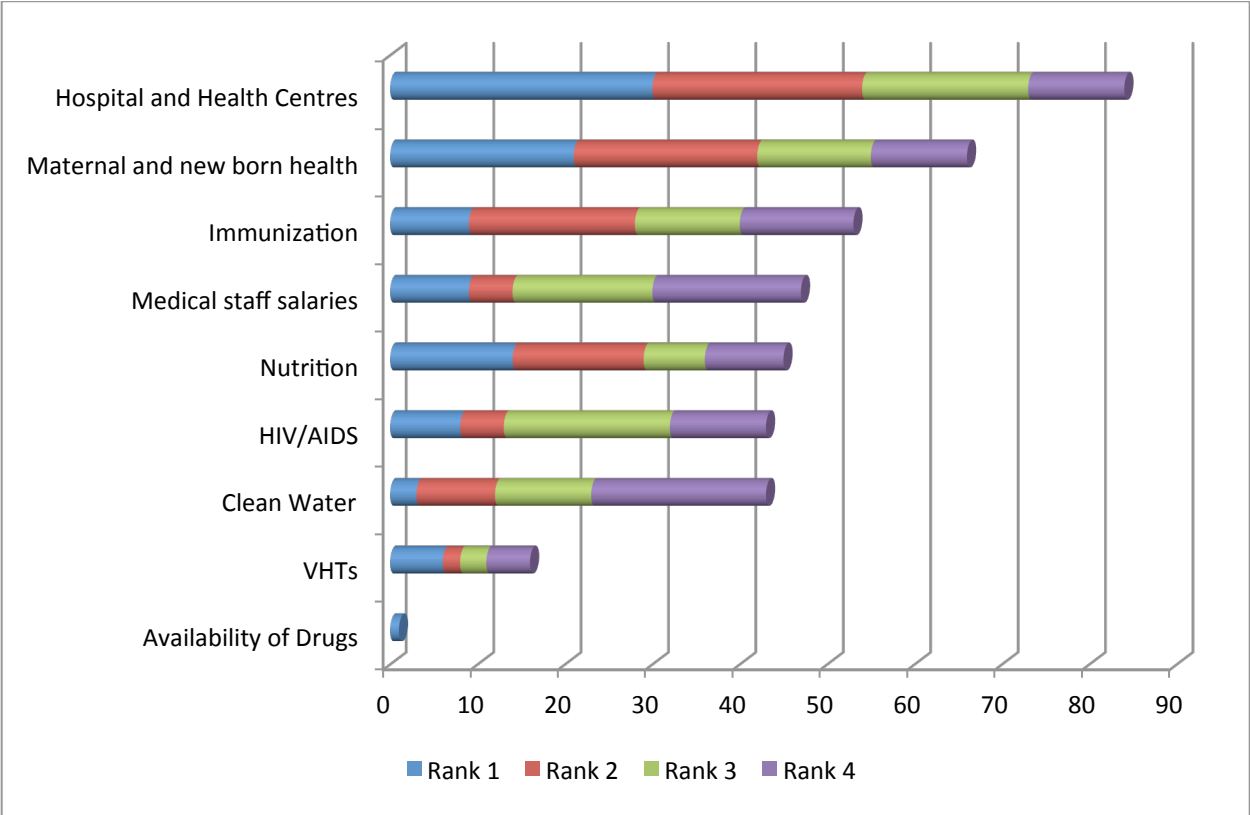
Uganda also shows poor health status with regard to micronutrient intakes. For instance, at least half of all children aged 6-59 months and 24% of women aged 15-49 years are anaemic (UDHS 2011). The causes of anaemia mainly relate to inadequate intake of iron folate, Vitamin B12, or other micronutrients, as well as suffering from malaria during pregnancy or childhood. Like malnutrition, there are wide geographical differences in anemia, with Karamoja and Eastern Uganda having the highest anaemia rates in both children and women.

The situation remains serious despite numerous policies and interventions to address malnutrition among children in Uganda. For instance, since 2002, Uganda has implemented the *Child Health Days* initiative, which involves bi-annual nationwide immunization and deworming campaigns that target malnutrition among children in addition to addressing other health challenges. In 2003, the Ministry of Health and the Ministry of Agriculture, Animal Industry and Fisheries produced the National Food and Nutritional Policy in 2003. The overall objective of this policy is to ensure adequate nutrition for all Ugandans. The policy aims to: reduce malnutrition among children; reduce low birth weight among new-borns; and eliminate micronutrient deficiencies (in vitamin A, iodine, and iron). The policy also aims to promote exclusive breastfeeding as well as continued breastfeeding with complementary feeding for children under the age of two.

In 2005, the MoH and MAAIF developed the Uganda Food and Nutritional Strategy (UFNS) that sought to create the Uganda Food and Nutrition Council (UFNC) to coordinate nutrition-oriented activities across the country and to ensure a hunger-free Uganda without malnutrition. Unfortunately, a bill was supposed to legalize the establishment of the UFNC, but the Food and Nutrition Act (2008) has not yet been enacted. In 2011, the GoU adopted the Uganda Nutrition Action Plan (UNAP) as a first step in focusing attention on nutrition issues as well as mobilizing budgetary resources for nutrition interventions.

While the policy framework is becoming established, there remains limited appreciation for the costs and devastating impacts of malnutrition among key decision makers, especially Members of Parliament (MPs). In 2012 UNICEF sampled 150 MPs to establish the most important issues affecting children in Uganda. MPs were asked to rank the top four most important sectors as well as issues within the different sectors. Although the health sector was ranked the most important (98%) followed by the education sector (94%), within the health sector, there was considerably less appreciation for nutrition issues. Figure 14 ranks MPs' prioritization of different issues within the health sector and nutrition is not ranked among the top four issues overall. MPs chose hospitals and health centre infrastructure (84%), maternal and newborn health (66%), immunization (53%), and medical staff salaries (47%) over nutrition (45%) with respect to health priorities. As a result, it is clear that there is a need to further stimulate support at the highest-levels to battle malnutrition and overcome policy challenges in addressing this important issue.

**Figure 14: MPs Prioritization of issues within the Health sector**

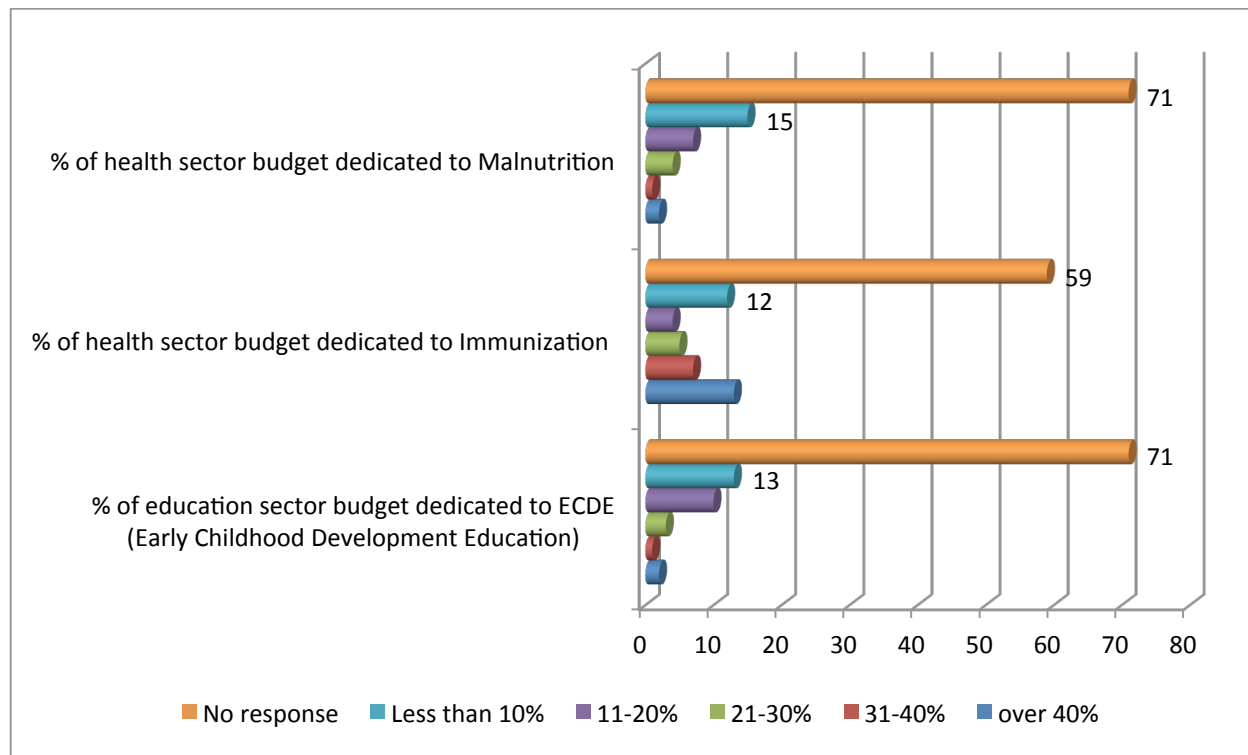


**Source:** Children’s Issues in Parliament, UNICEF 2012

MPs also exhibited limited knowledge about the budget allocation to address nutrition issues. The same UNICEF report also requested the sampled MPs to estimate the percentage of the relevant sector’s budget allocated to different issues, including malnutrition. Figure 15 shows MPs’ knowledge of sector budget allocations for selected issues in the health and education

sectors. It is indicated that more than two thirds of the sampled MPs had no response to the percentage of the health budget allocated to malnutrition while only 15% provided an estimate close to the real figure of 0%.<sup>20</sup> In such an environment of limited knowledge of sector allocations, MPs may not fully scrutinize the health sector budget to establish whether important issues within the health sector are under-funded.

**Figure 15: Knowledge of sector budget allocations for selected health and education issues.**



Source: Children’s Issues in Parliament, UNICEF 2012

### 3.2.2 Child health cards/Immunization

Among the key child health interventions affected by inadequate health funding are child immunization programmes. Over the past 5 years, Uganda has registered a decline in immunization coverage rates. According to the 2009/10 Annual Health Sector Performance Report, the proportion of children who received the DPT 3/Pentavalent vaccine declined from 89% in 2004/5 to 76% by 2009/10 (Ministry of Health, 2010a). The same report highlights the inadequate funding for the expanded programme on immunization (EPI) and the lack of child

<sup>20</sup> In 2009, the Nutrition Unit of the MoH received about UGX 120 million annually for supervision and coordination of nutritional programs in Uganda (FANTA-2, 2010), compared to overall MoH budget of over UGX 600 Billion.

health cards as some of the possible reasons for the decline in overall immunization coverage rates. However, the Ministry of Health through the Uganda National Expanded Programme on Immunization (UNEPI) delivered mass nationwide immunization services in May 2012.

The share the Ministry of Health (MoH) budget allocated to immunization programs declined from 7.7% in 2006/7 to 3.6% by 2009/10 (Ministry of Health, 2010c). Indeed, child health cards are among the key health inputs that have been affected by the inadequate funding. Child health cards—normally issued at child birth—contain vital information relating to mother’s interaction with various health service providers. They capture information relating to: particulars at birth; receipt of immunizations; receipt of Vitamin A and de-worming tablets; and trends in child nutritional growth. The 2007 Uganda Service Provision Assessment (USPA), which covered all major health facilities in Uganda, found that only 34% of health facilities had individual child health cards (Ministry of Health et al, 2007). A more recent immunization assessment, based on a much smaller sample of health facilities (covering only 12 districts) found that only 16% of health facilities had child health cards. Despite the recognition of this problem, the MoH currently has no budget for annual procurement of health cards as a result of the constrained fiscal space outlined earlier.

**Box 3: Using school children to identify malnourished infants in the community: The School Nutritional Star Model**

The School Nutrition Star Model (SNSM) is a pilot programme supported by USAID and implemented by the FANTA-2 project in the Kitgum and Pader districts. The SNSM pilot selects and trains girl guides and scouts to identify malnourished children aged three years and below. About 40 pupils per school are trained in the use of map tape, which they turn around the hand of a baby as a first step in establishing where an infant is malnourished. Once sick children are identified, the school children offer parents of affected infants’ vouchers to access free medication at health centres and hospitals. After four months, the school children earn nutritional stars and receive rewards in the form of school materials provided by PICFARE.

### **3.2.3 Infant and child feeding**

Uganda’s policy guideline on child feeding focuses on three main categories of children: children at the risk of contracting HIV/AIDS; children with exceptionally difficult circumstances (e.g. children with low birth weight); and the rest of other children, considered to be under “normal” circumstances. Generally, the guidelines recommend exclusive breastfeeding for the first six months and introduction of complementary foods as well as continued breastfeeding up to the age of two years (Ministry of Health, 2009). Overall, in 2011, 62% of children in Uganda do receive exclusive breastfeeding during the first 6 months – a slight improvement from 60% reported in 2006. For children in the three years preceding the survey, the median duration for any breastfeeding is 19 months while the median duration of exclusive breastfeeding is 3 months. (Uganda Bureau of Statistics and ICF International, 2012). Considering age categories,



82% of children less than two months are exclusively breastfed, but this percentage drops sharply at subsequent ages to 67% for those less than 4 months and 10% at 8- 9 months. Worse still, since 1995, the rate of exclusive breastfeeding has remained relatively unchanged.

Despite the presence of policy guidelines, there are limited public programmes directly addressing child feeding practices – with the exception of the PMTCT program. This is partly due to the belief that breastfeeding is a widespread and an accepted practice in Uganda. Among the few public programs is the Baby-Friendly Hospital initiative by WHO and UNICEF in 1992. However, by 2002, only 11 health facilities in Uganda were certified as ‘baby friendly’, compared to 232 in Kenya and 47 in Tanzania (UNICEF, 2002).<sup>21</sup> On the other hand, information awareness campaigns regarding breastfeeding are only provided during antenatal sessions and child days. Indeed, the few large scale programs addressing infant and child feeding practices are projects supported by donors for: PMTCT (USAID); IYCF (UNICEF) and community growth promotion (World Bank).

### **3.2.4 Breastfeeding in the context of HIV/AIDs**

As part of the ambitious goal to have a generation free from HIV/AIDS by 2015, Uganda launched the pilot prevention of mother to child transmission (PMTCT) programme in eight hospitals in 2000. The programme focused on providing: i) HIV/AIDS counselling and testing for mothers receiving antenatal care at a clinic; ii) provision of anti-retroviral therapies (ARVs) during labour to HIV positive women, as well as ARVs to babies immediately after birth; and iii) changes in infant feeding practices for HIV positive mothers. With regard to breastfeeding, HIV positive mothers were recommended to replace exclusive breastfeeding with infant formulae (Ministry of Health, 2001). However, due to the economic and cultural environment in Uganda, implementation of this particular guideline was always challenged. For instance, in communities where breastfeeding is the norm, a mother who does not breastfeed could raise suspicions regarding her HIV status. Secondly, in a low-income setting, purchasing infant formulae for at least six months was financially out of reach for an average household in Uganda. Finally, the preparation of infant foods in unhygienic environments increased children’s susceptibility to illness and death. Related, donor support for free infant formula products at PMTCT centres was withdrawn in 2003 due to limited uptake and complexities in combining infant formula and breastfeeding (Matovu et al., 2002).

The MoH published new guidelines in 2006 that recommended exclusive for 3-6 months to reduce HIV transmission but also boost child survival. More recently in 2010, the MoH adopted the new WHO guidelines regarding infant feeding which state, “Mothers are strongly

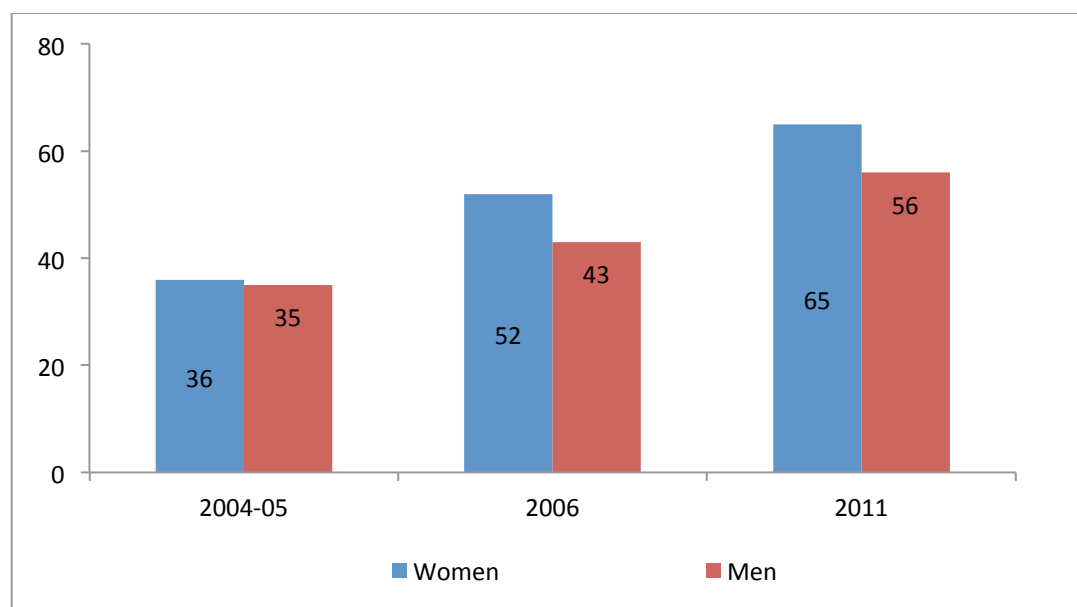
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<sup>21</sup>A health facility is considered baby-friendly when: (1) it does not accept free or low cost breast milk substitutes, feeding bottle, etc.; and (2) has implemented a list of 10 steps regarding training of health care staff and mothers – to support successful breastfeeding.

recommended to exclusively breastfeed until 6 months of age, and continue breastfeeding while introducing complementary feeds until 12 months of age.” Furthermore, it was recommended that a mother breastfeeds for at least 12 months she is receiving ARVs. The new recommendations were based on research that showed that the effectiveness of ARV prophylaxis provided during breastfeeding in reducing mother to child transmission of HIV/AIDS and also research that showed that the risk of malnutrition after 6 months was high if mothers could not afford supplements. Overall, the availability of the PMTCT programme has to some extent helped to renew policy focus on infant and child feeding practices in Uganda.

Though a majority of men and women are aware that breastfeeding is a means of HIV transmission (85% women and 80% of men 15-49 years), a lower percentage of men and women know that the risk can be reduced by taking special drugs during pregnancy (65% of women and 56% of men). This percentage has been on an increasing trend since 2004/5 (Figure 16). Generally, knowledge is lower among the poorest quintiles, those with no education, and in rural areas.

**Figure 16: Percentage of women and men who know that HIV can be transmitted by breastfeeding and can be reduced by special drugs for pregnant women**



Source: Uganda AIDS Indicator Survey, 2011

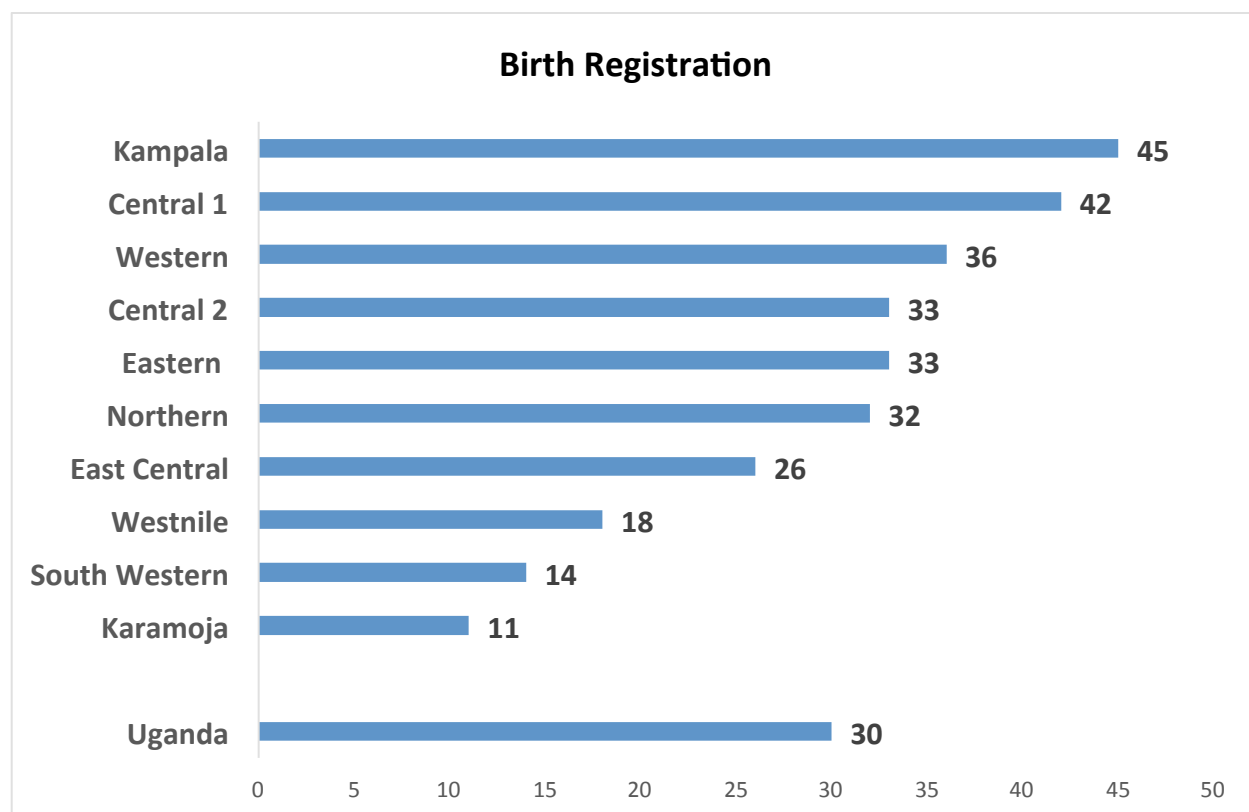
### 3.3 SAFE

#### 3.3.1 Birth registration

One of the hallmarks of a strong child protection system is the ability to accurately verify a child’s date of birth. Although Uganda has a number of laws that make it mandatory for a child to be registered at birth, the implementation of birth registration laws has been lukewarm – partly

due to the costs of acquiring registration certificates. The Birth and Death Registration Act of 1970 made it mandatory for a child to be registered within three months of birth. Uganda is also a signatory to a number of treaties such as the Convention on the Rights of the Child, the International Covenant on Civil and Political Rights, and the African Charter on Human and Peoples' Rights, each of which underline the significance of birth and death registration. In the past 10 years, UNICEF and Plan Uganda have intensified efforts to register all children at the parish level. Figure 17 shows the extent of birth registration by subregions, indicating that in 2011, 30% of children aged 0-4 years were registered – up from 21% in 2006. However, at least one in three children registered do not have a formal birth certificate yet.

**Figure 17: Birth registration for children by subregions in 2011**



Source: UDHS 2011

### 3.3.2 Child rights

There is currently no comprehensive child protection policy in Uganda, but the country has a number of laws that safeguard child rights, e.g. the Children Act (which specifies the obligations of parents and authorities, especially in relation to child abuse); the law on female genital mutilation; the Domestic Violence Act; and the penal code (dealing with sexual abuse, rape, and defilement). Nonetheless, there remain gaps in some of these existing laws. For example, the 2003 Children Act required all local government councils to set up a Secretary for Children

Affairs to safeguard the welfare of children and to promote reconciliation between parents and children. Due to resource constraints, this provision has yet to be operationalized. To start with, most local governments currently handle child affairs through a probation and social welfare officer, but this officer is generally only accessible at the district headquarters. Second, the Children Act also stipulates that every district should have a children's remand home. Due to resource constraints, Uganda only has four operational remand homes. Finally, although the act provides for the protection of children from violence and abuse, the same act does not explicitly prohibit corporal punishment, which is very pervasive in homes and schools in Uganda.

### **3.3.3 Violence against children**

Although the number of reported cases of juveniles being suspects in crime is on a downward trend, an increasing number of children are victims of crime. Table 477 shows juvenile experience of crimes based on the annual Uganda Police Crime Report, indicating that the number juveniles reported as suspects in crimes declined by more than 20% between 2009 and 2011. However, the share of defilement cases among juvenile suspects increased from 28% in 2008 to 42% by 2010.

Defilement remains an immense risk to the safety of children in Uganda with defilement cases accounting for over 7% of the crimes reported in Uganda. Based on the 2011 Situation Analysis of Child Abuse and Neglect in Uganda by ANPPCAN-Uganda, girls are more likely than boys to suffer from child abuse, with 60% of child abuse crimes committed against girls (ANPPCAN, 2012). The same ANPPCAN report shows that, although media coverage of child abuse cases has increased in the past few years, the coverage mainly focuses on central Uganda due to proximity to news outlets.

**Table 47: Juveniles’ experience of crimes in Uganda, 2008-2011 (%)**

Type of crime	2008	2009	2010	2011
Distribution of crimes faced by juveniles				
Child Neglect	69.9	64.8	73.2	65.1
Child Desertion	0.0	15.6	13.6	15.9
Abuse and Torture	17.6	11.4	10.4	14.3
Child stealing	4.2	4.3	2.4	2.1
Abortion	1.3	1.5	0.2	0.5
Infanticide	0.0	1.0	0.2	0.5
Other crimes	7.1	1.3	0.0	1.6
Sub Total	100	100	100	100
Number of crime cases	3,760	4,821	12,690	12,410
Distribution of crimes in which juveniles are suspects(%)				
Defilement	28.1	35.0	42.1	30.1
Theft	12.0	18.3	24.2	17.9
Assault	14.2	13.6	14.7	17.2
Breakings	0.0	8.9	13.3	11.3
Robberies	0.0	5.9	5.6	2.0
Other crimes	45.7	18.4	0.0	0.0
Sub Total	100	100	100	100
Number of crime cases	2,421	2,245	1,106	1,774

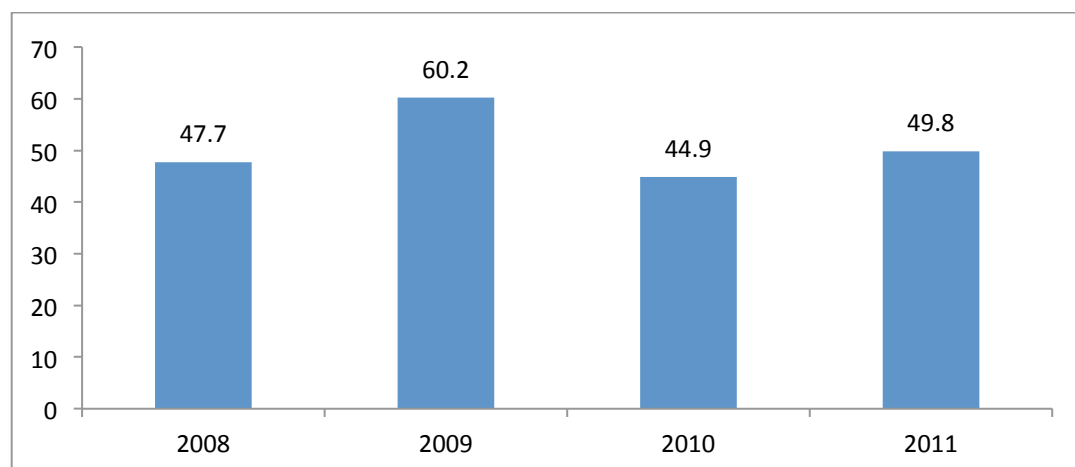
Source: Uganda Police Annual Crime and Traffic Road Safety Reports, 2008, 2009, 2010, and 2011.

<sup>a</sup> Notes: Other crimes includes: Child kidnap/abduction, and trafficking crimes

<sup>b</sup> Other crimes include killings and drug abuse

In recent years, defilement has been the third leading crime in Uganda – after common assault and theft of mobile phones. Although the Penal Code Amendments Act (2007) provides that “*Any person who performs a sexual act with another person under the age of 18 years commits a felony known as defilement and is liable to life imprisonment,*” only about half of the reported defilement cases are prosecuted in court (Figure 18). The proportion of child defilement cases taken to court increased in 2011.

**Figure 18: Uganda: Share of defilement cases prosecuted in court, 2008-2011 (%)**



**Source:** Uganda Police Annual Crime Reports 2008, 2009, 2010 and 2011

### **3.3.4 Early marriage**

Although Uganda has ratified a number of international conventions relating to child protection, enforcement of the numerous conventions and policies is very weak. Although the minimum legal age of marriage for all Ugandans is 18 years, Table 488 shows that over 20% of adolescent girls were married in 2006 compared to just 2.4% of boys. The table also shows that in the North, Western and Eastern regions, more than one quarter of adolescent girls are already married. Overall, a majority of girls (57%) get married before reaching the legal marriage age. Due to the high prevalence of child brides, child mothers are also pervasive in Uganda. The last column of the table shows that at least 43% of women aged 20-25 had given birth before the age of 18. In cases where a child gives birth out of wedlock, she may also be excluded from schooling. Indeed, data from the 2009/10 UNHS show that 7.9% of women attribute dropping out of school to pregnancy, with the highest rate in the Eastern subregion at 11.4% (Uganda Bureau of Statistics, 2010).

**Table 48: Timing of marriages in Uganda (%), 2006**

	Married adolescents		Percentage of women aged 20-25 years	
	Percentage of 15-19 year olds married		married before 18 years	giving birth before 18 years
	Boys	Girls		
All Uganda	2.4	21.4	56.9	43.5
Rural	2.7	22.3	60.1	44.7
Urban	0.6	17.4	40.5	36.7
	<i>By sub region</i>			
Central 1	0.4	16.4	48.2	45.6
Central 2	1.2	20.6	50.7	43.1
Kampala	0.6	10.7	34.2	37.7
East central	1.4	18.2	66.9	47.6
Eastern	1.7	27.4	59.9	45.5
North	5.1	30.6	69.3	49.7
West Nile	2.7	22.9	57.5	27.5
Western	5.5	28.6	67.3	48.4
South western	0.4	11.1	43.2	32.4

Source: Author's calculations from the 2006 UDHS

The very high level of child marriages in Uganda may be partly explained by cultural norms where parents arrange marriage for their children, especially in rural areas. This is partly driven by the prospects of receiving bride wealth. In 2010, the constitutional court rejected a petition to abolish the exchange of bride wealth prior to marriage in Uganda. However, the 2013 Marriage and Divorce Bill proposes to make it a criminal offence to demand a refund for bride price in case of marital dissolution. In terms of teenage pregnancy, the Ministry of Education and Sports has proposed the construction of community hostels to house child mothers in communities in order to enable child mothers to return to school; other stakeholders have called for greater emphasis of sex education to all children in schools.

### 3.3.5 Child labour

Due to Uganda's social-cultural setting, which considers helping in the household and at household farms as a normal part of a child's upbringing, Uganda's recent labour and education laws have attempted to define what forms of child labour are acceptable. First, Chapter 32 of the Employment Act 2006 states that the minimum age for a child to engage in formal work is 14. The same law also allows children aged 12-14 to undertake light work but only if supervised by an adult over the age of 18 years. Finally, no child is allowed to work under hazardous

conditions. According to the UBoS baseline survey in four districts in 2009, at least 15% of children aged 5-17 were engaged in some form of child labour.<sup>22</sup>

These definitions have specific implications in Northern Uganda with respect to child soldiers. A 2007 report by the Parliamentary Forum for children revealed that even after the end of the civil war, children are still recruited into the national army due to lack of birth certificates to ascertain the correct age, in addition to complacency and parental poverty.

### 3.4 Learning

Uganda was among the first African countries to adopt the Universal Primary Education (UPE) programme in 1997 by abolishing public primary school tuition fees. This led to a surge in primary school enrolment, from 2.5 million pupils prior to UPE to over 5.0 million after UPE. By 2009, the primary school population was 8.2 million (GoU, 2010a).

Table 49 shows the trend in net enrolment rates (NERs) for children in primary school (aged 6-12) between 1992/93 and 2009/10 based on nationally representative household surveys. It indicates that NERs significantly increased after UPE, from 63% in 1992/93 to 83% by 1999/2000. Furthermore, the gender disparity in primary school enrolment was eliminated by 1999/2000. However, the NERs stagnated over 1999/2000-2005/06 and the most recent survey suggests that they have started to decline, especially among children from relatively well-to-do households. The decline in NERs could be explained either by an increase in the age of primary school enrolment or rising high school dropout rates. Also, although the Education Act of 2008 stipulated the government's commitment to Universal Primary Education, primary schooling for children is mandatory but not compulsory by law. Instead, the Education Act allowed local councils to determine the age of entry.

Indeed, a number of authors highlight that the UPE programme is plagued by a number of challenges. First, the doubling of primary school enrolment was not initially matched by a corresponding increase in inputs and this led to classroom overcrowding. For example, the pupil to classroom ratio has only declined from 120:1 in 1997 to 106:1 in 2000 and more recently to 72:1 in 2009 (GoU, 2010a). Second, only 50% of pupils who enrol in primary 1 are able to complete the full seven years of primary school, i.e., the system is characterised by very high dropout rates (Musisi et al., 2003). Overall, the programme has managed to attain gender equity, although the children from the poorest households are still significantly less likely to be in school at the grade-appropriate age.

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<sup>22</sup> The UBoS baseline report defines children labourers if they are: (1) aged 5-11 and work; (2) aged 12-14 and do work other than 'light work' or who work beyond 14 hours a week; (3) aged 15-17 and involved in hazardous forms of labour; or (4) aged 15-17 and work 43 hours or more in a week.



**Table 49: Uganda net primary enrolment rates: Children aged 6-12 years, 1992-2009 (%).**

	All children 6-12 years					Girls					Boys				
	1992	1999	2002	2005	2009	1992	1999	2002	2005	2009	1992	1999	2002	2005	2009
All Uganda	62.8	83.5	85.4	85.1	81.6	59.5	83.0	85.9	85.6	82.6	64.2	83.9	84.8	84.6	80.7
Rural	60.1	82.9	84.7	84.4	81.2	57.8	82.6	85.4	84.7	82.4	62.2	83.2	84.0	84.1	80.1
Urban	73.5	87.2	89.7	89.2	84.9	70.7	86.2	89.3	90.6	83.8	76.4	88.1	90.0	87.7	85.9
<i>Per capita expenditure quintiles</i>															
Q1	47.3	75.7	74.8	77.4	75.4	43.4	74.2	73.1	76.6	75.4	50.7	76.6	75.6	77.4	75.3
Q2	60.1	84.6	83.9	83.8	82.1	56.1	84.5	83.3	83.4	83.8	63.9	84.6	84.7	83.6	80.4
Q3	63.8	87.1	86.0	86.0	82.3	63.1	87.3	86.7	86.7	84.2	64.5	86.9	85.3	85.2	80.3
Q4	69.9	88.4	88.8	87.9	84.1	66.9	88.3	87.6	88.5	85.2	77.8	88.6	88.6	87.3	82.9
Q5	78.2	89.1	88.7	90.3	84.6	77.8	87.8	88.1	91.3	83.5	78.5	90.4	89.2	88.6	85.6
<i>Regions</i>															
Central	69.3	85.4	85.4	87.1	83.2	69.2	86.4	86.4	87.4	83.6	69.4	84.5	84.5	86.7	82.9
Eastern	64.1	89.8	89.7	87.6	84.9	61.7	89.4	89.4	88.9	85.5	66.4	90.1	90.1	86.2	84.4
Northern	48.9	71.3	71.3	78.4	77.6	42.1	68	68	77.3	78.5	55.4	74.3	74.3	79.5	76.6
Western	61.3	84.4	84.4	83.8	79.2	60.8	84.4	84.4	84.7	81.5	61.7	84.4	84.4	82.9	77.2

Source: Author's calculations from the 1992/93 HIS, 1999/2000 UNHS, 2002/03 UNHS, 2005/06 UNHS, and 2009/10 UNHS

### 3.4.1 Informal fees

Whereas the current UPE policy allows for voluntary payment of fees for mid-day meals, it outright bans school charges for school uniforms. The Education Act 2008 barred head teachers from collecting fees for uniforms, but the same act provides the Minister of Education with leeway to make statutory policy changes regarding school uniforms. Our estimates of household expenditures on school uniforms suggest that the government can meet the cost of this particular input with minimal changes to the overall national budget. Table 500 shows household expenditures on school uniforms and sports kits in 2009/10 and shows that Ugandan parents spend an estimated UGX 89 billion on school uniforms annually. At least 42% of these expenditures are by pupils in UPE schools. Overall, expenditures on school uniforms and sports kits account for 17% of the UGX 226 billion in additional expenditures made by UPE pupils. However, uniforms account for a large share of additional UPE expenditures in Northern Uganda (26%) and rural areas (19%). Given that the GoU allocated UGX 465 billion to all district-level UPE schooling activities during the 2009/10 FY, incurring an additional UGX 38 billion to provide at least one uniform per child every year would imply an approximately 8% increase in the UPE budget in 2009/10 and this should be affordable for the government.

**Table 50: Uganda: estimated private expenditures on school uniforms and sports kits by level, 2009/10**

	Estimated uniform purchasing school population ('000)	Total annual Expenditures (UGX, billions)						
		All	Location		Regions			
			Rural	Urban	Central	Eastern	Northern	Western
<i>By Stage of Schooling</i>								
Nursery	108	1.7	1.0	0.7	0.7	0.2	0.4	0.4
Primary	5,972	56.6	4.5	11.6	13.7	17.0	12.9	12.9
Secondary-O-Level	823	22.5	17.1	5.8	6.9	5.8	4.0	5.9
Secondary A-Level	157	6.1	3.4	2.7	2.1	1.8	1.2	1.0
<i>By Type of School</i>								
<i>(A) Primary Schooling</i>								
Public School	4,742	38.0	33.9	4.1	4.4	12.9	11.8	9.0
Private School	1,065	16.8	10.0	6.8	8.7	3.7	0.8	3.7
NGOs and other schools	156	1.7	1.0	0.7	0.6	0.4	0.3	0.3
<i>(B) Secondary Schools</i>								
Public School	528	14.7	11.6	3.1	2.5	4.6	3.5	4.1
Private School	453	14.0	8.7	5.3	6.4	3.2	1.8	2.6
NGOs and other schools	42	1.1	0.8	0.2	0.2	0.1	0.1	0.4
Total expenditures on school uniforms(UGX, billion)	-	89.3	67.7	21.6	24.0	25.2	19.3	20.7
Total expenditures by pupils in UPE schools (UGX, billion)	-	225.6	182.1	43.2	56.9	68.1	45.5	55.1

Source: Author's calculations from the 2009/10 UNHS survey

### 3.4.2 School meals

Although the government pays for children's tuition fees in public primary schools under the Universal Primary Education (UPE) program, parents retain the responsibility of providing meals and other scholastic materials. Indeed, one of the most cited problems with the UPE programme is the failure to provide lunch to pupils (Ssewamala et al., 2011; EPRC, 2008). The media is awash with stories about children who dropped out of school because they could not afford other fees associated with attending school. According to the UPE policy, it is the responsibility of parents to provide mid-day meals. Indeed, with regard to the collection of additional fees under UPE, the Education Act of 2008 stipulates that:

“The taking of mid-day meals at school and the payment for such meals shall be voluntary and no pupil who has opted not to pay for or take mid-day meals at school shall be excluded from school for non-payment for such meals.” (GoU, 2008)

Even in schools where parents consent to pay meal fees, the law stipulates that the district council must first approve those fees before parents shall commence payments. In some instances, this parental contribution has not been forthcoming due to the perception that ‘schooling is free’. Previous research shows that children without a packed lunch or who failed to pay for the mid-day meals often returned home during lunch and that some did not return for afternoon lessons (EPRC, 2008). Furthermore, a 2007 monitoring report of the UPE programme for children showed that even teachers are demotivated by the lack of mid-day meals (ANPPCAN, 2007). More recently, there have been calls for government to provide school

meals to all UPE pupils. Currently, although the Government provides meals to children in the North-Eastern Karamoja subregion due to the severity of food insecurity in the area, the overall responsibility of children's feeding rests with parents according to the 2008 Education Act.

### **3.4.3 Early childhood education**

The 2010-2015 NDP calls for support of early childhood development centres to prepare children for the intellectual demands of primary school and to indirectly curb the very high primary school dropout rates (GoU, 2010). The 2008 Education Act does recognize the pre-primary or nursery level of education in Uganda, but it stipulates that the government is not responsible for financing this particular level of education. The same act stipulates that the age for attending pre-primary schools is 2-5 years old and that pre-primary schools will only be day schools. Also, although the act mandates the government to provide curriculum for pre-primary school, no policy is currently in place to guide pre-primary education. As such, whereas the ultimate objectives of pre-primary schooling should be to help children grow and better relate with peers, anecdotal evidence indicates that some nursery schools emphasize academic teaching to the detriment of a child's social growth. Furthermore, not all nursery schools are licensed and supervised by school inspectors as required by the law.

The Education Sector Strategic Plan 2004/5-2015/6 recognizes the importance of Early Childhood Development (ECD) in preparing children for a better future. As a result, a Caregivers' Guide to the Learning Framework for Early Childhood Development was formulated in 2009. The Ministry of Gender, Labour and Social Development (with the support of the Ministry of Education and Sports) is currently developing a national framework of interventions that target orphans and other vulnerable children for ECD services.

The overall net attendance ratio (NAR) in Uganda is 23%. There are rural-urban disparities in the NAR with 53% of children aged 3-5 attending pre-school in urban Uganda compared with 20% in rural areas. There is further evidence of wide variations in NAR by region. Kampala leads with a NAR for pre-school of 62%. The West Nile and Northern regions have the lowest enrolments for pre-school with 5% and 6% respectively of children aged 3-5 attending pre-school (UDHS, 2011).

### **3.4.4 School absenteeism**

Another challenge facing the Ugandan education system is rampant school absenteeism by both pupils and teachers. In a cross country study that examined teacher attendance in a number of developing countries, Chaudhury et al., (2006) find that when enumerators make unannounced spot checks in Uganda, at least 27% of teachers are absent on a given day. However, a more recent study based on only one district (*Iganga*), found that teacher absenteeism reaches as high as 43% (Yiga and Wandega, 2010). During the implementation of UPE, the role of school inspection was neglected in Uganda. With limited funding to engage in routine school

inspection, head teachers are not adequately monitored, which exacerbates the teacher absenteeism problem. The reasons for absenteeism range from lack of meals for pupils to lack of staff housing for teachers (EPRC, 2008). One reason for the large proportion of absent pupils is that many engage in various forms of child labour.

In order to address some of the above shortcomings of UPE, the Government of Uganda has introduced a number of new interventions within UPE. For example, the Government introduced a thematic curriculum in 2007 as means to improve the quality of learning in primary schools (Penny et al., 2008). This entailed providing theme-based instruction and a movement away from teaching for examinations. Also, for the districts that had consistently performed poorly at Primary Leaving Examinations (PLE), the Government introduced the Quality Enhancement Initiative (QEI) in 2008 in the 12 worst performing districts in Uganda. This initiative targets pupils, school infrastructure, teachers, school management and parents. With regard to infrastructure, the QEI focused on providing adequate classrooms, head teacher offices, staff housing and latrines for teachers and pupils. For pupils, the focus was on providing an adequate supply of desks and chairs. School management was primarily addressed through intensification of school inspections while the provision of qualified and trained teachers was the main strategy with respect to teachers.

## 4. ANALYSIS OF KEY CROSS CUTTING ISSUES

### 4.1 Differences by sex of child

In Uganda, there are no systematic or significant differences in the multiple deprivation rates between boys and girls (Tables 4-5). Girls suffer slightly higher extreme rates of deprivation in terms of access to water, sanitation, shelter, information and education, but lower rates of deprivation in terms of health and, especially, nutrition. In 2011, for example, 17% of boys were extremely malnourished and 42% suffered from less extreme malnutrition, compared to 14% and 34%, respectively, of girls.

When we look in more detail at each welfare dimension, gender differences vary widely. Boys have poorer nutrition than girls in terms of all three nutritional indicators: stunting, underweight and wasting.

This may explain why boys have higher rates of diarrhoea: 27.9% vs. 25.8% of girls in 2006. Boys also have significantly higher infant mortality (60.5% vs. 45.2% in 2011) and under-five mortality (88.2% vs. 66.4%) rates than girls, despite similar rates of unattended and home deliveries in 2006 and 2011. Higher boy mortality rates are biologically based and found throughout the world, although the fact that a higher share of boys are weaned early and receive other forms of food in their first three days of life does not help.

There is some evidence that slightly more boys lack vaccinations, sleep without a bed net, suffer various forms of shelter deprivation and repeat grades of school. No clear gender gap emerges in terms of school enrolment.

However, our analysis also shows that girls are specifically affected by a number of security issues, including early pregnancy, early marriage, having a first sexual experience before age 18, and experiencing emotional, sexual, and physical violence (Table 48).

### 4.2 Rural vs. Urban areas

The analysis indicates far higher rates of extreme and less extreme deprivations in rural Uganda. In 2011, one half of rural children suffer at least one extreme deprivation and 20 per cent experience two or more, as compared to one-third and 10%, respectively, of urban children.

The most common forms of deprivation are also quite different. Extreme deprivation rates are lower among **urban** children in all dimensions, but the gap varies substantially. Almost three times as many rural children suffer from extreme **sanitation** deprivation (31.3% vs. 11.1%). On the other hand, both rural and urban children face similar environments regarding overcrowding. Nearly three times as many rural children are extremely deprived of **information** (22.1% vs. 6.4%). Although far less widespread, extreme **sanitation** deprivation is more than five times more likely to affect rural children (11.1% vs. 2.0%). More moderate rural-urban gaps appear in

terms of extreme deprivation in **nutrition** (16.4 vs. 8.8%), **education** (15.7 vs. 11.3%) and access to **shelter** (16%).

The rural-urban **nutritional** gap is most marked in terms of extreme stunting: 14.9 vs. 6.1% in 2011. The proportion of extremely underweight children in rural areas is twice that of urban areas and extreme wasting is actually more common in urban areas, suggesting that urban children's weights are not keeping pace with their height advantage over rural kids.

With regard to access to **water** in 2011, children in rural areas are nearly three times more likely to lack access to improved water sources than their urban counterparts. Furthermore, children in rural areas spend on average twice as much time to access the nearest water source (measured by duration of a return trip of water collection) compared to urban children. On the other hand, based on the Bristol definition of water deprivation, children in rural areas are more than five times more likely to be extremely deprived of water than children in urban areas.

In terms of **sanitation**, one of ten rural children lack access to any toilet in 2011, whereas this is the case for almost no urban children. Rural children are also more than four times as likely to use an unimproved toilet. However, more than half of urban children live in a household that shares a toilet with at least one other household, as opposed to one-fifth of rural children.

In **health** terms, the lack of immunization is fairly similar (9% in 2011) and the share of unattended births is five times higher in rural than urban areas (46.6% vs. 9.3%). The rural-urban gap in access to bed nets substantially reduced in the last five years – from 34 to 8 percentage points between 2006 and 2011. Even the gap in use of bed nets reduced from 20 to 9 percentage points during the same period. Rural children post higher infant (54.8% vs. 40.5%) and under-five (77.1% vs. 52.5%) mortality rates. Indeed, rural children are about three times more as likely to have received no prenatal care (5.2% vs. 2.0%), to have had an unattended birth (46.1% vs. 8.8%) or to have been delivered at home (47.1% vs. 9.3%).

While rural primary school attendance rates do not differ too strongly from urban areas (e.g. 15.7% vs. 11.3% never attended school), larger **education** differences are noted in terms of secondary enrolment (12.1 vs. 35.1% in 2011).

Children in rural areas also face greater **insecurity** in terms of early pregnancy (25.1% vs. 18.7%), early marriage (33.1% vs. 18%) and early first sexual experience (51.5% vs. 47%). Nonetheless, we show substantial improvements in all the three indicators of girl child security during the past 10 years and this may be partly explained by higher female education attainment. Physical and sexual violence is also more widespread among rural children, even if emotional violence is reported to be less common (42.4% vs. 48.7%).

**Monetary poverty** is also far more widespread among rural children (30.5% in 2009) than urban children (17.8%), as is **vulnerability** (14.3% chronic poor vs. 1.9% in urban areas), yet **inequality** is greater among urban children (Gini = 0.41 vs. 0.35). In sum, rural children suffer

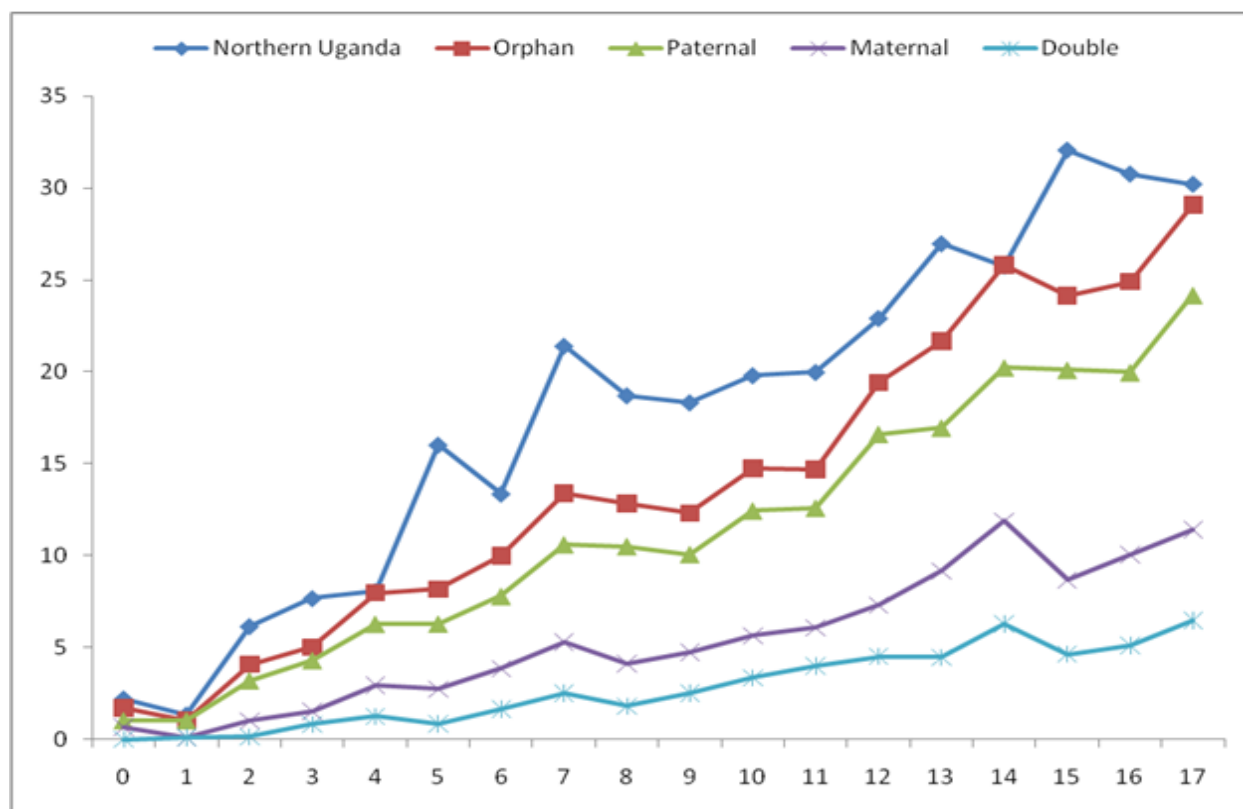
greater deprivation in all dimensions and practically every single indicator examined, although the size of the gap varies substantially.

### **4.3 Orphanhood**

Uganda maintains a very large population of parentless children. Based on the 2009/10 UNHS, at least 2.3 million children (12.7% of children under the age of 18) have lost at least one parent (UBoS, 2010). As indicated in Figure 19, orphanhood rates increase with age and children are more than two times more likely to report having lost a father than a mother at any given age. About 2.5% of children (an estimated 500,000 children) have lost both parents and these deaths can partly be attributed to HIV/AIDS. It is also worth noting that orphan status is significantly higher in Northern Uganda (at least 16.8% of children in the region have lost a parent) than in the rest of the country. The 2011 UDHS shows that male orphans are more likely to be disadvantaged with respect to schooling. In particular, the ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years is 0.92 for girls compared to 0.83 for boys (UBoS and ICF International, 2012).

Also as indicated in Figure 19, the gap in orphan rates between Northern Uganda and rest of the country begins at the age of 4 and the gap is maintained up to the age of 14. The trends shown in the figure suggest that children in Northern Uganda whose date of birth lies between 1995/96 and 2005/06 consistently show higher orphan rates than the rest of the country. The above period coincides with the intensification of the Northern Uganda conflict and it is reasonable to assume that some parent lost their lives during the civil war.

**Figure 19: Rates of orphanhood by age in Uganda, 2009/10 (%)**



#### 4.4 Technical/special education and disability

According to the 2002 Population and Housing Census, at least 4 out of every 25, or 16 per cent of the population, are disabled. Disabled people are more likely to face extreme conditions of poverty, and have limited opportunities for accessing education, health, and employment opportunities (ILO, 2009). Indeed data from the 2006 and 2011 UDHS give us some insight concerning the relationship between disability among children and their school enrolment. Disabled children have lower net enrolment rates (NER) in primary school in 2011 (78.0%) than the general child population (81.0%).

However, the Government of Uganda has shown commitment towards reducing discrimination against the disabled. The Uganda Constitution of 1995, the National Education Policy 1992, the Persons with Disabilities Act of 2006, and the 2011 Special Needs Education Policy are some of the policies that recognize the rights of persons with disabilities. For example the Persons with Disabilities Act (2006) provides for a right to quality education by People with Disabilities (PWDs) through inclusive education at all levels. It further provides for formulation and design of educational policies and programmes that promote the special needs and requirements of PWDs and give PWDs access to relevant education at all levels, paying particular attention to the requirements of girls and children in rural areas. The article also provides for the provision of



learning and instructional materials, and assistive devices suitable for learners with special needs. There is provision for structural and other adaptations of all educational institutions to the needs of PWDs, commitment of not less than 10% of all educational expenditure to the needs of PWDs at all levels and provision of assistive services during examinations.

Despite the fact that Uganda has made great strides towards availing equal opportunities for children with disabilities, there is still room for improvement. These affirmative actions have remained on paper with limited implementation and have not had the desired impact on improving education opportunities. Children with disabilities drop out of schools due to the lack of teaching aids and special needs teachers, inaccessible buildings, and a poor attitude regarding disability on the part of teachers and fellow pupils (Namukasa Lillian and Kanya Julius, 2011).

#### **4.5 Child Trafficking and Exploitation**

Child trafficking is the recruitment, transportation, transfer, harbouring or receipt of a child by for the purpose of exploitation such as prostitution, other forms of sexual exploitation, forced labour, slavery and/ or practices similar to slavery, servitude or the removal of organs (United Nations Office of Drugs & Crime ( UNODC). Trafficking may be internal or cross-border. In Uganda, internal child trafficking is believed to be higher than cross-boader trafficking.

Sexual exploitation mostly affects girls. Several young girls have fallen prey to trafficking through the hands of those who have authority over them. For example, guardians of orphans, children from polygamous marriages and homes where the parents are not willing to provide for them for example, where the parents are divorced or separated are more vulnerable. As such, girls and sometimes boys find themselves in custody of brothel owners who sell them for profit for sexual activities with older people.

Child victims of labour trafficking are normally employed in poor working conditions characterised by heavy workload, long working hours, and with little or no pay.

There are attempts by Uganda as a country to address the issue of human trafficking. There is a legal framework within which traffickers can be arrested prosecuted and punished. For example the Parliament of Uganda passed legislation in 2009 criminalizing trafficking in persons, providing for prevention of trafficking in persons, prosecution of offenders, and protection of victims. According to the most recent Uganda Police Annual criminal report (2011) there were 69 cases of child trafficking reported and investigated in 2011.

Child trafficking severely hinders children's rights to protection from abuse and exploitation, the right to privacy, personal liberty and participation as recognized under UN conventions, and causes great damage to a child's body and well-being.

## 4.6 Child sacrifice

The African Network for Prevention and Protection against Child and Abuse and Neglect (ANPPCAN) Uganda Chapter defines Child Sacrifice as “offering children to gods by killing them or cutting parts of their bodies for religious purposes.” In the recent past, alarming stories of children murdered for ritual purposes has been a common occurrence in the media. A number of socioeconomic and cultural factors have been highlighted in an attempt to explain the sudden increase in the occurrence of child sacrifice in recent years. There is a concern that witchcraft and devil worship have contributed to the rise of child sacrifice as young children are preferred sacrificial offerings since they are believed to be pure and unblemished (Senkaba, 2012). Other commentators have attributed the practice to poverty, weak legislation and poor parenting. According to the Uganda Police Annual Crime Report of 2008, the murder of children for ritual purposes rose by over 700%; from 3 cases reported in 2007, to 25 cases reported and investigated in 2008. However, since 2009, there has been a notable decline in the number of ritual murder cases reported. The table below reveals that children are the most targeted victims of this brand of crime.

**Table 51: Reported cases of human sacrifice**

Year	2007	2008	2009	2010	2011
Juveniles	03	25	15	09	
Adults	0	0	14	05	
Total	03	25	29	14	08

**Source:** Various Issues of the Uganda Police Annual Crime Reports

However, Kyampisi Childcare Ministries and Restoring African Cultural Heritage Organisation (RACHO), among others, suggest that child sacrifice, far from decreasing, is a problem that is growing and that the unofficial figure vastly outstrips the official government numbers presented in the table above. It is also believed that not all cases are actually reported to the police, and as such, the exact magnitude of the problem remains to be ascertained.

The effects of child sacrifice may be physical (death, castration and genital mutilation is common in child sacrifice rituals and this can have various physical consequences), psychological, financial (cost of medical treatment is often high and can be long term) and societal insecurity.

Various efforts have been put in place to end child sacrifice. A dedicated and composite inter-ministerial Anti-Child Sacrifice/Human Trafficking Task Force, under the Uganda Police, was set up in 2009 to combat this tragic practice; the media has increasingly promoted awareness about it, NGOs have become more vigilant, and the communities have responded with outrage.

Despite the various efforts put in place, a 2011 report authored by Jubilee Campaign and Kyampisi Childcare Ministries points out inadequate legislation as one of the challenges. It states that:

“While the law in Uganda emphasises child protection, child sacrifice as such is not specifically mentioned. This makes it difficult for convicted child murderers who have sacrificed children in ritual killings to be given the maximum punishment”

The current legislation that relates to child sacrifice includes the Witchcraft Act of 1957 under the Penal Code Act. However, it has not been implemented by the authorities, and is one of the main reasons that have enabled witch-doctors to engage in child-trafficking and ritual murders. Furthermore, the law is not known by many people and it has hardly been used in Uganda’s courts and it also does not specifically mention child sacrifice (Jubilee Campaign and Kyampisi Childcare Ministries, 2011). Another piece of legislation related to child sacrifice is the October 2009 Prevention of Trafficking in Persons Bill, which contains some provisions for the prevention and response to the trafficking of children for use of their body parts.

## **5 REGIONAL COMPARISONS**

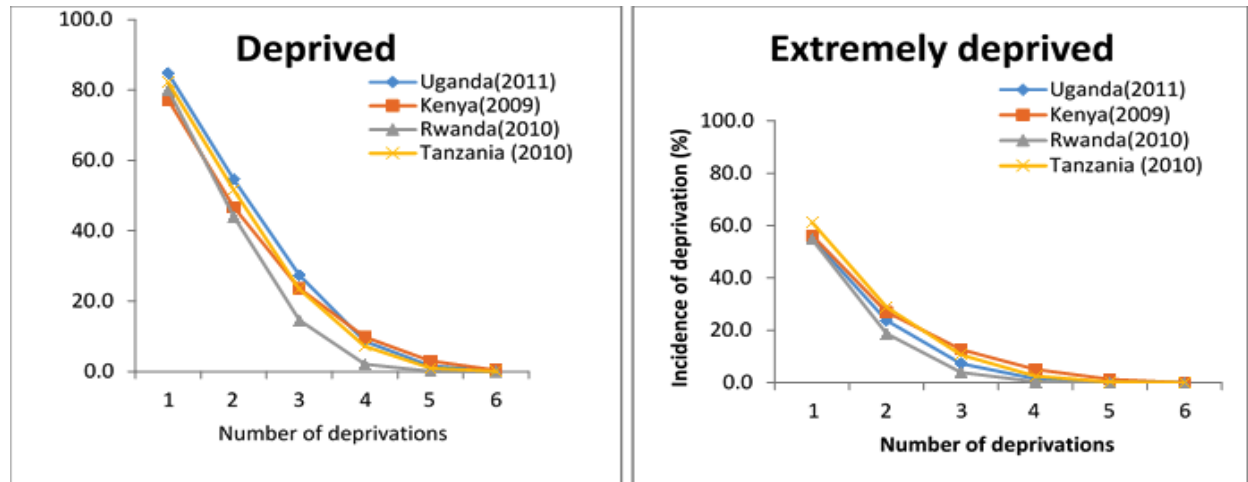
It is important to understand how Uganda compares to its neighbours in East Africa with regard to various dimensions of child deprivations. Such comparisons can indicate whether deprivations observed for Uganda are country-specific or a manifestation of a wider problem facing other countries. In this section, we contrast Uganda’s performance to that of its neighbours: Kenya, Rwanda, and Tanzania. The choice of these neighbours is guided by the availability of comparable DHS data for the respective countries undertaken in the recent past. The data sources for regional comparison are: the 2008/9 Kenya Demographic and Health Survey; the 2010 Rwanda Demographic and Health Survey, and the 2010 Tanzania Demographic and Health Survey. First, we estimate multidimensional deprivation indices for the three East African countries. Second, we consider key indicators of child and maternal health. Third, we examine the school enrolment rates for the three countries. Finally, we consider key indicators for the security of the girl child as they relate to early marriage, first sexual experience, and early pregnancy.

### **5.1. Multiple deprivations**

Figures 20 and 21 show deprivation indices for children in East Africa aged 0-4 years and 6-17 years. For children aged 0-4 years, Figure 20 shows that nearly 80% of infants in East Africa are deprived in at least one dimension. However, whereas over 50% are deprived in two or more dimensions in Uganda and Tanzania, the corresponding rate for Rwanda and Kenya is about 45%. Furthermore, only about 15% of infants in Rwanda are deprived in three or more dimensions compared to 27% for Uganda and 23% for Kenya and Tanzania. Based on the

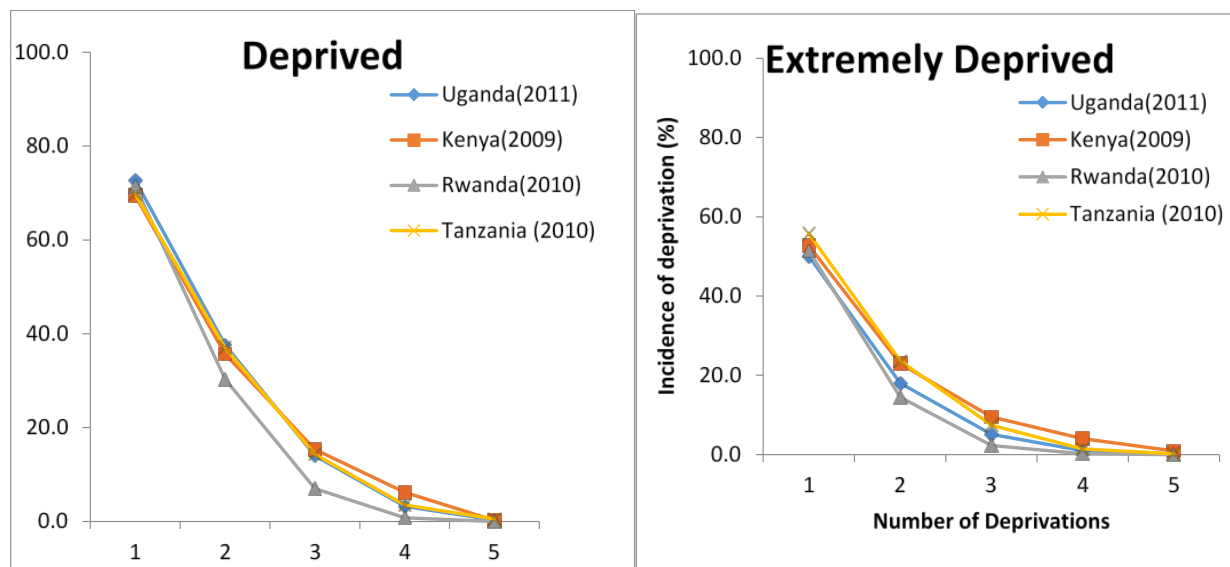
extreme deprivation criterion, Figure 20 shows that infants in Rwanda are least deprived: 18% are extremely deprived in two or dimensions, compared to 24% for Uganda, 27% for Kenya and 29% for Tanzania. Overall the figure shows that Uganda performs well – nearly equal to Rwanda – in terms of extreme deprivations, but is closer to Kenya and Tanzania in terms of multiple deprivations. Rwandan infants are the least multidimensionally-deprived, while Tanzanian children exhibit the highest rates of multiple extreme deprivations.

**Figure 20: Percentage of children aged 0-4 years in East Africa suffering multiple deprivations during 2009-2011.**



In Figure 21, we consider the extent to which children in East Africa aged 6-17 years suffer from multiple deprivations. It is indicated that about 70% of children in East Africa are deprived in at least one dimension. However, only 30% of children in Rwanda are in two or more dimensions, compared to about 37% for the rest of the other three countries. Based on the extreme deprivation criterion, Figure 21 shows that only 15% of children in Rwanda are deprived in at least two or more dimensions, compared to 18% for Uganda; and 23% for Kenya and Tanzania. Once again, Uganda performs relatively well in terms of extreme deprivations, but is virtually undistinguishable from Kenya and Tanzania – and worse than Rwanda – in terms of deprivations.

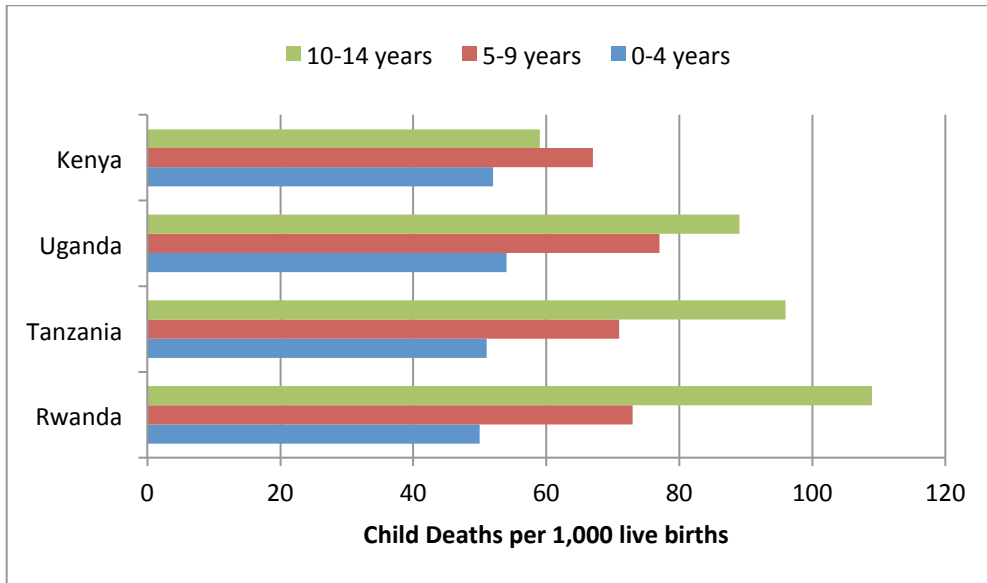
**Figure 21: Percentage of children aged 6-17 years in East Africa suffering multiple deprivations during 2009-2011.**



## 5.2 Child and Maternal Health

This subsection considers the trends in infant mortality, nutritional status, use of mosquito nets and maternal delivery for the four East African countries. Figure 22 shows the trends in the IMR for the 15 years prior to the last DHS survey for each country. With the exception of Kenya, all the other East African countries have recorded consistent declines in infant deaths. The IMR in Kenya was 59 deaths per 1000 live births in 1998 and it worsened to 67 deaths by 2003/4 before reversing to 52 deaths by 2008/9. On the other hand, the IMR for Uganda fell from 89 deaths in 2001 to 77 deaths by 2006 and 55 deaths by 2011. Rwanda exhibits the most progress with regards to IMR, having reduced the rate by more than 50 percentage points in the past 10 years. Overall the chart shows that only Rwanda in East Africa may be on course to attain MDG 4, i.e. to reduce by two thirds, between 1990 and 2015, the child mortality rates.

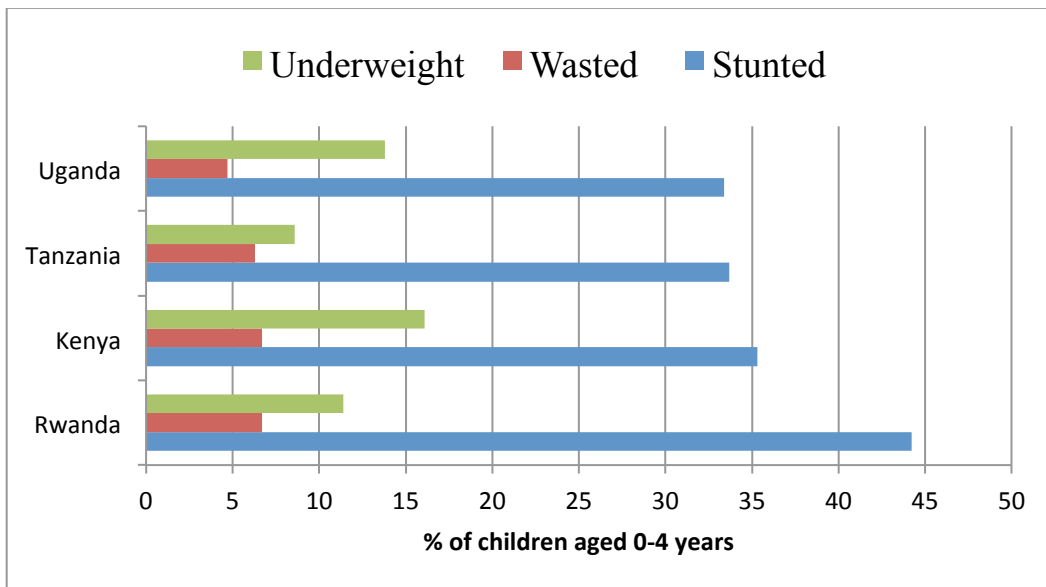
**Figure 22: Trends in Infant Mortality Rates in East Africa (10-14 years ago; 5-9 years ago; 0-4 years ago).**



**Source:** DHS reports for Kenya, Rwanda, Tanzania, and Uganda

Figure 23 shows the three main indicators of nutritional status – stunting, wasting, and underweight – for children aged 0-4 years in the four East African countries. Along with Tanzania, Uganda has the lowest rates of infant stunting: 33%, in comparison to 35% for Kenya and 44% for Rwanda. It also has the lowest percentage of wasting among infants. However, Uganda has the second – to Kenya (16%) – highest share (14%) of underweight infants, exceeding Rwanda (11%) and Tanzania (9%).

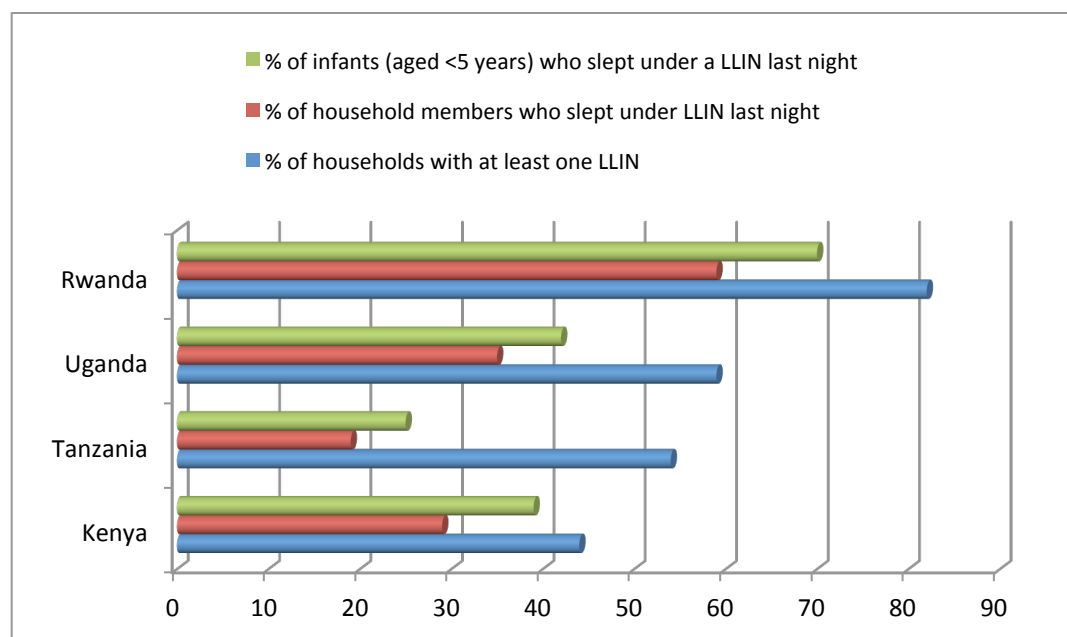
**Figure 23: Indicators of child nutritional status in East Africa (2009-2011)**



**Source:** DHS reports for Kenya, Rwanda, Tanzania, and Uganda

MDG 6 aims to combat HIV/AIDS, malaria and other communicable diseases. Insecticide-treated nets have become one of the major weapons used to prevent malaria in many developing countries. In Figure 24, we examine the extent of ownership of Long Lasting Insecticide Treated Nets (LLINs) in East Africa as well as use by both children and the general population. At least one in two households in East Africa owns at least one LLIN, with ownership rates highest in Rwanda at 82%, followed by Uganda at 58%. However, the chart also shows that consistent use of the net is not commensurate with ownership. Uganda is still second to Rwanda, but lower utilization rates reduce its advance over Kenya. In all four countries, children aged 0-4 years are more likely to be reported to have slept under LLIN than the general population.

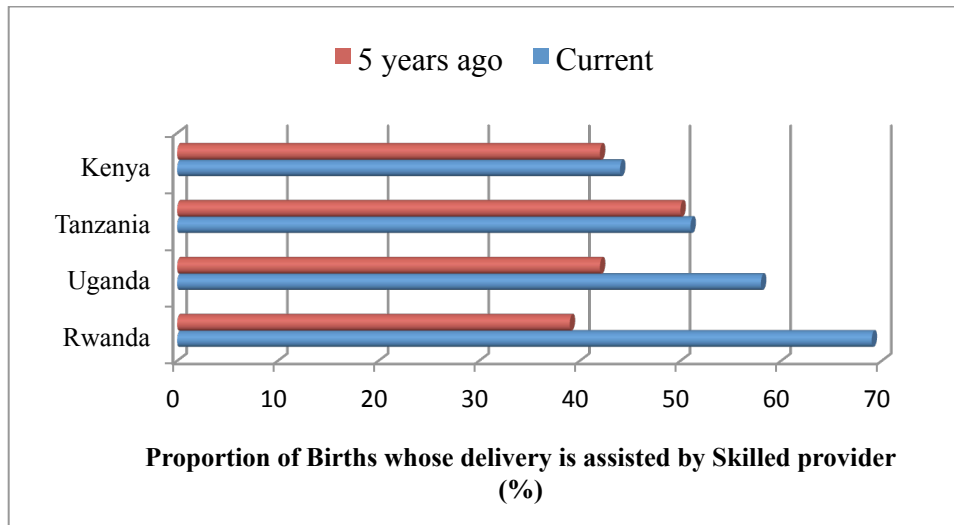
**Figure 24: Extent of ownership and use of LLINs in East Africa**



**Source:** DHS reports for Rwanda, Tanzania, Uganda; For Kenya: Malaria Indicator Survey 2010.

As a major determinant of child health, we also consider whether the mother received skilled assistance during child birth. Figure 25 shows the trends in the proportion of assisted child births in the four countries. Rwanda leads with about 70% of the child birth attended by a skilled provider followed by Uganda (58%), Tanzania (51%) and Kenya (44%). Again, in terms of trends, Rwanda lead, having increased skilled birth coverage by 30 percentage points compared to five years ago. Uganda also registered substantial progress, increasing coverage rates by 186 percentage points compared to five years ago while Tanzania and Kenya registered marginal progress.

**Figure 25: Proportion of births assisted by a skilled provider in East Africa**



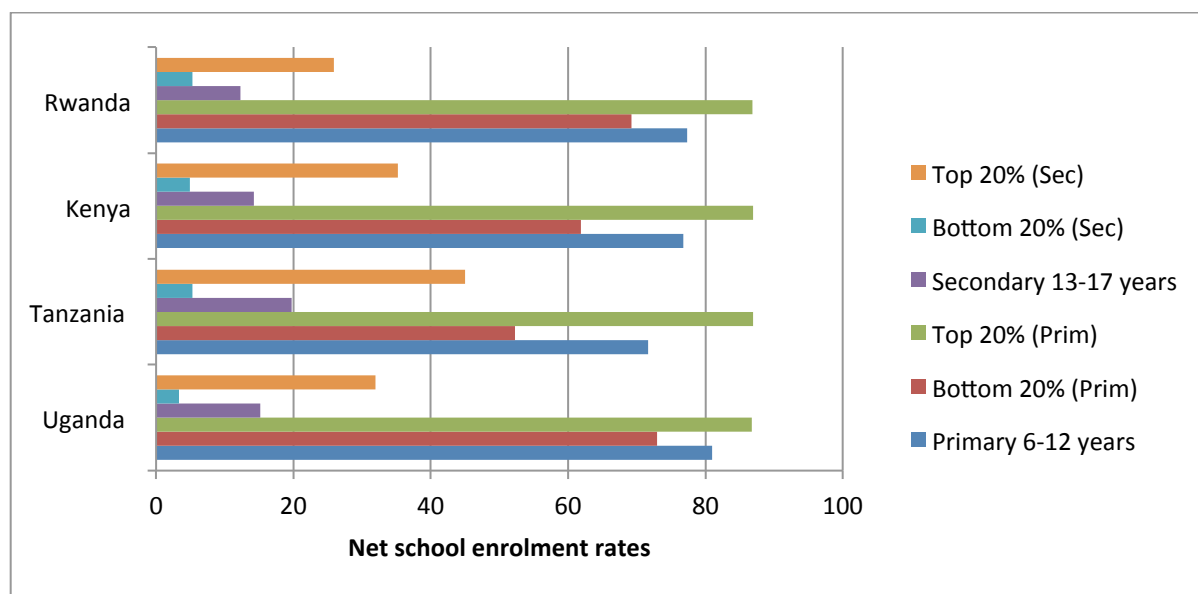
**Source:** DHS reports for Kenya, Rwanda, Tanzania, and Uganda

### 5.3 School enrolment

Given that all the four East African countries have signed on to the “Education for All” global targets, we also examine school enrolment in the region. Figure 26 shows that Uganda has the highest rates of net primary school enrolments: 81%, followed by Kenya and Rwanda at 77% while Tanzania is lowest at 71%. The chart also compares how the enrolment rates for the children from the poorest and richest households differ. The gap between the richest and poorest is widest in Tanzania (35 percentage points) and least in Uganda (14 percentage points). The relatively smaller gaps in enrolment by wealth status in Uganda may be partly explained by its earlier start to implement the UPE programme (1997) compared to Kenya (2003), whereas Rwanda and Tanzania do not have similar programmes.



**Figure 26: Extent of school enrolment in East Africa, by welfare groups**



**Source:** Authors' calculations from the DHS surveys for Kenya, Rwanda, Tanzania, and Uganda

In comparison to primary enrolments, net secondary school enrolments are very low in all the four East African countries (Figure 26). Tanzania has the highest net secondary school enrolment at about 20%, followed by Uganda (15%) and Kenya (14%) while Rwanda has the lowest rate of secondary enrolment (12%). Furthermore, the gaps between the richest and poorest children regarding secondary school enrolment remain highest in Tanzania (about 40%) followed by Kenya and Uganda (about 30%) and least in Rwanda (about 20%). As such, the education system in Tanzania is far more inequal in comparison to other East African countries, notwithstanding the relatively higher secondary school enrolment rates.

## 5.4 Child birth registration

Table 522 places the extent of Uganda's birth registration in the context of other countries in East Africa. Only 17.7% of children aged less than 5 years have a birth certificate in Uganda, compared to 24% in Kenya and 7% in Rwanda and Tanzania.<sup>23</sup> However, infants in Rwanda and Tanzania are more likely to be registered without a birth certificate than their Ugandan counterparts. The table also shows wide disparities in birth registration between children from the richest 20% households and the rest. With the exception of Rwanda, the percentage of children with birth certificates is about the same for the bottom four quintiles while that of the top quintile is in most cases about double the rest of the country.

<sup>23</sup> Figures for Uganda are lower than those reported in section 3.3.1 because, in the former case, we consider either having a certificate or being registered.

**Table 52: Extent of birth registration in East Africa**

	Percentage of children whose birth are registered with civil authorities											
	Uganda (2011)			Kenya (2008/9)			Rwanda (2010)			Tanzania (2010)		
	Had a birth certificate	Did not have a birth certificate	Total registered	Had a birth certificate	Did not have a birth certificate	Total registered	Had a birth certificate	Did not have a birth certificate	Total registered	Had a birth certificate	Did not have a birth certificate	Total registered
<i>All children aged &lt; 5 years</i>	17.7	12.2	29.9	23.9	36.1	60	6.6	56.6	63.2	7.7	8.5	16.3
<i>Location</i>												
Urban	25.6	12.5	38.1	37.1	39.2	76.3	8.2	52.2	60.4	24.7	19.5	44.2
Rural	16.5	12.2	28.7	21.3	35.4	56.7	6.4	57.2	63.6	3.7	6	9.7
	<i>By wealth rankings</i>											
Q1	14.1	13.1	27.2	19	29.2	48.2	5.6	52.2	57.8	1	3.4	4.4
Q2	14.9	10.8	25.7	18.3	35.4	53.7	5.2	57.2	62.4	1.6	4.5	6
Q3	15.8	11.1	26.9	20.3	39.1	59.4	6.6	58.8	65.4	3	6.7	9.7
Q4	19.6	8.2	27.8	29.9	25.9	55.8	6.8	60.3	67.1	10.3	12.5	22.8
Q5	25.7	18.3	44	35.8	43.8	79.6	9.5	54.7	64.2	34.3	21.8	55.8
	<i>By child's sex</i>											
Male	17.3	12.6	29.9	24.9	36	60.9	6.8	56.8	63.6	7.7	8.9	16.6
Female	18	11.9	29.9	22.9	36.2	59.1	6.4	56.5	62.9	7.7	8.2	15.9
	<i>By North sub regions*</i>											
Karamoja	7.9	3.2	11.1	-	-	-	-	-	-	-	-	-
North	18.7	13.1	31.8	-	-	-	-	-	-	-	-	-
West Nile	9.3	8.6	17.9	-	-	-	-	-	-	-	-	-

Source: DHS reports for Uganda (2011); Kenya (2008/9); Rwanda (2010); and Tanzania (2010).

\*Notes: This sub region analysis is restricted to only Uganda.

## 5.5 Security of the girl child

The security of girls and young women is the last issue we consider in the regional comparison. Table 53 shows whether women under 25 experienced pregnancy, marriage and first sexual intercourse before age 18 by location and status on the welfare distribution. Uganda has the highest rates of insecurity throughout. 50% of women aged under 25 years in Uganda and Tanzania had their first sexual experience before 18 years of age; the corresponding rates for Kenya and Rwanda are 40% and 14% respectively. Nearly 30% were married before the age of 18, as compared to 27% in Tanzania, 18% in Kenya and 5.3% in Rwanda. Finally, nearly a quarter of all Ugandan women were pregnant before the age of 18, compared to 21% in Tanzania, 19% in Kenya and only 3.8% in Rwanda. Indeed, Rwanda has the strongest protection with respect to the security of girls and young women, whereas Uganda clearly has room for substantial improvements.

**Table 53: The proportion of women under 25 who experienced pregnancy, marriage and first sexual intercourse before age 18 in East Africa, by various characteristics (%)**

	Kenya (2009)			Rwanda (2010)			Tanzania (2010)			Uganda (2011)		
	Pregnancy	Marriage	First sex	Pregnancy	Marriage	First sex	Pregnancy	Marriage	First sex	Pregnancy	Marriage	First sex
<b>National</b>	19.1	18.2	40.4	3.8	5.3	13.9	21.0	26.9	50.1	23.7	29.8	50.5
<b>Location</b>												
Rural	14.2	14.5	36.1	4.8	4.1	17.6	17.3	15.9	43.0	25.1	33.1	51.5
Urban	20.8	19.6	41.9	3.6	5.6	13.1	22.8	32.0	53.4	18.7	18.0	47.0
<b>Wealth quintile</b>												
Quintile 1	30.3	32.7	51.3	4.8	9.1	17.1	28.2	39.4	59.2	33.6	45.3	59.6
Quintile 2	19.8	19.6	43.7	3.8	4.8	11.9	25.8	34.7	58.5	31.1	40.1	54.6
Quintile 3	17.3	15.5	39.3	3.4	5.4	12.5	22.3	33.5	52.3	25.1	32.8	51.8
Quintile 4	17.0	15.5	37.6	3.9	4.7	12.7	21.0	25.3	50.6	19.2	23.6	45.7
Quintile 5	14.3	12.2	34.0	3.5	3.5	15.2	13.0	11.4	37.5	15.7	16.9	45.5

**Source:** Authors' calculations from the DHS surveys for Kenya, Rwanda, Tanzania, and Uganda

## 5.6 Summary

The regional comparison has demonstrated that Uganda performs relatively well with respect to its regional neighbours in terms of multidimensional deprivations, health, education, and birth registration of its children. For example, Uganda has the highest rates of primary school enrolment rates with the smallest gap between children from the richest and poorest quintiles. However, Uganda lags behind the region in terms of all three indicators of the security of its girls. With the exception of the child nutritional status dimension, Rwanda is by far the best performing country with regard to various child indicators, especially with regard to the protection of girls.

## 6 CONCLUSIONS AND IMPLICATIONS

The challenges children face in Uganda compel a comprehensive policy and programmatic response from the government and various sectors. The overarching response needs to address the structural causes of child poverty and deprivation: inequality, discrimination, poor resources allocated to children, and lack of legal and institutional frameworks, among others. Sector-specific interventions should aim to address the different deprivations children experience.

Putting children at the centre of national development policy is critical to overcoming the structural causes of child poverty and deprivation. Children and young people account for over half of Uganda's population and are a key force in the country's progress. It is critical that development policy prioritises addressing child deprivation—in health, nutrition, education and other areas—to ensure that they grow up to be productive citizens ready to contribute to the economy and society, and able to benefit from development gains. Reforming legal and institutional frameworks are also very important to providing an enabling policy environment that promotes children's well-being. Below are the overall recommendations of the study:

### Overall recommendations:

1. Ensure that addressing child poverty is recognised as one of the highest priorities in national policy and plans including the National Development Plan and sector strategic plans.
2. Develop child focussed budgeting that mainstreams children in every aspect of the budgetary process to fulfil their rights and provide them with the opportunity to develop their full potential.
3. Scale up programmes that promote the strengthened delivery of services and deployment of resources more evenly across regions, and expand coverage of 'hard to reach' children.
4. Narrow inequities in child well-being across the country. The disparities children experience vary hugely across the country and within socioeconomic groups. Interventions must reach the poorest and most vulnerable children wherever they are in Uganda. Addressing inequities ensures that progress in national indicators is sustained over time.

### Including children in national plans:

The key to ensuring the child's place in national development policy lies with including child children's issues, and the measure of child poverty in particular, in key national plans and guiding documents. The next National Development Plan (NDP II) will outline government's vision and priorities for development. Giving children a prominent place in the document should pave the way for allocating resources to address the structural causes of child poverty and the multiple deprivations they face. The next development plan should include a measure of children's deprivation by regions, geographic areas and other socioeconomic characteristics. It

should provide an overall policy and programming approach to overcoming these deprivations with measurable targets for improvement. The NDP should also aim to progressively eliminate disparities in access to basic services across the country and within groups to promote equitable chances for children. This approach mainstreams children in national development policy and addresses their well-being in its entirety, rather than in a sectoral way that is often the case.

### **Children and the budget process**

The national budget is the single most important tool at the disposal of the Ugandan government to fulfil children's rights. It is important to ensure that the rights and needs of children are sufficiently addressed in the budget. Current trends however indicate that the national budget is failing to address the child poverty and deprivation. For example, some programmes directly affecting children under the Ministry of Gender, Labour and Social Development have seen sharp reductions of 50 per cent or more in the budget for the fiscal year 2012-13.

Ensuring that the national budget responds to the rights and needs of children requires a budgetary process that is transparent and participatory. It also necessitates an awareness of budgeting for children among governments and the general public, and a clear system to track down public expenditure. Addressing child poverty and deprivation in fiscal policy does not mean creating a separate budget for children, but rather it is about mainstreaming children in every aspect of the budgetary process to achieve their well-being. What is needed is a policy framework that mainstreams children and promotes the awareness of budgeting for them in the fiscal process.

### **Child-focussed and friendly laws**

Protecting children is a critical determinant of their well-being. While it is not straightforward to measure deprivations in this aspect, it is important that there is an enabling legal environment that prevents abuse and violence, and a justice system that protects the rights of children in conflict with the law. There has been some progress in this area including having a National Plan for Orphans and Vulnerable Children and concrete approaches to violence against children in 33 districts. However, there are still many challenges that prevent a fully functioning child protection system in Uganda.

The Children Act needs several key amendments that have been pending in Parliament since 2005. The reforms provide a legal foundation to child protection and send a signal of policy makers commitment to children. The amendments include incorporating the welfare principal and the principle of the best interest of the child into the Act, strengthening the law to curb abuses related to adoption and care and preventing trafficking, protecting the rights of the children in conflict with the law, prohibiting corporal punishment and reinforcing government responsibility towards the protection of child rights.

One law will not address all the challenges to child protection in the country and other key reforms are necessary. These include developing a comprehensive child protection strategy with appropriate budget allocations, improving the ways the justice system deals with children and stopping violence in schools. These reforms and a strengthened Children Act establish an enabling environment that protects children and promote their rights and well-being.

### **Service delivery and addressing disparities**

Children’s experiences of poverty and deprivation in Uganda vary widely across regions, geographic locations and within socioeconomic groups. While these require national level responses, there should be an explicit goal to progressively eliminate disparities in access to basic needs and social services. Strengthened service delivery is critical to addressing the multiple deprivations children face. The interventions however should not only target “low hanging fruit”—those in better-off households or less remote areas—but there should be a clear strategy for reaching the poorest and most vulnerable children.

Districts with the highest numbers of extreme deprivations should be identified as priority districts and costed strategies with targets to reduce these disparities should be drafted. The strategies should come with sufficient resource allocation and progress against targets should be monitored regularly. Credible disaggregated data should also be collected at regular intervals to provide check changes in disparities across the country and within groups over time.

### **Sectoral recommendations**

While an overall national response is critical, the multidimensional nature of poverty and deprivation children experience implies the need to work across sectors in a cohesive way to address these challenges. Below are sector-specific recommendations:

#### **Nutrition**

1. Members of Parliament (MPs) must pass the Food and Nutrition Bill—a proposed piece of legislation ensuring Uganda meets its national and international obligations—to guarantee food security and adequate nutrition for all. The bill mandates the establishment of Food and Nutrition Committees at district and sub county level to monitor food and nutritional status.
2. The Government and partners must address budget constraints for nutrition interventions. The health sector budget currently does not recognise acute malnutrition as a disease and there is a lack of budget for its treatment. MPs should inquire why locally produced therapeutic nutritional supplements are not publicly procured to support the treatments of acute malnutrition among children.
3. Provide high level leadership for improving nutrition which should come from the President’s or Prime Minister’s office. Ensure malnutrition is addressed through a multi-

Ministry approach, rather than as a health sector issue alone, as outlined in the Uganda Nutrition Action Plan (UNAP).

4. Strengthen community outreach by championing nutrition in communities and removing misperceptions around child feeding practices to tackle child malnutrition. Increasing sensitisation of communities about proper nutritional practices will help reverse negative ideas which is a barrier to proper child nutrition.
5. Improve infant and young children feeding practices and give extra attention to maternal nutrition before and during pregnancy. Interventions should reach children from all social and economic backgrounds.
6. Build a strong nutrition coalition among civil society groups to coordinate nutrition policies and programmes.
7. Make the provision of safe water and sanitation facilities a national priority, with a special emphasis on regions with the lowest access to safe water and sanitation.

## **Health**

1. Health strategies must target the most common causes of under-five mortality, such as malaria, pneumonia and pre-term and neonatal complications (as outlined in the Global Burden of Disease Study 2010), by expanding the coverage of critical life-saving interventions like skilled-birth attendance and immunization.
2. Ensure the provision and availability of free and quality public health care. This largely depends on the strengthening health systems in the country and increasing the institutional capacity of the Ministry of Health including at the district level.
3. The health budget is vital to children and some key changes are essential to improving child health and achieving the health-related MDGs. These include:
  - Increasing overall allocation to the health sector
  - Prioritising child related health interventions
  - Prioritising lower level health facilities where access by the poor is easier by channeling more resources to these facilities
4. Ensure the provision of child health cards. The child health card is a key record of record of important interventions yet only 34% of facilities provide them. It is critical that funding is allocated for the provision of these health cards.
5. Focus on areas lagging behind health progress such as maternal mortality, HIV/AIDs and preventing mother-to-child transmission of HIV. Ensure the universal availability of free child health cards. These cards are a key record of important health interventions, but the most recent survey – supported by anecdotal evidence – is that only 34% of health facilities had them.
6. Increase funding for crucial elements of immunization that are currently classified as unfunded priorities in the MoH.
7. Ensure that vaccine coverage reach even the poorest and most remote communities. This includes supply and demand side strategies such ensuring vaccines are available and stored properly, and supporting outreach and advocacy activities that promote immunization.

## **Water and sanitation**

1. Identify districts with extreme deprivation as priority districts and increase investments in improved water sources
2. Progressively eliminate disparities in access to improved water sources across regions, between urban and rural areas and across household wealth quintiles
3. Ensure that the next National Development Plan outlines national targets for reducing deprivation and extreme deprivation in access to improved water sources
4. Set targets for zero open defecation in villages and outline costed plans on how to achieve these targets
5. Identify villages with extreme deprivation and increase investments for improved sanitation facilities
6. Progressively eliminate disparities in access to improved sanitation facilities across regions, between rural and urban areas and across household wealth quintiles
7. Build separate latrine for boys and girls in schools.

## **Education**

1. Implement special measures to increase access to education for the most vulnerable children who do not benefit from universal primary and secondary education programmes. Address the hidden cost of education, which poses a barrier for many children.
2. The Government and its partners should enhance support for programmes that ensure access and retention of girls in school to further reduce educational disparities between boys and girls. Girls' access to secondary education needs to be prioritised.
3. Support the expansion of Early Childhood Development (ECD) programmes by, among others, strengthening teacher training for early childhood education and increasing funding for ECD programmes. It is important to create a separate department for pre-primary education within the Ministry of Education and Sports and to increase public awareness about the importance of ECD in preparing children for primary school and beyond. Most importantly the government should commit to providing funding for ECD. A recent research shows that a modest investment of 3,000 shillings per child per month by the government would help universalise access and would more than pay itself back.
4. Establish mechanisms for the prevention of violence in schools to promote zero cases. Increase anti-violence awareness efforts in communities and schools and strengthen the systems for reporting and prosecuting violence as well as referral of survivors to services.
5. Address chronic teacher absenteeism by, among others, supporting the expansion of technology in education – such as using SMS to track, report, and follow up on issues like teacher absenteeism, the availability of textbooks, and safe water points.
6. Ensure the provision of safe drinking water in all schools and consider the provision of lunch to all pupils to enhance learning.



7. A re-evaluation of approaches to school meals is needed as the current approach is not effective.

### **Shelter**

1. Recognise the importance of shelter to a child's life and sense of wellbeing.
2. Identify districts with extreme deprivation as priority districts and increase investments in housing. Additional data collection is needed for children living in urban slums.
3. Many children are sleeping schools, more information is needed on their situation to ensure their safety and comfort.
4. Ensure that the next National Development Plan outlines national targets for providing decent housing and eliminating disparities across regions and districts

### **Access to information**

1. Extra efforts are needed to reach the poorest children with information. This includes information that seeks to improve health, expand opportunities for girls, and transform attitudes on girls education.
2. Information must flow from children and young people to decision makers as well as the other way around. Use of citizen engagement programmes using free to user sms can go a long way to connecting young people in hard to reach areas.
3. Children of male headed household fair worse on access to information and may need particular attention.

### **Child Protection**

1. Increase direct social spending through MGLSD especially for child protection. Specifically institute conditional grants for child protection similar to UPE and primary health care.
2. Pass the Children Act amendments pending since 2005.
3. The Government should develop a comprehensive child protection policy and strategy, building on the existing policies for the protection of specific categories of children such as the Child Labour Policy, the policy on disability and the guidelines for children's homes. The country has several laws and policies that address different aspects of child protection, but needs a comprehensive child protection policy to guide interventions at all levels.
4. Finalisation of an updated Birth and Death Registration Policy, including ensuring the first certificate is free.
5. Promote a child-friendly justice system by, among others, increasing knowledge of stakeholders in the justice system on children's issues, improving infrastructures such as the number of children's remand homes, developing a countrywide diversion mechanism for juvenile offenders, establishing child sensitive justice procedures for child offenders, victims and witnesses.

6. Strengthen the law enforcement and staffing capacity of government institutions responsible for child protection and increase the number of community development officers at sub county level to two, in line with the national standards to improve the provision of child protection services.
7. With the high burden of orphans numbering at least 2.3 million children (12.7% of children under the age of 18), the government should strengthen its alternative care system to promote foster care and adoption and community care for orphans in line with national standards. Government should specifically regulate procedures for adoption in order to stop the on-going trafficking of children abroad under the pretext of guardianship.
8. Institute special programmes focussed on the most vulnerable children, especially children with disabilities and street children who in most cases have fallen through the reach of existing programmes.
9. Expedite the process of developing a new policy and legal framework for birth registration including enabling decentralised notification to allow effective mobile registration.
10. Following the Ministerial Statement from the Durban meeting on civil registration government should look to have just one birth certificate that should also be free.
11. The Government should expand mobile birth registration across the country and increase funding for civil registration, with the goal of capturing every new birth in the country by 2015.

### **Violence against Children**

1. Conduct a national study on the scope and magnitude of violence against children to inform programming based on up-to-date situation analysis.
2. Implement specific interventions to prevent and respond to violence against children in its various forms, and in all spaces including homes, communities and schools.
3. Implement awareness programmes to educate the general public about child rights to address social norms that perpetuate practices such as violence against children, child marriage, female genital mutilation, child sacrifice and child labour.
4. The Government should establish a national reporting system such as an emergency helpline to aid reporting and response efforts.
5. Train law enforcement agents and other government and non-governmental staff to work with children, and end impunity of those who abuse the rights of children.
6. Improve access and quality of support services for victims of violence.
7. Ensure universal access to violence free learning environments, where the rights of all children are respected and promoted. This requires enforcement of school policies and legislation that outlaw violence in schools.

### **Social Protection**

1. The Government should formulate and implement an integrated child sensitive social protection policy with a strong social care and support component to address the

- various deprivations faced by children especially the most vulnerable, the excluded and those from chronically poor households.
2. Expand the coverage of the on-going cash transfer programme under the social assistance grants for empowerment scheme to cover older persons and to benefit more children under their care.
  3. Identify and implement other child friendly targeting mechanisms that ensure that more children benefit e.g. child support grants for specific groups of children.

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## ANNEX 1

### Conceptual framework and methodology

#### Measurement of child deprivation

The analysis of the various dimensions of poverty discussed above requires a variety of statistical methods outlined in this section. We begin by discussion of the unidimensional poverty analysis as a basis for a subsequent section on multidimensional poverty analysis methods. A third section deals with a variety of inference methods before we turn our attention to regression methods to analyse the determinants of child wellbeing.

#### One-dimensional poverty analysis

There are two main issues when measuring one-dimensional poverty: the first is the identification of the poor and the second concerns poverty aggregation. As outlined by Silber (2007), it is necessary to begin by clarifying several important aspects of poverty before being able to accurately identify the poor. In particular, determination of the poverty line, the choice of welfare indicator, the unit of observation, the concept of equivalence scales, and unit weighting must all be considered. The poverty line can be absolute or relative (Ravallion, 1994; Duclos and Araar, 2006). When the welfare indicator is monetary, i.e. income or consumption, the absolute poverty line is determined by the cost of a particular minimal basket of goods and services, while the relative poverty line is generally a specific fraction of a certain measure of income in the general population (mean, median, etc.). In this context, a child is identified as poor if s/he lives in a household with income or expenditures per adult equivalent (or per capita) below the poverty line.

Once the poor have been identified, a second issue that arises is to aggregate these individual-level measures across the population or sub-populations. Several poverty indices are proposed in the literature and satisfy most of the following desirable properties:<sup>24</sup> *focus, monotonicity, principle of transfer, transfer sensitivity, impartiality, continuity, principle of population replication, and implication of growth in population*, etc. The most popular index is that proposed by Foster, Greer and Thorbecke (1984). This FGT index is expressed as follows:

$$P_{\alpha}(x, z) = \frac{1}{n} \sum_{i=1}^n w_i \left( \frac{z - x_i}{z} \right)^{\alpha} \rho(x_i, z) \quad (1)$$

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<sup>24</sup> See Silber (2007) for details on these properties.



where  $w_i$  is the normalized sampling weight assigned to unit  $i$ , with  $\sum_{i=1}^n w_i = n$ ,  $x_i$  is the well-being indicator for  $i$ ,  $z$  is the poverty line, and  $\rho(x_i, z)$  is an identity function that takes the value 1 if  $z - x_i > 0$  and 0 otherwise. The parameter  $\alpha (= 0, 1 \text{ or } 2)$  respectively determines whether the index is the headcount ratio, the poverty gap ratio or the poverty severity index.

To generate poverty orderings that are robust to the choice of the poverty line and over a broad class of indices, many authors use the stochastic dominance approach developed by Atkinson (1987) and Foster and Shorrocks (1988a, 1988b, 1988c). Let  $A$  and  $B$  be two distributions we seek to compare in terms of poverty. As established by Davidson and Duclos (2000), distribution  $A$  is said to dominate distribution  $B$  (poverty is greater in  $B$  than in  $A$ ) to the order  $\alpha$  if  $P_\alpha^A(x, z)$  is lower than  $P_\alpha^B(x, z)$  over the whole range of plausible values for  $z$ .

Several studies have used this approach to assess children's monetary welfare and poverty (Bradbury and Jäntti, 2001; Oxley et al, 2001; Jenkins, Schluter and Wagner, 2002; Streak, Yu and Van der Berg, 2009). Other welfare indicators include the wealth index<sup>25</sup> (Sahn and Stifel, 2000; 2003; Djoke et al, 2010) and child anthropometric status (Sahn and Stifel, 2002).

Unidimensional poverty comparisons have, however, been criticized for leading to an incomplete understanding of poverty, and often to poorly targeted or ineffective poverty reduction programs. They fail to capture multiple aspects of deprivation, as defined by Sen's capability approach (Sen, 1985). As pointed out by Minujin et al. (2006), the monetary approach could be unsuitable for identifying poverty since it neglects different household characteristics, the diverse needs of people and the importance of public goods and services such as education, health care, water supply, sanitation etc. Moreover, the consumption needs of children are different from those of adults, and children are not free to decide their own consumption (White and Masset, 2002). Rather than associate child poverty with her/his household's income poverty, some authors propose to focus on child wellbeing through the concept of deprivation, where children are considered as the statistical unit of observation (Nolan, Maître and Watson, 2001). Bastos, Fernandes and Passos (2004) provide evidence in support of the social exclusion thesis of Sen (1995), which lends support to extending child welfare analysis to other aspects of their life.

## **Multidimensional poverty analysis**

### **Two-dimensional poverty index**

The two-dimensional poverty index is an extension of the previous one-dimensional classes of poverty indices proposed in the literature including the popular FGT index. Several

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<sup>25</sup> The wealth index is generally computed using factor analysis methods from several indicators relating to ownership of durable goods and access to basic services.

multidimensional poverty indices have more recently been proposed on the basis of a set of axioms (Tsui, 2002; Bourguignon and Chakravarty, 2002 and 2003; Chakravarty, Deutsch and Silber, 2008). A new issue arises with this approach and is related to poverty identification, especially with respect to the distinction between the union, intermediate and intersection approaches (Atkinson, 2003; Bourguignon and Chakravarty, 2003; Duclos, Sahn and Younger, 2006a). The *union* definition considers an individual as poor if s/he is deprived in one or both dimensions. The *intersection* definition rather considers an individual as poor only when s/he is deprived in both dimensions. The third definition (*intermediate* definition) is based on deprivation in some combination of these dimensions, as suggested by Duclos, Sahn and Younger (2006a). Using the FGT index, the multidimensional measure could be expressed as follows:

$$P_{\alpha}(x, z) = \frac{1}{n} \sum_{i=1}^n w_i \left( \frac{z_1 - x_{1i}}{z_1} \right)^{\alpha_1} \left( \frac{z_2 - x_{2i}}{z_2} \right)^{\alpha_2} \rho(x_i, z) \quad (2)$$

where  $x_{1i}$  and  $x_{2i}$  are the two dimensions of wellbeing for  $i$ ,  $z_1$  and  $z_2$  the respective poverty lines in each dimension, and  $\rho(x_i, z)$  an identity function that takes the value 1 if individual  $i$  is considered as multidimensionally poor and 0 otherwise. Identification of poverty depends on the defined multidimensional cutoff. For the intersection approach,  $\rho(x_i, z) = 1$  if  $z_1 - x_{1i} > 0$  and  $z_2 - x_{2i} > 0$ , while for the union approach,  $\rho(x_i, z) = 1$  if  $z_1 - x_{1i} > 0$  or  $z_2 - x_{2i} > 0$ .

As in the case of one-dimensional poverty, one can derive methods of partial poverty ordering. A distribution  $A$  is said to dominate a distribution  $B$ , or multidimensional poverty is greater in  $B$  than in  $A$ , for some combination of orderings  $(\alpha_1, \alpha_2)$  if  $P_{\alpha}^A(x, z)$  is lower than  $P_{\alpha}^B(x, z)$  for any  $z$ . Duclos, Sahn and Younger (2006a, 2006b) propose a methodology that is valid for the union, intermediate and intersection approaches and derive sampling distributions for various multidimensional poverty estimators. This methodology can be extended to test for higher order statistical dominance and also for statistical robustness of results. It has been used in several instances to measure multidimensional child poverty in developing countries.

Duclos, Sahn and Younger (2006b) apply the approach to Uganda, Ghana and Madagascar with two measures of wellbeing: household per capita expenditure and children's height-for-age scores. They found that two-dimensional poverty orderings differ from one-dimensional poverty orderings and that the poverty orderings were robust to the choice of the poverty line. Kabubo-Mariara, Araar and Duclos (2010) use this approach to test for multidimensional poverty dominance among Kenyan children. They find results that are robust to the choice of the poverty line and to the choice of aggregation procedures across dimensions and across children. Another study also tests for robust multidimensional poverty comparisons among children in six West African Countries (Batana and Duclos, 2010a). Duclos, Sahn and Younger (2007) and Batana and Duclos (2010b) examine multidimensional stochastic dominance when one of the wellbeing

indicators is discrete rather than continuous. Their findings suggest that tests based on the likelihood ratio can be useful for analyzing multidimensional poverty and welfare dominance when one of the dimensions of welfare is qualitative. Kabubo-Mariara, Wambugu and Musau (2010) also use the Duclos, Sahn and Younger (2006a) approach, but extend it to test for statistical significance of dominance of poverty. Their results demonstrate the value of this approach over other approaches to poverty measurement.

### **Determinants of child wellbeing: multivariate regression analysis**

In addition to measuring child deprivation in Uganda, this study carries out multivariate regression analyses to establish the proximate determinants of child wellbeing. In the literature, controversies always abound on the best measure of poverty. Once a decision to use a certain measure has been decided on, the next issue is to specify the framework for analysing the determinants of poverty.

There are generally two approaches to the analysis of poverty determinants. In one approach, probabilities of being poor are estimated using logit or probit procedures (Grootaert, 1994). This is based on the FGT measures of poverty as the dependent variables. These are in turn based on predetermined poverty lines. In the second approach, household welfare functions (proxied by household expenditure functions) are estimated using least squares methods (Mukherjee and Benson, 2003).

The two approaches may yield similar results because factors that increase household expenditures, especially on food and assets, reduce the probability of a household being poor and vice versa. The approaches have been criticized on differing grounds (Ravallion, 1994; Grootaert, 1994), however, although some studies show that both explain poverty equally well (for instance, Appleton, 2002). Some studies have also used the second approach to explain poverty using a composite indicator of poverty derived from household assets.

In a study of child deprivation measured using the Bristol approach, none of these methods seem appropriate because of the nature of the dependent variable. It seems more appropriate to consider a capability approach to child poverty. A framework that comes close is the health production function, which can be modified to model child deprivation. Taking nutritional or health deprivation, for example, this allows us to think of child wellbeing as being generated by the household production model by extending the work of Becker (1965) to include health (Strauss and Thomas; 1995, Pitt and Rozensweig, 1986, Rosenzweig and Wolpin, 1986).

In such a framework, the household face preferences that can be characterized by a utility function that is related positively to consumption of a vector of commodities (C) and health status (H), and negatively to leisure (L):  $U = U(H, C, L)$  (14)

Health outcomes of the child are biologically determined according to a health production function. The outcomes are a function of a vector of purchased health inputs (K) that only affect

household utility through the effect on a child’s health and other factors such as health-related inputs ( $X$ ) that yield utility to the household and also affect child health.

$$H = h(X, K, \varepsilon) \quad (15)$$

The production function for the consumption good depends on a vector of household inputs. The household chooses the optimal consumption bundle given this production function and a budget constraint that states that, given market prices and wages, total consumption, including the value of time spent in leisure activities, cannot exceed total income.

The child health production function is imbedded in the constrained utility maximization behaviour of the household. Child wellbeing can be thought of as being generated by a biological production function in which a number of input allocations such as nutrient intake and general care result from household decisions. Households therefore choose to maximize the chances of child wellbeing given their resources and information constraints.<sup>26</sup> The resulting constrained utility function can then be solved for the optimal quantities of child wellbeing supplied to the market (Kabubo-Mariara, Karienyeh and Mwangi, 2010, Kabubo-Mariara, Ndenge and Mwabu, 2008, Lawson and Appleton, 2007).

Following Mosley and Chen (1984) and Schultz (1984) and starting with the household production function, we integrate the underlying production process with household choices to derive a reduced form child wellbeing production function:

$$Y_i = f(CH_i, HH_j, CM, \varepsilon_i) \quad (16)$$

The dependent variable  $Y_i$  is a measure of child deprivation,  $CH$  represents a vector of child (i)-specific characteristics (including age and gender),  $HH$  a vector of household (j)-specific characteristics (including age, gender and education level of the head of household, structure of household and assets) and  $CM$  a vector of community characteristics (including public goods such as water and sanitation, regional and programme level policy variables).  $\varepsilon_i$  is the child specific error term. This study adopts this framework to assess the correlates of extreme child deprivation in Uganda.

## Analysis of policy frameworks

The methods employed in the analysis of the policy frameworks for addressing child poverty and disparities are included in the review of key policy documents on child issues in Uganda. These documents include: the various laws that safeguard child rights in the country – especially the

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<sup>26</sup> These constraints can be viewed as proximate determinants of child wellbeing (Mosley and Chen, 1984).

Children's Act; Uganda's past and current medium term development plans – the Poverty Eradication Action Plans (PEAP: 1997, 2000, and 2004); and the National Development Plan (NDP: 2010-2015). We also analysed a number of annual public reports that provide information on child issues in the country such as the Background to the Budget by the Ministry of Finance, Planning and Economic Development which captures annual resources allocation to social sectors. Other reports analysed include: Uganda Police Annual Crime Reports, which capture cases where children are either victims or perpetrators of crimes; annual health sector performance reports; and annual education and sports performance reports. In addition to the analysis of policy documents, we also conducted key stakeholder interviews with officials from: the Ministry of Gender, Labour and Social Development; the Ministry of Health; the Ministry of Education and Sports; and UNICEF. These key informant interviews provided insights into the most appropriate indicators of capturing child deprivation in the Ugandan context and also helped identify the current priority issues in addressing child deprivation in Uganda.

In order to generate trends for some of the child welfare outcomes, we undertook an analysis of the most recent national household surveys. These included: the 2000 and 2006 Uganda Demographic and Health Surveys (UDHS); the 2004/5 Uganda Sero-Behavioural Survey; and the 2005/06 and 2009/10 Uganda National Household Surveys (UNHS). The above nationally representative surveys were the main sources of information on: school enrolments; expenditures on school uniforms; the extent and type of orphanhood in Uganda; child stunting rates; the use of health facilities for individuals reporting illness; birth registration; and the timing of marriages for adolescents.

We consulted a number of previous studies examining child issues in Uganda, including the programme documents for: the design of the Social Assistance Grant for Empowerment (SAGE); the National Food and Nutritional Policy; and the breastfeeding policy in the context of HIV/AIDS. The other consulted studies focused on specific issues, e.g.: school dropout and absenteeism; child health cards and immunization; and the financing of health services.

## ANNEX 2

### Dominance analysis

Prior to carrying out the two-dimensional stochastic dominance analysis suggested by Duclos, Sahn and Younger (2006a, 2006b), the usual one-dimensional dominance analysis is performed with each dimension. The first dimension retained is the wealth index where the child's standard of living is the same as that of their household. The second dimension is simply the deprivation count proposed by Alkire and Foster (2007), which indicates the number of deprivations suffered by a child. This dimension is quite different from the previous one since it is based on the modified Bristol approach adopted in this report. As in the previous section, deprivation is defined in two ways: extreme and deprived. In each case, the multidimensional poverty headcount (H) and the multidimensional poverty index (M0) are considered. The robust comparisons are made both between geographical areas (regions, rural and urban location) and across time (2000 vs. 2006).

The results of the spatial analysis in Table 544 show that urban areas dominated rural ones in term of multidimensional deprivation for both definitions and both measures (H and M0) in 2000. This result is not surprising since it previous studies almost always found that child wellbeing is greater in urban areas than in rural ones. The comparisons between the four regions do not yield unambiguous rankings between them. When we consider H, only Northern region appears to be clearly dominated by Central region in terms of deprivation. Yet, when considering M0, two additional dominance relations are obtained. Apart from the dominance of Northern by Central region, Eastern region and Western region also appear to dominate Northern region. In terms of extreme deprivation, the only significant dominance relation of the ones that are possible among the four regions is domination of Northern by Eastern region. The dominance rankings are more unambiguous for wealth: aside from the lack of dominance between Eastern region and Western region, dominance is otherwise observed. Rural areas are still dominated by urban ones as in the case of deprivation. Also, Central region dominates all others to the first-order while Northern region is dominated by all the others. First-order dominance is equivalent to comparing the proportions of children living in households whose wealth index is below a set of thresholds. The second-order dominance could be performed if the first-order result is inconclusive. With regard to the relation between Eastern region and Western region, the second-order analysis also appears inconclusive.

**Table 54: One-dimensional stochastic dominance analysis**

Dominance relation <sup>a</sup>	Deprivation		Extreme deprivation		Wealth poverty	
	H	M0	H	M0	1 <sup>st</sup> order	2 <sup>nd</sup> order
<b>UDHS 2000</b>						
Rural vs. urban	6.14***	6.14***	3.21***	3.21***	11.13***	-
Northern vs. Central	3.62***	3.62***	1.37	1.37	6.09***	-
Western vs. Central	0.49	0.49	0.17	0.19	6.10***	-
Eastern vs. Central	1.00	1.00	-1.78	-1.78	5.75***	-
Northern vs. Eastern	1.51	3.41*	2.06*	2.06*	1.89*	-
Eastern vs. Western	-1.10	-0.36	-1.81	-1.81	-0.78	-1.05
Northern vs. Western	1.51	3.47*	1.14	1.14	1.74*	-
<b>UDHS 2006</b>						
Rural vs. urban	5.40***	5.40***	0.01	0.01	3.94***	-
Northern vs. Central	4.25***	4.25***	2.51**	2.51**	6.10***	-
Western vs. Central	-0.26	-0.26	-0.49	-0.49	0.99	0.99
Eastern vs. Central	0.98	0.98	-0.86	-0.86	3.49***	-
Northern vs. Eastern	0.81	1.43	2.71***	2.71***	1.24	6.65***
Eastern vs. Western	-2.23	0.61	-0.56	-0.56	-0.35	1.66*
Northern vs. Western	-0.14	2.90***	2.64***	2.64***	0.94	5.18***
<b>UDHS 2000 vs. UDHS 2006</b>						
National	-1.36	-1.36	-2.33	-2.33	9.43***	-
Rural	-1.22	-1.22	-2.05	-2.05	7.15***	-
Urban	-1.39	-1.39	-1.21	-1.21	6.63***	-
Central	-1.13	-1.13	-0,17	-0,17	8.45***	-
Eastern	-7.44	-1.41	-1.00	-1.00	4.19***	-
Western	-0.40	-0.40	0.26	0.28	4.09***	-
Northern	0.18	0.18	-2.24	-2.24	3.25***	-

<sup>a</sup> The relation A vs. B means that we test the null hypothesis that A is not dominated by B.

(\*), (\*\*) and (\*\*\*) denote that the null hypothesis is rejected respectively at 10%, 5% and 1% significance level

The results show some differences between 2000 and 2006. In the dominance analysis on deprivation, results are the same for H since rural areas are dominated by urban ones while Northern region is dominated by Central region. The results are almost the same with M0 except that the relation between Northern region and Eastern region becomes non-significant. The analysis in terms of extreme deprivation yields more differences compared to 2000. We obtain a lack of dominance between rural and urban areas while the previous two non-significant dominance relations (the dominance of Northern by the Central and Western regions) become significant. Some differences are also observed when considering the dominance analysis for wealth. Only three dominance relations prove to be significant at the first-order: rural areas are dominated by urban ones while Central region dominates Northern region and Eastern region. The second-order dominance analysis generates two additional significant relations: dominance of Northern by both Eastern and Western. This time, the only non-dominance relation is between

Central region and Western region. Table 544 also displays the results of temporal dominance. Here, dominance is checked for a given area between 2000 and 2006. In the case of multidimensional deprivation, no relation proves to be significant for both definitions (extreme and deprivation). This means that there is no evidence of an unambiguous change in multidimensional deprivation between 2000 and 2006. On the other hand, the dominance analysis on wealth shows that all relations are of first-order dominance. Child wellbeing thus appears to have improved at national, regional and rural or urban levels between 2000 and 2006. What happens when both dimensions are considered simultaneously?

The two-dimensional analysis thus follows the intersection approach to defining the threshold, in the sense that a child will be identified as poor if s/he is deprived in both dimensions. The results, reported in Table 555, are similar to those obtained in the one-dimensional analysis with the two definitions of deprivation.

**Table 55: Two-dimensional stochastic dominance analysis (OPHI measure and wealth index)**

Dominance relation <sup>a</sup>	Deprivation		Extreme deprivation	
	H	M0	H	M0
<b>UDHS 2000</b>				
Rural vs. urban	4.39***	4.39***	2.54**	2.53**
Northern vs. Central	2.74***	2.74***	1.37	1.37
Western vs. Central	0.44	0.44	0.07	0.07
Eastern vs. Central	0.20	0.20	-1.78	-1.78
Northern vs. Eastern	1.84*	2.71***	1.99**	1.99**
Eastern vs. Western	-1.88	-1.60	-1.81	-1.81
Northern vs. Western	2.17**	2.66***	1.00	1.00
<b>UDHS 2006</b>				
Rural vs. urban	2.48***	2.48***	-0.02	-0.02
Northern vs. Central	4.24***	4.24***	2.51**	2.51**
Western vs. Central	-0.26	-0.26	-0.75	-0.75
Eastern vs. Central	0.96	0.96	-0.86	-0.86
Northern vs. Eastern	0.69	1.34	2.71***	2.71***
Eastern vs. Western	-0.99	0.71	-0.56	-0.56
Northern vs. Western	1.02	2.90***	2.64***	2.64***
<b>UDHS 2000 vs. UDHS 2006</b>				
National	-1.31	-1.31	-2.14	-2.14
Rural	-1.17	-1.17	-1.85	-1.85
Urban	-1.40	-1.40	-1.21	-1.21
Central	-1.14	-1.14	-0.17	-0.17
Eastern	-1.41	-1.41	-1.00	-1.00
Western	-0.34	-0.34	0.31	0.34
Northern	0.22	0.22	-2.04	-2.04

<sup>a</sup> The relation A vs. B means that we test the null hypothesis that A is not dominated by B.

(\*), (\*\*) and (\*\*\*) denote that the null hypothesis is rejected respectively at 10%, 5% and 1% significance level



### ANNEX 3

#### Methodology for vulnerability analysis

The approach is based on the work of Chaudhuri (2003) and Chaudhuri et al (2002). It consists in estimating a model of per capita (or by adult equivalent) expenditures using generalized least squares method in three stages.

$$\ln E_h = X_h' \beta + e_h, \quad (1)$$

where  $E_h$  is the per capita (or by adult equivalent) expenditures of the household  $h$ ,  $X_h$  a set of household observable characteristics while  $e_h$  is the idiosyncratic error term. As stressed by Chaudhuri (2003), the error term is likely to be correlated with the household observable characteristics. Then the following model could be specified:

$$e_h^2 = X_h' \theta + \varepsilon_h \quad (2)$$

Now, the parameters  $\beta$  and  $\theta$  could be estimated using the feasible generalized least squares (FGLS) in three steps.

The *first step* is to estimate the equation (1) by ordinary least squares (OLS) and then to estimate the equation (2) in the same way using the residual terms  $e_{ols}$  obtained with (1). Then, at the *second step*, the parameter  $\theta_{ols}$  obtained when estimating (2) is used to modify this equation (2) as follows:

$$\frac{e_{ols}^2}{X_h' \theta_{ols}} = \frac{X_h'}{X_h' \theta_{ols}} \theta + \frac{\varepsilon_h}{X_h' \theta_{ols}} \quad (3)$$

The equation (3) is then estimated by OLS in order to derive  $\theta_{FGLS}$  that is an asymptotically efficient estimator of  $\theta$ . At the *third step*,  $X_h' \theta_{FGLS}$  is used to modify equation (1) as follows:

$$\frac{\ln E_h}{\sqrt{X_h' \theta_{FGLS}}} = \frac{X_h'}{\sqrt{X_h' \theta_{FGLS}}} \beta + \frac{e_h}{\sqrt{X_h' \theta_{FGLS}}} \quad (4)$$

The equation (4) is finally estimated by OLS to obtain  $\beta_{OLS}$  that is an asymptotically efficient estimator of  $\beta$ . Then  $\theta_{FGLS}$  and  $\beta_{OLS}$  will allow us to determine the expected per capita (or by adult equivalent) expenditures for each household. Using these results and the probability of being poor, four categories are defined regarding the vulnerability analysis:

Chronic poor: observed and expected expenditures are both below the poverty line regardless the probability to be poor.

Transient poor: observed expenditures are below the poverty line while expected expenditures are above regardless the probability to be poor.

Vulnerable non-poor: observed expenditures are below the poverty line while expected expenditures are above; also includes households with both expenditures above the poverty line but with the vulnerability probability higher than 0.5.

Non vulnerable non-poor: Observed and expected expenditures above the poverty line and with vulnerability probability below 0.5.