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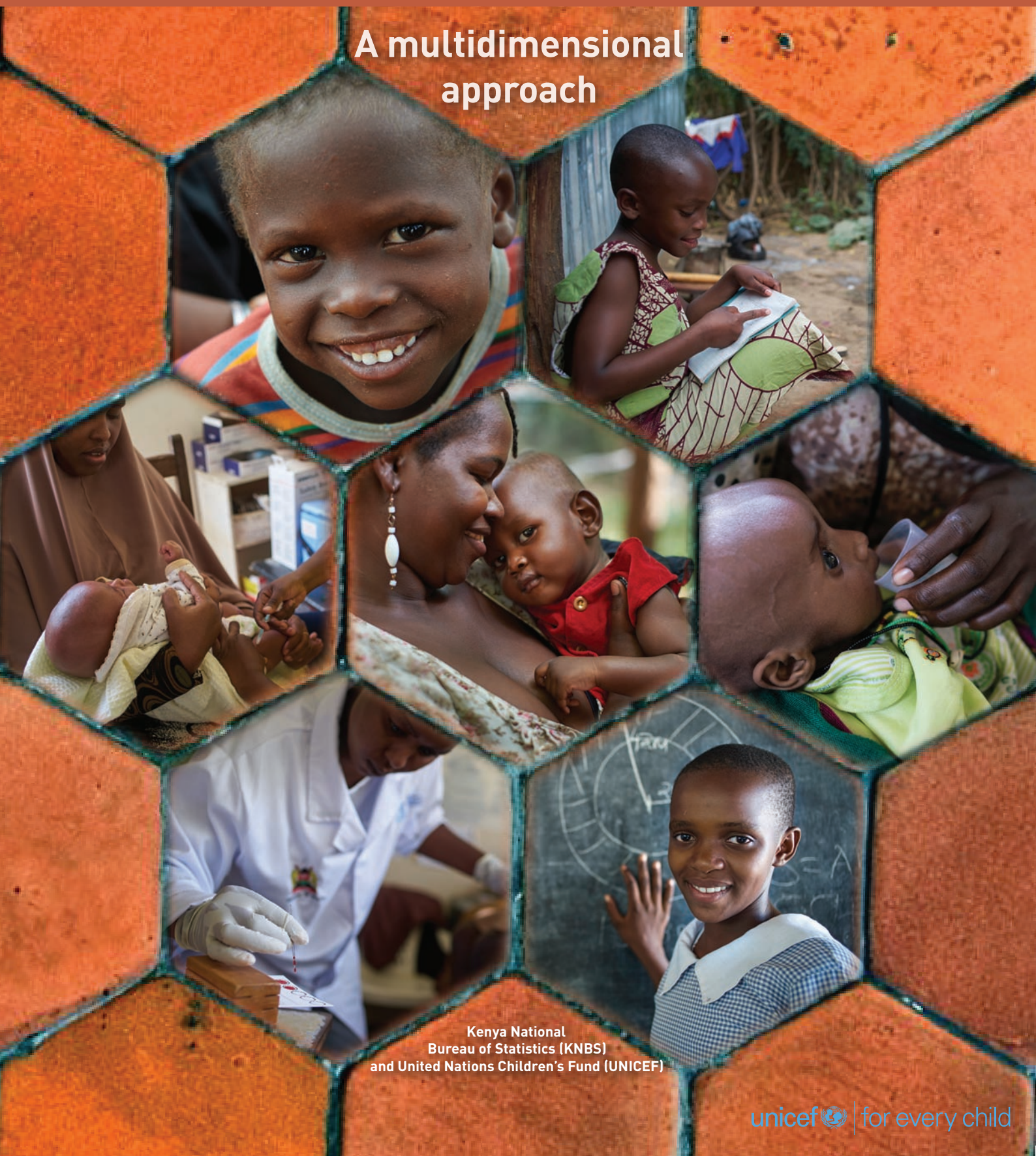
CHILD POVERTY IN KENYA

A multidimensional approach



Kenya National
Bureau of Statistics (KNBS)
and United Nations Children's Fund (UNICEF)

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A multidimensional approach

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Contents

Acronyms

ARI	Acute Respiratory Infections
ANC	Antenatal Care
CCC	Comprehensive Care Clinic
CHV	Community Health Volunteer
CHEW	Community Health Extension Worker
CK	Constitution of Kenya
CRC	Convention on the Rights of the Child
DHS	Demographic and Health Survey
ECD	Early Childhood Development
EPRI	Economic Policy Research Institute
KDHS	Kenya Demographic and Health Survey
KSh	Kenyan Shillings
KIHBS	Kenya Integrated Household Budget Survey
KNBS	Kenya National Bureau of Statistics
KIPPRA	Kenya Institute for Public Policy Research and Analysis
MODA	Multiple Overlapping Deprivation Analysis
MOH	Ministry of Health
NCLR	National Council for Law Reporting (now Kenya Law)
NNAP	National Nutrition Action Plan
OPHI	Oxford Poverty and Human Development Initiative
ORS	Oral Rehydration Salt/Solution
SD	Standard Deviation
SDG	Sustainable Development Goal
TSC	Teachers Service Commission
UN	United Nations
UNCRC	United Nations Convention on the Rights of the Child
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organisation
WSSD	World Summit on Sustainable Development

Definitions

Child poverty:	Lack of access to or lack of availability of more than one basic need, service, or right necessary for child's survival and development; Also referred to as multidimensional deprivation
Deprivation:	Lack of access to basic (or perceived as necessary) goods and services needed for survival and development
Dimension:	A specific basic good, service, or right necessary for children's well-being using the rights-based approach
Indicator:	A measure indicating the status of access to or availability of a specific basic good, service, or right
Monetary poverty:	Household's lack of financial means to provide its members with basic goods and services deemed necessary for their survival and development
Multivariate analysis:	A statistical analysis using a logistic regression and marginal effects to explore what factors increase the probability of a child to be deprived in a given dimension or to be multidimensionally poor. The dependent variable (a single dimension or multidimensional poverty) is a binary variable with values "0" for non-deprived and "1" for deprived
Wealth index:	A composite measure of households' living standards. The index is created using data on households' ownership of certain assets, materials used for housing, and types of access to water and sanitation

Foreword

This Child Poverty Report is the first of its kind in Kenya and is being launched at a crucial development juncture, just before the design and development of the Third Medium Term Plan (2018–2022) of Vision 2030 and following the launch of the Sustainable Development Goals (SDGs) agenda. The child poverty report presents the findings of multidimensional child deprivation analysis based on the 2014 Kenya Demographic and Health Survey.

Child poverty distorts children's physical, cognitive and social development. Poverty can also set children on a lifelong trajectory of low education levels and reduced productivity, and undermine their physical and mental health. Children living in poverty are more likely to become impoverished adults and have poor children, thereby creating and sustaining intergenerational cycles of poverty. However, for children, poverty is about more than money. Children experience poverty as being deprived in the very real aspects of their lives, areas including nutrition, health, water, sanitation, education and shelter. A family's standard of living is one of the crucial determinants of the deprivations children experience. Children living in monetary poor households lack the necessary resources for optimal growth and development, and routinely experience insufficient levels of access to quality services such as healthcare and education. However, as multidimensional child poverty analysis reveals, financial resources are not sufficient to secure access to basic goods and services. Service availability, accessibility, and information on services are equally important. Thus, in order to have a more accurate picture of child poverty, both monetary and non-monetary measures should be used.

The summary findings of the child poverty study indicate that overall child poverty (prevalence of deprivations) is 45 percent of all children. This translates to 9.5 million children in Kenya who are severely deprived in at least 3 or more basic needs for their wellbeing. This national mean conceals huge variations between the urban (19%) and rural (56%) areas, implying that 1 in 5 children and 6 in 10 children respectively in urban and rural areas are deprived in 3 or more dimensions. Child Poverty across the 47 counties varies widely from a low of 7 percent in Nairobi county to a high of 85 percent in Turkana county. The counties with the highest deprivation rates are Turkana (85%), West Pokot (83%), and Wajir and Tana River with 81 percent each. Conversely, the least deprived children are found in Nairobi County (7%), Mombasa County (8%), Nyeri County and Kiambu County with only 13 percent each.

Helping those children avoid poverty and overcome its damaging effects will make a huge difference not only to their lives but also to the lives of their families, communities and ultimately our country. The evidence of child deprivation from this study provides us with a strong opportunity for concerted, comprehensive responses targeting not only social services but also interventions to address the plight of children unable to realize their rights and fulfill their basic needs. In the context of SDGs, the study is also very timely to provide Kenya with critical baseline information for monitoring the SDGs 1 and 10. The design of the Kenya Medium Term Plan III and the next County Integrated Development Plans and other sectoral strategies will benefit greatly from the evidence and deep analysis of child poverty based on non-monetary indicators presented in this report.

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Principal Secretary,
State Department for Planning and Statistics,
Ministry of Devolution and Planning

Werner Schultink, PhD,
Representative,
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While developing the child poverty report, three Counties were enlisted to elaborate various dimensions and topics by critically triangulating the quantitative findings with qualitative context, and formulating insights and interpretations. We particularly wish to thank all participants from Turkana, Kakamega and Kitui Counties for their crucial role in facilitating the field qualitative work on this child poverty study.

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Last but not least, we wish to thank our families and friends for their wonderful support throughout the entire process.

Zachary Mwangi,
Director General
Kenya National Bureau of Statistics

Executive summary

This study provides estimates of child poverty in Kenya in 2014 using a multidimensional approach, fulfilment of children's basic needs and rights. It identifies the most vulnerable children, where the most deprived children live, the relationship between different types of deprivation that children experience, factors associated with child deprivation and poverty, and compares children's multidimensional deprivation with monetary poverty. The report also compares the situation of children in realizing their rights in 2014 with 2008-09 to shed light into the progress achieved in child poverty reduction. The methodology used in the study allows the generation of evidence to track progress in the Sustainable Development Goal (SDG) 1.2 on poverty reduction in all its dimensions for children, and SDG 10 on inequality reduction (UN, 2015).

The definition of child poverty in MODA methodology is anchored in the Convention of the Rights of the Child (UN 1989) and identifies children as poor if they are deprived in basic goods and services that are crucial for them to survive, develop, and thrive. The methodology for this study uses also fundamental freedoms and rights guaranteed to children by the 2010 Constitution of Kenya.

MODA uses a life-cycle approach to measure poverty, recognizing the fact that children's needs change according to their age. Therefore, poverty is measured separately for the age group of children under the age of five and children of the age 5-17 years. It also places children at the centre of analysis to capture the differences in allocation of resources within households. By focusing on children's deprivation rather than monetary poverty, the methodology also offers an insight into accessibility and availability of basic services for children in Kenya.

Child poverty in this study is defined as deprivation in three to six dimensions, described in the table below. The indicators and dimensions used to measure child poverty were selected through a participatory and extensive consultation process involving the Kenya Bureau of Statistics (KNBS), sectoral experts from ministries in Kenya, sectoral specialists from UNICEF, and the Economic Policy Research Institute (EPRI).

Dimensions applied in the analysis

Nutrition	Access to information
Physical development	Water
Health	Sanitation
Education	Housing
Health-related knowledge	

The study included a qualitative research component to identify the barriers in provision and demand of basic services and hurdles that children and their parents face in accessing them. The fieldwork was conducted during August 2016 in three selected counties, Turkana, Kakamega, and Kitui, on the dimensions of nutrition, health, education, water, and sanitation. Key informant interviews and focus group discussions were held with duty bearers and claimholders represented by parents, health facility personnel, community health workers, teachers, and county government representatives.

In 2014, 45% of children under the age of 18, a total of 9.5 million children in Kenya experienced child poverty. The child poverty rate dropped by 10 percentage points from 2008-09, when 55% of children were deprived in three to six dimensions.

County child poverty rates reveal large inequities based on children's residence. Child poverty ranged between 7% in Nairobi and 85% in Turkana. The counties with the highest child poverty rate were Turkana, West Pokot, Wajir, Tana River, Samburu and Mandera, with poverty rates between 76% and 85%. Bungoma and Kakamega were the counties with the largest number of poor children, 661,660 and 515,842, respectively. Child poverty in rural areas (56%) was also significantly higher compared to urban areas (19%).

Deprivation intensity figures show large inequities in child poverty severity depending on the area of residence. In 2014, children living in urban areas were deprived in two dimensions on average, while those living in rural areas were deprived in three out of a total of six dimensions on average. Children living in Turkana, West Pokot, Wajir, Samburu, Tana River, were the most severely poor.

Deprivation in sanitation, housing, and water were the highest contributors to child poverty in 2014, followed by nutrition, health, and development (stunting) for children below age five, and health-related knowledge, education, and information for children age 5-17 years.

Child poverty in Kenya involves multiple dimensions, hence requires an integrative approach in tackling it. Eighty-seven percent of children under the age of 18 were simultaneously deprived in one or more of the six dimensions analysed. In other words, children who were deprived in at least one dimension were deprived on average on 2.7 dimensions. Only 13% of all children in Kenya were not deprived in any of the six dimensions in 2014.

Child poverty is highly associated with the education level of adult household members, area of residence, household structure, and economic activity of a child's father. Poverty rates are the highest among children who live in households the head of which has a low education attainment, children whose mothers have a low education attainment, children living in rural areas, orphans, children whose father does not have continuous employment or is engaged in agriculture or is self-employed, and children who live in households with a higher number of children under five years.

Child poverty is also highly associated with household wealth. Children represented 49% of the population in Kenya, but they comprised 58% of the population of the poorest wealth quintiles. Nonetheless, 12% of children deprived in three to six dimensions live in the richest three quintiles, hinting to **issues with service availability and accessibility.**

Differences in monetary poverty rates and multidimensional child poverty rates demonstrate that not only affordability, but also availability of services and access to information are important for fulfilment of children's needs. Ranking of counties based on the two poverty measures show large differences, hinting to inequities in services provision and access to information by children's area of residence.

This study recommends the following for tackling child poverty in Kenya: i) Mainstreaming of child poverty and deprivation indicators in the next national development plan; ii) Child-sensitive budgeting using single dimensional and multidimensional poverty findings; iii) Enhancing equity and equality in child well-being through improvements in service delivery, especially by prioritizing the hardest-to-reach areas and areas with the highest number of multidimensionally poor children. Specific recommendations are also made about modifying the existing surveys to improve accuracy and comprehensiveness of child poverty data.

CHAPTER 1

INTRODUCTION TO CHILD POVERTY

1.0 Introduction

1.1 Background and Context

Kenya is among the states that have ratified the Convention on the Rights of the Child (CRC) and has undertaken to pursue policies aimed at progressive realization of those rights (UN, 1989). The CRC convention stipulates that children have the right to survival, development, protection and participation. This is also in line with the fundamental child rights provided in Article 53 of the Constitution of Kenya, 2010. Despite the global and national recognition of child poverty as a universal issue in various poverty alleviation debates, their needs are rarely appropriately addressed. The international community seized the opportunity to change this, starting in 2015, by including a commitment to eradicate child poverty as part of the new development agenda, through the adoption of Sustainable Development Goals (Target 1b) which aims to end hunger and achieve food security, appropriate nutrition and zero child stunting.

In the past, the child rights approach (UN, 1989) and the capability approach (Sen, 1979, 1999) have also been used to define poverty. More recently, multidimensional poverty analyses have been developed to identify the poor more directly, recognizing that it is not only sufficient monetary resources, but also essential goods, services and freedoms that are necessary for people's survival and well-being (Townsend, 1987; Gordon et al, 2003, 2010; Bradshaw et al, 2007; Alkire &Foster, 2011; Roelen et al, 2011; de Neubourg et al, 2012; Roche, 2013; de Milliano & Plavgo, 2014). This development is in line with the UN definition of poverty declared during the World Summit for Social Development: *"Absolute poverty is a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information"* (UN 1995, Ch. II: 19).

Most poverty studies use monetary poverty to identify the poor, conceptualizing poverty as people living in low-income or low-expenditure households, relative to an agreed poverty line. Monetary poverty measures a household's lack of financial means to provide its members with basic goods and services deemed necessary for their survival and development. Household assets are also often used to determine relative household wealth based on the assets owned. Such approaches, however, may fail to reveal underlying inequalities as they assume equal intra-household distribution, while some household members, especially children, are not in charge of financial means. In addition, having just enough means may not lead to accessing the necessary goods and services. Access to goods and services may not depend solely on household income, but also on the social status, geographic location, health conditions, availability of public services, and lack of information, among other factors (Gordon et al. 2003, 2010; Minujín & Nandy, 2012; Nolan & Whelan, 2011; de Neubourg et al, 2014). This is particularly important for children as their access to services depends on income and decisions of caretakers and availability of public services.

1.2 Measuring Child Poverty

Building on the existing methodologies of measuring poverty[1], UNICEF Office of Research[2] has developed the Multiple Overlapping Deprivation Analysis (MODA) methodology to measure child poverty (de Neubourg et al, 2012). The MODA methodology defines child poverty as non-fulfilment of the rights listed in the Convention on the Rights of the Child (UN, 1989), and measures poverty at the individual (child) level rather than at household-level. It applies a life-stage approach, defining different dimensions and indicators of child deprivation for different age-groups of children considering that the needs of children vary depending on their age. The approach permits assessing whether certain child rights are fulfilled, and whether children have access to various goods and services necessary for survival, development, and participation.

The multidimensional poverty approach is also in line with the UN Resolution on the 2030 Agenda for Sustainable Development where the importance of measuring monetary poverty and multidimensional poverty for all age-groups is underlined.

1 MODA builds upon existing approaches of multidimensional poverty measurement, such as UNICEF's Global Study on Child Poverty and Disparities (Gordon et al. 2003; UNICEF, 2007) and OPHI's Multidimensional Poverty Index (Alkire and Santos, 2010; Alkire and Foster, 2011).

2 Unicef Office of Research Innocenti

Goal 1 of the agenda, which is to end poverty in all its forms everywhere, consists of two sub-goals: Goal 1.1: Eradicate extreme poverty for all people everywhere; and Goal 1.2: Reduce at least by half the proportion of men, women, and children of all ages living in poverty in all its dimensions according to national definitions (UN, 2015). Goal 10 calls for reducing inequalities in income as well as those based on age, sex, disability, race, ethnicity, origin, religion or economic or other status within a country. The Goal also addresses inequalities among countries, including those related to representation, migration and development. Figure 1 presents in summary 17 Sustainable Development Goals (SDGs) enacted in 2015.

Figure 1: SUMMARY OF SUSTAINABLE DEVELOPMENT GOALS

THE SUSTAINABLE DEVELOPMENT GOALS					
1	End poverty in all its forms everywhere	7	Ensure access to affordable, reliable, sustainable and modern energy for all	13	Take urgent action to combat climate changes and its impact
2	End hunger, achieve food security and improve nutrition and promote sustainable agriculture	8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
3	Ensure healthy lives and promote well-being for all at all ages	9	Build resilient infrastructure, promote inclusive and sustainable industrialization	15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and half and reverse land degradation and halt biodiversity loss
4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	10	Reduce inequality within and among countries	16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
5	Achieve gender equality and empower all women and girls	11	Make cities and human settlements inclusive safe, resilient and sustainable	17	Strengthen the means of implementation and revitalise the global partnership for sustainable development
6	Ensure availability and sustainable management of water and sanitation for all	12	Ensure sustainable consumption and production patterns		

Using both concepts of poverty can assist greatly in measuring and understanding child poverty, with the monetary poverty measurement concentrating on the average financial means or assets available to the households where children live, and the deprivation measurement determining whether children's basic needs are satisfied. Measuring both types of poverty simultaneously for each child allows visualizing the realities children experience and identifying the different groups of children that may require different policy responses depending on the type and level of poverty and deprivation experienced (de Neubourg et al 2014).

1.3 Purpose of the Report

Previous household poverty estimates for Kenya indicate that over 40 per cent of the households are living below the absolute poverty line with a relatively large number of children living in these poor households. Many studies and analyses conducted in the past have not given adequate attention and focus to child poverty and the multiple deprivations that children face. Several indicators of children's development and rights are routinely monitored, including a range of nutrition and health related indicators; educational enrolment and completion; and access to other services. These indicators have not been used to analyse child deprivation as they tend to be viewed by sector rather than holistically in relation to the overall child development. As a result, Kenya has not yet been able to track progress in child wellbeing and clearly identify those groups of children who are experiencing multiple deprivations and require targeted interventions to attain their full potential.

The purpose of this report is to measure child poverty in Kenya in all its dimensions, recognizing that children can be deprived of more than one basic need or service simultaneously, and that children's needs differ depending on their age. The report identifies the most vulnerable groups of children, points at the main factors of dimensional deprivation and multidimensional poverty, and identifies key bottlenecks in provision of basic services and main barriers to accessing them. This report provides baseline information and evidence useful for formulation of child sensitive policies, plans and budgets both at the county and national levels. In addition, the evidence generated in this report will be useful in subsequent monitoring of progress in the realization of child rights particularly as indicated in the SDG1 and SDG10.

1.4 Organization of the report

The report is organized as follows: **Chapter One** presents the introduction of the report; **Chapter Two** presents the methodology, data, and limitations of the study, while the remaining five Chapters present the findings. **Chapter Three** shows the main findings of child poverty in Kenya in all its dimensions and reveals changes in child poverty between 2008-2009 and 2014; **Chapter Four** presents deprivation analysis by indicator and dimension and identifies some of the main factors associated with a higher probability to be deprived in selected dimensions; **Chapter Five** discusses the findings on how the different dimensional deprivations overlap, describes the deprivation distribution, and presents results of child poverty and the main factors associated with it. This is followed by a comparison of child poverty and household wealth in **Chapter Six**, and a comparison of child poverty and monetary poverty in **Chapter Seven**. The final **Chapter Eight** concludes and provides policy relevant recommendations.

CHAPTER 2

METHODOLOGY

2.1 Conceptual Framework of the Multidimensional Child Poverty Methodology

The methodology used for measuring child poverty in this study is Multiple Overlapping Deprivation Analysis (MODA) which is a child-centred multidimensional approach to child poverty. It seeks to understand which services, basic needs and rights (dimensions) are children deprived of and how many children experience multiple deprivations simultaneously. Several countries in the region such as Tanzania, Zimbabwe, Botswana, Ethiopia, Burundi, and Rwanda have already used this approach to measure child poverty.

Figure 2.1 presents the conceptual framework of the MODA methodology. It indicates that the methodology is child-centred, meaning that children are the unit of analysis. By using a life-cycle approach, MODA accounts for differences in children's deprivations by age and gender, implying that their needs vary based on these characteristics. For instance, while school attendance is an important deprivation indicator for school age children, for infants breastfeeding is an important indicator in the dimension of nutrition. Counting of deprivations is essential to the analysis in the sense that the study identifies for every child whether and how many of his/her needs are fulfilled. The methodology also includes multiple overlapping deprivation analysis, trying to find out how many children suffer from several deprivations simultaneously. Disaggregation of deprivation rates by profiling variables on the other hand helps to identify groups of the most vulnerable children, that is, in what characteristics they differ from children who are less or not deprived at all. The methodology is flexible to allow for national adaptations and in combination with monetary child poverty analysis, provides a basis for monitoring SDGs 1.1 and 1.2 and for initiating policy discussions.

Figure 2.1 –A Conceptual framework for MODA methodology

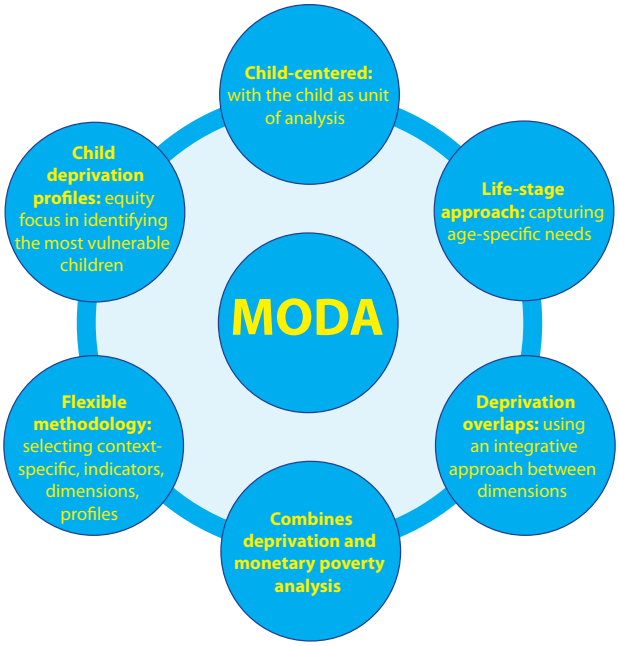
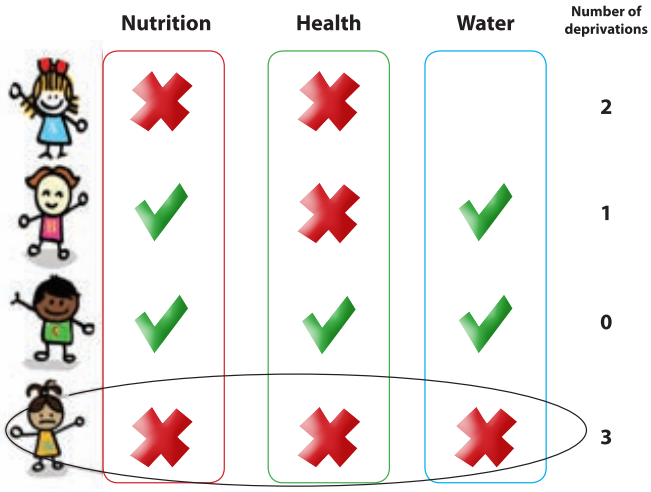


Figure 2.2 illustrates the MODA methodology. The first child in the sample is deprived in two dimensions (nutrition and health), the second child is deprived in only one of the three dimensions, while the fourth child is deprived in all three dimensions simultaneously. Analysing the status of each child in all the selected dimensions of interest simultaneously places the child at the centre of the analysis and helps in identifying the most vulnerable children with a higher number of dimensional deprivations. This allows for analysis of the extent to which an individual child experiences the different deprivations simultaneously.

Figure 2.2 – Simple Illustration of MODA methodology



2.2 Application of the Multidimensional Child Poverty Measurement

Child poverty analysis as presented in this report is an adaptation of the MODA methodology to the country context. In this respect, child poverty in Kenya is defined as non-fulfilment of children's rights in the Constitution of Kenya, 2010; the Convention on the Rights of the Child (UN CRC, 1989); and the UN Resolution on the 2030 Agenda for Sustainable Development (UN, 2015).

The dimensions and thresholds applied for the measurement of multidimensional child poverty were selected by a technical Committee consisting of experts from the Kenya National Bureau of Statistics (KNBS), sectoral ministries, Kenya Institute for Public Policy Research and Analysis (KIPPRA), and UNICEF Kenya Country Office, in collaboration with the Economic Policy Research Institute (EPRI). The selection of dimensions was guided by child rights listed in the CRC (1989) and the Constitution of Kenya (2010) as these documents provide a list of fundamental child rights and freedoms that the State of Kenya has committed to promote, fulfil, and progressively realize. The choice of dimensions was also influenced by indicator availability in Kenya Demographic and Health Survey (KHDS) data and therefore not all children's rights listed in the CRC and the Constitution are included in this child poverty analysis.[3]

Table 2.1 presents the dimensions included in the child poverty measure specifying Articles from the Constitution of Kenya (2010) and the Convention on the Rights of the Child on which the selection has been based.

Table 2.1 – Dimensions selected for Child Poverty analysis

Child Rights	Source*	Dimension name and age-group (in years) applied in the analysis
Right to health care	CRC Art. 24 CoK, 2010 Art. 43, 53	Health (0-4)
Right to adequate food, nutrition	CRC Art. 24 CoK, 2010 Art. 43, 53	Nutrition (0-4) Development (0-4)
Right to drinking water	CRC Art. 24 CoK, 2010 Art. 43	Water (0-17)
Right to sanitation and hygiene	CRC Art. 24 CoK, 2010 Art. 43	Sanitation (0-17)
Right to education	CRC Art. 28 CoK, 2010 Art. 43, 53	Education (5-17)
Right to basic knowledge of health and nutrition	CRC Art. 24 CoK, 2010 Art. 35, 43	Health-related knowledge (0-17)
Right to adequate housing and a standard of living adequate for the child's physical, mental, spiritual, moral and social development	CRC Art. 27 CoK, 2010 Art. 43, 53	Housing (0-17)
Right to freedom to seek, receive and impart information; Right to access to information, media	CRC Art. 13 CRC Art. 17 CoK, 2010 Art. 35	Exposure to media and information (5-17)

* Article numbers refer to the Convention on the Rights of the Child (UN, 1989) and the Constitution of Kenya, 2010. See Annex 1 for Articles.

3 The following child rights-related dimensions listed in the CRC were not included in the child poverty measurement of Kenya due to lack of indicators in KDHS survey data: Environment/pollution, Leisure, Child labour/exploitation, and Violence for children under age 18; Freedom of expression and association, Health-care and Nutrition for children aged 5-17.

Based on the life-stage approach, child population has been divided into two main age-groups, and some of the indicators and dimensions selected for measuring deprivation among children in each of these age-groups differ due to the different needs depending on the age of the child, as well as the indicator availability. The child poverty analysis is based on the following age-groups and dimensions:

Children under age 5: development (stunting), nutrition, health, water, sanitation, and housing. This age-group was divided into two sub-groups – children aged 0-11 months and children aged 12-59 months – due to differences between the indicators used for health.

Children between age 5 and 17: education, health-related knowledge, access to information, water, sanitation, and housing. This age-group was divided into two sub-groups – children aged 5-14 years and children aged 15-17 years – due to differences between the indicators used for education, health-related knowledge, and access to information.

Table 2.2 presents indicators applied to defining deprivation in each dimension, by age. The dimensions are defined using a maximum of two indicators per dimension per child, apart from education for the oldest age-group, which uses three indicators. In the analysis, dimensions are measured as binary variables, with "1" denoting deprived and "0" non-deprived. If a dimension has more than one indicator, a child is considered deprived in that dimension if deprived in at least one of the indicators. The absence of deprivation in one indicator does not make up for deprivation in another indicator, so the child is still identified as deprived in the respective dimension. For instance, a child between the age of 0 and 11 months is deprived in the health dimension if he/she has not received all the required vaccines, or was delivered by an unskilled birth attendant, or both. The child is non-deprived in health only if he or she has received all the necessary vaccines and was delivered by a skilled birth attendant.

Table 2.2 – Dimensions, indicators and life-stages used for the MODA analysis in Kenya

Dimension	Indicator	Age (in years)			
		0	1-4	5-14	15-17
DEVELOPMENT (STUNTING)	• **Stunting**: child's height-for-age is below -2 sd from ref. population	x	x		
HEALTH	• **Vaccinations**: incomplete vaccination	x	x		
	• **Birth attendance**: unskilled birth attendance	x			
	• **Health-related knowledge**: mother has no knowledge about ORS for diarrhoea treatment		x		
NUTRITION	• **Underweight and/or wasting**: child's weight for age and/or weight for height < -2 sd.	x	x		
	• **Vitamin A supplement**: no vitamin A supplement in last 6 months	x	x		
EDUCATION	• **School attendance**: child not attending school			x	x
	• **Grade-for-age**: child of primary school age (8-14) has two or more years of delay; child of secondary school age (15-17) has three or more years of delay according to grade-for-age			x	x
	• **Illiteracy:** child cannot read a full sentence				x
HEALTH-RELATED KNOWLEDGE	• **Knowledge about HIV/AIDS:** child age 5-14 lives in a household where none of its members knows about HIV/AIDS prevention and transmission; child age 15-17 has no knowledge about HIV prevention and transmission[4].			x	x
	• **Knowledge about diarrhoea treatment**: child lives in a household where no female knows about ORS for treating diarrhoea			x	

4 When individual-level information is not available, household level information is used. See Annex 2.

Dimension	Indicator	Age (in years)			
		0	1-4	5-14	15-17
ACCESS TO INFORMATION	• **Information devices**: no information device in household			x	x
	• **Exposure to mass media:** child age 5-14 lives in a household where its members have no or limited exposure to mass media; child age 15-17 has no or limited exposure to media[5]			x	x
WATER	• **Water source:** household members use unimproved drinking water source	x	x	x	x
	• **Distance to water source**: it takes more than 30 minutes to go, get water, and come back	x	x	x	x
SANITATION	• **Toilet facility:** household members use an unimproved toilet facility	x	x	x	x
HOUSING	• **Dwelling material**: Floor and exterior walls of dwelling are made of natural material	x	x	x	x
	• **Indoor air pollution:** child lives in a household at risk of indoor air pollution from solid cooking fuel with no separate room used for cooking	x	x	x	x
See Annex 2 for a detailed description of all the indicators and thresholds applied					

2.3 Computation of Multidimensional Child Poverty Indices

The report uses two approaches in analysing deprivations: single-dimensional and multi-dimensional analysis. The single-dimensional analysis calculates children's deprivation rates in each dimension and in each of its constituent indicators separately. Multidimensional analysis counts the number and type of dimensional deprivations experienced by each child to analyse deprivation overlaps and to calculate the headcount rates of children experiencing multidimensional poverty. All the dimensions were assumed to have equal weights.[6] This is because, as shown in Table 2.1, each of the dimensions represents a specific right anchored in the Convention on the Rights of the Child (UN, 1989) and the Constitution of Kenya, 2010. The methodology treats all rights of the child equally without prioritizing one right over the other.

Multidimensional Child Poverty Rate

The proportion of poor children is calculated using the Multidimensional Poverty Headcount Rate (H), representing children whose total number of deprivations is equal to or above a specified cut-off, expressed as a percentage of the respective child population:

$$H = \frac{\sum q_k}{N}$$

Where

H - Multidimensional child poverty headcount rate;

q_K - Number of children affected by at least K deprivations; and

N - Total number of children.

Although analysis using several cut-offs has been carried out, the report focuses on findings calculated using a severe cut-off of at least three (out of six) dimensions. It follows that children are identified as poor if they are deprived in three to six dimensions. Results using a threshold of one, two, and four or more dimensions are also presented for comparison.

5 When individual-level information is not available, household level information is used. See Annex 2.

6 This matches with the Bristol approach (Gordon et al.2003), where all the dimensions are weighted equally, and differs from the MPI methodology (Alkire and Foster 2011) where, although the three dimensions included in the MPI are equally weighted (receiving a weight of 1/3), the analysis is based on weighted indicators rather than dimensions. MODA is based on dimension count rather than indicator count as each of the dimensions represents a certain child's right, while indicators are chosen to identify deprivation status per dimension.

Average Deprivation Intensity

The Average Deprivation Intensity (A) reveals the average number of deprivations experienced by children, or in other words, measures the poverty severity. It can be calculated for the total child population and by sub-group, allowing for an overall assessment of progress in deprivation alleviation, and enabling deprivation intensity comparisons across sub-groups. This measure can be expressed as the average number of deprivations experienced by children expressed in absolute numbers, or as a ratio, expressed as a share of the total number of dimensions[7]:

$$A_{in\ absolute\ numbers} = \frac{\sum c_K}{q_K}$$

$$A_{ratio} = \frac{\sum c_K}{q_{K\ x\ d}}$$

Where

k - Cut-off point (minimum number of deprivations for the child to be identified as poor);

c_k - Number of deprivations each poor child experiences depending on the cut-off point;

q_k - Number of children affected by at least *k* deprivations; and

d - Total number of dimensions considered per child.

As is the case for the Multidimensional Child Poverty Rate (H), the Average Deprivation Intensity (A) depends on the cut-off point. For instance, if the cut-off point is set at three out of six dimensions (k=3), the average deprivation intensity considers only those children who have three to six dimensional deprivations. This means that children with one or two deprivations are excluded from the equation. To ensure that children with one and two dimensional deprivations are not excluded, the average deprivation intensity in this study is first analysed using the cut-off k=1. This gives the exact average deprivation intensity for all children experiencing one or more deprivations, and helps in setting the threshold for the identification of the severely poor children.

7 The Alkire and Foster (2011) methodology has been applied. According to their method, the intensity of poverty, A, is the average share of deprivations, expressed as a percentage. In the case of the MODA, since each dimension is a binary variable and is given a weight of 1, for the purpose of clarity the deprivation intensity is expressed also in absolute numbers. E.g., with a total of 6 dimensions included in the analysis and a deprivation intensity of 50%, children on average are deprived in 3 out of a maximum of 6 dimensions (0.5*6=3).

Adjusted Multidimensional Child Poverty Index (M_0)

The Adjusted Multidimensional Child Poverty Index (M_0)[8] combines the two aforementioned measures to get to an overall multidimensional poverty index that captures both the incidence of the poor children (H) and their deprivation intensity (A). This index ranges between 0 and 1, zero showing no deprivation (according to the cut-off chosen), and one showing that everyone is deprived in the maximum number of dimensions analysed. It is calculated as follows:

$$M_0 = H * A = \frac{\sum c_K}{N * d}$$

Where

M_0– Adjusted multidimensional child poverty index;

H - Child poverty headcount rate;

A - Average deprivation intensity;

k - Cut-off point (Number of deprivations a child should experience to be identified as poor);

c_k - Number of deprivations each poor child experiences depending on the cut-off point;

N - Total number of children; and

d - Total number of dimensions considered per child.

As explained by Alkire and Foster (2011), the adjusted poverty index M_0 satisfies the axiom on 'decomposability', as the overall deprivation levels are the sum of the weighted average of subgroup deprivation levels. In this study, the national adjusted poverty index is decomposed by county to show the contribution of each of the counties to the total multidimensional poverty level of children in Kenya. The following formula is used for calculating the composition of M_0:

$$\frac{M_{0_1}\left(\frac{n_1}{n}\right)}{M_0} + \frac{M_{0_2}\left(\frac{n_2}{n}\right)}{M_0} = 1$$

Where

M_0– Adjusted multidimensional child poverty index (total);

M_{01} *and* M_{02} – Adjusted multidimensional child poverty index in county 1 and in county 2;

n - Number of children (total);

n_1 *and* n_2- Number of children in county 1 and in county 2.

8 The Alkire and Foster (2011) methodology was applied to calculate the ratio and decompose.

The adjusted child poverty index M_0 is also decomposed by dimension to estimate the contribution of each dimension to the overall sum of deprivations experienced by children in each age-group. The contribution of each dimension j to the total adjusted poverty index M_0 is defined as follows:

$$P_j = \frac{\sum_{i=1}^{n}(y_j * y_k)}{n * d * M_0}$$

Where

P_j = contribution of dimension *j* to the adjusted multidimensional child poverty index M_0

$\sum_{i=1}^{n}(y_j * y_k)$ = total number of children *i* deprived in dimension *j* while also being multidimensionally poor according to the cut-off point *k, with:* $y_j=1$ if child *i* is deprived in dimension *j*; $y_j=0$ if child *i* is not deprived in dimension *j*; y_k=1 if child is poor with a number of deprivations equal to or above *k*; and $y_k = 0$ if child is not poor with a number of deprivations below *k*;

n - Total number of children;

d - Total number of dimensions considered per child; and

M_0– Adjusted multidimensional child poverty index.

In addition, multivariate analyses have been carried out to identify factors associated with being multidimensionally poor as well as deprived in selected indicators. Multivariate logistic regressions[9] have been used by observing and analysing more than one variable at a time.

A regression controls for every variable included in the model by isolating the effect of one factor or variable from others.

2.4 Monetary poverty measurement

The MODA Child Poverty methodology distinguishes two main concepts of poverty: monetary poverty and multidimensional poverty (de Neubourg et al., 2014). Monetary poverty measures the lack of financial means of households to provide its members with basic goods and services deemed necessary for their survival and development. Deprivations measure the individual status in each of the various dimensions considered as crucial for individuals' survival and development, determining whether children's basic needs are satisfied. Whenever data allows, MODA measures monetary poverty alongside multidimensional poverty at an individual child level to carry out an overlap analysis of the two measures to identify children who experience different types of poverty and those who experience both types of poverty simultaneously.

Since the DHS surveys used for this study do not collect information on households' spending or income, monetary child poverty cannot be calculated using these data. Aggregate monetary poverty rates of the total population are therefore used when comparing monetary poverty with multidimensional child poverty by county. The report presents a correlation analysis between child poverty rates calculated using KDHS 2014 data, and aggregate monetary poverty rates from the "Spatial Dimensions of Well-being in Kenya: Where are the Poor?" report of the Kenya National Bureau of Statistics (KNBS, 2014). The monetary poverty rates have been calculated for the total population in 2009, using two absolute poverty lines: KSh 1,562 per adult per month for rural areas and KSh 2,913 per adult per month in urban households (KNBS, 2014, p. 15). It should, however, be acknowledged that monetary poverty rates among children are generally higher than those of the total population.[10] Furthermore, such comparison has its limitations as the surveys and the time-period of the surveys differ. Nevertheless, the two surveys are representative at a county level which makes the comparison between the two measures of poverty feasible.

2.5 Complementary qualitative research component

In order to gain an insight on the factors that impede access of children and their parents to basic services and the bottlenecks in delivery of these services from the side of service providers, qualitative research was conducted in three counties: Turkana, Kakamega and Kitui from 14th -31st August, 2016. The counties were selected

9 The logistic regression model applied uses logit binomial regression to calculate odds ratios and then computes the marginal effects. This model measures the extent to which the predicted probabilities change when the binary independent variables change from 0 to 1. The model computes how the probability to be deprived (P(Y=1) instead of P(Y=0)) would change if the independent variable X changes from 0 to 1, holding all other independent variables constant.

10 See, e.g., Gabos et al (2011) and European Commission (2013) where it is shown that the poverty rates are considerably higher among children compared to the other groups of the total population.

based on the preliminary results of deprivation rates across each of the selected dimensions[11], their contribution rates to the child poverty index in Kenya, factors such as county population size, geographical and socio-cultural characteristics, and fieldwork feasibility. A total of 37 one-to-one key informant interviews and 14 Focus Group Discussions (FGDs) with 10-12 participants each were conducted with beneficiaries and suppliers of the following services: nutrition, health, education, water, sanitation, and hygiene. For nutrition and health, qualitative research was conducted with breastfeeding mothers, mothers of children below the age of 5, health professionals, and health provider management at different levels of healthcare provision (from Community Units to County Referral Hospitals), and sub-county and county coordinators and directors. For the dimension of education, FGDs and key informant interviews were carried out with parents of primary school-age children, primary school teachers, primary and secondary school management, and sub-county and county education officials. Even though focused on specific dimensions, each of the qualitative research instruments contained questions on multiple sectors with the aim of identifying overlaps in deprivation. An attempt was made to cover urban, peri-urban, rural and remote areas to identify the magnitude of issues with accessibility and service provision specific to such settings.

While geographical location was used as a criterion for sampling service providers and FGD participants, for the latter, demographic characteristics of the participants were also important in interviewee selection. Specifically, for the dimension of education, having at least one primary school-age child was a criterion, whereas for the dimension of health and nutrition, breastfeeding and having at least one child under the age of 5 years were the main criteria. For the FGDs on education, gender balance was ensured, whereas for health and nutrition only women were sampled considering their caretaking role in the household and better knowledge of the topic. Different layers of service provision and service provider management were included in the research in order to capture difficulties in service delivery across different levels.

2.6 Data

The KDHS 2014 was chosen as the basis for the quantitative analysis because it was the most recent database providing more child-related variables and indicators than any other dataset available for Kenya. The survey was conducted during May-October 2014 with a sample of 36,340 households with 153,840 individuals, of which 79,114 were children under age 18. Trend analysis was conducted using the data of KDHS 2008-09 which was conducted during October-December of 2008 and January-March of 2009, surveying a sample of 9,057 households with 37,873 individuals, of which 19,192 were children under age 18. Both of the surveys contain child-specific information and information on housing conditions.

A qualitative research component has been added to the study, because sample surveys including KDHS have their limitations in the degree of detail that can be obtained from the calculated indicators and their underlying relationships. Qualitative research can provide more depth and width in explaining the quantitative results and factors influencing them. Since qualitative studies are time consuming, they have to be focused on certain geographical areas and on certain dimensions and sectors. The previous section describes the choice of sector, however, it must be emphasized that the counties were also chosen to reflect regional diversity in Kenya and pay attention to areas with specific problems. The choice of the three countries has been facilitated by UNICEF.

11 Table below shows deprivation rates by dimension in Kenya and in each of the counties selected for qualitative research. See also Annex 6 for dimensional deprivation rates by county, in comparison to Kenya's national average.

County	Children below age 5			Children of age 5-17 years	Children of age 0-17 years		
	Development	Health	Nutrition	Education	Water	Sanitation	Housing
Kenya	26%	35%	33%	25%	45%	57%	52%
Kakamega	28%	39%	36%	25%	27%	76%	77%
Kitui	46%	37%	31%	27%	80%	63%	30%
Turkana	23%	65%	52%	55%	74%	87%	72%

2.7 Limitations

Although KDHS 2014 contains many more indicators that could potentially be used as proxies to measure child deprivation in the selected dimensions[12], the child poverty analysis was limited to only those indicators that were available for all children and their households of the relevant age-groups. One of the reasons for this is that the aim of the study was to estimate not only national but also sub-national child poverty rates at the county level. In the KDHS 2014 survey, a total of five questionnaires were used: (1) a full Household Questionnaire, (2) a short Household Questionnaire, (3) a full Woman's Questionnaire, (4) a short Woman's Questionnaire, and (5) a Man's Questionnaire. The short questionnaires were given to all eligible respondents of all households included in the survey, while only one in every two households was selected for the full questionnaires. Thus, only questions available in the short questionnaires could be considered as they applied to all households included in the survey and were representative at the county level.

Lack of information on a specific indicator leads to an underestimation of child poverty. As an example, if child j is two years old and is stunted but has no information on vitamin A supplement, the probability for this child to be multidimensionally poor decreases because it is impossible to know whether he/she is deprived in nutrition. For this reason, two groups of children had to be omitted out from the child poverty analysis due to the survey design.

Among children under the age 5, 12% of observations had missing values on indicators of health and nutrition - vaccination, vitamin A supplement, and skilled birth attendance – since these data were obtained from the Woman's Questionnaire and the mothers of these children were not in the household during the survey or they were not eligible for the survey. The same was the case for 9% of observations on children aged 5-17 years in the sample who had missing information on health-related knowledge and exposure to media because none of their household members was eligible for the Woman's/Man's Questionnaire.

For the single dimension analysis, the calculation for indicators and dimensions that were not concerned with the aforementioned issue have been calculated using the full sample of children. For the multidimensional analysis, 12% of the sample of children under age 5 and 9% of the sample of children of age 5-17 have been omitted from the calculation to avoid a bias of underestimation due to missing values in some of the indicators used to construct dimensions.

Annex 3A identifies the differences in the household characteristics between children under 5 whose mothers were interviewed, and children whose mothers were not interviewed. Sensitivity analysis in Annex 3A reveals that the exclusion of these 12% of children from the sample does not change the overall child poverty rates as the differences in deprivation rates of all other dimensions (stunting, water, sanitation, and housing) are statistically insignificant between the two sub-groups of children. This, however, is not the case for the older children. Sensitivity analysis in Annex 3B reveals that 9% of the children aged 5-17 years omitted from the child poverty analysis have higher deprivation rates in the remaining four dimensions (education, water, sanitation, and housing). Therefore, results should be interpreted with caution as the child poverty rates among children of the older age-group are slightly underestimated due to this omission.[13]

12 Examples: exclusive breastfeeding; infant and young child feeding frequency and diversity; deworming; hand washing; violence experienced by female respondents in household.

13 Annex 4 shows the proportion of children excluded from the child poverty analysis due to survey design, by county. All analyses have been adjusted for the sample weights and complex survey design (clustering) using Stata 14.0.

CHAPTER 3

MAIN FINDINGS OF THE CHILD POVERTY STUDY

This chapter presents the main findings of child poverty analysis that include the incidence of deprivation by dimension and age-group; deprivation count and distribution among all children; and child poverty incidence and intensity using different child poverty thresholds. It also shows how child poverty rates have changed between 2008-09 and 2014.

3.1 Incidence of Deprivation by dimension

Incidence of deprivation by dimension was the basis of the child poverty analysis. A total of six dimensions were analysed for all children under 18, differing by children's age to account for differences in their needs based on the life-cycle they have reached. Figure 3.1 summarizes the findings of the deprivation analysis by dimension for children under 5 years. For the dimensions of physical development (stunting) and nutrition, the deprivation rates were considerably higher for older children (12-59 months). The stunting rate for children age 0-11 months was 12%, while for children age 12-59 months it was 29%. Similarly, the deprivation rate in nutrition was 17% for 0-11 month-old children and 37% for 12-59 month-old children. On the contrary, more children age 0- 11 months suffered from deprivation in access to health than those age 12 - 59 months. The two categories were equally deprived in dimensions of sanitation (54%), housing (53%) and water (43%).

Figure 3.2 shows findings of the deprivation analysis by dimension for children age 5-17 years. Among children aged 5-14 years, 58% were deprived in sanitation, 52% in housing, 46% in water, 33% experienced deprivation in health-related knowledge, 25% in information, and 22% in education. The deprivation rates per dimension for children age 15-17 years were relatively similar to those of children aged 5-14 years, with the exception of education where the deprivation rate was significantly higher. Deprivation rates for children age 15-17 were highest in sanitation at 56%, followed by that in housing and water at 47 and 43 per cent, respectively. Deprivation rates in other dimensions were as follows; health-related knowledge (38%), education (37%), and information (27%).

Figure 3.1: Incidence of Deprivation by dimension and age group, 0-11 months and 12-59 months

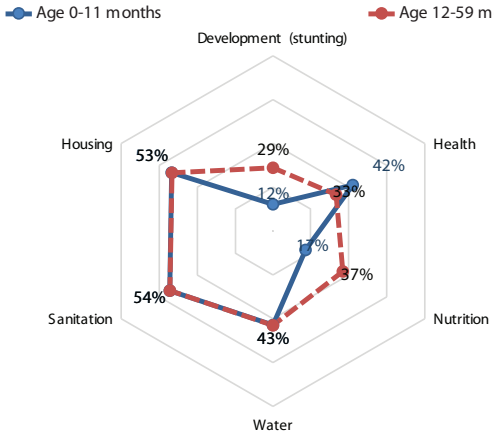
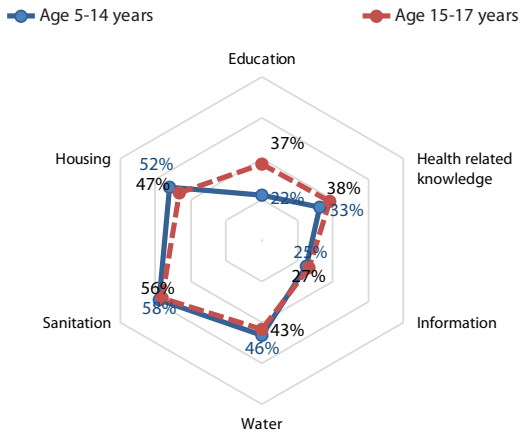


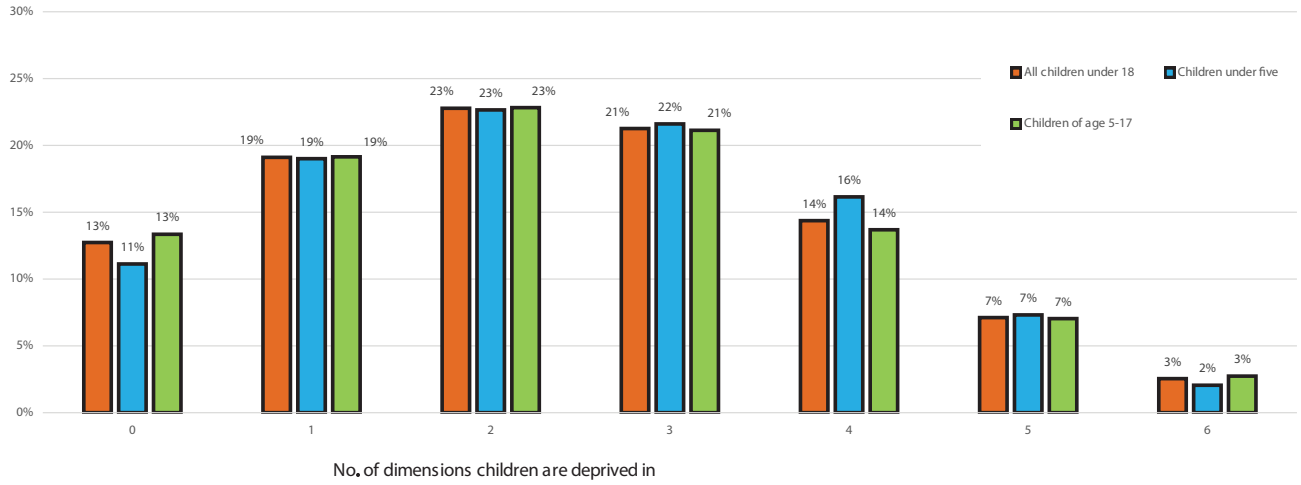
Figure 3.2 Incidence of Deprivation by dimension and age group, 5-14 years and 15-17 years



3.2. Deprivation Count and Distribution by age groups

In this section, the total number of dimensional deprivations experienced by each child is counted to measure how they are distributed over the child population, and to examine the intensity of deprivation. Figure 3.3 shows the distribution of deprivations by age-group. The results show that, 11% of children under 5 and 13% of those age 5-17 years did not experience deprivation in any of the six dimensions in 2014. Further, 19% of all children were deprived in only one dimension. Overall, 68% of all children under 18 years were deprived in two to six dimensions simultaneously in 2014, and 45 percent experienced three to six dimensional deprivations at the same time. Fourteen per cent of all children under 18 years were deprived in four dimensions, 7% were deprived in five dimensions, and 3% were deprived in all six dimensions at the same time.

Figure 3.3: Deprivation count and distribution, per cent



3.3 Incidence and Intensity of Child Poverty

Three measures were used to derive the results presented in this sub-section: the multidimensional child poverty rate (H) based on the cut-off chosen; the average deprivation intensity (A) measuring the average number of dimensional deprivations the poor children experience; and the adjusted multidimensional poverty index (M_0), a composite index composed of the multidimensional child poverty rate (H) adjusted by the average intensity of deprivation (A).

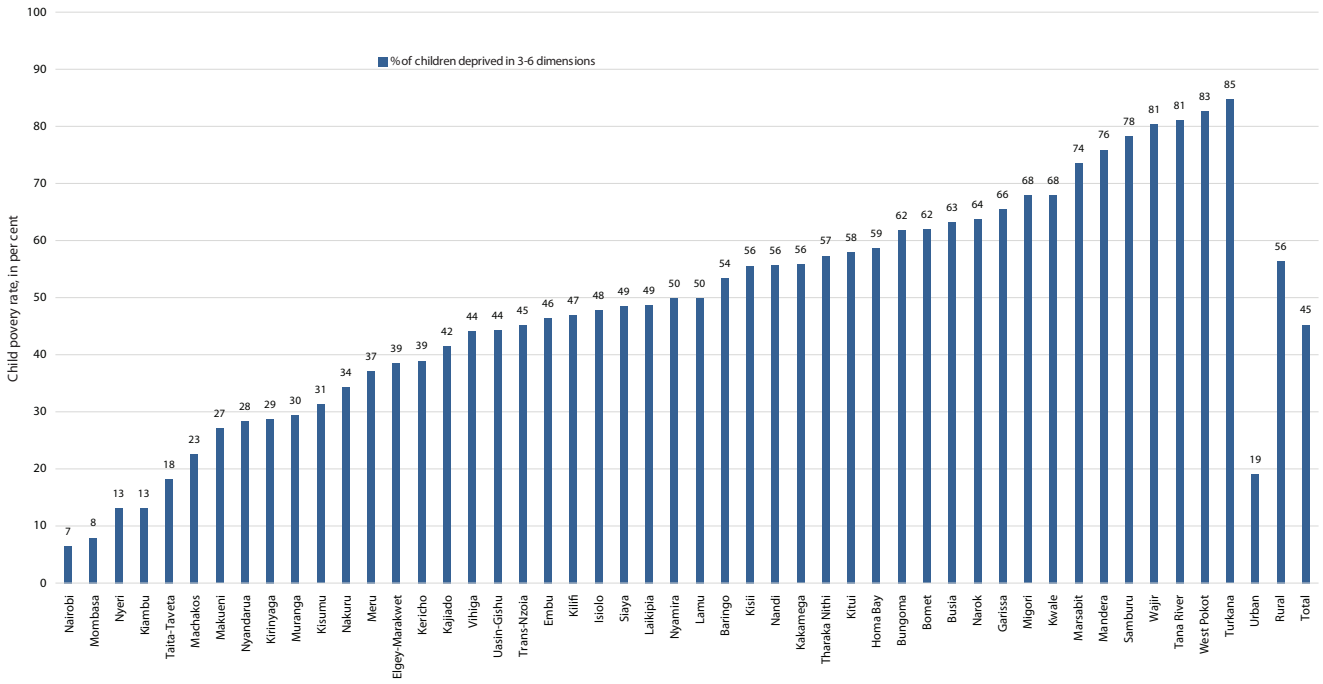
As shown in Table 3.1., using a threshold of three or more dimensions of deprivation as a child poverty cut-off (k=3), 45% of all children were found to be multidimensionally poor with an average intensity of dimensional deprivations equal to 3.8. In other words, 45% of all children were deprived in three to six dimensions at the same time, and on average these children suffered from 3.8 deprivations simultaneously. In absolute terms, 9.5 million children experienced poverty in three or more deprivations simultaneously in 2014.

Table 3.1. Child Poverty Rates by dimensional cut-off, all children under 18

Cut-off K(dimensions)	Multidimensional Child Poverty rate H (%)	Multidimensionally poor children (In absolute No.)	Average intensity A (in No.) of deprivation	Average deprivation intensity A (in %)	Adjusted Child poverty index M
1-6	87.3	18,379,864	2.7	45.3	0.39
2-6	68.1	14,351,597	3.2	53.3	0.36
3-6	45.3	9,549,192	3.8	63.3	0.29
4-6	24.1	5,066,501	4.5	75.1	0.18
5-6	9.7	2,037,096	5.3	87.7	0.08
6	2.5	536,960	6.0	100.0	0.03
Total Children	21,064,614				

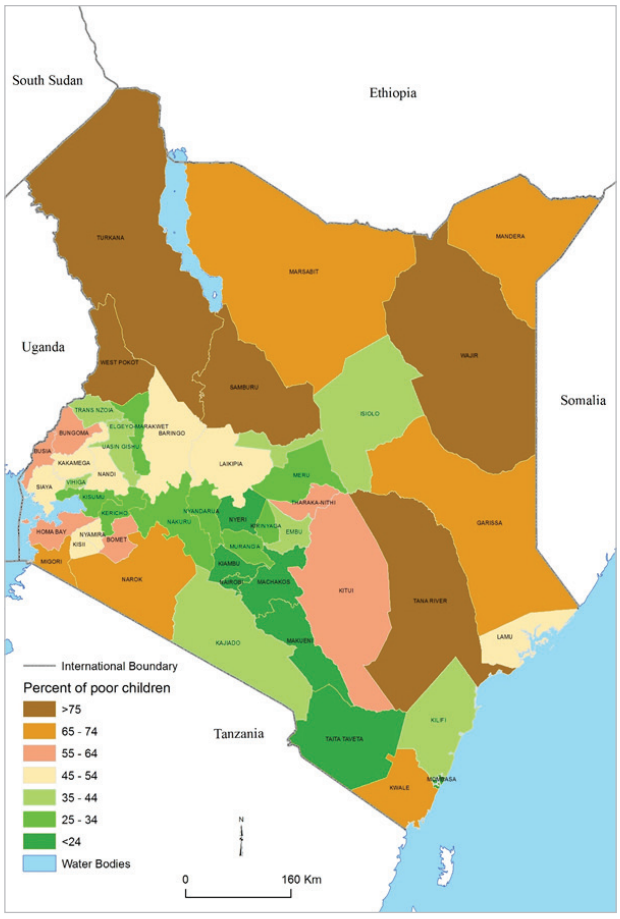
Figure 3.4 presents child poverty rates by county in 2014 using a threshold of three dimensions, that is children deprived in three to six dimensions. While the total child poverty rate based on the threshold of three or more deprivations is 45%, it ranges between 7% in Nairobi and 85% in Turkana County. The findings point at large disparities across counties in terms of realization children's rights and in accessing the necessary basic goods and services.

Figure 3.4: Incidence of Child Poverty by County.



Map 3.1 shows ranking of the countries based on the child poverty rate using a threshold of 3-6 dimensions as a poverty threshold.

Map 3.1. Child poverty rates by county in 2014 (cut-off k=3)



3.4 Changes in child poverty between 2008-2009 and 2014

Figures 3.5 and 3.6 show how deprivation rates in each of the dimensions have changed from 2008/09 to 2014. The figures show that there have been no significant changes in deprivation rates in housing and exposure to information for both age-groups, and no major changes in sanitation for children age 5-17 years. For all the other dimensions included in the child poverty measure, the deprivation rates were found to be lower in 2014. The most significant drop in deprivation rates for children under age 5 was in nutrition, mainly due to the increase in uptake of vitamin A supplement. Deprivation rates in development (stunting) and health were also found to have declined in 2014 compared to 2008/09. The stunting rate dropped from 34% in 2008-09 to 26% in 2014, and the deprivation rate in health dropped from 49% to 35% for children under 5 years. The decrease in deprivation rates in health for children under 5 years was driven by all three indicators: the increase of vaccination coverage, the decrease in unskilled birth attendance, and the increase of mothers' knowledge on ORS for treating diarrhoea.

For children of age 5-17 years, the biggest drop in deprivation rates was in education, from 36% in 2008-09 to 25% in 2014, and in health-related knowledge where the deprivation rate declined from 43% to 34% over the reference time-period. Deprivation rate in water also went down by 4 percentage points in 2014. Changes in deprivation rates by indicator and age-group are shown in Annex 5A-5B.

Figure 3.5: Comparison of deprivation rates by dimension between 2008/09 and 2014, age under 5 years

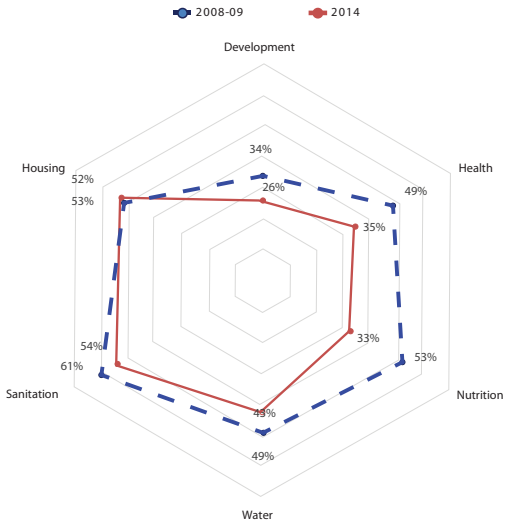
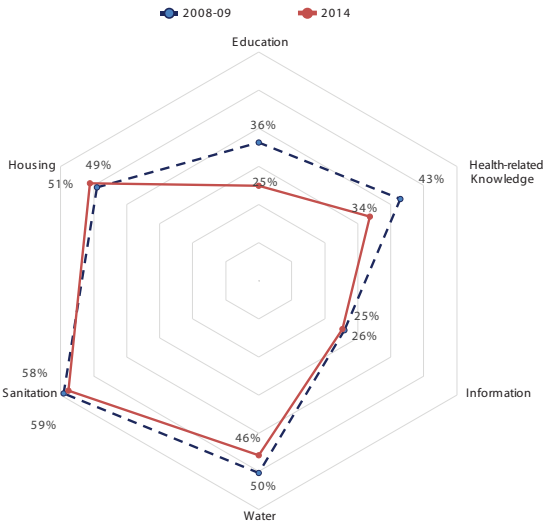
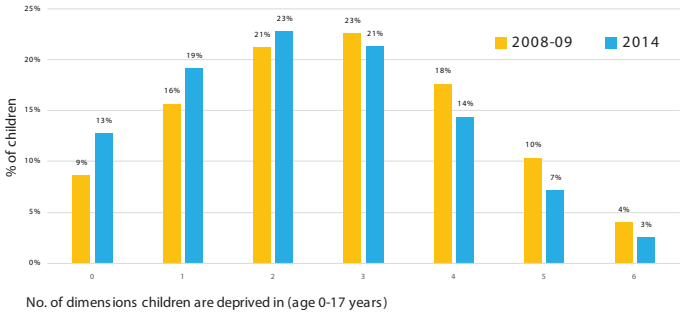


Figure 3.6: Comparison of deprivation rates by dimension between 2008-09 and 2014, age 5-17 years



The findings revealed that on average, a child had lower number of simultaneous deprivations in 2014 compared to 2008/09. Figure 3.7 shows that the deprivation distribution curve has shifted to the left towards a lower number of deprivations, mainly because there were more children with zero and one deprivation, and less children with four, five, and six deprivations in 2014 compared to 2008-09. In 2008-09, 9% of children experienced no deprivations, 16% had only one deprivation, while 75% experienced two to six deprivations. In 2014, there were more children who were not deprived in any of the six dimensions studied (13%), and those that were deprived in only one dimension (19%). The remaining 68% of all children under 18 years experienced two to six deprivations in 2014.

Figure 3.7: Distribution of Deprivations, comparison between 2008-09 and 2014

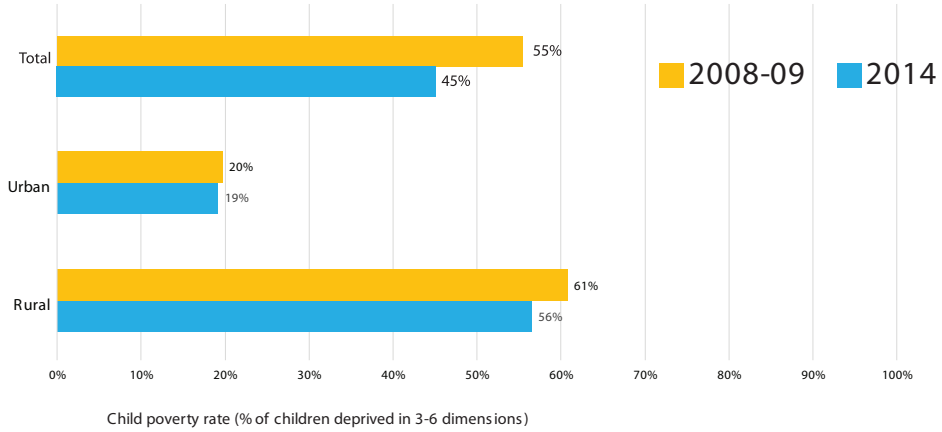


The findings revealed that the biggest reduction in intensity of deprivation was for children under age 5, while the average number of deprivations for children aged 5-17, dropped to a much lesser extent. Table 3.2 shows how child poverty and intensity of deprivation have changed from 2008/09 to 2014. The findings show that the intensity of deprivation declined from 3 in 2008/09 to 2.7 in 2014. In 2008-09, children who were deprived in any one dimension were on average deprived in three dimensions, while in 2014 the average number of deprivations was 2.7. Based on a threshold of three to six dimensions, child poverty rate has decreased from 55% in 2008-09 to 45% in 2014. As shown in Figure 3.8, child poverty in rural areas dropped from 61% in 2008/09 to 56% in 2014. On the other hand, child poverty remained relatively unchanged in urban areas with a 1 percentage point drop from 20% in 2008-09 to 19% in 2014. The results showed that there was no notable change in the average intensity of poverty for those experiencing more than four deprivations implying that poverty severity for those in extreme poverty did not change during the period under consideration.

Table 3.2: Child Poverty Rates by threshold, 2008-09 and 2014

	Child poverty rate H		Average deprivation intensity A (in No.)	
Threshold (No. of deprivations)	2008-2009	2014	2008-2009	2014
1-6 dimensions	91.4%	87.3%	3.0	2.7
2-6 dimensions	75.7%	68.1%	3.4	3.2
3-6 dimensions	54.5%	45.3%	3.9	3.8
4-6 dimensions	32.0%	24.1%	4.6	4.5
5-6 dimensions	14.4%	9.7%	5.3	5.3
6 dimensions	4.0%	2.5%	6.0	6.0

Figure 3.8: Child poverty by area of residence (threshold k=3): comparison between 2008-09 and 2014



CHAPTER 4

SINGLE DIMENSION ANALYSIS

4.1 Single dimension analysis: deprivation analysis by indicator and dimension

This chapter presents a unidimensional approach (deprivation on a single dimension) as well as the main factors associated with a higher probability to be deprived in a selected dimension. The findings show deprivation rates of the child population by age group and sub-group, revealing disparities in each of the dimensions by county, household characteristics and gender where applicable.

Children under age 5

The child poverty deprivation analysis for children under 5 years were analysed across the following dimensions: development (stunting), health, nutrition, water, sanitation and housing. The results are presented for under-fives and two sub-groups, age 0-11 months and 12-59 months.

As shown in Figure 4.1a, more than half of children under 5 do not have appropriate sanitation facilities (54%) and are deprived in housing (53%). Further, 43% of the children do not have access to safe drinking water, while 35% are deprived of access to health-care services. Slightly over one third (33%) and a quarter of the children (26%) are respectively deprived from adequate nutrition and are stunted.

Figure 4.1b illustrates the difference in the deprivation rates for children living in urban and rural areas. The difference were more significant in the dimensions of water, sanitation and housing.

Figure 4.1. Deprivation rates by dimension for children under age five

Figure 4.1a: Deprivation at National

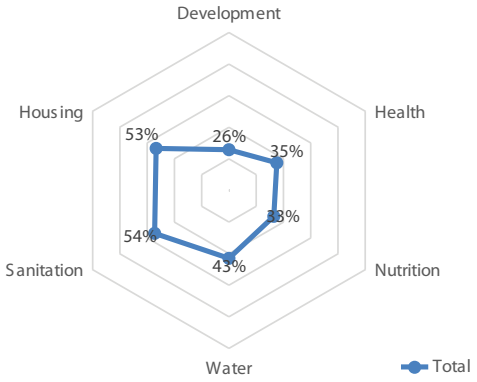


Figure 4.1b Rural/Urban

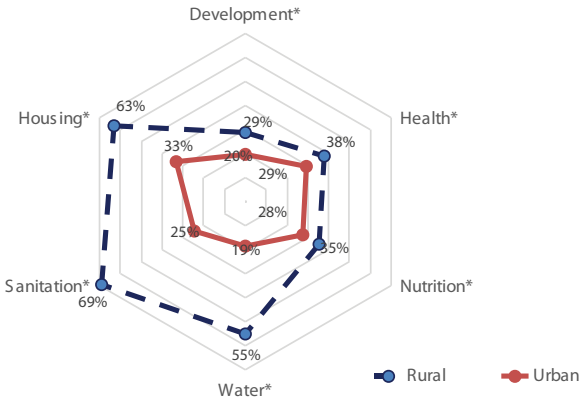


Figure 4.2 and 4.3 present deprivation rates by dimension and indicator for children age 0-11 and 12-59 months. The comparison of these deprivations for 2014 and 2008-2009 are presented in Annex 5.

Figure 4.2: Deprivation rates for children age 0-11 months by dimension and indicator, 2014

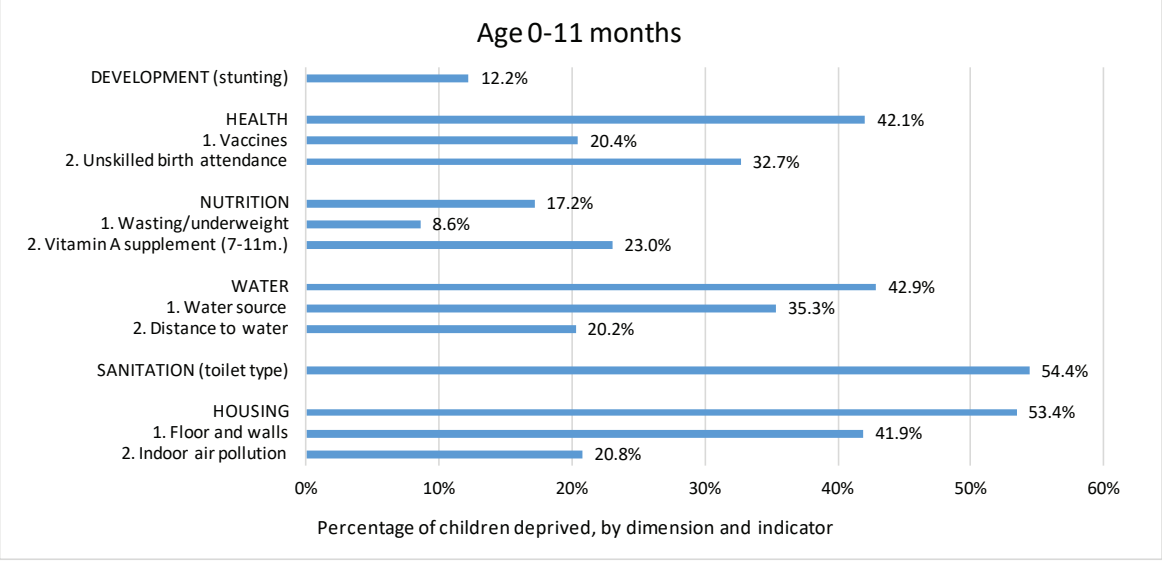
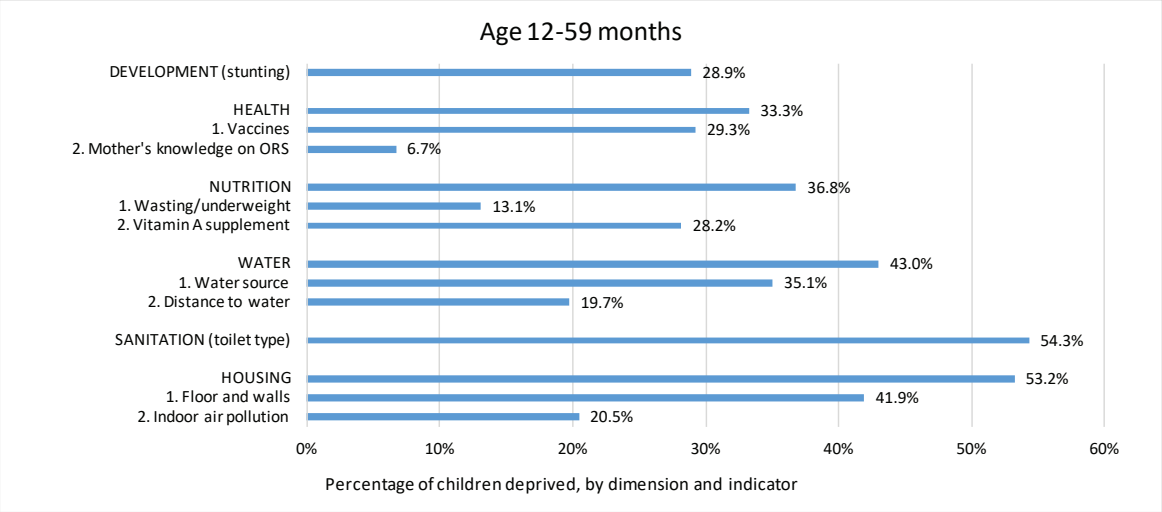


Figure 4.3 Deprivation rates for children age 12-59 months by dimension and indicator, 2014



Development (Physical Development)

The dimension of the child's physical development was measured using the stunting indicator. Children were considered to be deprived in physical development if they were too short for their age. Stunting reflects failure to receive adequate nutrition over a long period of time and can be affected by recurrent and chronic illness (KDHS, 2014). The threshold used is child's height-for-age Z-score below minus two standard deviations (-2 SD) from the median of the World Health Organization (WHO) reference population.

The overall stunting rate for children under age 5 in 2014 was 26%, which is a significant improvement from 34% in 2008-09 (see Annex 5). In 2014, a higher proportion of boys (29%) than girls (22%) were deprived in physical development.

The findings also indicate that the incidence of stunting increases with age: while 12% of children of age 0-11 months are too short for their age, the incidence of stunting is more than double among older children age 12-59 months (29%). Gender disparity in stunting was significant especially for children of age 12-59 months with a stunting rate of 33% and 25% for boys and girls, respectively.

Figure 4.1b demonstrates that stunting rates in rural areas are higher than in urban areas. For children living in urban areas, the stunting rate was lower (20%) compared to 29% for those living in rural areas. Large geographical disparities in stunting rates were observed across counties. While the stunting rate for children under age 5 was 26%, at the county level, stunting rates ranged from a low of 15% in Garissa to a high of 46% in Kitui. Map 4.1 and Annex 6 present stunting rates by county.

Map 4.1: Deprivation rates for children under age 5 in physical development by county, 2014

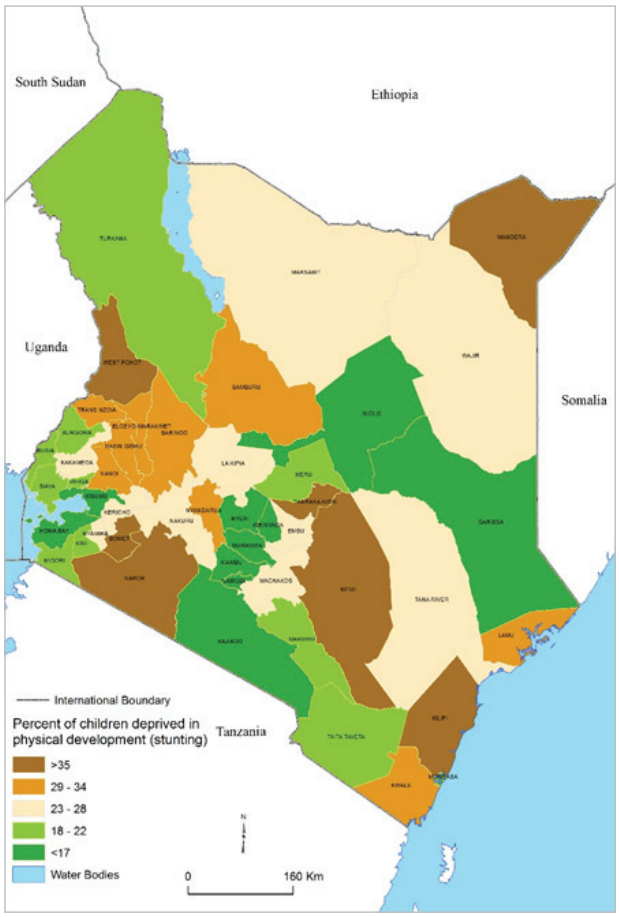


Table 4.1 presents results from a multivariate logistic analysis showing the main household and individual characteristics associated with an increase in the probability of child stunting. Results show marginal effects expressed as a percentage point difference in deprivation rate in stunting between the listed and reference categories.

Table 4.1: Factors associated with the probability to be stunted

Variable	Category	Marginal effects
Wealth quintiles	Poorest or poorer (ref. middle/richer/richest)	0.0782***
Mother's education	No or primary education (ref. sec./higher)	0.0683***
Mother's age when giving first birth	Under 18 (ref. 18+)	0.0411***
Health-related knowledge of the mother	No knowledge on ORS for treating diarrhoea	0.0346***
Child's gender	Boy (ref. girl)	0.0739***
Child's age	Additional year	0.0178***
Number of children in household	Additional child aged 0-4 years	0.0144***
	Additional child aged 5-14	0.0123***
	Additional child aged 15-17	-0.0362***
Number of adults aged 18-59 in household	Additional adult aged 18-59	-0.00234
Number of adults aged 60+ in household	Additional adult aged 60+	0.00118
Area of residence	Rural (ref. urban)	0.0194**
Observations		18,524
Note: controlled also for counties. See Annex 7 for population distribution and sample size by variable.		
*Significance levels *** p<0.01, ** p<0.05, * p<0.1* *Sample: children aged 0-59 months with mothers in the household answering the Woman's Questionnaire.* *Source: Estimated from KDHS 2014*		

The results show that, holding all other characteristics constant, living in households belonging to the poorest 40% of the wealth distribution is associated with a higher probability of stunting, as children from the lowest two wealth quintiles have an 8-percentage point higher probability to be stunted compared to children from the wealthiest three wealth quintiles. This is a significant difference, given that the national stunting rate of the child population under age 5 is 26%.

Mother's education level and age at first birth have a significant bearing on the child stunting rates. Children whose mothers have had no schooling or only had primary school education have a higher probability to be stunted than those with mothers with secondary or higher education. Similarly, children with mothers who were under age 18 at first birth have a higher probability to be stunted compared to children with mothers who were 18 years old or older at first birth.

Another predictor for a higher probability to be stunted is the number of children in the household. For each additional child in the household aged between 0 and 14 years, the probability to be stunted increases by around one percentage point.

Holding all other characteristics constant, mother's knowledge on health-related issues is associated with stunting. The variable used in the model as a proxy for health-related knowledge is mother's knowledge on Oral Rehydration Salt (ORS) for treating diarrhoea. The results show that children with mothers who do not have health-related knowledge on treating diarrhoea have a higher probability to be stunted.

The area of residence was also found to be statistically significant although the change in probability to be stunted depending on whether the child is from a rural or an urban area is relatively low, all else being equal. The multivariate analysis reveals that living in a rural area increases the probability to be stunted by 2 percentage points taking into account other factors such as household wealth, mother's educational attainment, and the number of children in household.

"Sometimes it is very difficult to breastfeed the child for six months, and the problem is that the mother should also feed well for her to breastfeed. We find it very difficult for us to feed well in order to breastfeed the child. We run out of milk" ***– Mother, rural area in Kakamega***

You find that the mother has delivered, and when the child is only 2 months old, she has to move quite some distance to fetch water for more than 10km, for four hours, and back. So the infant has to be left with maybe some, maybe some water. Alternatively, they prefer to carry the baby with them, which is also quite tiresome" ***- County Nutrition Official, Kitui***

"…most of the agricultural land use in Kakamega is basically on sugar cane farming, for commercial purposes, and no land is left for growing basic subsistence food. The majority of land is either on maize or sugar cane. So the other food crops that can supplement the diet are not there" ***- County Health Official, Kakamega***

The above findings were supported by the qualitative research conducted on mothers, healthcare and nutrition service providers and county officials which finds that monetary poverty and lack of knowledge of the mother to increase the probability to be stunted, but also highlights sickness (including water-borne diseases), lifestyle, and unavailability of food as impeding factors to development. Among children below the age of 6 months, stunting is related to introduction of complementary food as the mothers lack knowledge on importance of breastfeeding, peer pressure that they do not have enough breast milk to feed the child, or because they lose breast milk as they lack food themselves, because they are working far from home or are overburdened with numerous chores: fetching water, firewood, cooking, taking care of other children, taking care of animals.

Introduction of complementary food at such an early age is associated with numerous water-borne diseases due to poor water, sanitation and hygiene conditions, including diarrhoea, intestinal and ring worm infestation. In terms of food availability, research participants in Turkana and Kitui identified adverse weather conditions as inappropriate for cultivation of crops, whereas in Kakamega income-generation opportunities from cultivation of sugar cane and maize hinder cultivation of other crops. In all the three counties, it was highlighted that diverse food was generally unavailable in the market.

For children older than 6 months, monetary poverty and inadequate mothers' knowledge of were emphasized as the key factors causing stunting. Due to monetary poverty, it was reported that households could not afford to purchase food or varieties of nutritious food and very few families could afford three meals a day, hence the children were mainly fed on tea, ugali, porridge, and potatoes. In all the three counties, the nutrition officials reported that

treatment provided in the facilities is ineffective because the provided supplements are consumed by the entire family due to poverty or sold at the market for purchasing food for the whole family. In addition, according to healthcare and nutrition service providers, many mothers lack the knowledge to provide their children with a balanced diet, they introduce complementary feeding and have poor health-seeking behaviour when the children are ill, which ultimately affects their development. Research participants in Turkana also pointed out pastoralist communities' lifestyle as a factor hindering development of children under 5 years.

"One of the reasons why you see some [children who are short for their age] is that some people have many children and they don't have enough food for too many children. They generally have sorghum but there is nothing else to enrich the meal" **- community in a remote area in Turkana**

"And also diversity of food could be a challenge; if they were able to take, let's say ugali and scumawiki in the evening that are grains, they will count that as a meal; then the following day they will do the same ugali with maybe omena; but even ugali, grains, and proteins is not that frequent" **– *County Nutrition Official, Kakamega* Nutrition**

Nutrition

Article 43 (1)© of the 2010 Constitution of Kenya provides that "Every person has the right to be free from hunger, and to have adequate food of acceptable quality". Over the last decade, significant policy changes in health-care provision have been undertaken by the Ministry of Health, including the integration of nutritional interventions in disease management (Kenya Health Policy 2014-2030, MOH, 2014). The Government of Kenya has developed the Food and Nutrition Security Policy (2011)which emphasizes the right to nutrition as a constitutional right provides relevant policy directions and underlines the importance of a multi-sectoral approach to addressing malnutrition in the country. The National Nutrition Action Plan 2012-2017 (NNAP) lists the High Nutrition Interventions (HINI) undertaken by the Ministry of Health which include exclusive breastfeeding; timely complementary feeding; iron folate, vitamin A and zinc supplementation; hand washing; deworming; food fortification and management of moderate and severe acute malnutrition (MOH, 2012). The Government of Kenya also aims at reducing micronutrient deficiencies in the population by creating awareness on food fortification, supplementation and food based approaches, and by improving knowledge, attitudes and practices on optimal nutrition.

In this child poverty study, nutrition as a dimension is measured using wasting and underweight indicators for children below age 5, and vitamin A supplement for children age 7-59 months as vitamin A is given from the age of 6 months.

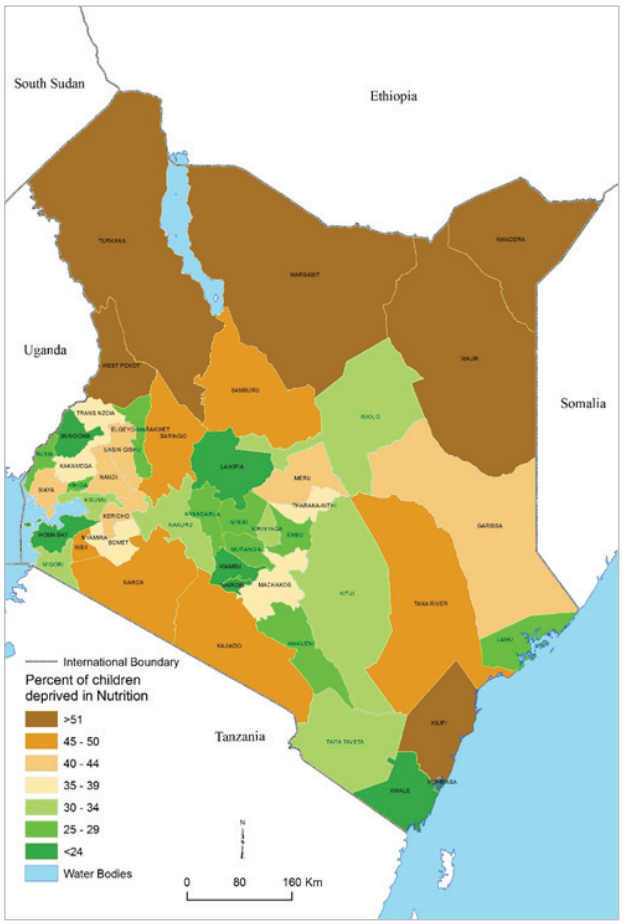
The findings show that despite the numerous efforts and improvements over the last decade, a significant proportion of children still experience deprivation in nutrition. The nutrition deprivation rate in 2014 was 33% for children under age 5; 17% among children age 0-11 months and 37% among children age 12-59 months. There has been considerable progress in nutrition status for children under age 5 between the two DHSs with nutrition deprivation rate declining from 53% in 2008-09 to 33% in 2014. Differences in deprivation rates in nutrition between boys and girls are small and statistically insignificant.

Figure 4.1 indicates that the deprivation rates in nutrition in 2014 were higher in rural areas (35%) compared to urban areas (28%) even though this difference is not as large as for the other dimensions. This finding suggests that deprivation in nutrition is associated with factors applicable to both urban and rural areas. It should be noted that the results for children living in urban areas

cannot be disaggregated by formal and informal settlements thus masking the situation in the slums.

Deprivation rates in nutrition among children under age 5 in 2014 varied widely across counties, ranging from 18% in Bungoma to 78% in Mandera. Map 4.2 and Annex 6 present deprivation rates in nutrition for all counties.

Map 4.2: Deprivation rates of children under age 5 in nutrition by county, 2014



The nutrition dimension discussed above is generated using two indicators notably wasting and underweight and vitamin A. The deprivation rates based on the separate indicators are presented below.

Wasting measures child's body mass or weight in relation to body height and indicates the child's current nutritional status. Children with a Z-score below -2 SD WHO reference population are considered thin or wasted and are acutely malnourished. The underweight indicator takes into account both chronic and acute malnutrition and measures child's weight-for-age. Children who are either wasted or underweight, or both, are considered deprived in the nutrition dimension.

The trend analysis shows that the deprivation rate in wasting and/or underweight was higher in 2008-09 compared to 2014. In 2008-09, the deprivation rate for children age 0-11 months was 15% and 18% for children aged 12-59 months while in 2014 9% of children age 0-11 months and 13% of children age 12-59 months suffered from wasting and/or underweight (see Annex 5). Gender disparity in wasting and underweight was found to be insignificant. Deprivation in wasting/ underweight rates for girls and boys age 0-11 months was 8% and 9%, respectively, whereas 12% of girls and 14% of boys age 12-59 months, respectively, were wasted and/or underweight.

Vitamin A is an important micronutrient for children's immune system. Health-care facilities in Kenya provide vitamin A supplement to children age 6-59 months to ensure that they do not experience vitamin A deficiency. Allowing for one-month delay in receiving the first dose of vitamin A, the analysis shows that among the youngest children aged 7-11 months, 23% had not received vitamin A supplement in the past six months prior to the survey in 2014. The trend analysis shows significant improvement in vitamin A coverage from a deprivation rate of 43% in 2008-09 to 23% in 2014 for children age 7-11 months and 66% in 2008-09 to 28% in 2014 for children aged 12-59 months. There was no gender disparity in Vitamin A supplement deprivation In 2014, 23% of both girl and boy children age 7-11 months were deprived in Vitamin A supplement, whereas in the age group 12-59 months the deprivation rates were 28% for girls and 29% of boys.

Qualitative research reveals that the factors listed to be associated with malnourishment are similar to those listed for stunting in all three counties where interviews and focus group discussions were carried out. The issues faced with provision of vitamin A to children below the age of 5 are also similar. Provision of vitamin A was commonly reported to depend on the schedule of immunization; once the children have completed the immunization schedule, coverage rates drop as the parents do not send the children to the health facility unless the child is sick. Coverage was identified to be especially rampant in Turkana and Kitui whereby the average distance to the health facility remains vast. The same is the case for growth monitoring of children of this age. In all three counties, the Ministry of Health is collaborating closely with the Ministry of Education to improve coverage by organizing bi-annual campaigns of vitamin A provision in Early Childhood Development (ECD) centres. However, this intervention implies that the children who do not attend these facilities

remain uncovered. County Nutrition Officials also highlighted that irregular outreaches and the unsustainable structure of the community level health provision coupled with lack of financial resources – upon withdrawal of partner support – have negatively impacted provision of vitamin A, especially in hard-to-reach areas.

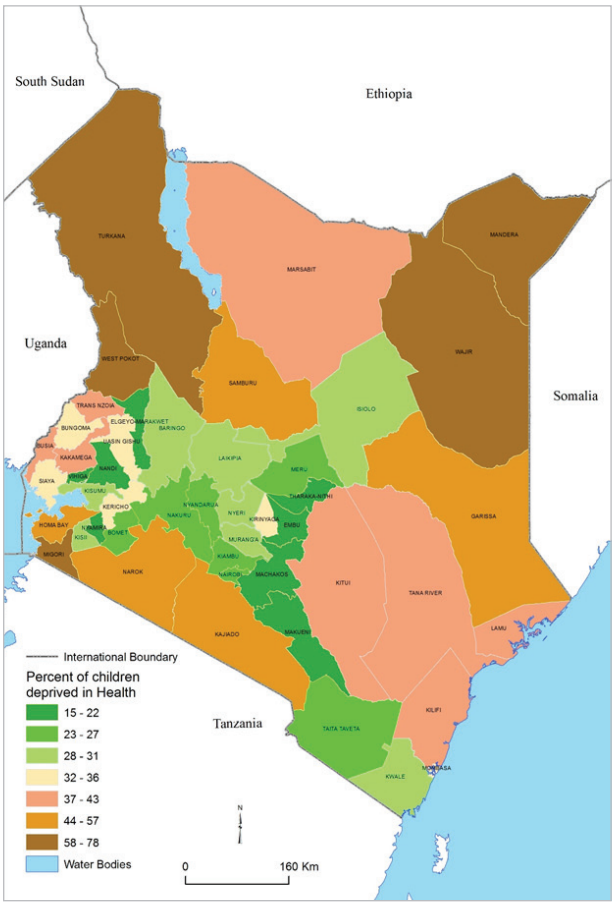
"We teach them [mothers] the importance of vitamin A, but you will find that after a child finished the immunization at 9 months or 18 months, they don't mind about the health facility. And you know, unless you get to the health facility, you do not get the vitamin A supplement" ***- County Health Official, Kitui***

Health

Article 43(1)(a) of the 2010 Constitution of Kenya provides that, "Every person has the right to the highest attainable standard of health, which includes the right to health care services, including reproductive health care". In this study, children's deprivation status in Health is measured using indicators that show children's and their mother's access to health-care services, measured by vaccinations and skilled birth attendance for children aged 0-11 months, and by vaccinations and mother's knowledge about ORS for treating diarrhoea for children aged 12-59 months.

Overall, 35% of all children under 5 are deprived in the health dimension which is a significant improvement from a deprivation rate of 49% in 2008-09. Large geographic disparities in terms of access to health-care were observed in 2014. The deprivation rates in access to health-care were higher in rural areas (38%) compared to urban areas (29%), although the absolute difference was not as high as in the other dimensions (see Figure 4.1b). Deprivation rates in access to health care vary considerably across counties, ranging from a low of 15% in Embu and Tharaka Nithi to a high of 78% in Mandera. Map 4.3 and Annex 6 present the deprivation rates in access to health-care for the 47 counties.

Map 4.3: Deprivation rates for children under age five in access to health-care by county, 2014



Skilled birth attendance is a proxy indicator for measuring access to healthcare services of children age 0-11 months and their mothers. Data show that there was a considerable improvement in the proportion of children age 0-11 months delivered with by a skilled birth attendance. The percentage of children delivered with an unskilled birth attendant or no attendant at all declined from 53% in 2008-09 to 33% in 2014 (See Figure 4.2).

"Yes, because the quality is a function of staff that you have. As much as I may not want to admit that, but ideally, if you have two nurses seeing over 100 patients a day, there is nobody in the lab, and there is nobody in the pharmacy, it means that this nurse has to go to the pharmacy, issue drugs, she has to go to the lab, do this, she has to listen, take history very well, she has to attend to the mothers' delivery back there in the couch...Really, you cannot say there is quality" ***- County Health Official, Kakamega***

Qualitative research with health professionals and health provider management indicates that significant improvement has been achieved in skilled birth attendance since the start of devolution. Making maternity services free of charge and provision of stipends to mothers for Antenatal Care (ANC) visits and delivery at health facilities was highlighted in all three counties to have significantly contributed

in this regard. In Turkana and Kitui, investments in infrastructure through building of new facilities and incorporation of maternity services at lower levels of healthcare provision, dispensaries, also played an important role. The process has also been facilitated with engagement of Community Health Volunteers in generating demand for health services at the community level, continuous follow-up with mothers during pregnancy and linkage with health facilities. In a number of cases, the process has also been facilitated by involvement of traditional birth attendants as birth companions, responsible for referring and accompanying mothers to the health facilities when their signs of labour begin and on few occasions, assisting nurses during the process.

"I had my labour pain in the middle of the night, but I decided to resist until the morning and come to the health facility to deliver. I came to the health facility, but the problem is that when I reached here, the condition of this place was not good. I gave birth on the ground (sand)" ***– Mother, remote area in Turkana***

It must however be noted that provision of maternity services is rather a challenge, especially for dispensaries in the counties, which in addition to being understaffed, often do not operate at night and lack basic equipment, facilities and even essentials such as access to water. Also, referral to higher levels of healthcare provision is hindered by insufficient vehicles which typically cover very large areas in counties like Turkana and Kitui. It must also be noted that the quality of maternity services is compromised to a large extent by understaffing in most dispensaries and health facilities as staff provide a wide range of services simultaneously as they offer maternity services.

"… most of them [health facilities] are distances apart and some people might have to walk to health facilities for 15 to 20km. You see, that is quite, and the terrain is also not very good and it blocks the vehicles from movement] ***– County Health Official, Kitui***

Distance to health facilities remains a major barrier to giving birth in health facilities in Turkana and Kitui, especially among poor women who cannot afford to pay for transport in absence of public transport services. In addition, traditional practice of giving birth at home remains prevalent in all three communities. In some instances, mothers expressed preference for traditional birth attendants as they were not satisfied with the quality of the services in health facilities due to unfriendly treatment of staff, lack of attentiveness, and "medicalization" of the birth process (in Turkana).

"We teach them [mothers] the importance of vitamin A, but you will find that after a child finished the immunization at 9 months or 18 months, they don't mind about the health facility. And you know, unless you get to the health facility, you do not get the vitamin A supplement" ***- County Health Official, Kitui***

The second indicator used to identify children deprived in access to health care is immunization coverage. Overall, 27.5% of children under the age of 5 were not fully immunized in 2014 compared to 33% in 2008-09. Among children age 0-11 months, 20% had not received the necessary vaccines as per the vaccination schedule. The difference in immunization coverage for girls and boys age 0-11 months was 20% and 21%, respectively. For older children aged 12 -59 months, deprivation in vaccination coverage was higher at 29%. Gender disparity in vaccination coverage for girls and boys age 12-59 months was 30% and 29% for girls and boys, respectively.

Table 4.2 shows results from a multivariate analysis focusing on the indicator 'vaccinations' as a proxy to accessing health-care services. The table contains the main household and individual characteristics that increase the probability for children not to be fully immunized estimated by a logit regression and expressed as marginal effects.

Holding all other characteristics constant, mother's educational attainment, household's wealth, mother's union status and the number of children under age 5 in the household have a statistically significant effect in the probability to be fully immunized.

The estimates show that children of mothers with no education have a 10.4 percentage point higher probability of not receiving all the basic vaccines compared to children of mothers with secondary or higher education.

The probability to be vaccinated is also associated with household wealth. Children from the lowest two wealth quintiles have a 4-percentage point higher probability of not being fully immunized. In addition, holding all other variables constant, children with mothers who are single (i.e. either never in union, or widowed, divorced, no longer living together, or separated) have a higher probability of not getting vaccinated. Further, children living in households with a higher number of children are more likely not to have received all the vaccines, especially households with more children under age 5. Every additional child under age 5 in the household is associated with a 3-percentage point higher probability of

not being fully immunized. Another predictor for a higher probability of not being fully immunized is the child's age. An additional year is associated with a 7.3 percentage point higher probability of not having received all the required vaccines.

The results by area of residence are counterintuitive as it is expected that children in urban areas have a lower probability of not being immunized compared to their rural counterparts. The estimates however contradict this expectation. However, the descriptive analysis confirms that the differences in absolute deprivation rates in vaccination are not significant between children in urban and rural areas. In rural areas, 28% of children have not been fully immunized, compared to 26%in urban areas. The multivariate logit regression shows that when controlling for other characteristics such as household wealth, mother's educational level and union status among other factors, the probability of not being fully immunized is lower among children living in rural areas, everything else being equal.

Table 4.2: Factors associated with the probability not to be fully vaccinated

Variable	Category	Marginal effects
Wealth quintiles	Poorest or poorer (ref. middle/richer/richest)	0.0381***
Mother's education	No education (ref. sec./higher)	0.104***
	Primary education (ref. sec./higher)	0.0214***
Mother's status of union	Mother is single: never in union, widowed, divorced, no longer living together/separated (ref. married or in union)	0.0312***
Child's gender	Boy (ref. girl)	0.000
Child's age	Age 1-2 years (ref. 0 years)	0.0732***
	Age 3-4 years (ref. 0 years)	0.104***
Number of children in household	Additional child aged 0-4	0.0339***
	Additional child aged 5-14	0.00551**
	Additional child aged 15-17	0.0127**
Number of adults aged 18-59 in household	Additional adult aged 18-59	-0.0145***
Number of adults aged 60+ in household	Additional adult aged 60+	0.00888
Area of residence	Rural (ref. urban)	-0.0362***
Observations		18,904

Note: controlled also for counties. See Annex 7 for population distribution and sample size by variable.
Significance levels *** p<0.01, ** p<0.05, * p<0.1
Sample: children aged 0-59 months with mothers in the household answering the Woman's Questionnaire.
Source: Estimated from KDHS 2014.

Qualitative research shows that immunization coverage has improved with devolution due to a number of factors such as improvement in accessibility of health facilities and engagement of Community Health Volunteers and outreaches funded by donors. However, sustainability of the two is becoming a challenge as the donors are withdrawing their support. Devolution has also had a positive impact on supply of vaccines, especially in Kakamega where the facilities rarely experience stock-outs. However, storage of vaccines remains a challenge in all three counties due to limited access to electricity, gas and fridges, especially in remote areas and lower levels of healthcare provision (dispensaries).

Unavailability of vaccines due to storage issues coupled with understaffing which result in long waiting hours was pointed out by the healthcare providers as factors that discourage the patients from going back to the facilities.

"Sometimes we might bring our children for vaccines, but when we reach the dispensary we are told that such vaccine is not available. So the mother is supposed to just go back home. So the mother now, at home, with all the house chores and work becomes lazy to bring the child the next time for the visit" ***- Mother, rural area in Kakamega***

"Immunization we do twice in a week. The reason for that is that we don't have a fridge so we don't have a place to keep the vaccines. We get our vaccines from town" ***– Nurse-in-charge, dispensary in a remote, rural area in Kakamega***

On the demand side, the distance to facilities and associated costs of transportation in Turkana and Kitui are a major impediment for accessing immunization, especially for older children. Lack of knowledge on the importance of vaccination was also found to play an important role as the mothers do not follow the schedule after the child had received a certain number of antigens. In addition, the numerous tasks that fall under the responsibility of women often result in negligence and missed appointments. In Kakamega, particularly the planting and harvesting season and market days were reported to affect compliance with the immunization schedule.

The second indicator applied for measuring the deprivation status in health among children aged 12-59 months is mothers' knowledge about Oral Rehydration Salt (ORS) for treatment of diarrhoea. There was a significant improvement in the proportion of children whose mothers were not aware of the use of ORS for diarrhoea treatment from 19% in 2008-09 to 7% in 2014 (See Annex 5).

Qualitative research revealed that most FGD participants who had access to healthcare services – particularly those living close to healthcare facilities - were able to list the causes of diarrhoea, how it could be prevented and treated. Some of the advice that they reported to have received for prevention of diarrhoea were mother and the child hygiene, exclusive breastfeeding, treatment of drinking water, cleanliness of cooking utensils, usage of latrines, and hand washing, among others. The mothers were also aware of the ORS treatment. However, some reported that due to monetary poverty they were unable to purchase ORS and resorted to preparing salt-sugar solution as an alternative. Among participants from remote areas, misconceptions about causes and treatment of diseases were more prevalent. For instance, in a remote area in Turkana both the mothers and the healthcare practitioners reported a common practice of removing teeth of teething infants to treat diarrhoea. In all three counties, interviewees gave examples of communities with strong cultural and religious beliefs who prefer to take their children to the community herbalists for treatment or trust in divine powers, rather than treating diarrhoea and other diseases.

"…when a child starts having diarrhoea, they come, they treat it and there is no improvement, they associate it with teething. Most of the times, usually the mothers, they know how to remove the teeth. They take their kids, they cut, they just get a sharp object, cut and remove" ***- Nurse-in-charge, dispensary in a remote area in Turkana***

On the service provider side, health education was considered important by county governments. In addition to the CHVs who are trained to provide health education on various topics to the communities they serve, higher levels of healthcare providers – healthcare centres and sub-county and county referral hospitals – all have programmes on micro-teachings on health-related issues (at least once a week, if not on a daily basis). These health education sessions that typically take 30 minutes, are usually held in the morning when the facilities open and targets both in and out –patients. More importantly, they cover a wide range of topics: nutrition, water, sanitation and hygiene (WASH), prevention and treatment of diseases, importance of timely health-seeking behaviour, skilled birth attendance, ANC visits, immunization, exclusive breastfeeding, feeding practices, among others. It must be noted that, due to financial constraints, outreach in hard-to-reach areas is irregular and community-level healthcare provision faces with the challenge of sustainability.

Children aged 5-17 years

The deprivation analysis for children aged 5-17 comprised education, health-related knowledge, information, water, sanitation and housing dimensions.

Figures 4.4a and 4.4b present deprivation rates by dimension among children age 5-17 in 2014. The results show that 58% of the children had no access to appropriate sanitation facilities, 51% were deprived in housing, and 46% did not have access to safe drinking water. Moreover, 25% of children were deprived in both education and exposure to information while 34% were deprived in health-related knowledge. The results further show that deprivation rates in water and sanitation varied significantly for children living in urban and rural areas. While 55% of children in rural areas are deprived from safe drinking water and 68% from adequate sanitation, these rates are 23% and 29% for water and sanitation respectively for children living in urban areas. Comparatively, differences by area of residence was significant in all except health-related knowledge dimension where the absolute difference between deprivation rates in urban and rural areas was small.

Figure 4.4: Deprivation rates for children aged 5-17 by dimension, 2014

Figure 4.4a: National

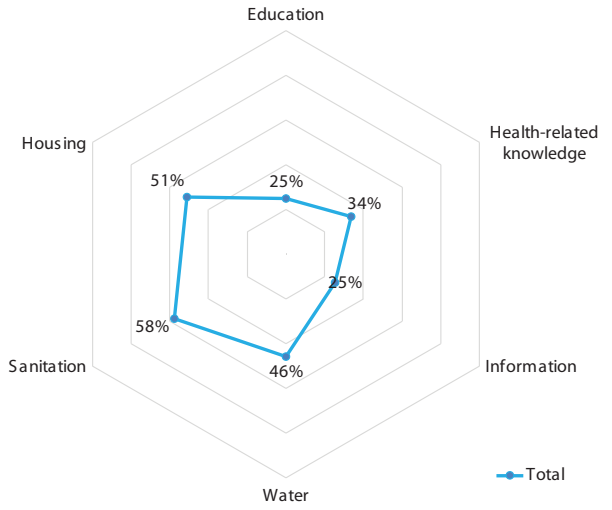
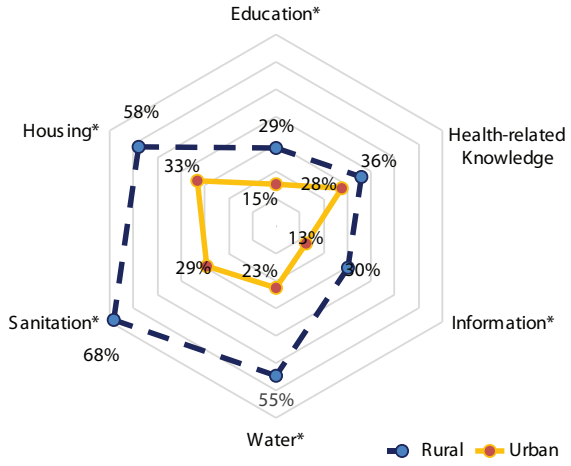


Figure 4.4b: by area of residence



The indicators used to determine deprivation in education, health-related knowledge and information dimension were slightly different for children age 5-14 and children age 15-17. Children age 15-17 had more individual-level information regarding health-related knowledge and information owing to the survey design of the data used,[14] and in education, children of age 15-17 have an additional indicator "literacy" as a proxy to quality of primary school. Furthermore, the deprivation rates per indicator and dimension may vary depending on children's age, including all the indicators that are identical.

Figures 4.5 and 4.6 present results for the two sub-groups of children separately: children of age 5-14, and children of age 15-17. This is followed by a description of deprivation rates by indicator and dimension, and by describing the main factors associated with deprivation.

14 In KDHS 2014, questions on health-related knowledge and exposure to media are asked in Woman's and Man's Questionnaires to eligible household members aged 15-49. Thus, individual-level information for such indicators is only available starting from the age of 15. Furthermore, not all female respondents of age 15-49 were eligible for the interview, and only in every second household male respondents were eligible. This leads to a high level of missing information at an individual level. Thus, whenever individual level information for children aged 15-17 is not available, information from other household members aged 15-49 is used as a proxy to household members' health-related knowledge and exposure to media.

Figure 4.5: Deprivation rates for children age 5-14 years by dimension and indicator, 2014

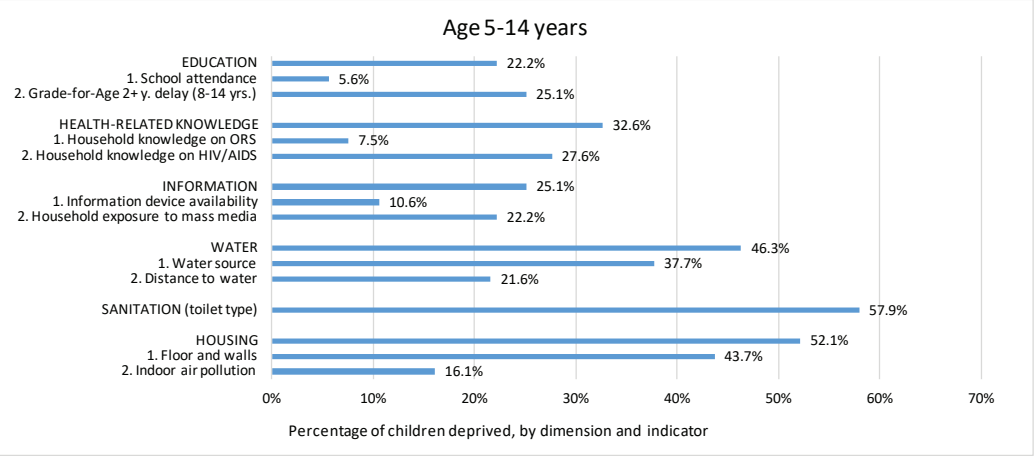
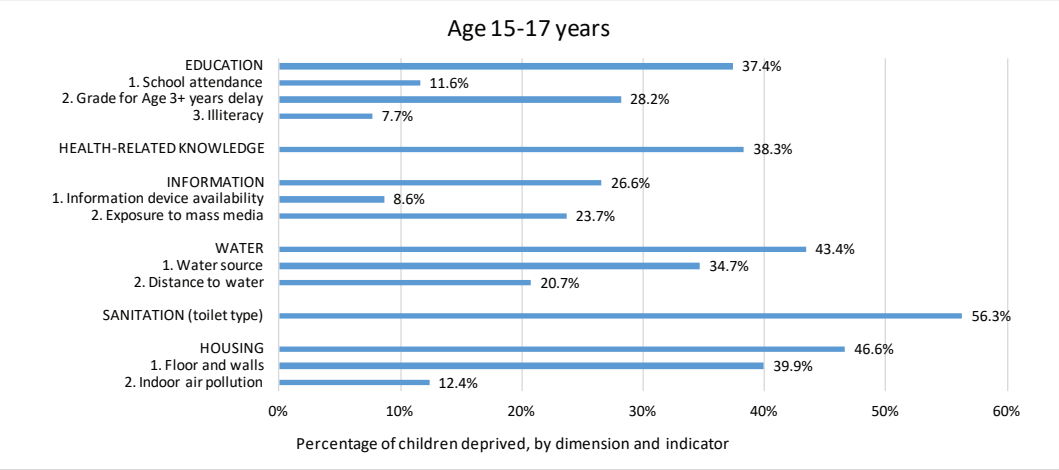


Figure 4.6: Deprivation rates for children age 15-17 years by dimension and indicator, 2014



Education

Article 53(1) (b) of the 2010 Constitution of Kenya specifies that every child has the right to free and compulsory basic education. Significant changes in the education system have been made over the last decade towards improving access to basic education. In 2003, the government of Kenya institutionalized the free primary education for all programme. Free tuition was introduced in day secondary schools in 2008. Nonetheless, the analysis reveals that many children were still out of school and education quality was not satisfactory.

In this child poverty study, deprivation in education is defined using the following indicators: school attendance and grade-for-age for all children aged 5-17. An additional indicator, literacy, for children aged 15-17 is considered. The 'school attendance' indicator refers to all children age 5-17, covering the age of the final year in preschool at age 5, the age of primary school starting at age 6 and lasting for 8 years, and the age of secondary school lasting for 4 years. The 'Grade-for-Age' indicator is applied to all children of both, primary and secondary school age, allowing for one year of delay in primary school and two years of delay in secondary school. The 'literacy' indicator defined as the ability to read is applied only to children of secondary school going age, as it measures the quality of primary education after its completion.

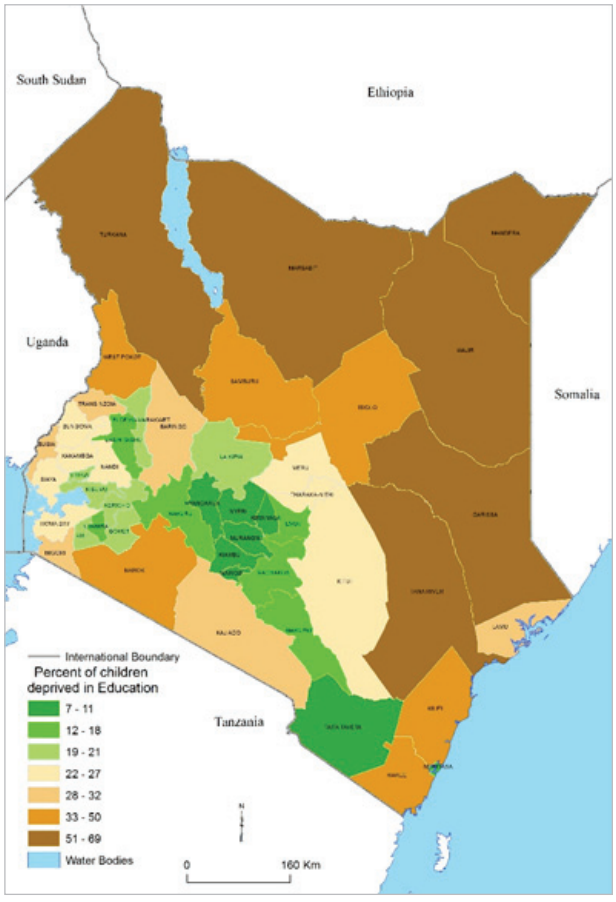
There was a significant improvement in the proportion of children deprived in education with a notable decline in the deprivation rate from 36% in 2014 to 25% in 2014.

In 2014, the deprivation rate in education was lower among primary school children compared to secondary school children. In 2014, 22% of children (25% of boys compared to 20% of girls) of age 5-14 in 2014 were deprived in education, meaning that they were not attending school, or were attending school but with two or more years behind their grade-for-age (children age

8-14). In comparison, 37% of all children (40% of boys compared to 34% of girls) age 15-17 were deprived in education, meaning that they were not attending school, or attending school but with three or more years behind their expected grade-for-age, or had completed primary school but were illiterate.

The findings show large geographical disparities in education access. Figure 4.4b shows that, deprivation rate for children age 5-17 in 2014 in rural areas was almost double that of children in urban areas (29% and 15%, respectively). As shown in Map 4.4, deprivation rates in education ranged from a low of 7% in Kiambu and to a high of 69% in Mandera. The counties with the highest deprivation rates in education were Mandera (69%), Wajir (64%), Garissa (62%), Turkana (55%), Tana River (51%), Marsabit (51%) and West Pokot (50%). Annex 6 shows deprivation rates in education for all counties.

Map 4.4: Deprivation rates for children age 5-17 years in education by county, 2014



As explained in the previous section, deprivation in education is measured using indicators of school attendance, grade-for-age, and literacy. Each of the indicators is discussed below.

The proportion of children age 5-14 and those age 15-17 that were not attending school was 6% and 12%, respectively, as shown in figures 4.5 and 4.6. No significant gender disparity in school attendance was observed. The trend analysis shows that there has been a significant reduction in the proportion of out-of-school children over the years, but only among primary-school children. The proportion of children age 5-14 not attending school dropped from 9% in 2008-09 to 6% in 2014. On the other hand, for children of secondary school going age (children age 15-17), no improvements were observed in the period between the DHSs (13% in 2008-09 and 12% in 2014).

A considerable proportion of children attending school in 2014 were not in the right class for their age. Twenty-five per cent of children age 8-14 years were two or more years behind their grade-for-age, and 28% of children age 15-17 were three or more years older than their expected respective grade-for-age. Gender disaggregated data shows that a significantly higher proportion of boys compared to girls across both age groups were several years behind in education. For children age 8-14, 29% of boys compared to 21% of girls were two or more years older than the stipulated legal age for attendance of the given grade of schooling. For children age 15-17, 32% of boys compared to 24% of girls were three of more years older than their respective grade-for-age.

In addition, 8% of children age 15-17 who did a reading test were illiterate despite the fact that they had completed primary school, with insignificant differences by gender (8% of girls compared to 7% of boys)

Table 4.3 presents the results of a multivariate logistic regression estimation for the main household and individual characteristics that are associated with a higher probability of education deprivation for children age 6-17. The table also shows the estimates of marginal effects. Annex 7 shows the population distribution of variables used in the model.

Information for children age 6-14 and 15-17 were analysed separately to establish whether the factors affecting deprivation in schooling were different for children of primary and secondary school going age.

Holding all other characteristics constant, living in households belonging to the poorest 20% of the wealth distribution is strongly associated with a higher probability to be out of school. The effect of relative wealth on school attendance is considerably stronger for children of secondary school age. Children of primary school going

age from the poorest quintile have a significantly higher probability of being out of school compared to those from the richest quintile. For children of secondary school going age, being from the poorer, middle, and richer wealth quintiles significantly increases the probability of being out of school compared to being from the richest wealth quintile.

Educational attainment of the household head has the highest effect in increasing the probability of being out of school for children of primary-school going age. Children living in households where the household head has had no education are 4 percentage points more likely to be out of school than children living in households where the household head has had secondary or higher education.

For secondary school going age children, the factor with the highest impact in increasing the probability to be out of school is living without parents. Single and double orphans are significantly more likely to be out of school compared to children with both parents being alive. This was especially so for older children age 15-17, with orphans having an 8-percentage point higher probability to be out of school.

For 6-14 age group, girls have a higher probability of being out of school compared to boys. For children age 15-17, the difference in probability of being out of school was insignificant between girls and boys, everything else being equal.

Another predictor for a higher probability to be out of school is the number of children below age 5 in the household. Having an additional child under age 5 in the household increases the probability of being out of school, especially for children of secondary school going age.

For primary school children, another factor associated with a higher probability of being out of school is living in a labour-constrained household, defined as households with no working-age adult between age 18 and 59, or a dependency ratio greater than 3, which is the proportion of the number of dependents (children below age 18 and elderly above age 60) to the total number of working-age adults in household. One possible explanation for this may be that primary-school age children may be occupied with taking care of other household members in the absence or shortage of working-age adults in the household.

It is also worth noting that results from the descriptive as well as the multivariate analysis show small and statistically insignificant differences between out-of-school rates in urban and rural areas.

Table 4.3: Factors associated with the probability to be out-of-school

Variable	Category	Marginal effects	
		Age 6-14	**Age 15-17**
Wealth quintiles	Poorest (ref. richest)	0.034***	0.095***
	Poorer (ref. richest)	0.002	0.049***
	Middle (ref. richest)	0.0004	0.037***
	Richer (ref. richest)	-0.002	0.024**
Educational attainment of the household head	No education (ref. sec./higher)	0.041***	0.041***
	Primary education (ref. sec./higher)	0.004	0.032***
Orphan hood	Single/double orphan (ref. both parents alive)	0.008**	0.081***
Child living with parent(s) or not	Living without parents although one or both parents alive (ref. living with parent(s))	0.009***	0.18***
Child's gender	Girl (ref. boy)	0.005**	0.0075
Child's age	Additional year	-0.005***	0.046***
Number of household members	Additional child aged 0-4	0.003***	0.027***
	Additional child aged 5-14	0.0007	-0.014***
	Additional child aged 15-17	-0.003*	0.003
	Additional adult aged 18-59	0.004***	-0.005
	Additional adult aged 60+	-0.002	-0.011
Labour constraint*	Child lives in a labour constraint hld.	0.009***	0.007
Age of household head	Household head's age is 60+ years	0.001	-0.004
Area of residence	Rural (ref. urban)	0.00145	-0.011
Observations		42,225	9,527

*Household is labour constraint if (1) there is no adult of age 18-59 in the household; or (2) the dependency ratio is greater than 3. The dependency ratio is calculated in the following way:
Dependency ratio = (No. of children below 18 + No. of elderly aged above 60) / (No. of adults aged 18-59).

Note: controlled also for counties. See Annex 7 for population distribution and sample size by variable.
Significance levels *** p<0.01, ** p<0.05, * p<0.1
Sample: children aged 6 -14, and those aged 15 and 17.
Source: Estimated from KDHS 2014

Qualitative research with parents of primary school going age children, teachers and management of primary and secondary schools and county education officials reinforces the findings of the quantitative analyses on the factors associated with deprivation from education. Monetary poverty, parents' low level of education attainment, number of children in the household, being orphaned or living only with one parent, and gender were all listed as common factors that hinder children's school attendance in the target.

Monetary poverty was reported to be a barrier to school attendance in relation to the inability of parents to cover the expenses associated with sending their children to school: paying fees for hiring of additional teachers, purchasing desks and chairs, uniform, textbooks and other school materials, sanitary towels for girls, and paying for meals (especially in Kakamega where school meals are not available and in some schools in Kitui where the supply of school meals is irregular).

"I want to say this: Free Kenya is not free. Free doesn't really mean free. Because, as we speak, to be able to go to primary school, first of all you need to buy a uniform. When you go to school, you still have to pay something. And putting all these expenses together, adds up to something" ***– Parent of a primary school-age child, Turkana***

Monetary poverty is particularly a major barrier for children in boarding school if they live too far from the school, if they are in the phase of preparations for the national examination (children in standard 6-8) or those attending secondary school, as the bursaries are insufficient. Likewise, orphaned children or those living with only with one parent were at a higher risk of being deprived from education as their grandparents/guardians may not be able to afford to send them to school.

Monetary poverty impacts school attendance through child labour. This factor was considered as crucial in Kakamega, due to high level of urbanization in the county, as there are more working opportunities available and the children are attracted by "quick money" jobs such as boda-boda business (boys) or caretaking/cleaning jobs (girls). Orphaned children living with guardians, grandparents, or children who become household heads are considered to be more prone to engaging in labour activities due to poverty.

"I had a case that my brother-in-law passed on, and left behind children, and I was actually the only one to take care of them, when I was married. So there comes a time when you are actually in a great deal of helping them, you really see with that eye, but the resources are not enough" ***– Parent and guardian of primary school-age children, slum area in sub-urban Kakamega***

Limited financial resources in families with many children is also considered a major barrier as the parents often have to decide to only one or some of the children to school. While in a small number of cases the parents will prioritise sending the "brightest child" to school, in all three counties the interviewees claimed that boys will be given priority since they are the future care-giver of the family, while the girls will be married off to another family.

"At the end of the day, the girl will get married, even if she goes to school and gets a job, she will still get married and benefits another family" ***– Teacher, primary school in Turkana***

Parents' low education attainment is also a major contributor to deprivation from education. In all three counties, qualitative research found that parents who do not understand the importance of education are less inclined to "sacrifice resources" to send their children to school. In Kakamega and Kitui the teachers highlighted that because of negligence, these parents will demand their children to run house errands and assist them in economic activities, even if they are attending school. Furthermore, parents with no formal education may not be able to follow pupils' homework and progress, leading to negligence due to illiteracy and language barrier among some of the parents.

"Some parents tell to their children that after all, I did not go to school and I am eating, so why should you go to school and waste a lot of your time when you can actually access food" ***– Head Teacher, primary school in rural Kakamega***

Two other hindrances to school attendance gathered from qualitative research are related to socio-behavioural characteristics of the counties. In Turkana, security was cited as a hindrance to school attendance having in mind the size of pastoralist communities and the large distances to schools, whereas in Kakamega, divorce of parents is seen as an important hindering factor.

To identify additional factors impacting school attendance, interviewees and FGD participants were also asked about the main reasons for school drop-outs. In addition to the factors described above, in all three counties, girls were commonly reported to drop out of school due to pregnancy, early marriages and labour whereas the boys dropped out of school due to labour and behavioural problems due to peer influence.

"Because when you get to some classes, you have some streams which have over 100 pupils, and you can imagine in this kind of climate where it's hot all the time. Now the children are squeezed in a classroom, crowded like 100 or over 100, 90, an overwhelming number in class. So you know how much individual catering you can do" ***– Teacher, primary school in Turkana***

In order to explore determinants of quality of education – with respect to the literacy indicator- FGD participants and interviewees were asked about school infrastructure, staffing, availability of teaching materials among others. Even though significant improvements have been made in access to education in Kenya with the Free Primary Education programme that subsidizes primary education as well as school meals, qualitative research shows that overcrowding and understaffing are major problems in education.

Most of the schools in all three counties have to hire teachers through the Board of Management (financed by parents) as the number of teachers hired by the Teachers Service Commission (TSC) are inadequate given the pupil enrolments. Lack of teachers and lack of infrastructure result in overcrowding with 80-100 pupils in one class, 4-5 children using the same desk, 3-4 children sharing one textbook and limited time available for teachers to provide individual attention to each pupil and to effectively monitor their learning progress. All of these factors result in poor quality of education and illiteracy.

Health-Related Knowledge

According to the Kenya Health Policy (MOH, 2014), all the health facilities in Kenya are to provide health promotion and education. The health dimension for the older children focuses on the leading causes of death in Kenya, and the knowledge of household members on the treatment and prevention of the respective diseases. Deprivation analysis for this dimension is broken down into two sub-groups, the 5-14 and 15-17 age sub-groups.

5-14 sub-group

The first indicator chosen for the dimension in this sub-group is whether the child lives in households where none of the household members aged 15-49 is aware of transmission and prevention of HIV/AIDS, on the grounds that, as stated in Kenya Health Policy 2014-2030, the number of those infected by HIV continues to increase, and HIV/AIDS is one of the leading causes of death in Kenya (MOH, 2014). The second indicator chosen for this dimension is whether the child lives in a household where none of the female members age 15-49 is aware of ORS for treating diarrhoea since it is one of the leading causes of death among children under age 5.

15-17 sub-group

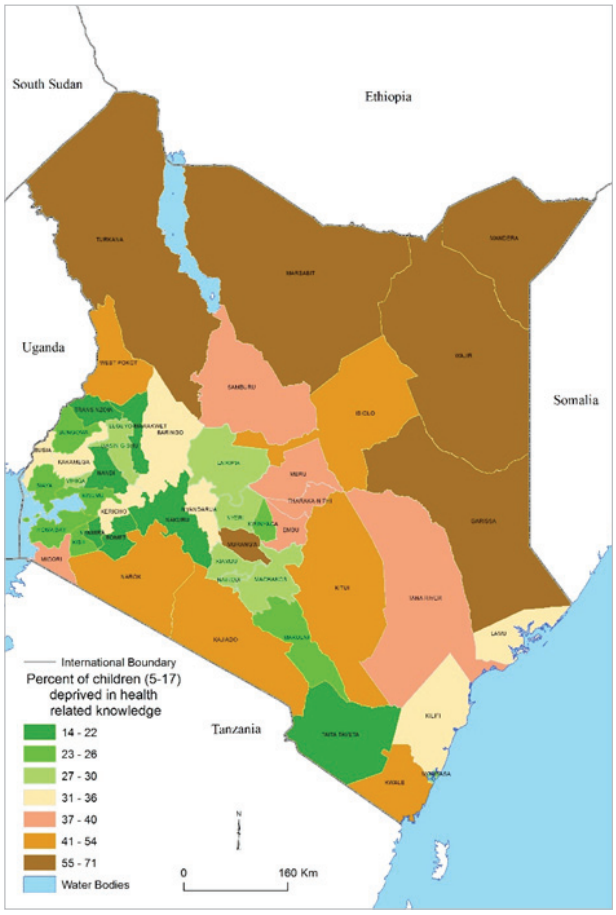
The only indicator selected to study deprivation in this subgroup is whether the individual child has knowledge about HIV/AIDS. The child is considered deprived if he/she has no knowledge about HIV prevention and transmission.

Overall, as shown in Figure 4.4a, 34% of all children between the age of 5 and 17 in 2014 were deprived in health-related knowledge. This is a 9-percentage-point improvement from the 2008-09 survey where 43% were deprived in health-related knowledge.

The difference in the deprivation rate between children in rural and urban areas is 8 percentage points, 36% in rural areas and 28% in urban areas. However, this difference is much smaller compared to the other dimensions in this age group as illustrated in Figure 4.4b

Map 4.5 illustrates wide disparities across countries in health-related knowledge. The deprivation rates range between 14% in Nyamira and 71% in Garissa. The counties with the highest deprivation rates in health-related knowledge are Garissa (71%), Mandera (70%), Wajir (65%), Turkana (63%), and Marsabit (58%), followed by Muranga (55%) and Kitui (54%). See Annex 6 for results by county.

Map 4.5 Deprivation rates for children age 5-17 years in health-related knowledge by county, 2014



The analysis shows that there are considerable gaps regarding health-related knowledge in Kenya. Figure 4.4 demonstrates that 28% of children age 5-14 live in households where none of the household members of age group 15-49 is aware of transmission and prevention of HIV/AIDS, and 7.5% of children of the same age-group live in households where none of the female members of age-group 15-49 is aware of ORS for treating diarrhoea. Figure 4.5 shows that: 38% of children age 15-17 are not aware of transmission and prevention of HIV/AIDS[15] hence considered deprived in health related knowledge.

As part of qualitative research, focus groups with mothers who have access to health facilities showed that significant improvements have been made on HIV-related knowledge in all three counties. Some of the main contributing factors include: engagement of Community Health Volunteers, donor-funded outreaches, collaboration with community chiefs, Comprehensive Care Clinics (CCC) and peer educators, regular micro-education teachings at the health facilities, and most importantly, provision of comprehensive services to pregnant women who come for antenatal care visits to the facilities and are tested each time. The latter was especially highlighted as crucial, nonetheless, research also shows that men are more deprived in HIV-related knowledge compared to women. Health professionals across the three counties also reported that they faced challenges with testing of men, even if their spouses were found to be HIV positive, citing stigma as the main factor. The situation with those living in remote areas is rather pessimistic. During the FGDs, several women could list correct ways through which one could get infected with HIV. The health practitioners in such areas emphasized the need for investment in awareness campaigns among other information activities.

"I would say, even if we give health talks, not many people are willing to come out to be tested. There was a time when I wanted to know if they know how HIV is transmitted. Some of them will tell you even a fly will give HIV. So not all of them have enough knowledge about how HIV is transmitted. Sometimes a pregnant woman comes, we test her, she is negative; then I ask her to tell her husband to also come she says 'if I am negative, that means my husband is also negative'" - ***Nurse-in-charge, dispensary in a remote area in Turkana***

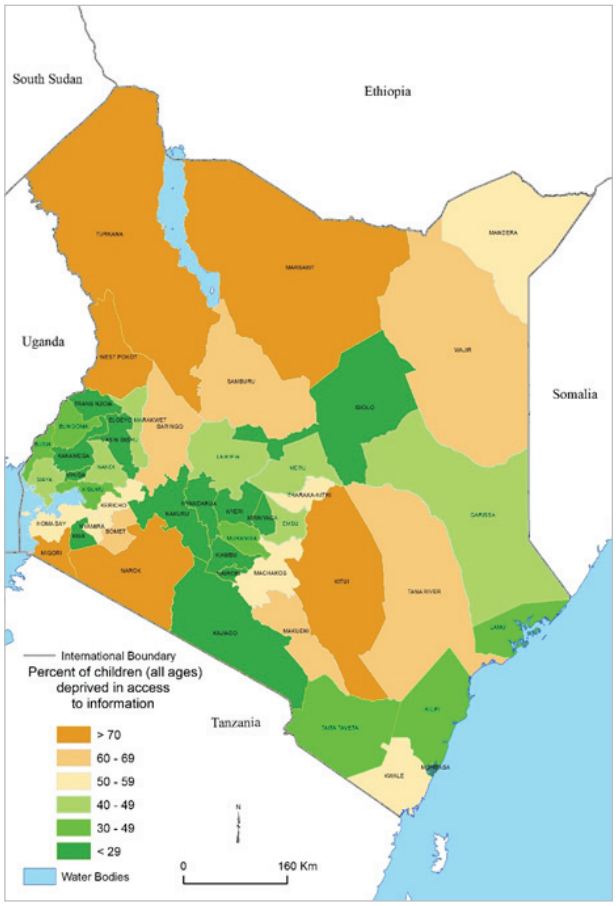
Access to Information

Article 35(1) of the 2010 Constitution of Kenya stipulates that every citizen has the right of access to information held by the State; and information held by another person and required for the exercise or protection of any right or fundamental freedom. Access to information is thus included in this study as one of the dimensions representing child rights. Deprivation in information is defined as no availability of information devices in the household and/or no exposure to any of the means the media (radio, TV, or newspapers) among household members.

Overall, in 2014, 25% of children age 5-17 were deprived in information. Large disparities persist by area of residence as the deprivation rate in information is almost three times higher among children living in rural compared urban areas at 30% and 13%, respectively. Large disparities are also observed across counties where deprivation rates in information range between 4% in Kiambu and 81% in Turkana. (See Annex 6 for detailed results by county and map 4.5)

15 For children of age 15-17 for whom no individual-level information was available due to the fact that they were not interviewed, information was retrieved from other household members, in the same way as for children aged 5-14 where a child is considered deprived in health-related knowledge if none of the household members aged 15-49 knows about transmission and prevention of HIV/AIDS. See the methodology section for more information.

Map 4.6: Deprivation rates in access to information for children age 5-17 by county, 2014



The analysis by age-group (Figures 4.5 and 4.6) indicate that in 2014, 11% of children age 5-14 and 9% of all children age 15-17 lived in households with no information device available (i.e., none of the following: TV, radio, phone, mobile phone). Over time, deprivation in information device availability has declined as it was 21% for children age 5-14 and 19% for children age 15-17 in 2008-09. Furthermore, 22% of children age 5-14 lived in households where none of the household members age 15-49 reported using any of the sources of media (TV, radio, newspapers) at least once every two weeks in 2014. For children age 15-17, the deprivation rate in exposure to media was 24%[16]. There has been a slight improvement in deprivation rates over the last years, as the deprivation rate in exposure to media in 2008-09 was higher compared to 2014 (18% for children age 5-14 and 19% for children age 15-17).

16 For the age-group of children aged 15-17, individual-level data was used whenever the child answered to the questions on the exposure to media. Please see the methodology section for more details.

Children under 18 years

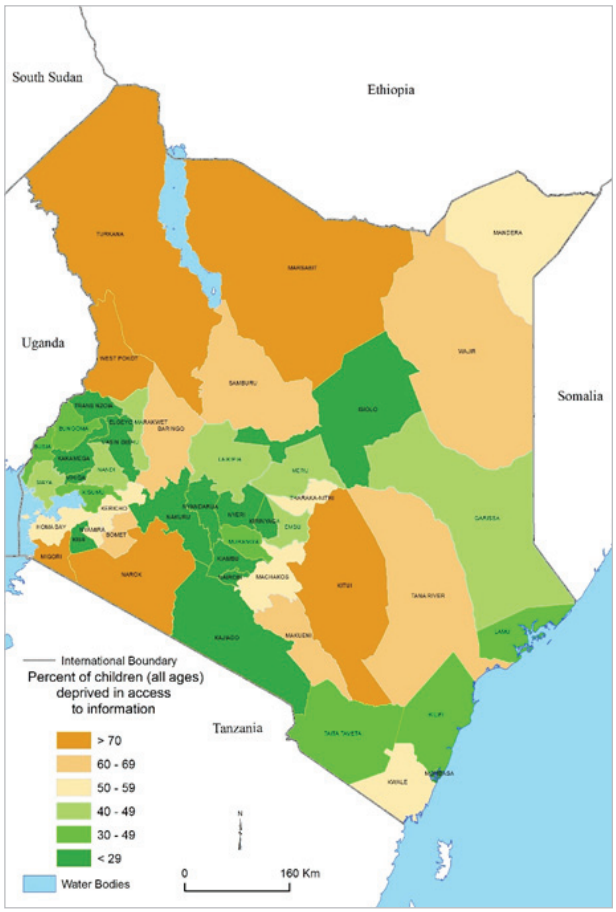
This sub-section presents the findings on child poverty deprivations for water, sanitation and housing dimensions for all children under 18 years. Figures 4.1 - 4.6 show the detailed deprivation rates by age-group.

Water

Article 43 (1) of the 2010 Constitution of Kenya stipulates that every person has the right to clean and safe water in adequate quantities. Children are considered as deprived in water if their household's main source of drinking water is unimproved or it takes more than 30 minutes to fetch water. In 2014, 37% of children lived in households whose main source of drinking water was unimproved. During the same period, 21% of the children below 18 years lived in households that took more than 30 minutes to collect water from the source and bring it back home. Overall, the water deprivation rate for children under 18 years decreased from 50% in 2008-09 to 45% in 2014.

More than half of all children living in rural areas in 2014 suffered from deprivation in water (55%) compared to 21% in urban areas. Map 4.7 shows that there are also large disparities across counties in access to water. The deprivation rates range from 7% in Nairobi to 80% in Kitui, Marsabit and Migori. See Annex 6 for more details in water deprivation rates by county.

Map 4.7: Deprivation rates in access to water for children under 18 years by county, 2014



Qualitative research demonstrates that access to safe drinking water is problematic in all three counties, but in Turkana and Kitui, distance to the water source is a more serious issue considering the geographical vastness of the counties, climatic conditions, and lack of significant investments in water infrastructure. In Turkana, the water sources are located very far from many communities and women (at times also children) often have to walk for many hours to obtain it. Many families in the county obtain water from nearby rivers, either because of their nomadic lifestyle, working far from home, or because rivers are typically the nearest source. Some of the FGD participants also complained about dysfunctional boreholes and taps in their communities (built by partner organisations). In Kakamega, the research participants - especially in urban areas - reported a slight improvement in terms of availability of treatment spring water. Piped water, boreholes and roof catchment were also reported as common sources of water in the county. In Kitui, mothers participating in FGDs complained about the distance to the water source, water scarcity due to adverse weather conditions and problems with access as they did not have the means to purchase it.

"People are suffering. So you see, you are walking for a whole day, the whole day you are looking for water. Then what else you have to do? And you look like this and it's 20km away. And those are women and their children. So it's an issue" ***- Clinical Officer in charge, faith-based dispensary in urban Turkana***

"It [the water source] is very far. We normally walk, and it takes us some hours to get there…when we get to the safe water source, we have to buy, and it may be a problem of money in buying. You have access to other types of water, but you don't have the time to boil it, you don't have a way to make it safe" ***– Mother, rural area in Kitui***

Lack of access to safe drinking water is also a challenge in primary schools in all three counties due to shortages, dysfunctional infrastructures, or limited budgets to purchase water. As a result, children are often asked to bring water from their homes to school. In absence of water treatment or any quality assurance mechanisms, this practice poses a great health risk in Turkana and Kitui where school meals are cooked with the water that children bring to schools.

"…I wish we could have taken you down to our interior [referring to remote areas in the county]. You'll find that most of our learners are learning under sheds or under the trees. Distance from where they get water…maybe if you went a bit outside, you'll realize that this is a very big challenge. So children have to carry water with them to school, for both their use and cooking" ***– County Education Official, Turkana***

"Sometimes even the water is disconnected because we are not able to pay the bill because we are given 9,000 shillings to pay for electricity and water for the term, that is not enough even for a month" ***– Head Teacher, primary school near a slum in sub-urban Kakamega***

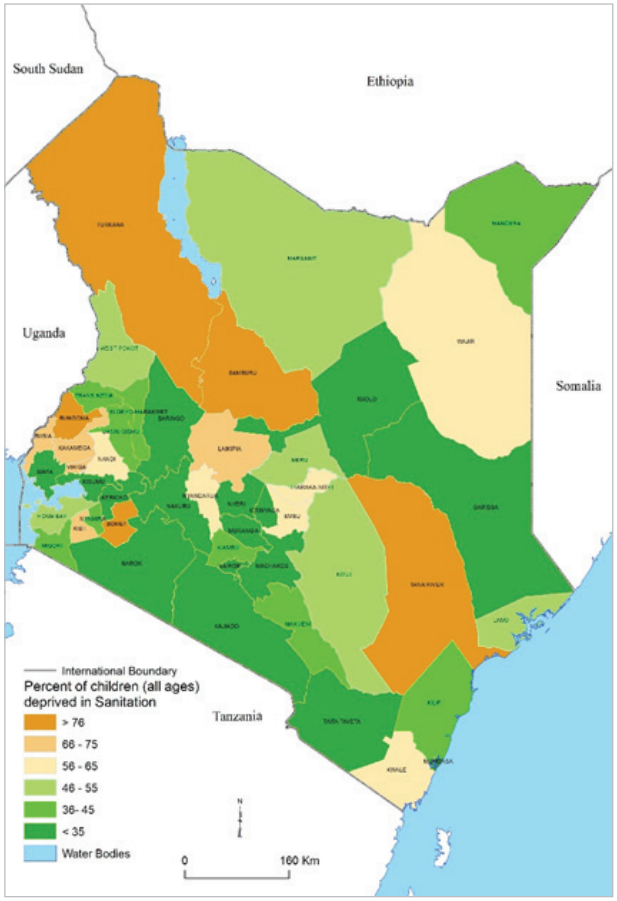
Access to clean water is also problematic for the healthcare service providers especially in Turkana and Kitui where dispensaries were reported to lack access to safe drinking water. Most dispensaries accessed water through roof catchment, boreholes, and rivers, hence they need to treat it before use.

Sanitation

Children are defined as deprived in sanitation if they live in a household that uses unimproved toilet facility. In 2014, 57% of all children under 18 years were deprived in sanitation, a slight improvement from 60% recorded in 2008-09. Children deprivation rates in sanitation were higher in rural areas (69%) compared to urban areas (28%).

Map 4.8 shows that access to improved sanitation differs considerably across counties. The rates of unimproved toilet type used by children under age 18 in 2014 ranged from 1% in Mombasa to 87% in Samburu, Tana River and Turkana. See Annex 6 for detailed deprivation rates by county.

Map 4.8: Deprivation rates in sanitation for children under 18 years by county, 2014



According to the qualitative research, deprivation in sanitation remains a challenge in the three counties. Even though more research participants in Kakamega reported to have pit latrines, open defecation in bushes or farming fields was common in the three counties. Among communities that have access to sanitation, latrines are few and are used by many households. The latrines were reported to be structurally weak and to often collapse during the rainy season in Kakamega. While there has been improvement in all three counties in terms of educating the communities on the importance of improved sanitation through community-level activities (CHVs and outreaches), affordability was a major impediment.

"The problem [with access to improved sanitation] is toilets; we don't have toilets; information we have. The soil is not good for the toilets; if we construct the toilets, they collapse" ***– Mother, remote area in Turkana***

Access to sanitation was reported to be a problem in many schools; the number of latrines is insufficient given the pupil population– in some schools, the latrine to pupil ratio is as low as 1:160 (Kitui) and 1:70 (Kakamega). School heads and principals and County Education Officials reported that the budgets that the schools received were too constrained to even empty latrines let alone construct new structures. As a result, in many areas in all three counties, open defecation becomes the only alternative.

"These could be separated, fine, but you find that some of the toilets have no doors. They have no shutters. You know for boys…you know girls require a lot of privacy. But for the boys, they can even go to the bush and come back. But for girls, I think they are very sensitive to toilets because…" ***– County Education Official, Kakamega***

Housing

The housing dimension in this study focuses on the dwelling conditions where children live. The first indicator that is used to identify children with poor housing conditions is the material of floor and exterior walls of the dwelling. Children are considered deprived when living in a dwelling where both, floor and exterior walls, are made of natural material, such as earth, sand, cane, mud, or grass. The second indicator that identifies children deprived in housing is indoor air pollution from solid fuels with no separate room used for cooking. The indoor air pollution indicator has been chosen because cooking with fuel wood under poor ventilation conditions has been demonstrated in the literature to be associated with a higher risk of infant and child mortality and morbidity due to acute respiratory infections (Bruce et al, 2000). As indicated in the Kenya Health Policy 2014-2030, indoor air pollution is one of the top five leading risk factors contributing to mortality and morbidity (MOH, 2014).

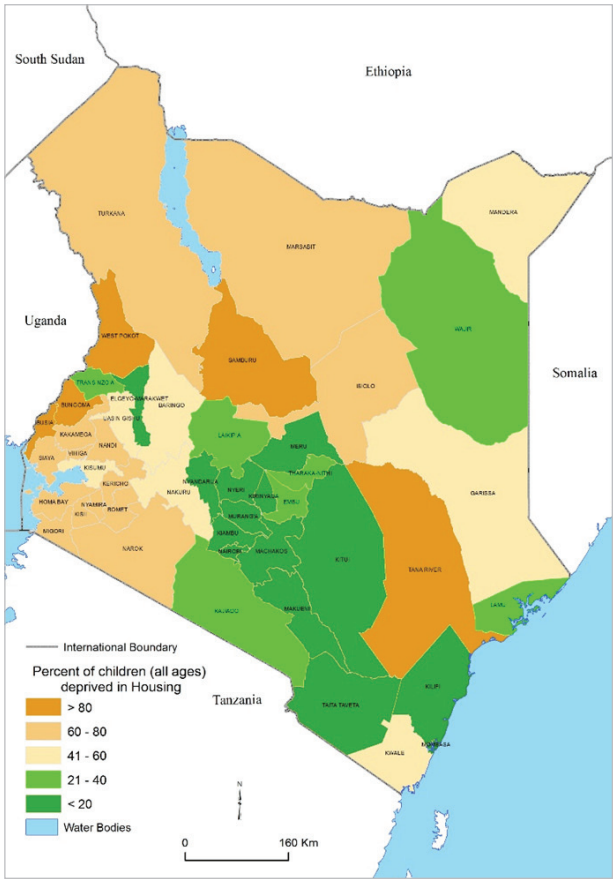
In 2014, the proportion of children living in dwellings with both, floor and exterior walls made of natural material was 43%, (54% in rural areas and 16% in urban areas). This is a slight increase from 39% recorded in 2008-09.

The proportion of children exposed to indoor air pollution from solid cooking fuel used inside the house in 2014 was 17% (15% in rural areas and 20% in urban areas), which is the same level as recorded in 2008-09.

Overall, when using both indicators, the analysis reveals that 52% of children under age 18 were deprived in housing compared to 50% in 2008-09. A significant disparity was noted by residence with deprivation rates of 59% in rural areas and 33% in urban areas in 2014.

Map 4.9 shows that the deprivation rates in housing vary significantly across counties, ranging between 10% in Machakos to 87% in West Pokot in 2014. The counties with the highest deprivation rates in housing are West Pokot (87%), Samburu (85%), Busia (83%), Tana River (82%), and Bungoma (81%). See Annex 6 for detailed deprivation rates by county.

Map 4.9: Deprivation rates in housing for children under 18 years by county, 2014



Although the qualitative research focused mainly on health, nutrition, education, and WASH, poor housing conditions were pointed out as the principal cause of acute respiratory infections (ARI) during the discussions. In all the three counties, interviewees reported that the households did not have separate rooms for cooking and that the children slept and sat in the same room where food was cooked (in cases where food is cooked inside the house). Due to lack of ventilation, these rooms are often filled with smoke. In Kakamega, the interviewees also mentioned use of maize cob for cooking, which produces even more smoke. In both Turkana and Kakamega, housing conditions were deemed inadequate for protecting children during adverse weather conditions, exposing them to health risks.

"Yes, use of firewood for cooking in the household produces a lot of smoke. There are no chimneys. You will find that someone will have just a small room, and part of that room is sitting room, part of it is bedroom, part of it is the kitchen" ***- Health practitioner, health centre in peri-urban Kakamega***

"Ok, ventilation is not that good, in fact we are trying to get the message across through the CHVs and the chief in barazas, if they can talk about the ventilation in the houses. They are there but it's not up to the level of desired standard…most of the households are using firewood for cooking and heating" ***– Nurse-in-charge, health centre in sub-urban Kakamega***

CHAPTER 5

CHILD POVERTY: MULTIDIMENSIONAL ANALYSIS

In this chapter, a multidimensional approach to child poverty is used, identifying the number and type of deprivations each child experiences simultaneously. The analysis provides an insight in the various levels of deprivation intensity by different sub-groups of the total child population, revealing disparities among children. The rest of this chapter covers the following sections: 5.1 the deprivation overlap analysis; 5.2 the deprivation count and distribution of the number of deprivations children experience; 5.3 the deprivation intensity and decomposition by dimension among children experiencing one or more deprivations simultaneously; 5.4 the child poverty incidence and index at a national and county level; 5.5 the decomposition of child poverty by county; 5.6 factors associated with child poverty; and 5.7 a complementary qualitative research analysis of factors associated with multidimensional child poverty in relation to accessibility and availability of services.

5.1 Deprivation Overlap Analysis

This section looks at the extent to which the different deprivations overlap and identifies the deprivations that children experience simultaneously. The deprivation overlap analysis shows the extent to which each of the deprivations is unique and which deprivations overlap or coincide with others. The overlap analysis involves first identifying the proportion of children deprived in each dimension and the proportionate share of children deprived in one to five other dimensions simultaneously. This is followed by a deprivation overlap analysis for two and three selected dimensions at a time.

The findings show that the deprived children experience several deprivations, and each of the dimensions analysed overlaps with others. Figures 5.1 A and 5.2 A show the percentage of children deprived in each of the dimensions by age-group, and the extent to which these children are deprived in one to five other dimensions. Overall, the number of children deprived in four to six dimensions at a time is high for all dimensions. Among children under 5, particularly children deprived in development (stunting) and nutrition were more likely to be deprived in several additional dimensions (Figure 5.1), whereas among 5-17 year-olds this is the case for children deprived in education and information (Figure 5.2). The proportion of children deprived only in one of the dimensions is very low, ranging from 1 per cent in stunting, information, and education to 5 per cent in sanitation.

Figure 5.1 A shows that more than a half of all children who were deprived in physical development (stunting) were also deprived in three to five other dimensions. While the total proportion of stunted children was 26 per cent, only 1 per cent of all children under 5 are deprived only of physical development (i.e. are stunted). A similar pattern can be observed among children deprived in nutrition.

Figure 5.2 A shows that more than a half of all children who were deprived in education and information were deprived in three to five other dimensions. For instance, the total proportion of children age 5-17 deprived in education is 24 per cent, but only 1 per cent of this age-group were deprived in education and not in any other of the six selected dimensions.

Figures 5.1 B and 5.2 B show that the deprivation overlap is much higher in rural areas compared to urban areas. Majority of children who live in urban areas and were deprived in any one of the dimensions were deprived only in one or two additional dimensions, while children who live in rural areas were deprived in three to five other dimensions simultaneously. For instance, 28 per cent of children under 5 living in urban areas were deprived in health, and most of them were deprived only in health or in one additional dimension. Similarly, among children age 5-17 in urban areas, 27 per cent were deprived in health-related knowledge, and most of these children experience none or only one additional deprivation. On the contrary, most of the children in the rural areas who were deprived in any one of the six dimensions were deprived also in three to five other dimensions.

Figure 5.1A: Deprivation overlap by dimension, children under 5

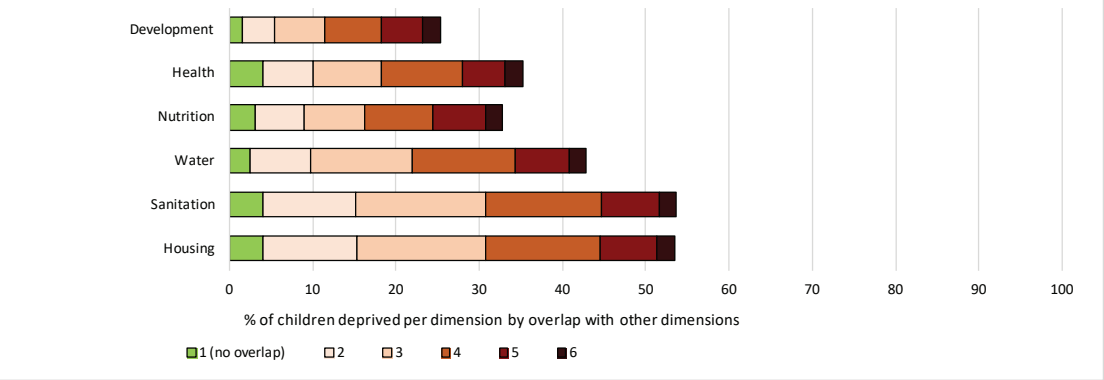


Figure 5.1B: Deprivation overlap by dimension by areas of residence, children under 5

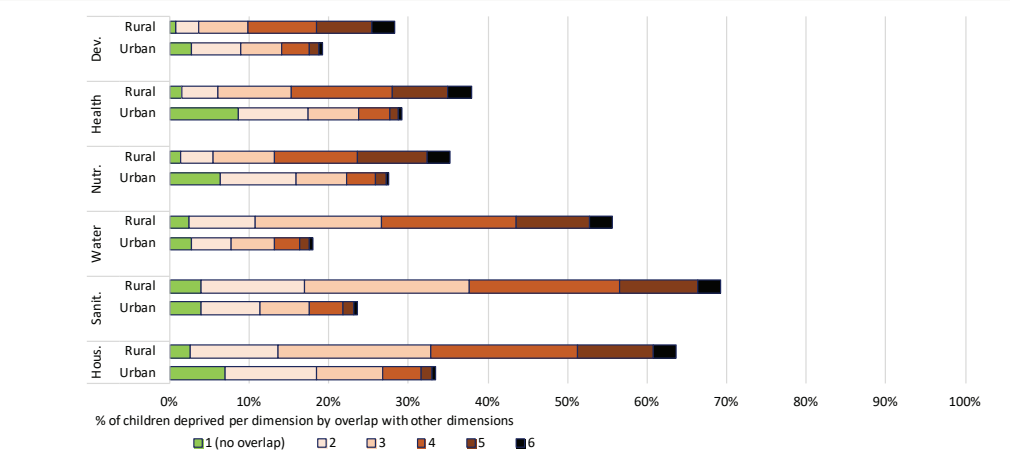


Figure 5.2A: Deprivation overlap by dimension, children age 5-17

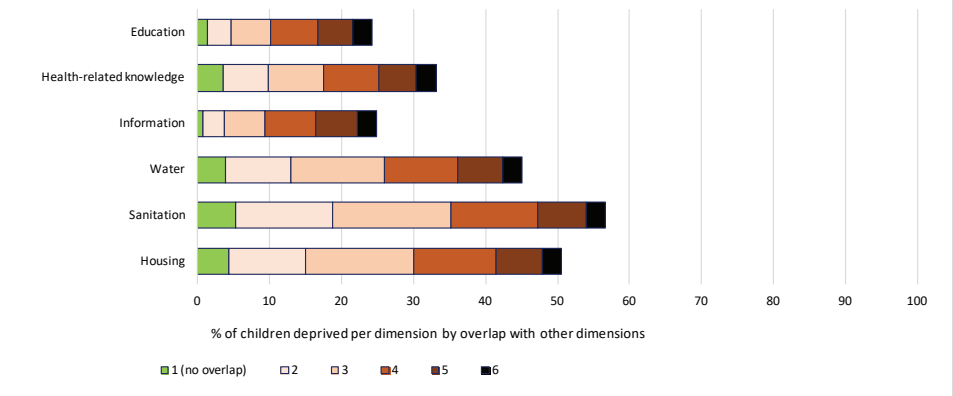
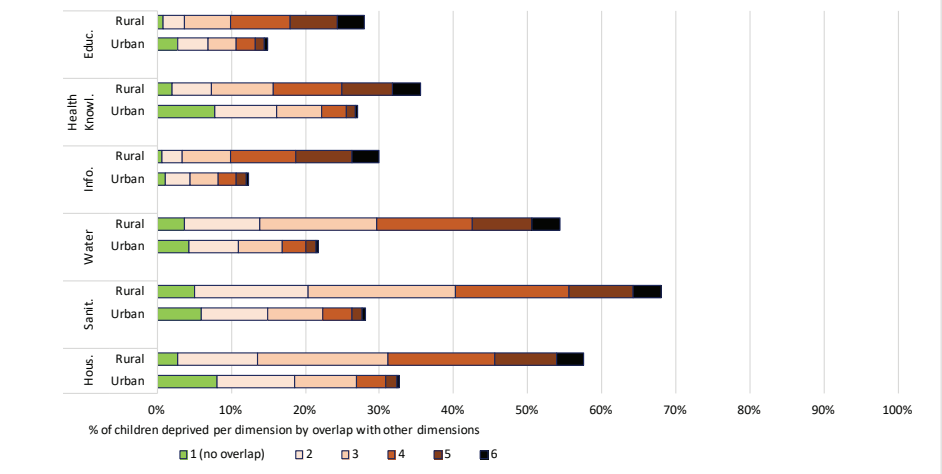


Figure 5.2B: Deprivation overlap by dimension and area of residence, children age 5-17



In Figure 5.3A and Figure 5.3B, the under 5 children were split into those who live in households belonging to the wealthiest three quintiles and those from the poorest two wealth quintiles.

The results show that there is a high level of overlap between deprivations of nutrition, health, and stunting, especially among children living in families from the poorest two wealth quintiles among whom nine per cent were deprived in all three dimensions simultaneously. In other words, children in the two poorest wealth quintiles were more likely to be deprived of these three child rights simultaneously. Physical development (stunting) overlaps with other dimensions to the largest extent. Thirty-two percent of all children from the two poorest wealth quintiles were stunted, and only 8 per cent were stunted but not deprived in nutrition and/or health.

Among children living in families belonging to the three wealthier quintiles of the wealth distribution, 19 per cent were stunted, 27 per cent were deprived in nutrition, and 27 per cent were deprived in health. The deprivation overlap, however, was relatively low: only two per cent of children living in relatively wealthier households were deprived in all three dimensions simultaneously. For instance, 27 per cent of children under 5 from the three wealthiest quintiles were deprived in health, but more than half were not stunted and deprived in nutrition. The results showed that although stunting, nutrition, and health-care were major issues among children from the relatively wealthier families, these children were less likely to be deprived in all three dimensions simultaneously compared to children from poorer families.

Figure 5.3A: Overlap of children under age 5 deprived in nutrition, health and physical development (stunting), richest three wealth quintiles

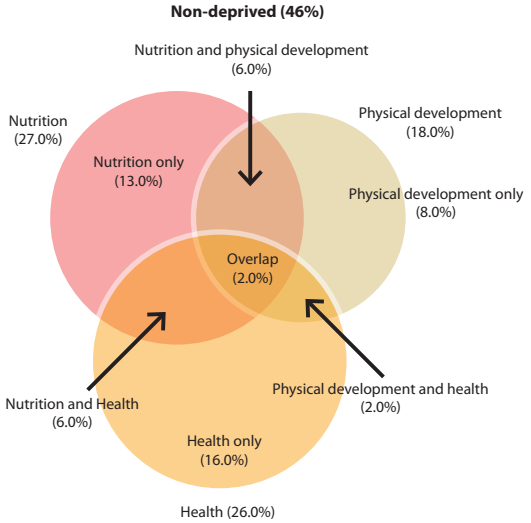
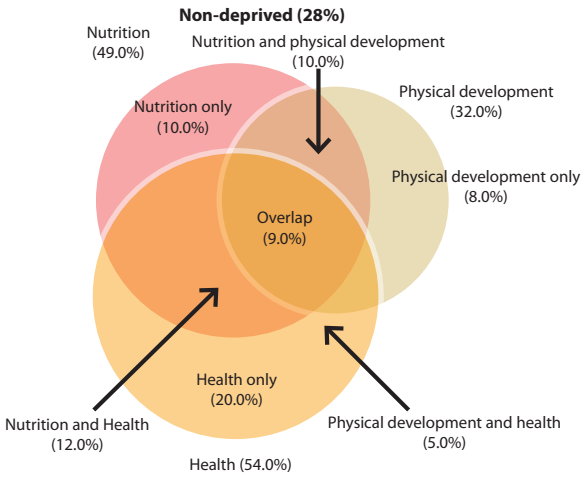


Figure 5.3B: Overlap of children under age 5 deprived in nutrition, health and physical development (stunting), poorest two wealth quintiles



Qualitative research findings are in line with the results of this analysis. Monetary poverty was reported to be a major impediment to both development (stunting) and nutrition among children below the age of 5. Due to unaffordability of food for themselves, some mothers have to introduce complementary feeding to children below the age of six months as they lack breastmilk. Furthermore, in areas where different types of food are available, parents cannot afford to buy products other than the basic staple foods. Access to health services among such families is also limited, particularly if they live in remote areas and cannot afford to pay for transport to health facilities or prioritize working to make the ends meet, instead of taking their children to health facilities for vitamin A supplements, nutrition supplies, or regular medical check-ups.

Figure 5.4A and Figure 5.4B show the proportion of children living in urban and rural areas deprived in water, sanitation, and housing. The results indicate that the three deprivations overlap among children both in the urban and rural areas. Children in rural areas children experienced these deprivations simultaneously to a much larger extent (31%) compared to only 4% of children living in urban areas.

Figure 5.4A: Overlap of children under 5 deprived in water, sanitation and housing, urban areas

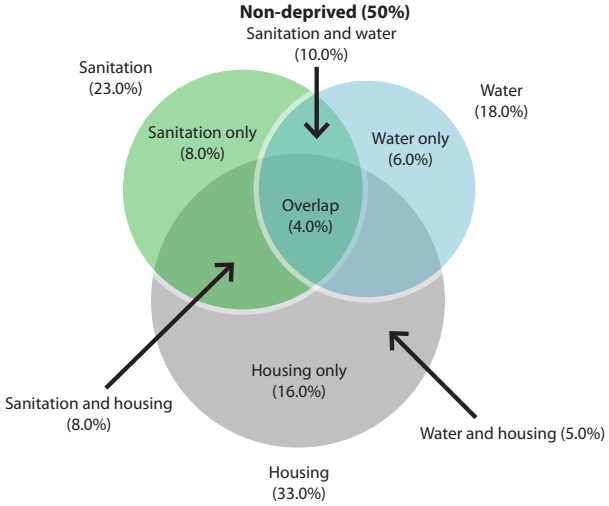
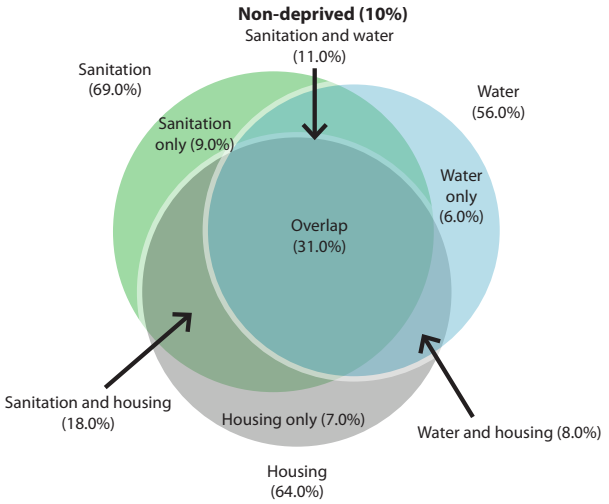


Figure 5.4B: Overlap of children under 5 deprived in water, sanitation and housing, rural areas



Qualitative research also established that deprivation in water, sanitation and housing conditions is widespread in rural areas. Especially in Turkana and Kitui where open defecation is prevalent, and access to safe drinking water is scarce as the rivers and boreholes are the main source of water. These households are also commonly deprived in housing with natural material used for building the walls and floors of their dwellings.

Figure 5.5A and Figure 5.5B shows the overlap between children who were stunted (deprived in physical development) and children who were deprived in water and sanitation, by area of residence. In rural areas, children experience multiple deprivations to a much larger extent compared to those living in urban areas. Most of the children in the rural areas who were stunted (deprived in physical development) were also deprived in water or sanitation, or both. Only four per cent were stunted but not deprived in water and/or sanitation. Findings suggest that policies aimed at reducing stunting in rural areas ought to consider not only nutrition supplement programmes, but also programmes increasing access to improved water sources and toilet facilities as almost all the stunted children were also deprived of accessing improved water and sanitation facilities.

Figure 5.5A: Overlap of children under age five 5 deprived in water, sanitation and development (stunting), urban areas

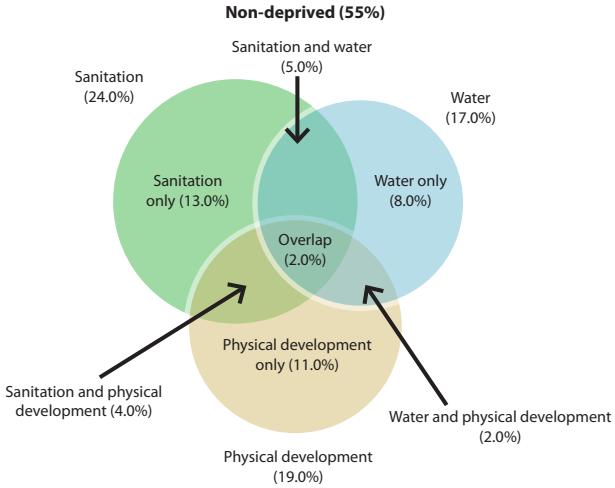
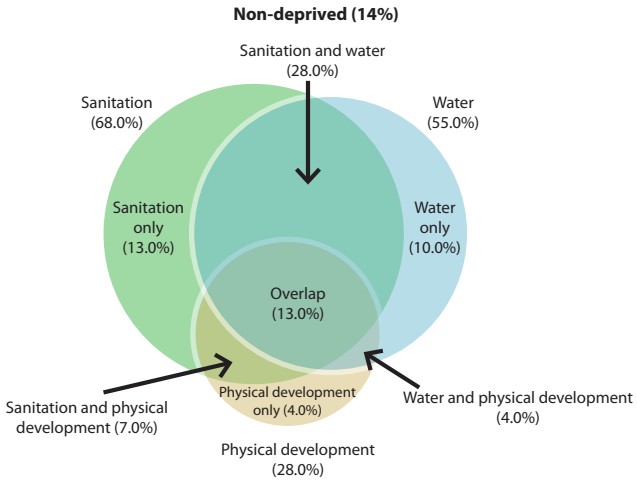


Figure 5.5B: Overlap of children under age five 5 deprived in water, sanitation and development (stunting), rural areas



"You realize, there's no water here, water is not for washing, it will only be for drinking and cooking food. So the sanitation of these families is a problem. So you'll get more diarrheal diseases and others" - ***Clinical Officer in charge, faith-based dispensary in urban Turkana***

"I think that for our leaders, water should be one of the key issues for development; unless you provide communities with clean water, you will not be winning the war of health and nutrition, because there is a close link between stunting ,Water, Sanitation and Hygiene (WASH)" - ***County Nutrition Official, Kitui***

Qualitative research findings complement the results presented above on the overlapping of development (stunting) with access to water and sanitation. To begin with, sanitation remains a major challenge in all three counties, Turkana, Kakamega, and Kitui, as many households lack the means to afford latrines and therefore open defecation is the norm. Considering that rivers, springs, streams, and boreholes are the main sources of drinking water, water is often contaminated, resulting in a number of water-borne diseases such as diarrhoea and parasite infestation. In Kitui and Turkana, due to water scarcity families prioritize usage of water for basic needs such as cooking and drinking and less for hygiene, posing children to additional health risks. Healthcare and nutrition practitioners in all three counties highlighted that the diseases listed above are some of the causes of stunting among children below 5 years.

Figure 5.6A and Figure 5.6B show the percentage of children age 5-17 deprived in education, health-related knowledge, and water by area of residence, revealing that both the percentage of children deprived in the three dimensions and the deprivation overlap were higher among children in rural areas. In rural areas, eight per cent of all children age 5-17 experience all three deprivations simultaneously, while this was so only for two per cent of those living in urban areas. In rural areas, 27 per cent of children age 5-17 were deprived in education, and most of these children were also deprived in water and/or health-related knowledge.

Figure 5.6A: Overlap of children age 5-17 deprived in education, health-related knowledge, and water, urban areas

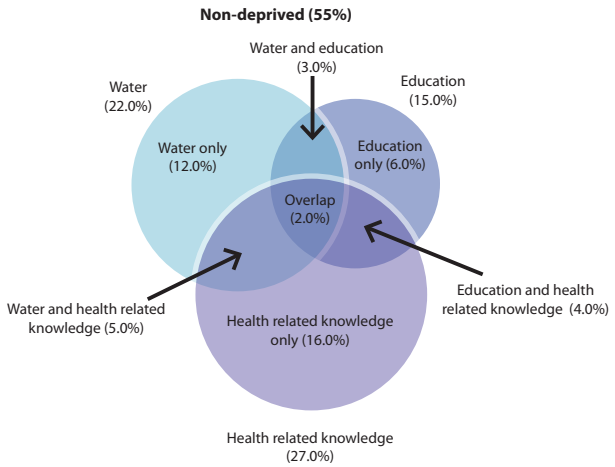
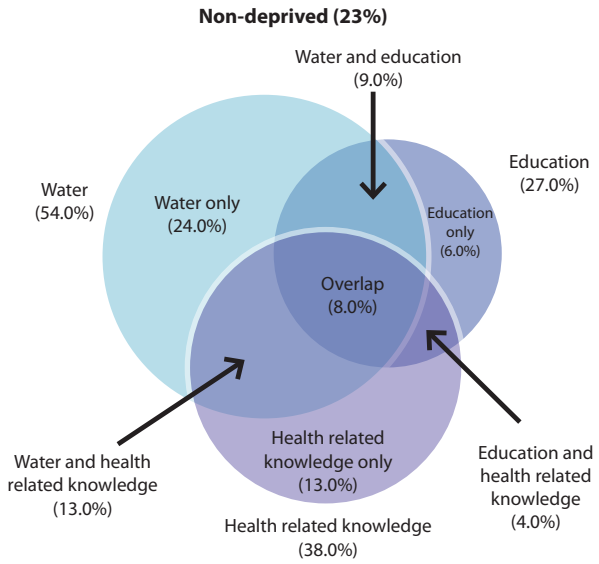


Figure 5.6B: Overlap of children age 5-17 deprived in education, health-related knowledge, and water, rural areas



Qualitative research in remote, rural areas in Turkana and Kitui reinforces the finding that children age 5-17 years are likely to be deprived in health-related knowledge, education, and water simultaneously. Due to the geographical size of these counties and the climatic conditions, water is scarce and therefore rivers and occasionally boreholes are the only source of water. Size of the county and scattered villages with a limited number of inhabitants also make access to education problematic due to unavailability of schools, especially in Turkana. Finally, health-related knowledge is also compromised due to the large distance to health facilities – on average 35km in Turkana (as reported by county officials) – and limited community level services due to lack of financial sustainability.

Figure 5.7A and Figure 5.7B depict the overlap in education and health-related knowledge by the level of household wealth. It shows that not only the deprivation rates, but also the deprivation overlap between these two dimensions was higher among children from poorer families. Among children living in families belonging to the three wealthier quintiles, nine per cent were deprived in education only and another five per cent were deprived in education and health-related knowledge simultaneously. This means that one in every three children from wealthier households who is deprived in education is also deprived in health-related knowledge. Among children from the two poorest wealth quintiles, about half of the children deprived in education are also deprived in health-related knowledge.

Figure 5.7A: Overlap of children age 5-17 deprived in education and health-related knowledge, richest three wealth quintiles

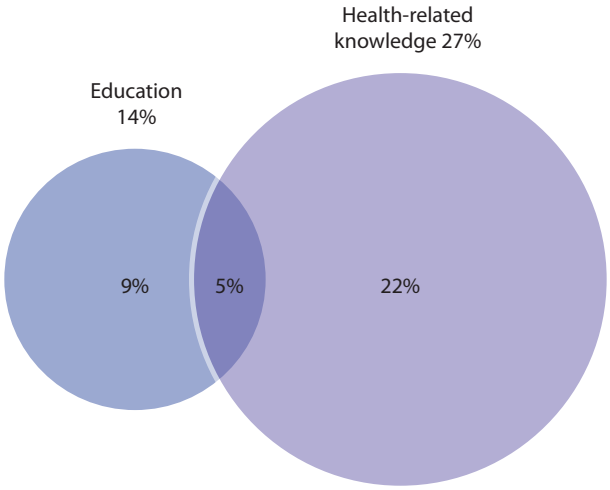
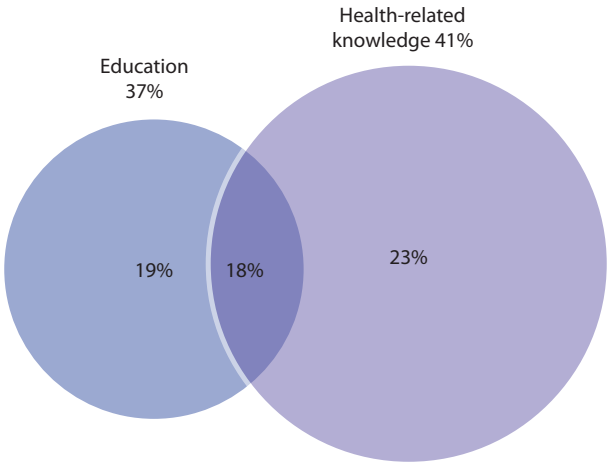


Figure 5.7B: Overlap of children age 5-17 deprived in education and health-related knowledge, poorest two wealth quintiles

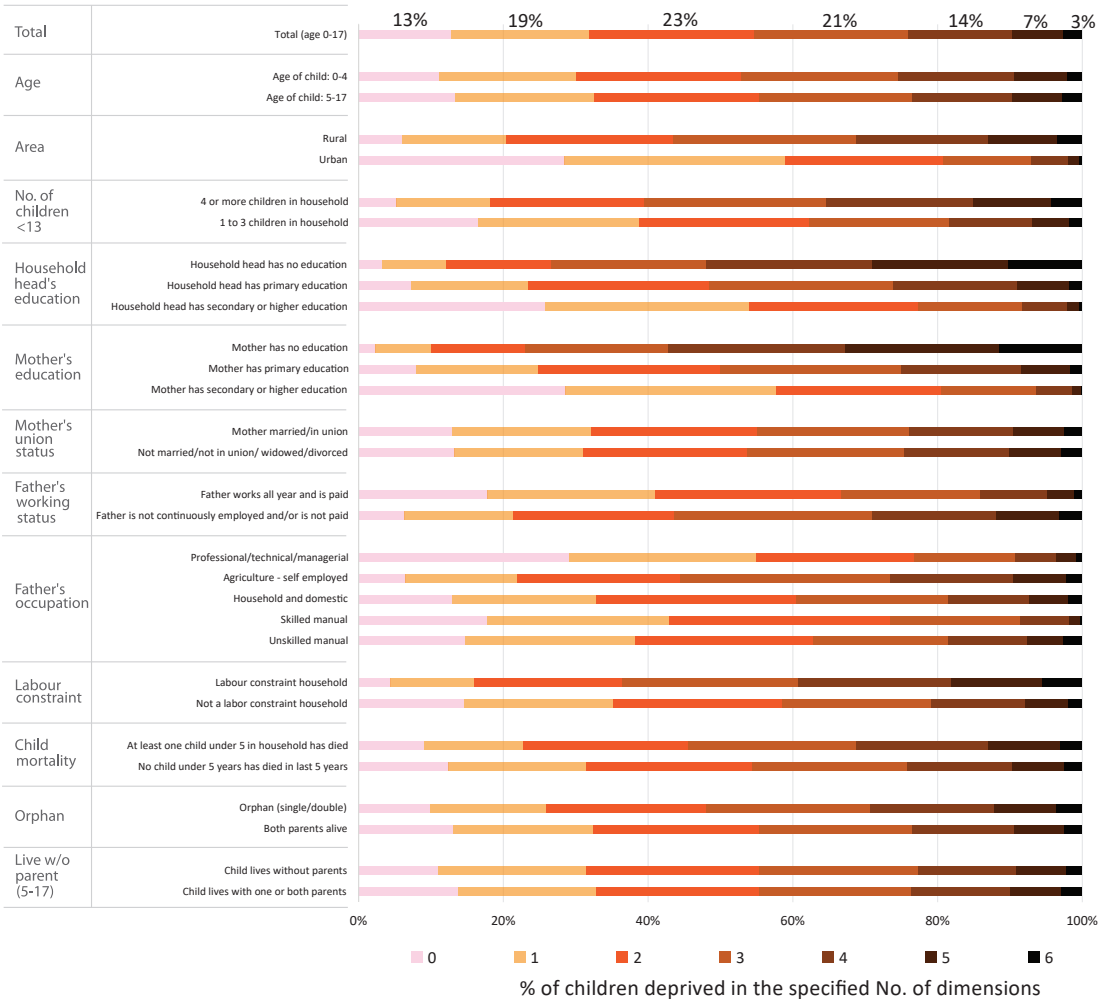


5.2 Deprivation Count and Distribution

In this section, the total number of dimensional deprivations experienced by each child was counted to measure how deprivations were distributed over the child population depending on child's household characteristics. Figure 5.8 depicts various levels of deprivation. At national level, only 13 per cent of children under 18 did not experience any form of deprivation in any of the six dimensions, and another 19 per cent were deprived only in one. Overall, 45 per cent experienced three to six dimensional deprivations at the same time. Figure 5.8 reveals differences in deprivation distribution across different sub-groups of children, unmasking inequities and identifying the characteristics of the most vulnerable children. The results show that the share of children experiencing several deprivations simultaneously was highest among children with the following characteristics: children from rural areas; children from households with a higher number of children; children from households where household head has no education; children with mothers without any education; children with fathers who have not been continuously employed and/or have not been paid during the year; children with fathers whose occupation was agriculture and who were self-employed; children from labour constrained households; and orphans.

The findings confirm that the number of deprivations was not equally distributed across all children. Some children were much more disadvantaged than others as deprivations were concentrated in certain sub-groups of the child population. The results also suggest that multidimensional poverty is associated with geographical area where children reside, household wealth and skills available to generate income, including mothers' level of education, which as demonstrated in the previous sections, was a significant factor especially for access to healthcare services, nutrition, and development of children.

Figure 5.8: Deprivation count and distribution among children under age 18: total and by sub-group



See Annex 8 for sample size and population distribution by profiling variable.

5.3 Deprivation Intensity

This section focuses on deprivation intensity that children experience, and presents findings by age-group using a threshold of one dimension to identify deprivation intensity among children deprived in any one or more dimensions. The purpose of this approach was to analyse all the dimensions included in the child poverty measure without censoring any deprivation, since every one of the selected dimensions represents a specific child's right. This also allows calculating the contribution of each dimension to the overall sum of deprivations for children with one or more deprivations.

The blue bars in Figures 5.9A and 5.9B show the share of children deprived in one or more dimensions by county and by area of residence, while the red borders show the average number of deprivations that these children experience. Overall, 89 per cent of all children under 5 and 87 per cent of children aged 5-17 experience one or more deprivations. On average, these children were deprived in 2.7 out of a total of six dimensions. Children from rural areas were deprived in more dimensions on average than children residing in urban areas. Children in rural areas on average experienced 2.9 and 3.0 for those age under 5 and 5-17, respectively out of a maximum of six deprivations. Those living in urban areas suffer from two dimensional deprivations on average for both age cohorts.

The figures show that deprivation intensity is inequitably distributed across counties, varying significantly depending on where children live. Children residing in Nairobi and Mombasa were noted to experience the lowest number of deprivations at a time, 1.6 on average. The highest average deprivation intensity was in Turkana, Samburu, Wajir, West Pokot, Marsabit, Tana River, and Mandera, where almost every child (97 per cent – 99 per cent) was deprived in one to six dimensional deprivations, and on average these children experience from 3.5 to 4.3 deprivations simultaneously. Ranking of counties from the lowest to the highest average deprivation intensity was very similar when comparing children under age 5 and children of age 5-17.

Figure 5.9A: Deprivation intensity among children under 5 deprived in 1-6 dimensions

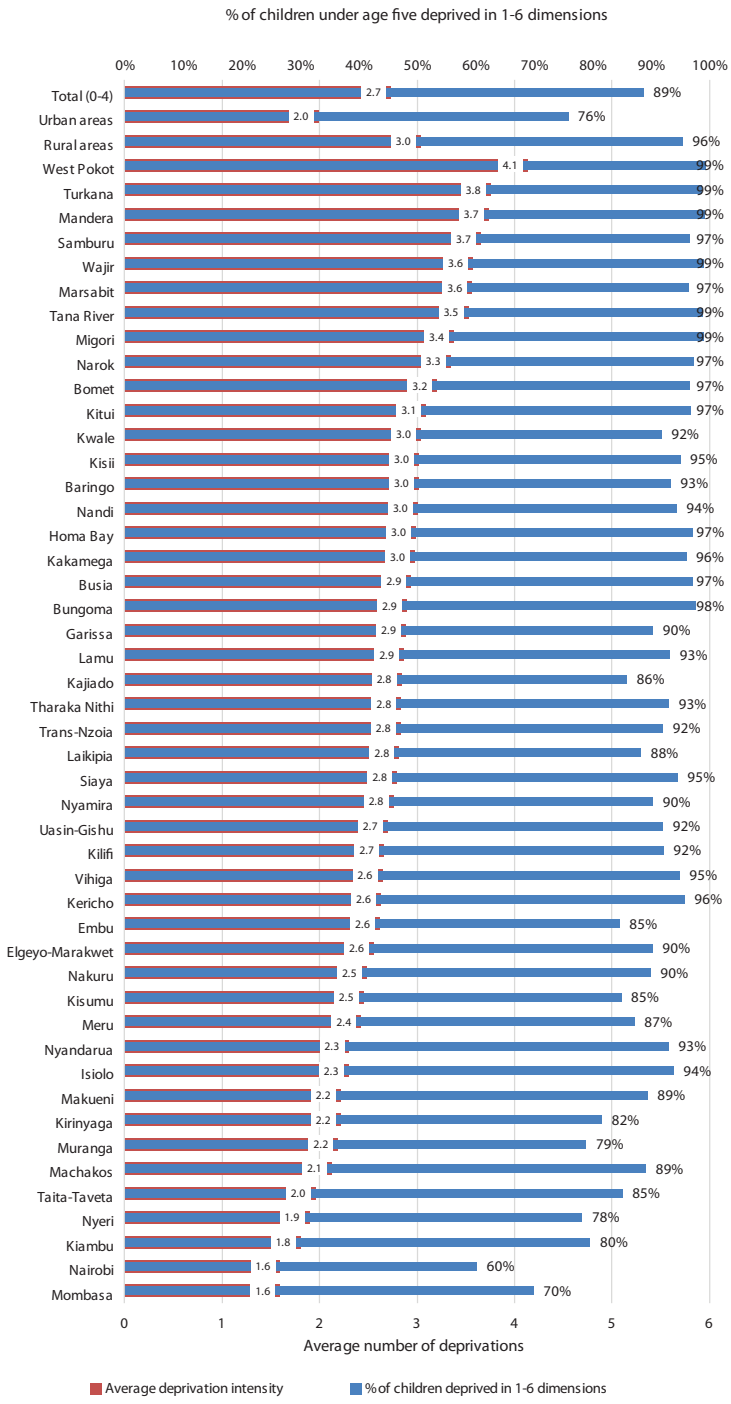
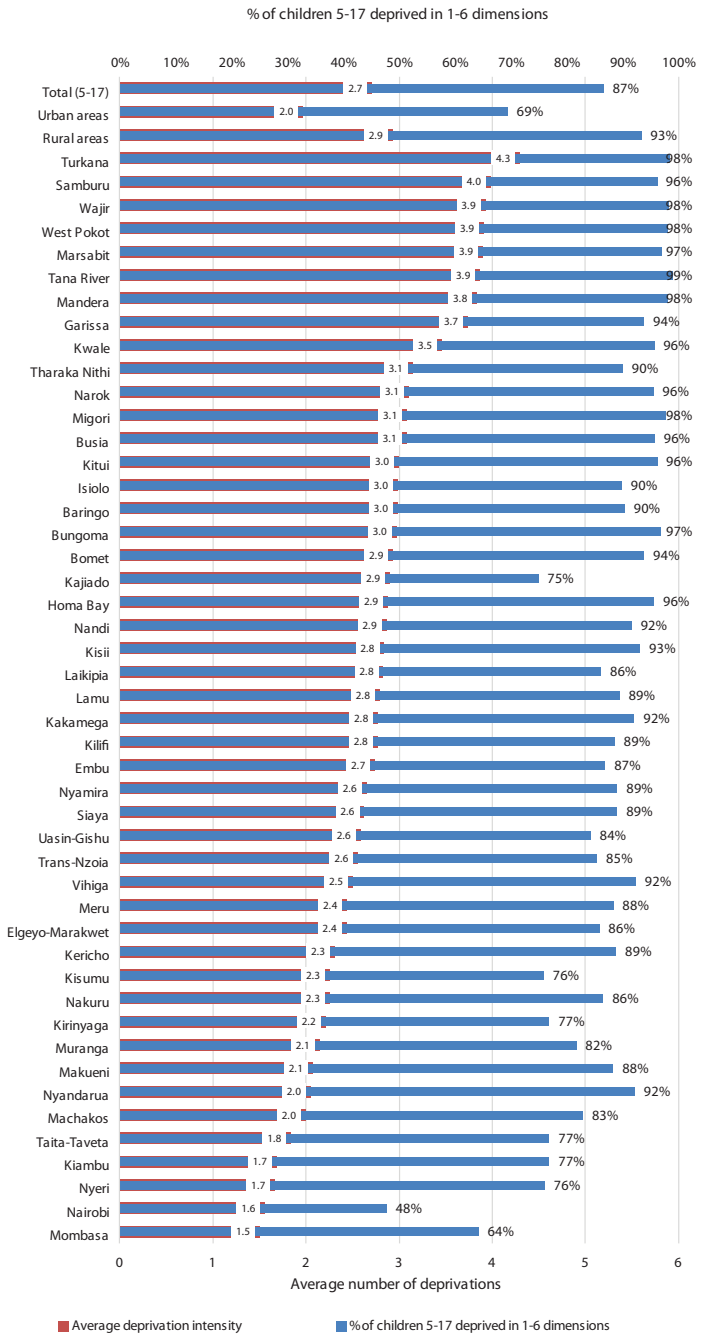
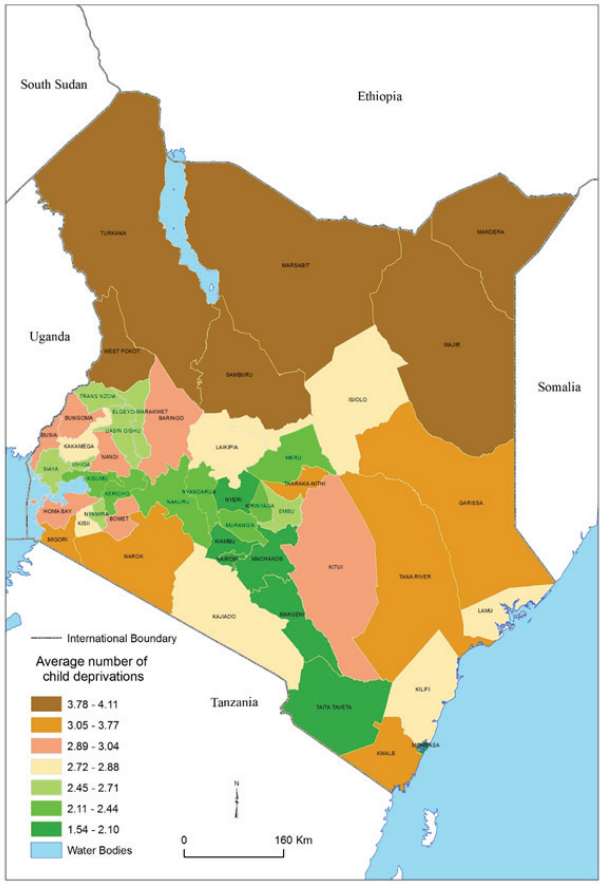


Figure 5.9B: Deprivation intensity among children of age 5-17 deprived in 1-6 dimension



Map 5.1 summarizes the findings by showing the average deprivation intensity by county for all children under age 18. The darker shades of brown indicate a higher average number of deprivations among children in the respective counties. The average number of deprivations ranges between 1.5 in Mombasa and Nairobi to 4.1 in Turkana.

Map 5.1: Average number of deprivations among children under age 18 deprived in 1-6 dimensions



"…they [the patients] will tell you, 'sometimes we don't have this time to boil water, you have a lot and you are thirsty, you have walked a long distance, you are thirsty, and then you can't tell me I have to fetch, come back home, boil, and all that; I just drink'" ***– Nurse-in-charge, dispensary in a remote area in Turkana***

Qualitative research in remote, rural areas in Turkana and Kitui supports the results on higher deprivation intensity in rural areas. Access to available water sources (even those of unsafe water) in these areas is limited due to vastness of the counties, climatic conditions, and high prevalence of open defecation/ lack of access to adequate sanitation facilities. The climatic conditions also impact the availability of food which can lead to malnutrition. Poor water and hygiene conditions lead to high prevalence of water-borne diseases, which coupled with food scarcity impede physical development of children below age 5.

Despite significant infrastructural improvements in healthcare since devolution, mothers and children have problems accessing these services due to distance and lack of road infrastructure and public transportation. Also, services in facilities closest to communities (usually dispensaries) are not available during nights and weekends. Deprivation in access to healthcare has also been exacerbated by restrictions in community health services due to issues with financial support from the counties as a result of decline in partner support.

On the sector of education, counties have been facing challenges to offer schooling for children who live in villages that are scattered due to the small number of pupils, lack of financial resources, and staffing issues.

"Sometimes, the child lives far away, and you can't take the children, one of 3 years, another one of 5 years to the health facility, just for growth monitoring, so you see, the growth monitoring…we need more outreaches" ***- County Nutrition Official, Kitui***

"Very difficult [referring to impact of distance on school attendance]. That is why we made the makeshift boarding facility. Because we realized that it was impacting on performance in a very big way. They have to travel from very far to come here, or by the time they get here they are very tired. They'll get home late again in the evening, so that is why we devised a makeshift boarding facility, so that we can have them here" ***– Parent of a primary school-age child, Kitui***

Figures 5.10 and 5.11 reveal the contribution of each dimension to the overall sum of deprivations of children by age-group. Findings are presented at the national and county level.

Figure 5.10 shows that for children under 5, deprivations in sanitation and housing had the highest contribution to the total number of deprivations (22%), followed by water (18%), health (14%), nutrition (13%), and physical development (10%). Contribution by dimension varies considerably depending on where the children live. For children living in urban areas, the highest contributors to the overall deprivation intensity were deprivations in housing (22 per cent), health (19 per cent), and nutrition (18 per cent), while deprivations in sanitation and water have a lower contribution to the overall deprivation count (16 per cent and 12 per cent, respectively). In Nairobi, the highest contributors were deprivations in health and nutrition, followed by stunting, housing, sanitation, and water. In Turkana, on the contrary, the highest contributors were sanitation and water, followed by health and housing.

Figure 5.10: Deprivation composition among children under age 5 deprived in one to six dimensions

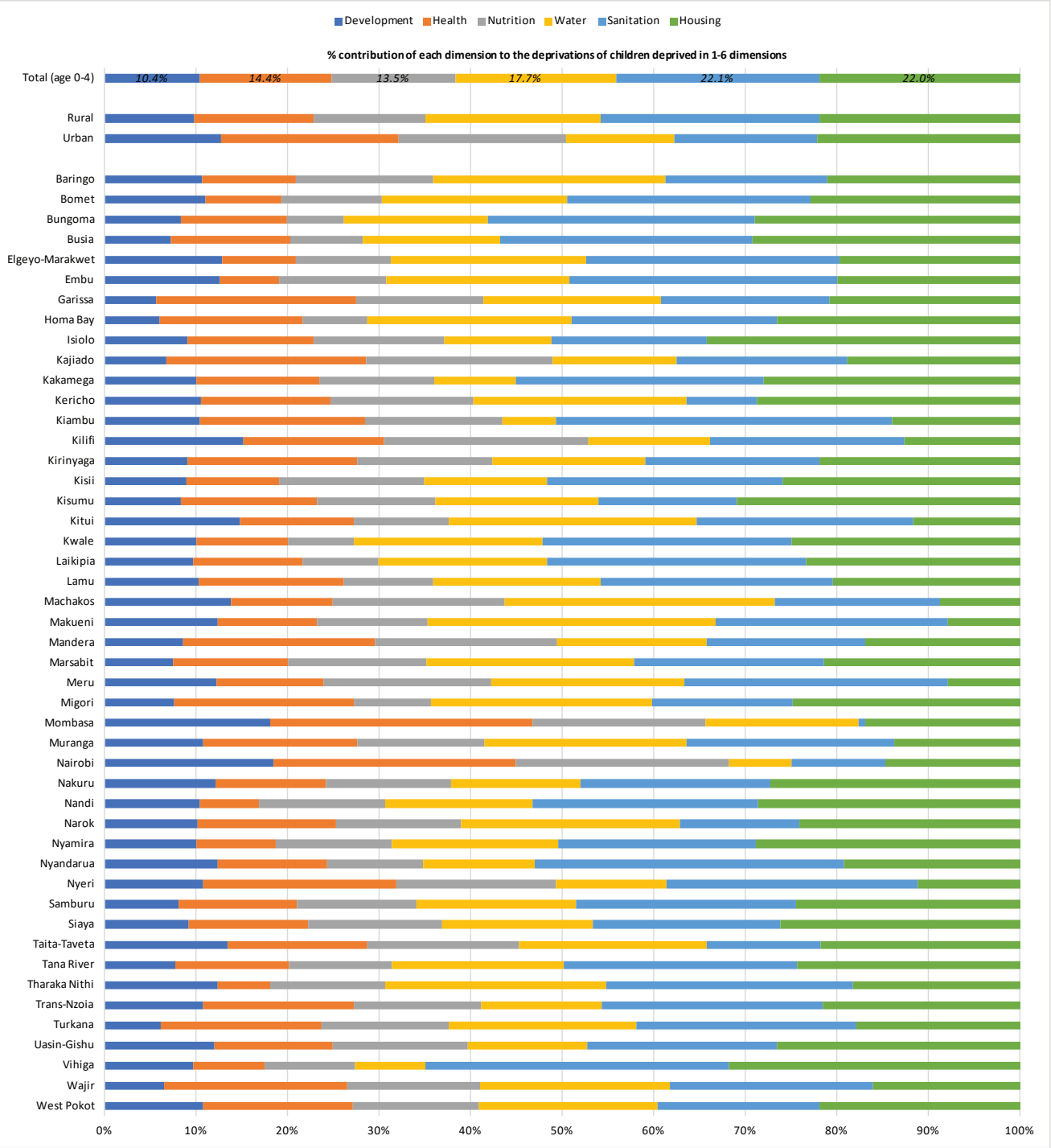
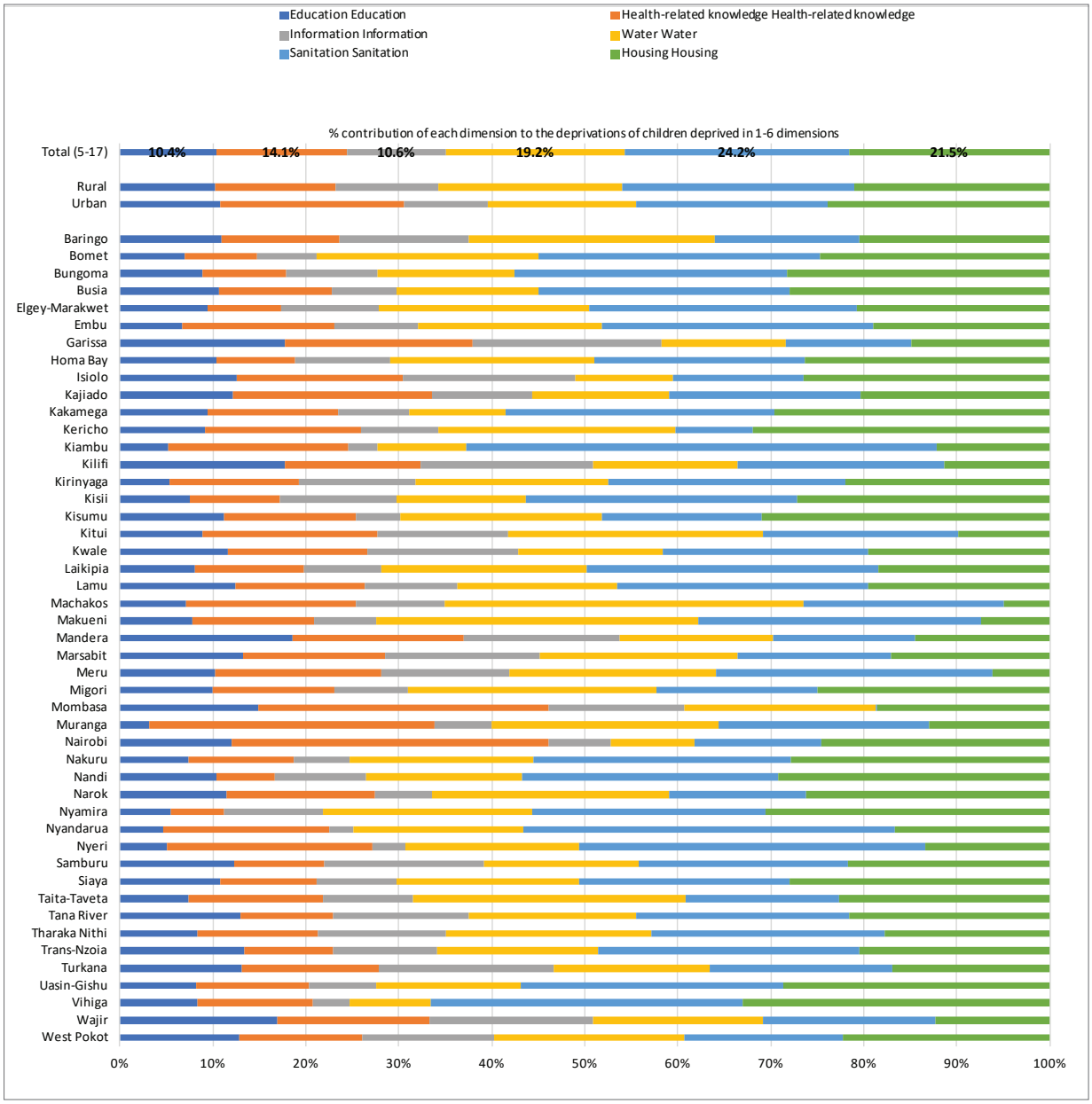


Figure 5.11 shows the contribution of each dimension to the overall sum of deprivations of children aged 5-17. Findings show that deprivations in sanitation and housing have the highest contribution to the total number of deprivations (24 per cent and 22 per cent, respectively), followed by water (19 per cent), health-related knowledge (14 per cent), information (11 per cent), and education (10 per cent). This, however, varies considerably by area of residence and county. For children living in urban areas, for example, the highest contributors to the overall deprivation count were deprivations in housing (24 per cent), sanitation (21 per cent), and health-related knowledge (20 per cent). In Nairobi, the highest contributors were deprivations in health-related knowledge and housing, followed by sanitation and education. In Mombasa, the highest contributors were health-related knowledge, water, and housing, followed by information and education, while sanitation issues were almost non-existent. In Turkana, on the other hand, the highest contributors were sanitation and information, followed by water, housing, health-related knowledge, and education.

Figure 5.11: Deprivation composition among children of age 5-17 deprived in one to six dimensions

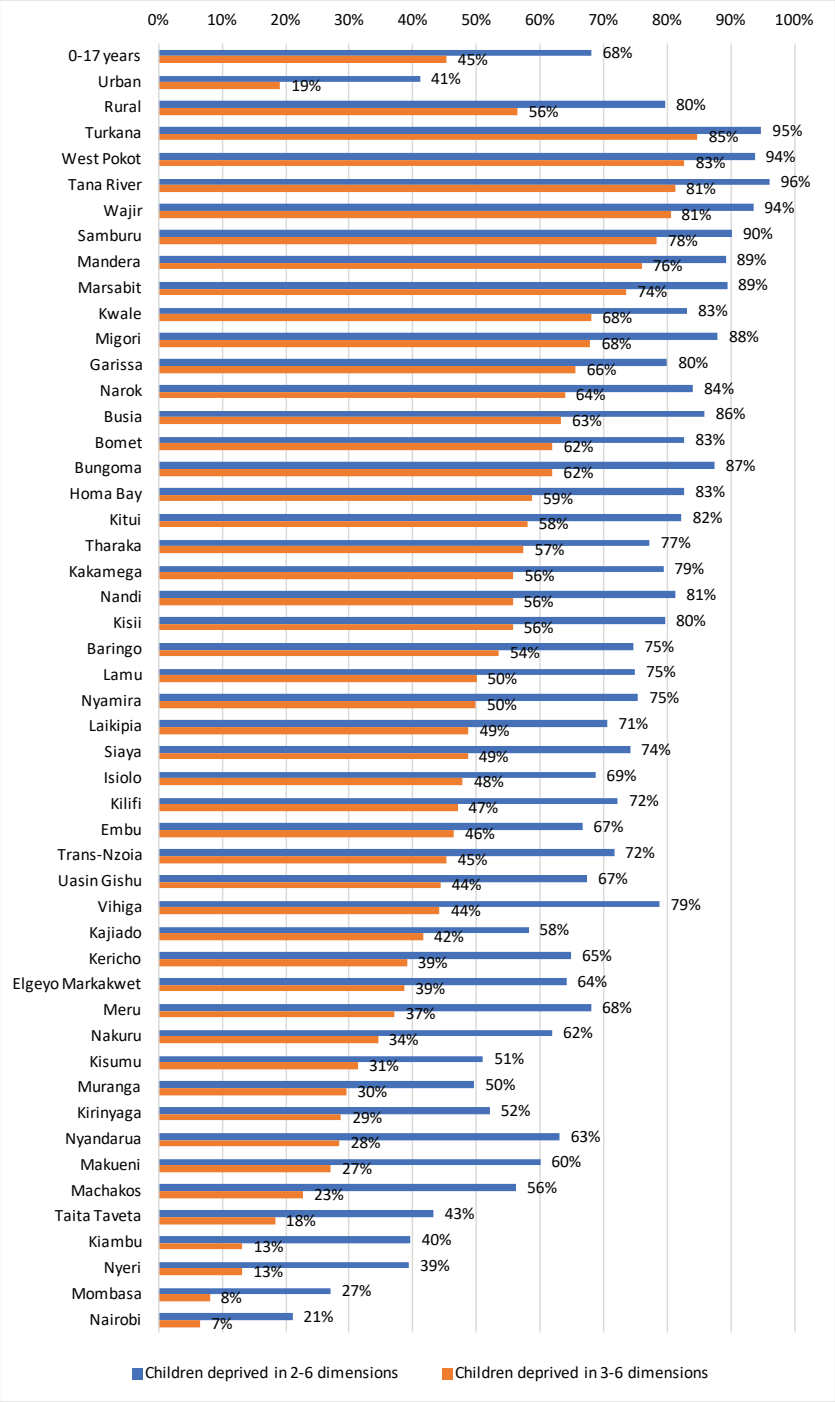


5.4 Child Poverty Incidence and Index

This section seeks to identify the severely deprived children by increasing the cut-off (child poverty threshold) for children experiencing deprivation in more than one dimension simultaneously. The following three measures have been used to calculate the results presented in this section: the multidimensional poverty rate (H) which shows the percentage of poor children; the average deprivation intensity (A) that measures the average number of dimensional deprivations the poor children experience; and the adjusted multidimensional child poverty index (M_0) a composite index composed of the child poverty rate (H) adjusted by the average intensity of deprivation (A).

Figure 5.12 presents child poverty rates based on two thresholds: children deprived in 2-6 dimensions, and children deprived in 3-6 dimensions, ranking counties based on the more severe threshold of three or more deprivations. When selecting a threshold of two or more dimensions, the data show that the child poverty rate is 68%. When selecting a of three or more dimensions, the total child poverty rate stood at 45 per cent. In other words, 45% of children in Kenya under the age of 18 years are deprived from three to six basic goods, services, or rights essential for their well-being. Figure 5.12 shows that while ranking of the counties does not differ depending on the threshold used, child poverty rates differ significantly by area of residence. While 19 per cent of all children from urban areas experience three to six deprivations, this was so for more than a half (56%) of all children living in rural areas.

Figure 5.12: Multidimensional child poverty rates depending on the threshold chosen, by county



The findings presented in Map 5.2 were based on a poverty threshold defined in three to six dimensions with the aim of focusing on the most deprived children and unmasking the disparities across counties and sub-groups of children. Map 5.2 presents child poverty rates by county, while Map 5.3 shows average deprivation intensity among children deprived in 3-6 dimensions.

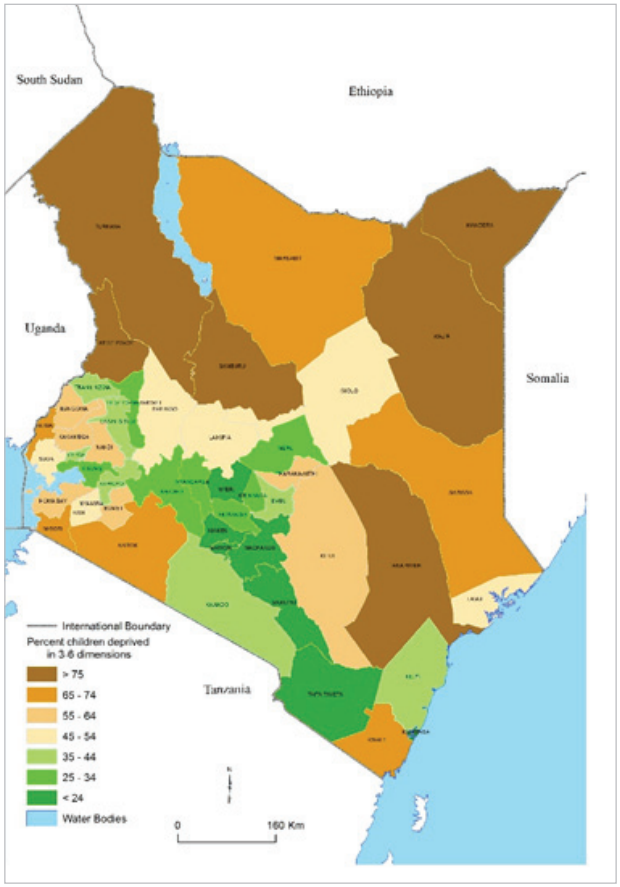
Findings in Map 5.2 and Figure 5.3 reveal large disparities in child poverty rates across counties. While the total child poverty rate in Kenya was 45 per cent, child poverty rates ranged from 7 per cent in Nairobi to 85 per cent in Turkana. Counties with the highest child poverty rates were Turkana, West Pokot, Tana River, Wajir, Samburu, Mandera, Marsabit, Kwale, Migori, and Garissa.

Map 5.3 shows that the average number of deprivations that the poor children experience varies across counties. While on average children identified as poor experience 3.8 deprivations, the average number of deprivations ranges from 3.1 in Mombasa to 4.5 in Turkana. Similar patterns were observed irrespective of the measure (child poverty incidence or deprivation intensity). However, some differences may be observed in ranking of the counties depending on whether the headcount child poverty rate or the average deprivation intensity are used.

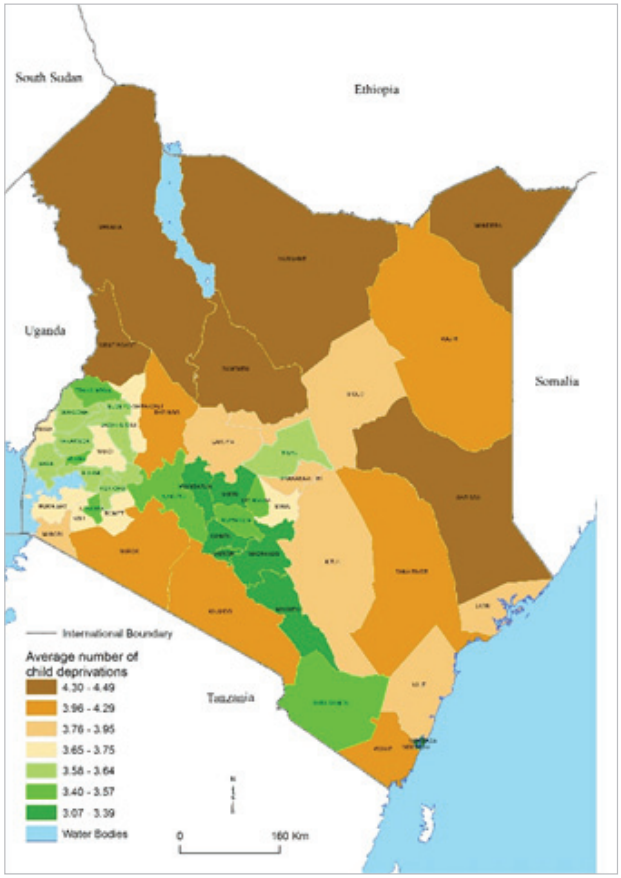
Both measures are useful for analysing child poverty: the child poverty rate is useful in counting the number poor children, while the average deprivation intensity is important in understanding the number of deprivations that children experience. In this way, the most vulnerable children can be identified.

Annex 9 shows values of child poverty and deprivation intensity by county presented in Maps 5.2 and 5.3.

Map 5.2 Child poverty rates by county: Children deprived in 3-6 dimensions



Map 5.3 Average number of deprivations: Children deprived in 3-6 dimensions



The Adjusted Multidimensional Child Poverty Index (M_0) combines the two measures to get to an overall child poverty index that captures both the headcount and their deprivation intensity. The index ranges between 0 and 1, zero showing that nobody experiences child poverty, and one showing that everyone included in the analysis was poor and deprived in all six dimensions simultaneously.

Figure 5.13 and Map 5.4 depict the adjusted child poverty index which consists of the child poverty headcount and child deprivation intensity. The counties shaded in dark brown in the map represent the poorest counties with both, highest child poverty rates and highest deprivation intensity. Figure 5.4 presents both the child poverty headcount rates in the blue bars and the child poverty index (squares in orange).

The results show that the adjusted child poverty index was 0.29, ranging from 0.04 in Nairobi to 0.63 in Turkana.

As shown in Figure 5.13, counties that have an equal child poverty rate but have a higher deprivation intensity appear as worse off in ranking based on the adjusted child poverty index. For instance,

Wajir and Tana River have the same child poverty rate (81 per cent), but differing deprivation intensity (average of 4.3 dimensional deprivations in Wajir compared to 4.2 in Tana River). As a result, the two counties have a different adjusted child poverty index (0.58 for Wajir compared to 0.57 for Tana River). In this way, there were slight changes in the county ranking depending on whether the child poverty rate or the child poverty index was used.

Figure 5.13 and Map 5.4 show that Nairobi, Mombasa, Kiambu, and Nyeri have the lowest child poverty index, followed by Taita-Taveta, Machakos, Makueni, Nyandarua, Kirinyaga and Muranga. The counties with the highest child poverty index were Turkana, West Pokot, Wajir, Samburu, Tana River, and Mandera, followed by Marsabit, Garissa, and Kwale.

Map 5.4 Child poverty index by county

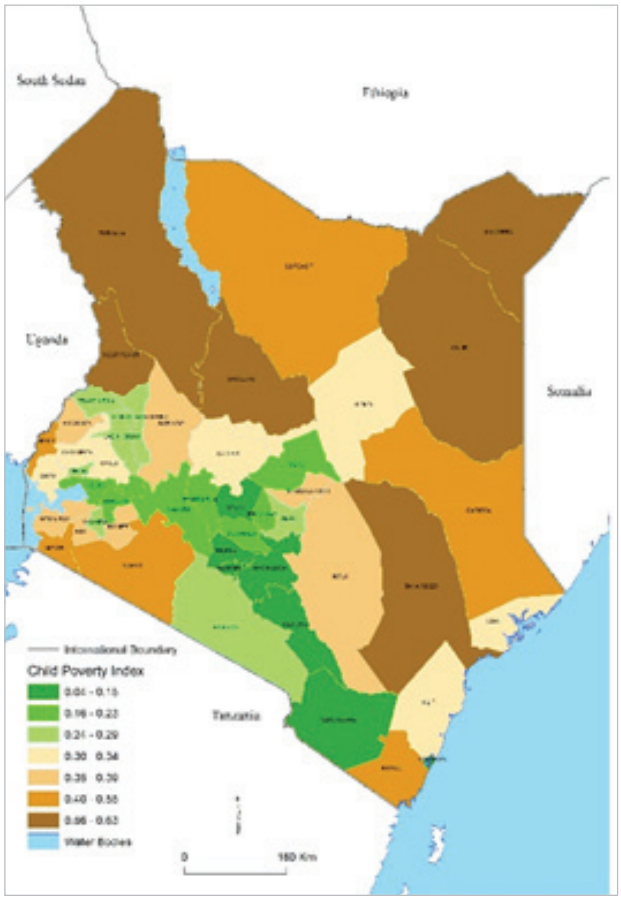
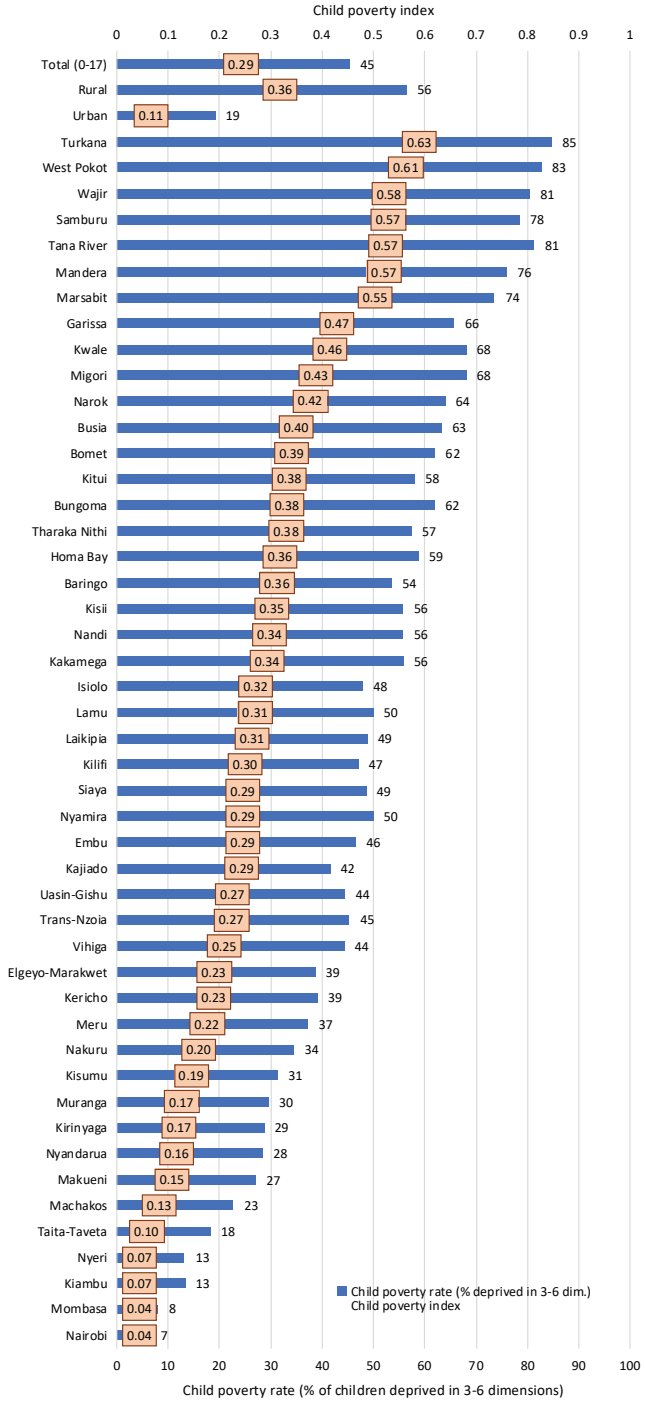


Figure 5.13: Child poverty index (M0) and child poverty rates by area of residence and by county



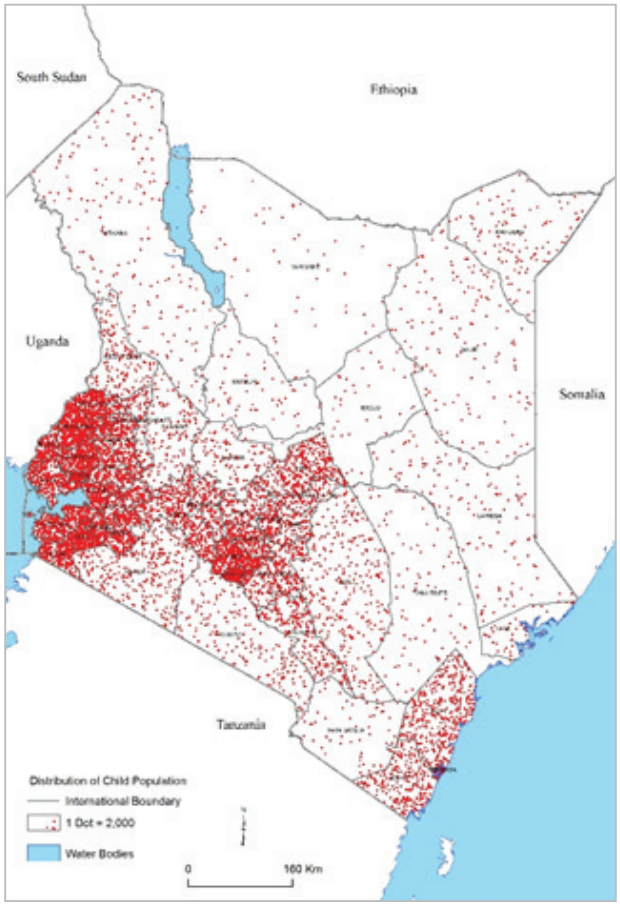
5.5 Decomposition of Child Poverty by County

This section presents the number of poor children in absolute terms, and shows the contribution of each county to the total child poverty index.

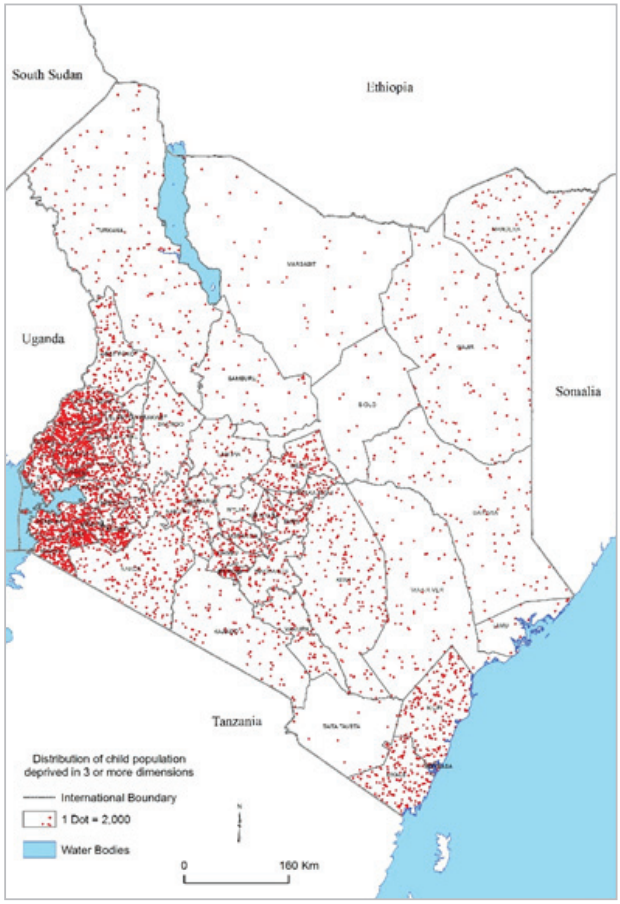
In 2014, the estimated number of children under age 18 in Kenya was 21,064,614 which was equal to 49 per cent of the total population. Map 5.5 ranks counties by the number of children per county, with areas with more concentrated dots indicating a higher number of children in absolute terms. Counties with the highest numbers of children were Nairobi with 1,420.2 thousands, Bungoma with 1,068.0 thousands, followed by Kakamega with 923 thousand, Nakuru with 889 thousand, and Kiambu with 757 thousand.

Map 5.6 ranks counties by the number of poor children based on the child poverty threshold of 3-6 deprivations. Counties have been ordered from the lowest to the highest numbers of poor children in absolute terms, with counties with the highest numbers marked in areas with more concentrated red dots. Counties with the highest numbers of poor children were Bungoma with 662 thousand, Kakamega with 516 thousand, and Homa Bay with 450 thousand. Counties with the lowest numbers of poor children were Taita-Taveta (24 thousand), Mombasa (31 thousand), Lamu (33 thousand), and Nyeri (38 thousand children).

Map 5.5: Number of children per county



Map 5.6: Number of poor children per county (k=3)

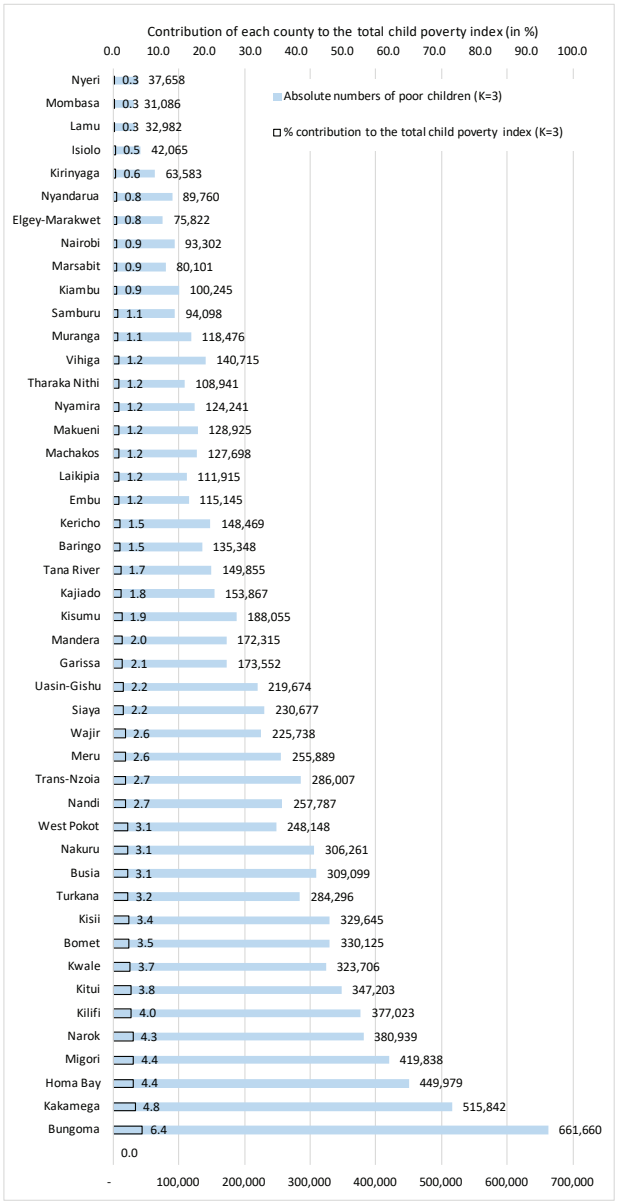


Annex 9 presents a table including all the values used to draw the maps.

Figure 5.14 shows the contribution of each county to the overall child poverty index in Kenya and the total number of poor children in absolute numbers (also presented in Map 5.6). Counties were ordered from the highest to the lowest relative contribution to the total child poverty index.

The order of counties based on the number of poor children was slightly different from the one based on the relative contribution of each county to the total child poverty index. The order based on relative contribution takes into account not only the absolute numbers of poor children, but also their deprivation intensity. This helps identifying counties with the highest absolute numbers of poor children experiencing the highest deprivation intensity. Figure 5.14 reveals that these were Bungoma, Kakamega, Migori, Homa Bay, Narok, Kilifi, Kitui, Kwale, Bomet, Kisii, Turkana, and West Pokot, with the relative contribution ranging from 3.1 per cent in West Pokot to 6.4 per cent in Bungoma. Together these 12 counties constitute almost half (49 per cent) of the total child poverty index, meaning that roughly one half of the total absolute child poverty incidence and intensity was located in these 12 counties.

Figure 5.14: Child poverty contribution by county to the total child poverty index



The county order based on their relative contribution to the total child poverty index as presented in Figure 5.14 does not correspond to county ranking when ordered from the highest to the lowest percentage of the poor children, or from the highest to the lowest child poverty index as shown in previous maps and figures. This is because some of the counties with the highest child poverty rates had relatively low numbers of child population in absolute terms. For example, Tana River and Wajir were among counties with the highest child poverty rates, but they rank as average contributors to the total child poverty index as their total child population in absolute numbers is relatively low. Similarly, counties such as Kilifi and Kakamega with an average child poverty rate and an average poverty index rank among the highest contributors to the total child poverty index as their child population in absolute numbers was high. See Annex 9 for child poverty rates, absolute numbers of poor children, contribution of each county to the total child poverty index, and the total child population, by county.

5.6 Factors Associated with Child Poverty

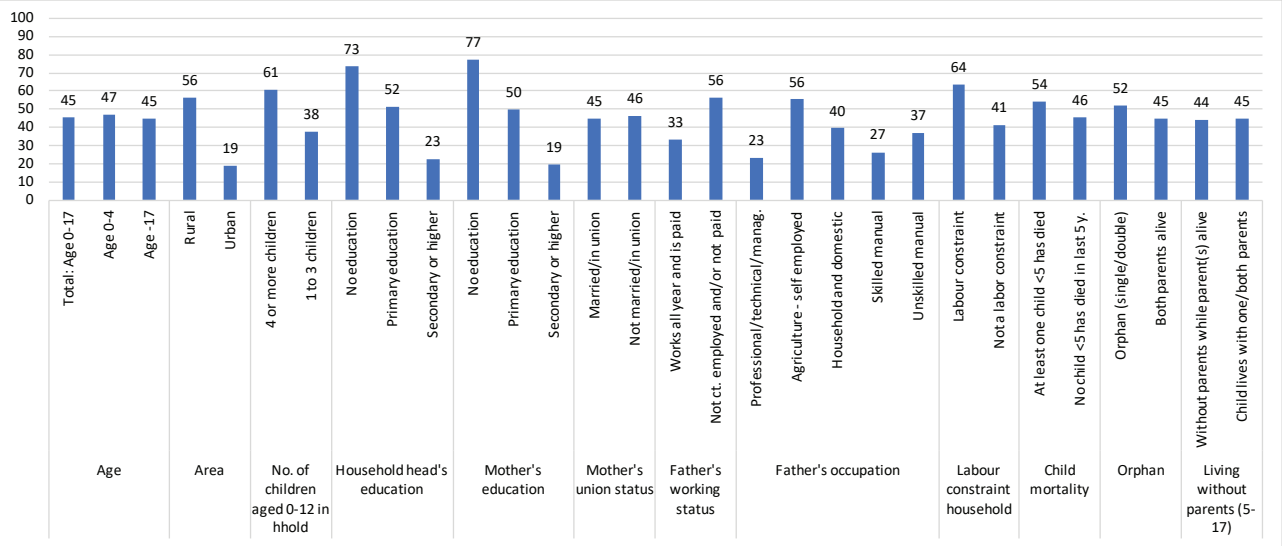
This section identifies some of the individual and household characteristics associated with child poverty. Results by sub-group serve as an indication of the existing disparities among children, and indicate factors associated with child poverty. The findings in this section are twofold: the first part is based on descriptive analyses, reporting child poverty rates for one sub-group of children at a time. This is followed by a multivariate analysis using a logistic regression model to account for the relationship between the different factors affecting the deprivation intensity among children. Annex 8 presents the number of observations and population distribution for each of the sub-groups analysed.

As presented in Figure 5.15, child poverty rates are higher among children living in rural areas (56%) and among children living in households with a higher number of children (61%). Family background also matters. Child poverty rates are higher among children living in families where the household head has no education (73%), and among children with mothers who have had no education (77%). In comparison, child poverty is experienced only by 23 per cent of children living in households where the household head has secondary or higher education, and 19 per cent of children with mothers who have secondary or higher education.

Fathers' working status and type of occupation are also seen as factors affecting child poverty. Child poverty rate was 56 per cent among children with fathers who are not continuously employed and/or who are not getting paid are poor, compared to 33 per cent among children with fathers who were continuously employed in 2014 and who were receiving payment for their work. The child poverty rate was also higher among children whose fathers' occupation was agriculture and who are self-employed (56 per cent), as opposed to children with fathers whose occupation was professional, technical, managerial (23 per cent) or skilled manual (27 per cent). Likewise, the multidimensional poverty rate was higher among children who live in labour-constrained households (64 per cent), and among orphans (52 per cent).

Results also show that child poverty is associated with child mortality. Child poverty rate was higher among children who lived in families where one or more children under five had died over the last five years preceding the survey. This points at possible relationship between multiple deprivations and child mortality which would, however, need further investigation.

Figure 5.15: Child Poverty Rates by Individual and Household Characteristics (k=3)



Multivariate analysis is used to identify children's individual and household characteristics that affect the probability to be poor (deprived in 3-6 dimensions), keeping all other characteristics constant. As mentioned in previous sections, this approach differs from that of descriptive analysis where differences in deprivation rates by county, parents' level of schooling, and all other characteristics are analysed one by one. A logistic regression analysis was used to look at all the variables of interest at the same time to be able to identify the effect of each of the variables by holding all other factors constant. The marginal effects of probability change are calculated based on odds ratios using a logistic model that regresses the binary outcome variable 'child poverty' against the following explanatory variables: area of residence and county, child's age, child living with parents, orphan status, household composition (number of children, adolescents, working-age adults, and adults over age 60), and the schooling level of the household head. An additional analysis has been carried out for children living with both parents to be able to look also at mother's schooling level and at father's social class/occupation. See Annex 8 for the number of observations and population distribution per explanatory variable.

Results presented in Table 5.1 reveal that the characteristics that have the largest marginal effect on increasing the probability to experience child poverty are low educational attainment of the household head, and living in rural areas. These are followed by living in labour-constrained households, being an orphan, and living in households with a large number of children under 5.

Living in a household where the household head has no education (compared to secondary and higher education) is associated with a 32-percentage point increase of the probability to be poor. This is a significant marginal effect as the total child poverty rate among all children is 45 per cent. The marginal effect of household head's educational attainment is higher for children in the older age-group. This might be related to the fact that deprivations in education and health-related knowledge that are relevant for children aged 5-17 are more strongly associated with the educational attainment of the child's caretakers than deprivations in health-care and nutrition, relevant for children under age five (see Section 4 showing the relationship between household characteristics and deprivation incidence by dimension and age-group).

All else being equal, residing in rural areas increases the probability of a child to be poor by 21 percentage points compared to living in urban areas. This effect is highest for children age 5-17. One explanation for this is that the information and education dimensions were applied only to the older age-group. Further, the information dimension is strongly associated with rural/urban divide compared to health and nutrition dimensions, which were included in the child poverty measure for the younger age-group (See Section 4).

Results also show that living in households with a large number of small children increases the likelihood of a child to be poor. Being an orphan is associated with a higher probability to be poor in multidimensional terms. All the results are significant with a 99 per cent confidence level.

Table 5.1: Marginal effects associated with a change in probability of child poverty

Variable	Probability change		
	All (0-17)	Age 0-4	Age 5-17
Household head has no education (ref. secondary/higher ed.)	0.315***	0.276***	0.329***
Household head has primary education (ref. sec./higher ed.)	0.198***	0.183***	0.205***
Child is orphan (single/double) (ref. both parents alive)	0.0293***	0.0111	0.0207***
Child lives without parents while parent(s) alive (ref. child lives with one or both parents)			-0.0264***
Child's age is 0-4 years (ref. 5-17 years)	0.0362***		
Child's age is 1-4 years (ref. 0-11 months)		0.0552***	
Child's age is 15-17 years (ref. 5-14 years)			0.0785***
No. of children aged 0-4 in household	0.0243***	0.0498***	0.0182***
No. of children aged 5-14 in household	0.00818***	0.0166***	0.0110***
No. of children aged 15-17 in household	-0.0116***	-0.0271***	-0.0279***
Child lives in a labour constrained household	0.0517***	0.00813	0.0644***
Child lives in a rural area (ref. urban)	0.211***	0.200***	0.217***
Observations	69,451	18,958	50,492

Note: controlled also for counties. See Annex 8 for population distribution and sample size by variable.
Significance levels *** p<0.01, ** p<0.05, * p<0.1
Sample: children aged 0-17. Source: author's calculations, using KDHS 2014 data.
Household is labour constraint if (1) there is no adult of age 18-59 in the household; or (2) the dependency ratio is greater than 3. The dependency ratio is calculated in the following way:
Dependency ratio = (No. of children below 18 + No. of elderly aged above 60) / (No. of adults aged 18-59).

Table 5.2 presents results from a logistic regression identifying the factors associated with a change in probability to be poor for children who live with both parents. The sample size is therefore smaller than the one used in the analysis presented in Table 5.1. This additional analysis is done to account also for background characteristics of child's parents, namely mother's schooling level and father's occupation.

Results show that both, household head's and mother's schooling level are associated with changes in probability to be poor. Children with mothers who have had no formal schooling have a 20-percentage point higher probability to be poor compared to children with mothers who have secondary or higher education. This is a significant difference as the total child poverty rate among children who live with both parents is 41 per cent.

Father's occupation is also strongly associated with child poverty. Children whose fathers work in the agricultural sector and are self-employed have a higher probability to be poor compared to children whose fathers have other types of jobs, such as professional, technical, managerial, domestic, skilled manual, or unskilled manual.

Likewise, the probability to be poor changes depending on whether the child's father has continuous employment as opposed to no work or seasonal work, and whether the father receives payment. The marginal effect, however, is lower than that of household head's education. One possible explanation is that the level of educational attainment is more strongly associated with long-term accumulation of wealth and income than is the current employment status of the father.

Please refer to Table 5.1 to see the effect by characteristic for all children, including those living without parents.

Table 5.2: Marginal effects associated with a change in probability to be poor children living with both parents

Variable	Probability change
Household head has no education (ref. secondary/higher ed.)	0.248***
Household head has primary education (ref. secondary/higher ed.)	0.145***
Mother has no education (ref. secondary/higher ed.)	0.193***
Mother has primary education (ref. secondary/higher ed.)	0.099***
Child's age is 0-4 years (ref. age 5-17)	0.120***
No. of children aged 0-4 in household	0.028***
No. of children aged 5-14 in household	0.012***
No. of children aged 15-17 in household	-0.012*
Child lives in a labour constraint household	0.012
Child lives in a rural area (ref. urban)	0.192***
Father is not continuously employed and/or is not paid	0.048***
Father's occupation: agriculture, self-employed (ref. all other types, e.g. proff./technical/ managerial, domestic, skilled/unskilled manual)	0.066***
Observations	13,091
Note: controlled also for counties. See Annex 8 for population distribution and sample size. Significance levels *** p<0.01, ** p<0.05, * p<0.1 Sample: children aged 0-17 with both parents in household answering the Woman's and Man's Questionnaire. Source: author's calculations, KDHS 2014 data.	

5.7 Factors Associated with Child Poverty: An issue of access to services and service availability

This section complements the quantitative findings on the factors associated with child poverty with the findings of the fieldwork conducted in Turkana, Kakamega, and Kitui, analysing both factors that hinder access from the demand perspective (parents and children) as well as barriers resulting from service provision and availability. Complementation of results is restricted to the sectors subject to research – Health, Nutrition, Housing, and WASH – and FGD participants and interviewees (for healthcare, nutrition and WASH – mothers, for education – parents of primary school-age children).

Residence in rural areas. *In all three counties, residence in rural areas is associated with deprivation in all sectors, particularly in areas of geographical vastness like Turkana and Kitui, whereby distance to healthcare facilities and schools is very large despite the mass investments in infrastructure since devolution. Distance to healthcare facilities and inability to pay for transportation costs (in absence of public transport and adequate road infrastructure) hinders accessibility to and utilization of a wide range of essential services: antenatal care visits, immunization, vitamin A, child growth monitoring, skilled birth deliveries, and treatment of diseases. In Turkana, distance to schools hinders access to education due to security issues. Residence in rural areas was also characterized with deprivation in water, sanitation and hygiene, but water in particular is very problematic due to lack of infrastructure for water supply and climate conditions in Kitui and Turkana that often result in water scarcity as the households mainly use the nearest river as a water source (in some cases also boreholes).*

"...we know immunization is very important for children. But what will I do now if the distance is so big? It is not because there is a facility near me that I do not take the children, but I cannot walk 20km just to get a vaccine" ***- community in a remote area in Turkana***

Child poverty in informal settlements (slums) in urban areas could not be studied due to the scope of the analysis.

Mother's level of education. *Since the mothers are the primary caretaker of children, their education level has a great importance on children's access to healthcare services, nutrition, and development. Low education attainment of mothers, commonly expressed as ignorance or lack of knowledge by the interviewees, was claimed to affect the well-being of children in many aspects. Mother's lack of knowledge was emphasized to have an impact on children's deprivation on physical development and*

nutrition in several ways: 1. going to the facility for the first ANC visit in the third trimester of pregnancy; 2) introduction of solid food in the diet of children before they reach the age of 6 months; 3) providing children under 5 years with an unbalanced diet (including only staple foods); and 4) not taking children below 5 years to health facilities for growth monitoring or vitamin A supplements once they have completed the schedule of immunisation. This factor was also reported to be associated with defaulting in immunization and delays in treatment of diseases, sometimes resulting even in death of children. Lack of knowledge was also reported to be manifested in inadequate treatment of diseases – such as removal of teeth from teething children to treat diarrhoea in Turkana or usage of Paracetamol to treat any type of diseases in Kakamega – or negligence in accessing healthcare services.

"Those who are more educated, they are more likely to get the services. Because if you look at the differences, among those who have low education level, they don't understand why they should get vaccines. I think the education level matters" ***- County Health Official, Kitui***

In Kakamega for instance, mothers were reported to delay sending children to the health facilities during market days, when they attend funerals, or during the harvesting and planting seasons. Prevention of diseases was also found to be associated with this factor as the mothers do not use malaria nets (they sell them, use them only for visitors), do not treat the water and utensils with which they cook food, and do not maintain adequate hygiene conditions for the younger children. Educational outcomes of children are also affected by mothers' level of education, as cognitive and non-cognitive skills are developed not only at school but also at home throughout childhood. FGD participants (teachers and parents) were underlining that one of the reasons for poorer educational outcomes among some of the children were linked to illiteracy or low educational attainment of mothers because of the inability of the latter to follow up on children's progress, check homework, and pass on the necessary knowledge to succeed in the school environment.

"Some parents say I never went to school, what business you have to go to school? So, you know, that mind that what is the importance, they don't understand" ***– Parent of a primary school-age child, slum area in sub-urban Kakamega***

Education level of household head. *The level of educational attainment of the household head was emphasized as important for access to education, particularly in relation to gender disparities. In all three counties, illiteracy or low educational attainment of parents was listed as one of the reasons why some children do not attend school, start school later, or are withdrawn from school to work, as the parents do not understand the importance of education. Especially for education of the girl child, parent's support is very important in communities where the boy child is prioritised for schooling, whereas investment in the girl child's education is not considered since they will be married.*

"If you went to the class and asked the pupils: what time you woke up? I woke up at 5 AM. What time did you leave for school? At 6:30. How many of you took breakfast? Out of 100 pupils, about 6 or 7, maybe 10 will say "we took tea", others will just go. And then I ask: "How many of you took supper yesterday?" Some of them will tell you they never took supper. So they didn't take supper, they didn't take breakfast. What they will be getting is lunch, which is a mixture of beans and maize. Not here. Maybe they take a cup of tea….Also, you will find that even when they come to school, some of them may be sleeping in the classroom to keep them coming, their stomachs will keep paining because they are hungry" ***– Head Teacher, primary school in rural Kakamega***

Father's economic activity and living in labour-constrained households. *These two factors have not been explicitly researched during qualitative research. However, since they are closely related to income that households have available to access basic goods and services, monetary poverty will be used as a proxy to complement the quantitative research findings. Monetary poverty/lack of financial resources was highlighted as the key determinant of child poverty in all dimensions in qualitative research. To begin with, monetary poverty impacts deprivation of children in physical development and nutrition as families cannot afford to buy food and particularly the food items that would ensure a balanced diet. Children living in families with limited financial resources are more likely to be simultaneously deprived in health, development and nutrition as their parents/guardians cannot afford transport costs to health facilities or the drugs for treatment of their children.*

"In this community, and even to date, girls are assets. So, the dropping out of school does not cost the family, it's like an ease to them. You have reduced the problems. It's ok. So even if they have dropped out, you've lost nothing. And like a boy dropping out of school…So they think, if she gets married, we are going to get animals, money, so she has really helped us" ***– Teacher, primary school in Turkana***

Monetarily poor families are also more likely to live in poor housing conditions and cannot afford adequate water, sanitation and hygiene conditions, resulting in numerous diseases among younger children. Access to assets that would enable children's access to information is also hindered in such families. Children living in poor families also have problems accessing education at all levels: pre-school, primary and secondary. Parents or guardians of these children cannot afford to cover basic needs of sending children to school: food, uniforms, fees for employing teachers, desks and chairs, textbooks and other school materials. For girls, unaffordability of sanitary towels is both a factor in attendance and performance due to absences up to seven days each month. Children in labour constrained households also drop out of school or make long absences as they have to engage in child labour to provide for their families. Furthermore, in families with many children, monetary poverty implies that the family has to make choices on which children to send to school, most commonly resulting in prioritization of the boy child as the latter will remain with the family.

Being orphaned. *Orphaned children are considered to be exposed to a greater risk of child poverty. Due to the shock that households experience with loss of family members, these children will lack the financial resources to access any type of service.*

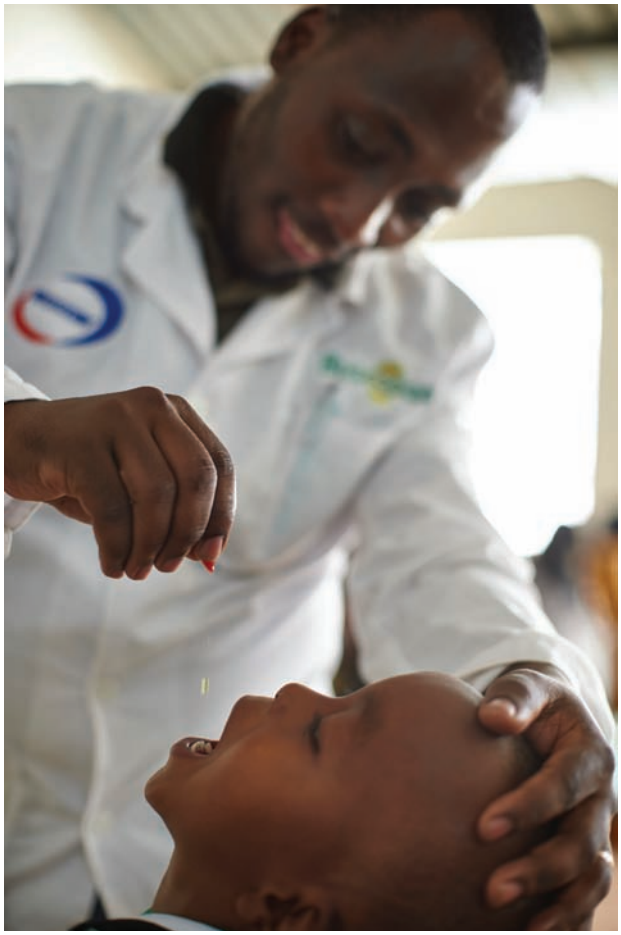
"I had a case that my brother-in-law passed on, and left behind children, and I was actually the only one to take care of them, when I was married. So there comes a time when you are actually in a great deal of helping them, you really see with that eye, but the resources are not enough" ***– Parent and guardian of primary school-age children, slum area in sub-urban Kakamega***

This is especially the case when orphaned children become the household head, i.e. responsible for sustaining the family financially, or when they are taken care of by grandparents. Children living with guardians, especially if the latter have many children of their own, are also deprived in basic goods and services due to prioritization of other children in the family and limited resources available.

Availability of education. *Fieldwork highlighted numerous issues with education provision in all three counties which impede both access of children to education and compromise quality of education.*

"Sometimes the parents spray water on the floors but they cannot calm down the dust. Most of the children do not have shoes to come to school and they attend toilet with bare feet. So, when they walk back into class, they can inhale and get infected. So, by so doing, they get sick and don't go to school" ***– Parent of a primary school-age child, Kitui***

To begin with, limited financing that the schools receive is a major problem as the schools cannot afford to make major investments in infrastructure, pay for utilities, hiring teaching and other staff, and purchase furniture, textbooks and other necessary supplies. As a result, parents are requested to pay fees to cover all of the above mentioned expenses. Inadequate infrastructure in schools is evident in all three counties, including inadequate walls, flooring, windows; insufficient number of classrooms; lack of access to water; lack of and inadequate toilets; and lack of furniture. Some of these issues were reported to not only hinder access to quality education, but to also pose risks to children's health. Schools in rural, remote areas in Turkana and Kitui lack even buildings and the children attend classes under the trees. In Kakamega, lack of lighting arrests during adverse weather conditions poses risk to life of children during lessons. Lack of flooring and dust were related to acute respiratory infections and jigger infestation.



Furthermore, lack of access to water, especially in schools in Turkana and Kitui where school meals are provided, whereby children have to bring water to school for own use and cooking of school meals poses a threat to their health in absence of water quality assurance mechanisms.

"Because when you get to some classes, you have some streams which have over 100 pupils, and you can imagine in this kind of climate where it's hot all the time. Now the children are squeezed in a classroom, crowded like 100 or over 100, 90, an overwhelming number in class. So you know how much individual catering you can do" ***– Teacher, primary school in Turkana***

Schools in all three counties face a major challenge with **access to sanitation** *due to a limited number of latrines, inadequacy for usage especially by girls, and limited financial resources to empty them. Closing down of schools by Public Health Officers due to poor sanitation and hygiene conditions was reported to be more of a norm than an exception. Some schools were reported to have only half of the latrines that they needed based on enrolment, whereas in others the ratio of latrines per pupils reaches as high as 1:70 or more. The schools also face major issues with* **supply of school meals and sanitary towels**, *the first being a major factor in school attendance in Turkana and the latter being a major barrier to school attendance by girls.* **Financing of textbooks** *is also limited, resulting in child to book ratios of 1:5, and imposing yet another financial burden on parents.*

Staffing *was also reported to be very problematic in many schools in all three counties, resulting in higher fees for parents and compromising the quality of education provided. In absence of infrastructure and adequate teaching staff, the number of pupils per class in some primary schools exceeds the figure of 120 children, allowing for very little time for teachers to attend to children individually, provide them with homework, and evaluate it. Prevalence of 'caning' and 'spanking' as a* **disciplinary measure** *– with ineffective complaint mechanisms for parents in place – is also an important factor to consider for policy-making in the area of child-friendly schools. The schools in all counties are also facing issues with providing* **inclusive education** *as they do not have at disposal neither the infrastructure nor trained personnel to accommodate children with special needs. Finally, access to secondary school is hindered by the point system in place whereby entry into secondary school is conditioned to exam results after Grade 8. The principals of secondary schools during interviews revealed that the differential entry requirements between national, county, and sub-county schools introduce inequalities in educational opportunities among secondary school pupils.*

Availability and quality of healthcare services. *Even though significant achievements were reported in all the researched counties as a result of construction of new facilities, availability of services at lower levels, and making services for pregnant mothers and children under 5 free of charge, multifaceted issues affect service provision at all levels.* **Inadequate infrastructure** *including lack*

of space, access to water, electricity, and sanitation affects service provision especially at the level of dispensaries. Provision of maternity services in these facilities was highlighted as very problematic with lack of infrastructure in place, problems with supply of equipment, and lack of access to water.

"The challenge has been that the supply has not been that constant. The supply is erratic for the commodities. You do your request, but it will take more than three months before you receive the supplies. There are times when our clients go away without the supplements" ***– County Nutrition Official, Kakamega***

"A facility like this should have more provision. Having one nurse do everything! Sometimes you may not be offering quality. You will not be giving quality services. You go to immunize, you see some women who have come pregnant and want to be tested and consulted, you finish immunizing, you go testing and counselling…it is very tiresome" ***– Nurse-in-charge, dispensary in a remote area in Turkana***

Problems with ***access to electricity*** *on the other hand were reported by health practitioners and health providers to cause problems with storage of drugs and immunization. Unavailability of healthcare and nutrition services and drugs is also affected by the* ***inadequate supply of other equipment*** *like fridges, sterilization equipment, and weighting scales. Despite major improvements in* ***supply of drugs****, (especially vaccines) since devolution, facilities at all levels have problems with drug stock-outs or delays in receiving drugs. Provision of nutrition services (i.e. supplementary programs for moderately malnourished children) is particularly problematic in this regard due to previous reliance on donor organizations which have withdrawn their support and* ***limited financial resources*** *allocated to the sector. Unavailability of services is also impacted by* ***understaffing*** *which was reported to be severe at the level of dispensaries and health centres, as well as for the sector of nutrition. In these facilities, a single nurse-in-charge (in dispensaries) serves a very large number of patients during the day, covering a wide range of services: ANC visits, immunization, maternity services, diagnosing and treatment of diseases, identification of malnourishment, provision of nutrition services, blood and HIV tests, counselling, health education, and so forth. Such a large overload with tasks was reported by the health practitioners themselves to compromise the quality of services as they do not have the time to attend to each patient long enough or in a timely manner. Understaffing allows service provision in dispensaries only during regular working hours 8AM – 5PM, depriving both mothers and children in remote areas who might need services during the nights or over the weekend. Referral services in Kitui and Turkana were also reported to be a major barrier in service delivery due to the vast distances in these counties and lack of vehicles. Unavailability of services and drugs in combination with poor quality are considered to affect access to healthcare to a large extent in all three counties, especially considering the poverty levels in the communities.*

Community level healthcare provision *was highlighted by all stakeholders as the most important factor in improving the well-being of children and coverage of the whole catchment population. In addition to generating demand for healthcare and nutrition services at the community level, the role of CHVs is indispensable across almost all dimensions. CHVs are reported to provide health education to communities, trace immunization defaulters, refer pregnant women for ANC visits and skilled birth deliveries, identify malnourished children, provide counselling to patients infected with HIV, treat minor ailments, treat water, provide education on WASH, feeding practices, and even production of food. However,* **sustaining the structure of CHVs** *is highly problematic in the counties given the limited financial resources and competing priorities within the healthcare system. The scheme is characterised with frequent drop-outs as a result of inconsistent financial incentives provided to CHVs, difficulties in training the new practitioners in all the modules, and lack of equipment available to these practitioners. Availability of services in hard-to-reach areas was also reported problematic in all three counties due to withdrawal of support from donor organizations and irregular* **outreaches** *that the facilities manage to carry out given staffing and financial constraints. The findings in this chapter points to the need for an integrative approach to address the deprivations analysed and to reduce child poverty.*

"What we do, we just give them motivation allowance. The government rate is 2,000 shillings per month, but it is not sustainable. The county government cannot do it, so we rely on partners to be able to sustain the CHVs" ***– County Health Official, Kakamega***

CHAPTER 6

COMPARISON OF CHILD POVERTY AND HOUSEHOLD WEALTH INDEX

The KDHS was not designed to collect data on consumption. In absence of this information, this chapter used the household wealth index[17] in the analysis to show the distribution of children by wealth quintiles. An overlap analysis between child poverty and lowest wealth quintiles[18] was applied and the relationship between household wealth and deprivation incidence by dimension was determined.

6.1. Population distribution by wealth quintile

Comparison of the population distribution by wealth quintile and by age reveals that a higher proportion of children compared to adults belong to the two lowest quintiles of household wealth. As shown in Figure 6.1, 46% of children below 18 years live in households in the lowest wealth quintiles, while this is so only for 34% of adults in Kenya.

Figure 6.1: Population Distribution by Wealth Quintile, 2014

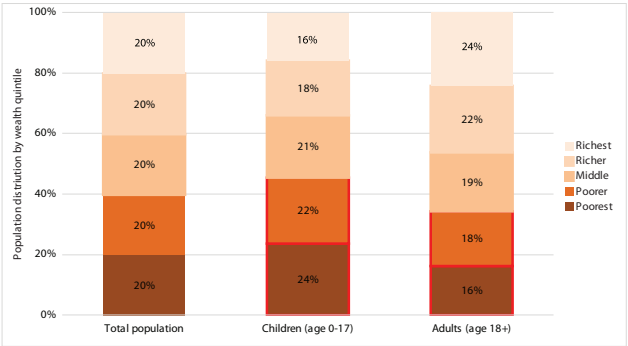


Figure 6.2: Population distribution by age and wealth quintile

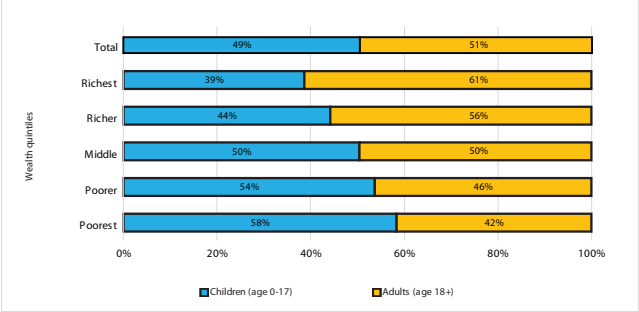


Figure 6.2 shows that children under 18 years represent 49% of the total population.

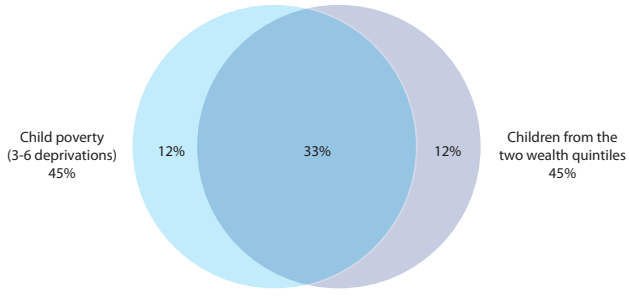
Disaggregation of population across five wealth quintiles by age shows that children under 18 years comprised 58% of the population among the poorest quintile and 54% of the poorer quintile.

6.2. Overlaps between Child Poverty and Children from the Lowest two Wealth Quintiles

Figure 6.3 shows that 45% of children below the age of 18 experience three to six dimensional deprivations and are thus considered poor. The same proportion (45%) of all children under age 18 live in households in the two lowest wealth quintiles. Overlap analysis reveals that 33% of the total child population is both poor and falls in the lowest two wealth quintiles. [19] Nevertheless, 12% of all children experienced child poverty while living in relatively wealthy households (medium, richer, and richest wealth quintiles). This shows that apart from household wealth, other factors related to supply and demand of basic goods and services need to be considered when addressing child poverty.

Analysis by area of residence shows similar findings to those of the entire population, although the overlap between child poverty and the lowest two wealth quintiles is considerably smaller among children in urban areas compared to those in rural areas as shown in Figure 6.4. In urban areas, 19% of children experienced multidimensional child poverty while 17% were from the poorest two wealth quintiles. Nine per cent of children in urban areas experienced child poverty despite living in relatively wealthy households (middle, richer, and richest wealth quintiles).

Figure 6.3: Overlap between child poverty and children in the Lowest Two Wealth Quintiles



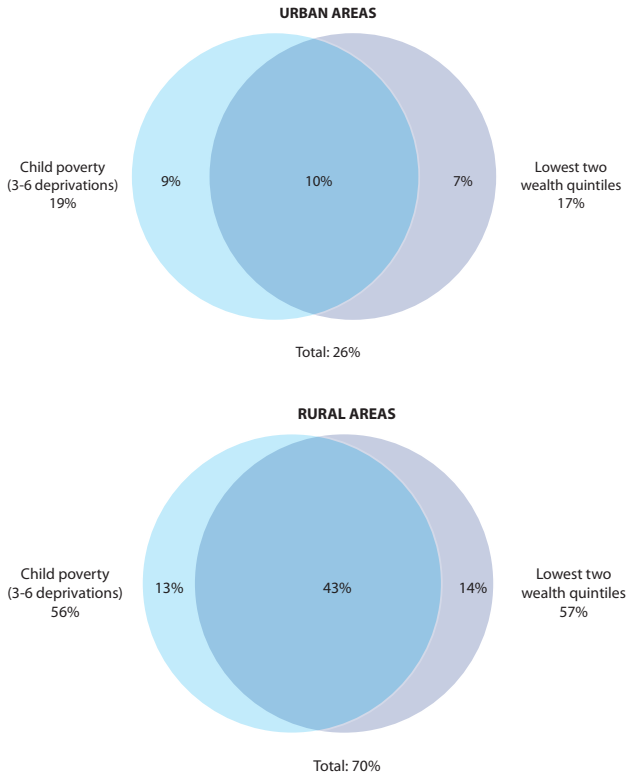
17 The household wealth index which is available in the KDHS 2014 survey correlates strongly with the consumption-based monetary poverty estimates for 2009 calculated by KNBS (2014) using KIHBS 2005/06 data. See Annex 12 for details.

18 Note: Several of the dimensions used for measuring child poverty are constructed using the same indicators as used for the construction of the wealth index. This will explain correlation between child poverty and household wealth to some extent.

19 Note: the overlap is partially driven by the fact that several of the dimensions used for measuring child poverty are constructed using the same indicators as used for the construction of the wealth index, namely, water source, toilet type, material of floor and exterior walls, cooking fuel, and ownership of TV, radio, and phones.

In rural areas, the child poverty rate and the extent to which child poverty overlaps with the poorest two wealth quintiles are considerably higher than in urban areas. More than a half (56%) of all children in rural areas experience multidimensional child poverty, and a vast majority of these children (57%) belong to the poorest two wealth quintiles. Nevertheless, 13% of children in rural areas were found to be poor although living in relatively wealthy households, confirming that household wealth alone does not exempt children from experiencing multidimensional poverty.

Figure 6.4: Overlap between child poverty and children from the lowest two wealth quintiles, by area of residence



6.3. Relationship Between Wealth and Deprivation Incidence by Dimension

This section shows the relationship between household wealth and deprivation rates by dimension. The objective is to determine whether and to what extent the risk of being deprived in a specific dimension is lower among children from relatively wealthy households compared to children from poorer households. Further, the analysis seeks to establish whether and to what extent deprivation rates decrease with higher level of relative wealth. Figure 6.5 and Figure 6.6 show the deprivation rates per dimension across the wealth score distribution. When the slope is gentle, there is very little correlation between the level of wealth and deprivation rates in the dimension in consideration. When the slope is steep, the deprivation rate changes with a higher wealth index, meaning that the dimensional deprivation is sensitive to changes in household wealth.

The horizontal axis in all the figures in this section represent the level of wealth of households where children live. The wealth index is a composite measure of a household's cumulative living standards constructed using variables representing household's ownership of selected assets, materials used for housing construction, and types of water source and sanitation facilities. The wealth index is a continuous scale of relative wealth with a mean of 0.

The vertical axis represents the mean deprivation rates of children in the selected dimensions depending on the level of their household wealth. The deprivation rates per dimension can range between 0 denoting a 0% deprivation rate and 1 denoting a 100% deprivation rate.

The vertical lines are the thresholds of the five wealth quintiles to help in distinguishing between children living in households belonging to the poorest wealth quintile (children on the left from the 1st vertical line), and children living in households with the highest relative wealth (those located on the right from the 4th vertical line).

Figures 6.5 and 6.6 show the deprivation rates in development (stunting), health, and nutrition for children under 5 by level of household wealth. Figure 6.5 presents results for children in urban areas, while Figure 6.6 presents results for children in rural areas. The slopes in the figures show that the risk of being deprived in health and nutrition reduces with higher relative wealth in both, urban and rural areas. Children from households with a low wealth score have a high deprivation rate in health and nutrition (the upper left corner of each graph), dropping significantly with a higher wealth score (bottom right corner of each graph). In urban areas, around 44% of all children under five from the poorest wealth quintile are deprived in health, while only around 25% of children from the richest wealth quintile experienced deprivation in health. In rural areas, the slope for health is steep throughout the wealth score distribution, falling from around 51% among children from the poorest wealth quintile to around 18% among children from the richest wealth quintile in rural areas. A similar pattern can be observed for the nutrition dimension.

The relationship between physical development (stunting) and household wealth is weak among children from the poorest households. The stunting rate among children from the poorest wealth quintile is around 33% in urban areas and 36% in rural areas, with almost no relationship with changes in wealth within the lowest wealth quintile. Stunting rate among children from the richest wealth quintile was 14% in urban areas and 15.5% in rural areas. Although the drop is considerable, the stunting rates were found to be relatively high among children from wealthy households, pointing to other factors associated with stunting. In urban areas, this finding may also be linked with the informal settlements (slums) as not all children benefit from the same level of basic goods and services that are provided in urban areas.

Figure 6.5 Relationship between deprivation incidence and wealth: children under 5, urban areas

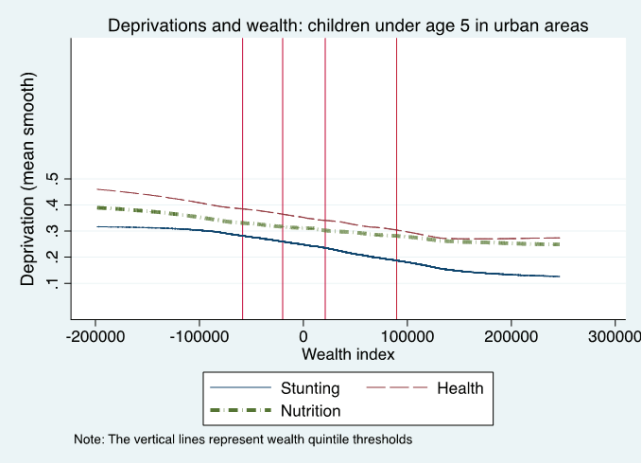


Figure 6.6 Relationship between deprivation incidence and wealth: children under 5, rural areas

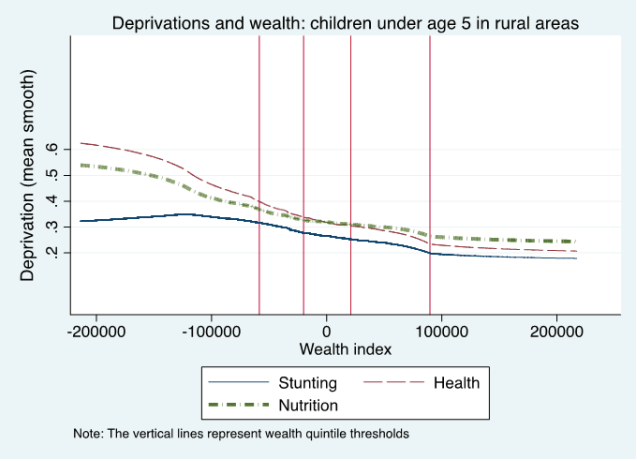


Figure 6.7 shows the deprivation rates in education, health-related knowledge, and exposure to media[20] for children of age 5-17 by the level of wealth of their households. Figure 6.7 presents results for children in urban areas, while Figure 6.8 presents results of those living in rural areas.

Figures 6.7 and 6.8 depict that the risk of being deprived in any one of the three dimensions reduces with higher household wealth in both urban and rural areas. The relationship between higher wealth score and lower deprivation rates is especially strong in the exposure to media indicator. In urban areas, the deprivation rate in exposure to media varies from around 38% among children from the poorest wealth quintile to 3% for children from the richest wealth quintile.

In rural areas, the deprivation rate among children in the poorest wealth quintile was 52%, while that of children from the richest wealth quintile was 2%.

Deprivation in education was found to be strongly related to household wealth, especially among children belonging to the poorest wealth quintile. This relationship is particularly strong among children in urban areas where around 37% of all children age 5-17 from the poorest households were deprived in education, while only around 8% of the children from the richest wealth quintile experienced deprivation in education. In rural areas, the deprivation rate in education was 49% among the poorest wealth quintile and 7% among children living in the wealthiest households. Such a strong relationship between education and household wealth across the wealth distribution hints to issues of service provision in rural areas.

The relationship between deprivation in health-related knowledge and household wealth is not as strong as for the other two dimensions. The slope does not cross the line of 23% in both, urban and rural areas. Even among the richest wealth quintile, around 23% of all children are deprived in health-related knowledge.

20 "Exposure to media" is one of the two indicators used for the "Information" dimension. The second indicator – availability of information devices - has been excluded from this specific analysis for clarity purposes as the variables used for constructing this indicator have also been used for the construction of the wealth index.

Figure 6.7 Relationship between deprivation incidence and wealth: children age 5-17, urban areas

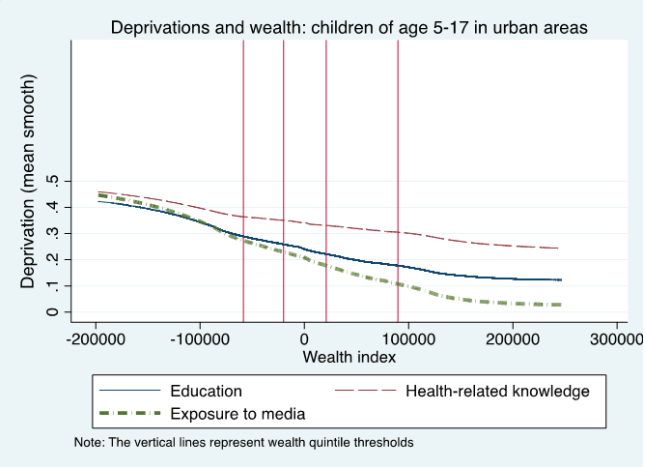
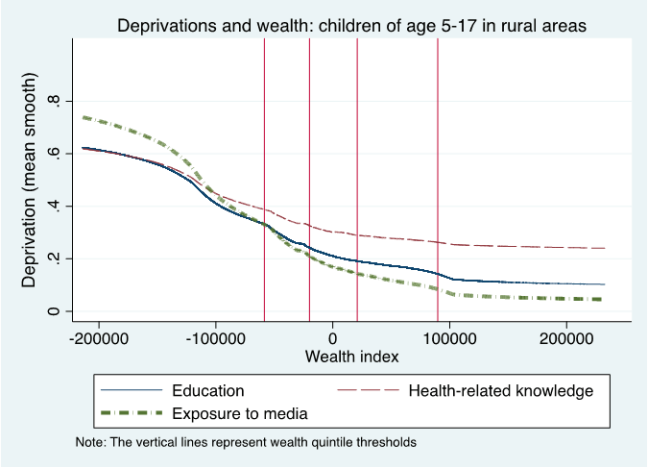


Figure 6.8 Relationship between deprivation incidence and wealth: children age 5-17, rural areas



CHAPTER 7

CHILD AND MONETARY POVERTY: A COMPARISON

The MODA methodology distinguishes two main concepts of poverty: monetary poverty and multidimensional poverty (de Neubourg et al., 2014), and uses both to analyse child poverty whenever data allows. Child poverty analysis was based on KDHS 2014, while monetary poverty rates were obtained from poverty estimates for 2009 (KNBS 2014). Although the standard requirement for comparison using the MODA methodology is that one data set should be applied in both child poverty deprivation and monetary poverty analysis, this chapter is limited to that extent and therefore makes it impossible for overlap analysis to be undertaken in this chapter. However, it is possible to analyse correlations between the multidimensional child poverty and monetary poverty rates with data from different sources.

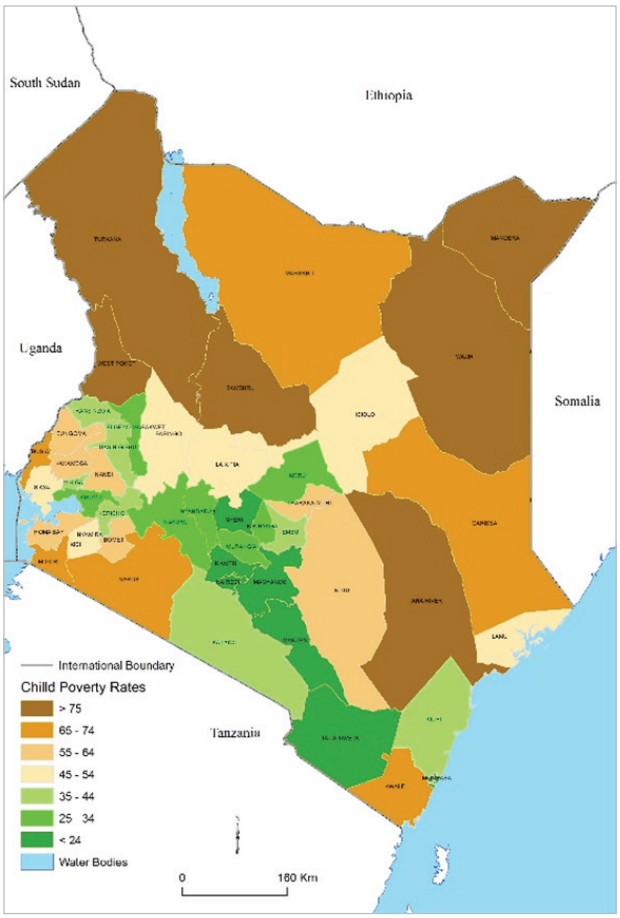
As described in the methodology section, the monetary poor are defined as that population whose per adult equivalent consumption falls below the absolute poverty line (KSh 1,562 per adult equivalent per month for rural areas and KSh 2,913 per adult equivalent per month for urban households) (KNBS 2009). In this report, child poverty is defined as non-fulfilment of children's rights in the dimensions of survival, development, and participation. Children are defined as poor if they are deprived in three to six dimensions simultaneously.

Maps 7.1 and 7.2 and Figure 7.1 compare the results between multidimensional child poverty and aggregate monetary poverty estimates by county, by comparing ranking of the counties based on the poverty measures used. The analysis reveals that ranking by county varies depending on the poverty measure used. Differences can be observed not only in terms of ranking, but also in the level of monetary poverty and child poverty identified by county. This underlines that the two poverty measures are conceptually different and can be used as complementary measures to identify the poor population to help identify appropriate policy responses. It should also be noted that the monetary poverty rates are likely to be an underestimation of the child poverty rates. Based on the findings presented in the previous Section, majority of children live in households from the poorest wealth quintiles, indicating that child poverty rates are higher than those of the total population. Differences can be observed not only in terms of ranking, but also in the incidence of monetary and multidimensional child poverty. For instance, notable differences were observed across area of residence. Using the child deprivation methodology, data shows that almost 6 out of 10 children residing in rural areas are deprived from 3 or more basic needs and services compared to 2 out of 10 children in urban areas. This finding hints to great inequities in accessibility and availability of services between rural and urban areas. In other cases, results indicate that poverty incidence is the same in some of the counties regardless of the measure used, while in others significant differences may be observed. In particular, the largest disparities were observed in Nairobi, Mombasa, and Taita-Taveta, where monetary poverty rates were more than twice as high as multidimensional child poverty. West Pokot, Samburu, Migori, Garissa, and Narok, depict higher multidimensional poverty rates compared to monetary poverty. These large discrepancies in figures between the two measures used indicate that there are large inequities in provision of basic services across the counties.

Analysis between the two poverty measures is presented in Annex 13. Although the correlation between monetary poverty and child poverty shows a positive trend (R^2=0.59), the relatively high margin of unexplained variance between the two measures suggests that there are other factors beyond monetary poverty that predict child poverty.

These results underscore the fact that the two poverty measures are conceptually different and therefore can only be used as complementary measures to identify the poor population. The results further suggest that interventions based on improving the income status of the households may be necessary but not sufficient in reducing child poverty.

Map 7.1: Child poverty rates (DHS 2014)



Map 7.2: Monetary poverty rates

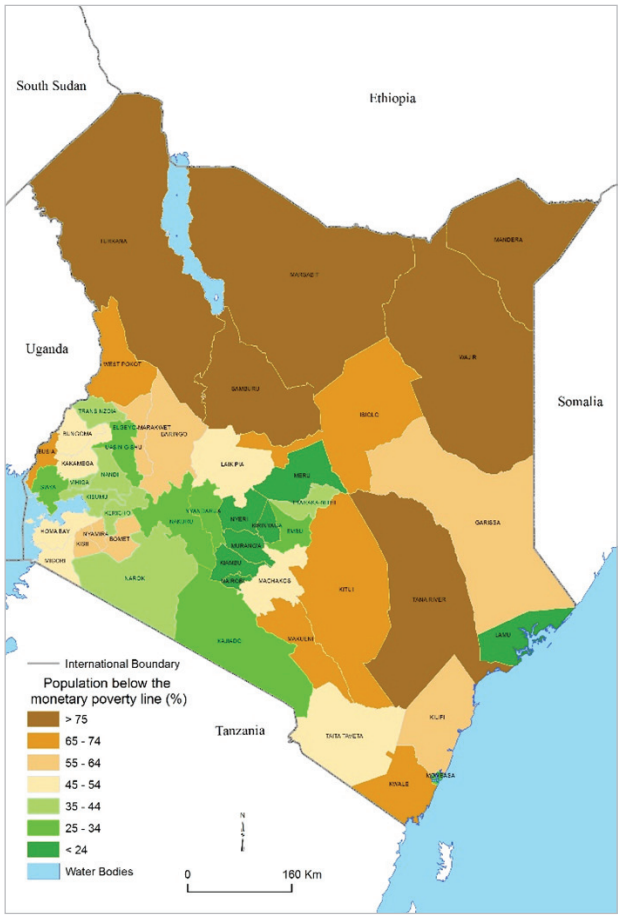
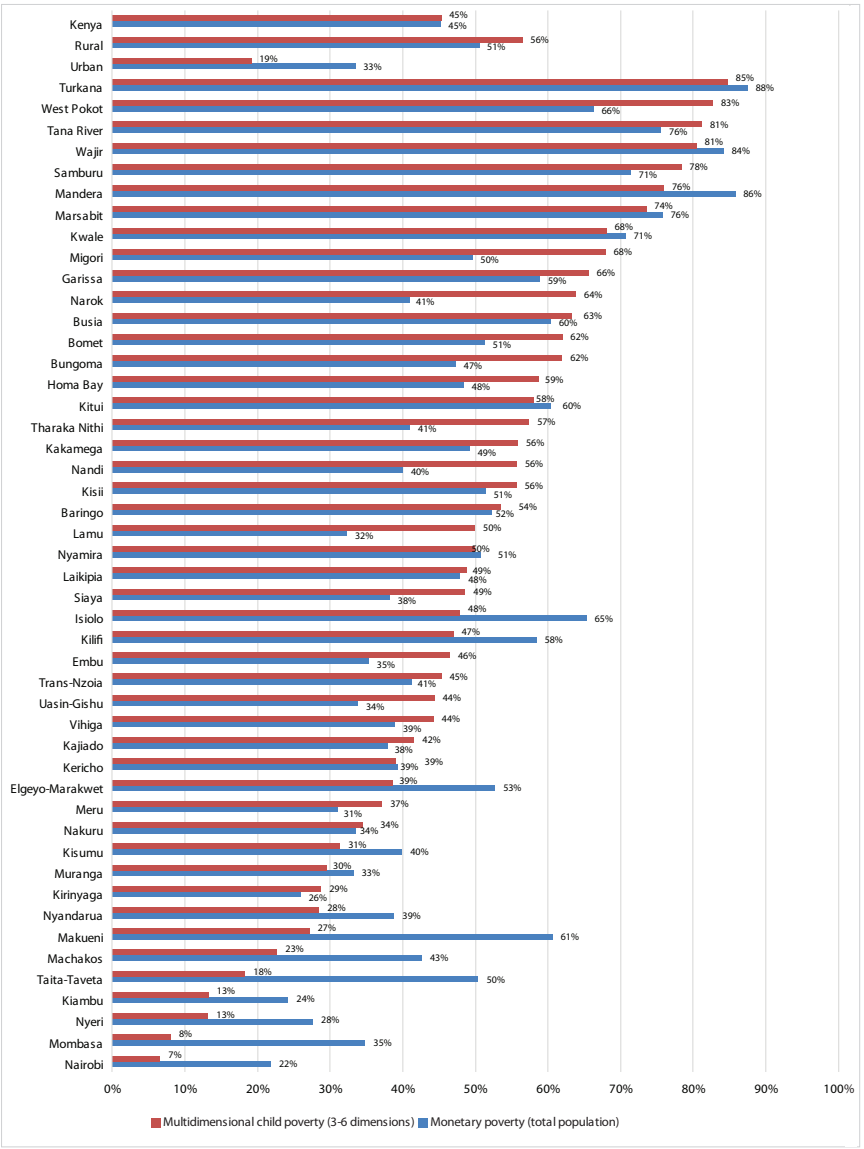


Figure 7.1: Monetary poverty rates and child poverty rates, by area of residence and county



CHAPTER 8

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

Summary conclusions

This report estimated child poverty in Kenya in 2014 from a multidimensional perspective and studied the relationship and overlap between different dimensions of deprivation. Using quantitative and qualitative methods the report identified the most vulnerable groups of children and assessed factors contributing to child poverty from the perspective of both access to and availability of basic needs and services. The report also sheds light into where the most deprived children live and shows disparities in child poverty across counties in Kenya. Progress in reducing child poverty was traced through a trend analysis between 2008-9 and 2014. In an attempt to facilitate the discussion on SDG 1.1. and SDG 1.2. measurement as well as the necessity of measuring both monetary and non-monetary poverty for effective poverty reduction, the analyses also include a comparison between multidimensional child deprivation and monetary poverty.

The summary findings of the child poverty study show that **45% of children under 18 years – a total of 9.5 million children – in Kenya are severely poor,** that is, deprived in three to six basic needs, services, and rights.

Disparities in child poverty rates between rural and urban areas and across counties reveal great inequities in fulfilment of children's needs and rights and service accessibility and availability. Two out of ten children in urban areas (19%) are found to be multidimensionally poor, while in rural areas this figure is six out of ten children (56%). Child poverty rates across counties range from 7% in Nairobi County to 85% in Turkana County. The counties with the highest poverty rates include Turkana (85%), West Pokot (83%), and Wajir and Tana River (81%), while Nairobi County (7%), Mombasa County (8%), and Nyeri and Kiambu County (13% each) have the lowest poverty rates in Kenya.

Disparities in poverty intensity between rural and urban areas and across counties also reveal great inequities in fulfilment of children's needs and rights and service accessibility and availability. While children living in urban areas are deprived in two out of six dimensions on average, in rural areas children are deprived on average on three out of six dimensions. Children residing in Turkana, Mandera, and Marsabit are the most severely poor, deprived on an average of 4.5 out of 6 dimensions, while children residing in Mombasa, Kiambu, and Nyeri are the least severely poor, deprived in 3.1, 3.2, and 3.3 dimensions on average, respectively.

Deprivation in sanitation, housing and water are the highest contributors to child poverty in Kenya. More than half of children under the age of 18 in Kenya do not have access to adequate sanitation (57%) and appropriate housing conditions (52%), while, 45% do not have access to safe drinking water. Almost four out of ten children (35%) under the age of five do not have access to basic health services, three out of ten (33%) are deprived in nutrition, and 26% are deprived in physical development (stunted). Among 5-17-year-olds three out of ten children (34%) are deprived from basic health-related knowledge or live in households where the adults lack basic health-related knowledge, and a quarter (25%) are deprived in education and access to information each. Comparisons of deprivation rates by urban and rural areas and counties show that wide inequities are prevalent based on the where the children live.

Counting of deprivation that each child experiences shows that **poverty in Kenya entails multiple dimensions and sectors and should therefore be tackled through an integrative approach.** Eighty-seven percent of children under the age of 18 were simultaneously deprived in one or more of the six dimensions analysed, while 68% of children were simultaneously deprived in two to six dimensions. Deprivation overlap analysis also proves that none of the dimensions of deprivation should be treated in isolation as most children experience several deprivations simultaneously.

Child poverty is highly associated with the education level of adult household members, area of residence, household structure, and economic activity of a child's father. Poverty rates are the highest among children who live in households the head of which has a low education attainment, children whose mothers have a low education attainment, children living in rural areas, orphans, children whose father does not have continuous employment or is engaged in agriculture or self-employed, and children who live in households with a higher number of children under five years.

Child poverty is also highly associated with household wealth. Children represented 49% of the population in Kenya, but they comprised 58% of the population of the poorest wealth quintiles. Nonetheless, 12% of children deprived in three to six dimensions live in the richest three quintiles, hinting to issues with service availability and accessibility.

The difference in monetary poverty rate and multidimensional child poverty rate demonstrate that not only affordability, but also availability of services and access to information are paramount for children's needs fulfilment. Ranking of counties based on the two poverty measures show large differences, hinting to inequities in services provision and access to information by children's area of residence.

Recommendations

Address child poverty by mainstreaming child poverty and deprivation indicators in the national development plans and/or strategies. The national development plan sets the national development goals and priorities, hence also the roadmap of investments and allocations of resources for the given time period. Therefore, it is imperative that children are given a central place in the document to pave the way for policies that tackle child poverty and deprivation across multiple sectors. The next national development plan of Kenya should include children's poverty rates by geographic areas, counties, age, sectors of deprivation, and other demographic and socio-economic factors associated with multidimensional child poverty. It should include an overall integrated, multidimensional approach to improving child well-being and eliminate inequalities in access to basic services throughout the country. The indicators of this Child Poverty Study contains numerous indicators that are very useful for setting the targets for programming such interventions and the baseline for measuring progress.

Child-sensitive budgeting. Budgeting is one of the key instruments of the national development plan and other policies and programs aimed at reducing child poverty and deprivation. Therefore, it is important that child-sensitive budgeting is conducted at different levels of governance and areas: national, county, and sectoral level. In this regard, the single and multiple deprivation rates of this study should be used to prioritise areas of intervention and promote integrated, multidimensional approach for tackling multidimensional child poverty. The budgeting process should also be used as a tool for enhancing equality in child well-being across counties and within them, as the data has shown that cross-county and urban/rural disparities in deprivation rates are wide. This approach entails mainstreaming children in every aspect of the budgeting process.

Enhance equality and equity through service delivery. Disaggregation of multidimensional child poverty rates by region of residence (urban/rural), counties, and socio-economic groups shows that there are very wide disparities in Kenya in access to basic needs and services. Therefore, explicit goals should be set in programs, policies, and budgeting processes for reducing them. Interventions aimed at improving service delivery should prioritize areas with the highest number of multidimensionally deprived children, most severely poor children, and the hardest-to-reach areas, coupled with explicit budgets on achieving goals in a cost-effective manner. Moreover, sufficient resources need to be secured by the Government to ensure that each and every child, regardless of the background or where one lives, has equal access to basic needs and services.

Enhance evidence-based policymaking through improved data collection. As advocated throughout the report, collection of comprehensive data on monetary poverty and multidimensional child deprivation are paramount for designing policies, setting baselines and targets, and measuring progress in child poverty reduction. Hence, it is recommended that efforts are made to improve the tools for data collection. In this regard, modifications need to be made to survey design of existing surveys to incorporate monetary and non-monetary indicators of poverty at both household and child level, in order to allow capturing of different aspects of poverty and factors associated with it. Survey design should also be modified to enable collection of data on all children and avoid missing data for more accurate figures.

APPENDIX AND REFERENCES

Annex 1:

Articles from the 2010 Constitution of Kenya (2010) and the Convention on the Rights of the Child (1089) selected for defining the dimensions for measuring Multidimensional Child Poverty

The 2010 Constitution of Kenya (National Council for Law Reporting, 2010)	
Art. 43	(1) Every person has the right— (a) to the highest attainable standard of health, which includes the right to health care services, including reproductive health care; (b) to accessible and adequate housing, and to reasonable standards of sanitation; (c) to be free from hunger, and to have adequate food of acceptable quality; (d) to clean and safe water in adequate quantities; (e) to social security; and (f) to education. (2) A person shall not be denied emergency medical treatment. (3) The State shall provide appropriate social security to persons who are unable to support themselves and their dependents.
Art. 53	(1) Every child has the right–– (a) to a name and nationality from birth; (b) to free and compulsory basic education; (c) to basic nutrition, shelter and health care; (d) to be protected from abuse, neglect, harmful cultural practices, all forms of violence, inhuman treatment and punishment, and hazardous or exploitative labour; (e) to parental care and protection, which includes equal responsibility of the mother and father to provide for the child, whether they are married to each other or not; and (f) not to be detained, except as a measure of last resort, and when detained, to be held – (i) for the shortest appropriate period of time; and (ii) separate from adults and in conditions that take account of the child's sex and age. (2) A child's best interests are of paramount importance in every matter concerning the child.
Art. 35	(1) Every citizen has the right of access to— (a) information held by the State; and (b) information held by another person and required for the exercise or protection of any right or fundamental freedom. (2) Every person has the right to the correction or deletion of untrue or misleading information that affects the person. (3) The State shall publish and publicise any important information affecting the nation.
The Convention on the Rights of the Child (UN, 1989)	
Art. 24	1. States Parties recognize the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health. States Parties shall strive to ensure that no child is deprived of his or her right of access to such health care services. 2. States Parties shall pursue full implementation of this right and, in particular, shall take appropriate measures: (a) To diminish infant and child mortality; (b) To ensure the provision of necessary medical assistance and health care to all children with emphasis on the development of primary health care; (c) To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution; (d) To ensure appropriate pre-natal and post-natal health care for mothers; (e) To ensure that all segments of society, in particular parents and children, are informed, have access to education and are supported in the use of basic knowledge of child health and nutrition, the advantages of breastfeeding, hygiene and environmental sanitation and the prevention of accidents; (f) To develop preventive health care, guidance for parents and family planning education and services. 3. States Parties shall take all effective and appropriate measures with a view to abolishing traditional practices prejudicial to the health of children. 4. States Parties undertake to promote and encourage international co-operation with a view to achieving progressively the full realization of the right recognized in the present article. In this regard, particular account shall be taken of the needs of developing countries.
Art. 27	1. States Parties recognize the right of every child to a standard of living adequate for the child's physical, mental, spiritual, moral and social development. 2. The parent(s) or others responsible for the child have the primary responsibility to secure, within their abilities and financial capacities, the conditions of living necessary for the child's development. 3. States Parties, in accordance with national conditions and within their means, shall take appropriate measures to assist parents and others responsible for the child to implement this right and shall in case of need provide material assistance and support programmes, particularly with regard to nutrition, clothing and housing. 4. States Parties shall take all appropriate measures to secure the recovery of maintenance for the child from the parents or other persons having financial responsibility for the child, both within the State Party and from abroad. In particular, where the person having financial responsibility for the child lives in a State different from that of the child, States Parties shall promote the accession to international agreements or the conclusion of such agreements, as well as the making of other appropriate arrangements.

Art. 28	1. States Parties recognize the right of the child to education, and with a view to achieving this right progressively and on the basis of equal opportunity, they shall, in particular: (a) Make primary education compulsory and available free to all; (b) Encourage the development of different forms of secondary education, including general and vocational education, make them available and accessible to every child, and take appropriate measures such as the introduction of free education and offering financial assistance in case of need; (c) Make higher education accessible to all on the basis of capacity by every appropriate means; (d) Make educational and vocational information and guidance available and accessible to all children; (e) Take measures to encourage regular attendance at schools and the reduction of drop-out rates. 2. States Parties shall take all appropriate measures to ensure that school discipline is administered in a manner consistent with the child's human dignity and in conformity with the present Convention. 3. States Parties shall promote and encourage international cooperation in matters relating to education, in particular with a view to contributing to the elimination of ignorance and illiteracy throughout the world and facilitating access to scientific and technical knowledge and modern teaching methods. In this regard, particular account shall be taken of the needs of developing countries.
Art. 13	1. The child shall have the right to freedom of expression; this right shall include freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of the child's choice. 2. The exercise of this right may be subject to certain restrictions, but these shall only be such as are provided by law and are necessary: (a) For respect of the rights or reputations of others; or (b) For the protection of national security or of public order (ordre public), or of public health or morals.
Art. 17	States Parties recognize the important function performed by the mass media and shall ensure that the child has access to information and material from a diversity of national and international sources, especially those aimed at the promotion of his or her social, spiritual and moral well-being and physical and mental health. To this end, States Parties shall: (a) Encourage the mass media to disseminate information and material of social and cultural benefit to the child and in accordance with the spirit of article 29; (b) Encourage international co-operation in the production, exchange and dissemination of such information and material from a diversity of cultural, national and international sources; (c) Encourage the production and dissemination of children's books; (d) Encourage the mass media to have particular regard to the linguistic needs of the child who belongs to a minority group or who is indigenous; (e) Encourage the development of appropriate guidelines for the protection of the child from information and material injurious to his or her well-being, bearing in mind the provisions of articles 13 and 18.

Annex 2:

Variables and thresholds used to define deprivation indicators

Dimensions	Indicators and deprivation thresholds	Age of child (in years)			
		0	*1-4*	*5-14*	*15-17*
Development	**Stunting**: child's **height for age** below -2 standard deviations from the international median of ref. pop.	X	X		
Nutrition	**Wasting and/or underweight** : child's **weight for height** and/or **weight for age** below -2 SD from the international median of reference population.	X	X		
	Vitamin A supplement: child aged 7-59 months has not received vitamin A supplement in the last 6 months preceding the survey. Note: although vitamin A supplement is given starting from the age of 6 months, children aged 6 months are considered non-deprived to allow for one month of delay.	X (7+)	X		
Health	**Skilled assistance at birth**: deprived if either nobody or an unskilled birth attendant assisted with child's birth. *Unskilled birth attendants: traditional birth attendant; community health worker, relative or friend; no one; other). Skilled birth attendants: doctor, nurse, midwife.*	X			
	Incomplete vaccination: child has not received all basic vaccinations according to the vaccine calendar. Following the vaccine calendar (and allowing for 1 month of delay in receiving vaccines), lack of BCG vaccine considered as a deprivation starting from age of 1 up to 59 months; DPT1 and Polio1 vaccines from age of 3 up to 59 months; DPT2 and Polio2 from 4 up to 59 months; DPT3 and Polio3 from 5 up to 59 months, and Measles vaccine from 10 up to 59 months.	X	X		
	Mother's knowledge about ORS: child deprived if his/her mother has never heard of oral rehydration salt (ORS) for treatment of diarrhea		X		
Education	**Compulsory school attendance**: deprived if aged 5-17 and not attending school, unless already completed secondary school. Note: although primary school starts at the age of 6, children aged 5 included to account for preschool – preparatory class attendance.			X	X
	Grade-for-Age: deprived if attending school but with several years of delay in terms of the appropriate grade-for-age of the child. For children aged 8-14, deprived if child is more than two years behind the appropriate grade-for-age; For children 15-17, deprived if child is more than three years behind the appropriate grade-for-age. The differentiation is based on differences regarding the underlying factors of accumulated delay in schooling between primary school and secondary school.			X (8+)	X
	Literacy: deprived if finished primary school but cannot read or can only read parts of the sentence of the reading test card during the survey (unless cannot speak or has problems with eyes).				X
Information	**Information device availability**: deprived if child lives in a households with no information devices *(TV, radio, phone, mobile phone).*			X	X

Dimensions	Indicators and deprivation thresholds	Age of child (in years)			
		0	*1-4*	*5-14*	*15-17*
	Household/individual exposure to Media: deprived if none of the household members aged 15+ has reported **reading newspapers, watching TV, or listening to the radio** at least once a week. Non-deprived if at least one respondent aged 15-49 in household reported using one or more of the three media sources 'at least once a week' or 'almost every day'. For children aged 15-17 years, individual information is used when questions are answered by the child. When individual-level information is not available,[1] information from other household members aged 15+ is used as a proxy to accessing media.			X	X
Health-Related Knowledge	**Household knowledge about ORS**: child aged 5-14 lives in a household where none of the female respondents aged 15-49 has ever heard of oral rehydration salt (ORS) for treating diarrhoea.			X	
	Household/individual knowledge about HIV/AIDS: deprived if none of the household members aged 15+ knows about HIV/AIDS transmission and prevention. Non-deprived if at least one respondent aged 15-49 in household knows about HIV/AIDS transmission and prevention. For children aged 15-17 years, individual information is used when questions are answered by the child. When individual-level information is not available,[2] information from other household members aged 15+ is used as a proxy to accessing knowledge about health-related issues such as HIV/AIDS.			X	X
Sanitation	**Toilet facility**: deprived if living in a household with an unimproved toilet type or with no toilet facility. *Unimproved toilet facilities: flush to somewhere else, pit latrine without slab or open pit, no facility, bush or field, bucket toilet, hanging toilet or hanging latrine, other.*	X	X	X	X
Water	**Water source used for drinking**: deprived if household's main source for drinking water is unimproved. *Unimproved water sources: unprotected well, unprotected spring, surface water (river, dam lake ponds, stream, canal, irrigation channel), tanker truck, cart with small tank, other.*	X	X	X	X
	Distance to water source: deprived if it takes more than 30 min. to reach a water source and come back	X	X	X	X
Housing	**Floor and exterior walls**: deprived if child lives in a dwelling where both, floor and exterior walls, are made of natural material. *Natural material: earth, sand, dung, cane, palm, trunks mud, sod, grass.*	X	X	X	X
	Indoor air pollution: deprived if child lives in a dwelling with indoor air pollution from solid cooking fuel used inside the house and not having a separate room used as a kitchen. *Solid cooking fuels: coal, charcoal, biomass such as dung, charcoal, wood, straw, grass, crop residues.*	X	X	X	X

Annex 3A:

Comparison of children under age five with and without mothers answering Women's Questionnaire

	Child's mother has answered the Woman's Questionnaire			Child's mother has not answered W. questionnaire			Difference	
Characteristic/indicator	Mean	St. D.	Obs.	Mean	St. D.	Obs.	Mean Diff.	p-value
Child's age	1.99	1.40	18,970	2.55	1.27	2,548	-0.57	**0.00**
Child lives in rural area	0.68	0.47	18,970	0.71	0.45	2,548	-0.03	**0.00**
Household composition								
No. of 0-5 year-old children	1.87	0.84	18,970	1.77	0.89	2,548	0.10	**0.00**
No. of 6-12 year-old children	1.32	1.23	18,970	1.30	1.22	2,548	0.01	0.58
No. of 13-17 year-old children	0.50	0.80	18,970	0.76	0.95	2,548	-0.26	**0.00**
No. of 18-59 year-old adults	2.07	0.90	18,970	2.05	1.21	2,548	0.03	0.20
No. of elderly (60+)	0.11	0.36	18,970	0.38	0.61	2,548	-0.26	**0.00**
No working-age adult (18-59)	0.00	0.03	18,970	0.08	0.26	2,548	-0.07	**0.00**
Dependency ratio	2.11	0.01	18,953	2.31	0.03	2,356	-0.20	**0.00**
Labour constraint household	0.15	0.36	18,970	0.26	0.44	2,548	-0.11	**0.00**
Child lives without parents	0.00	0.00	18,970	0.56	0.50	2,547	-0.56	**0.00**
Child is an orphan (single/double)	0.03	0.16	18,970	0.11	0.31	2,542	-0.08	**0.00**
Household head is female	0.29	0.45	18,970	0.39	0.49	2,548	-0.10	**0.00**
Age of household head	37.73	11.97	18,970	49.93	14.55	2,548	-12.20	**0.00**
Household head's education								
No schooling	0.22	0.41	18,880	0.30	0.46	2,535	-0.08	**0.00**
Primary education	0.50	0.50	18,880	0.48	0.50	2,535	0.02	0.05
Secondary education	0.20	0.40	18,880	0.17	0.38	2,535	0.03	**0.00**
Higher education	0.08	0.27	18,880	0.06	0.23	2,535	0.03	**0.00**
Household's relative wealth								
Wealth index score	-23767	97848	18,970	-27435	91410	2,548	3669	0.07
Among lowest two wealth quintiles	0.56	0.50	18,970	0.57	0.50	2,548	-0.01	0.50
Deprivation indicators								
Child is stunted (H/A < -2sd)	0.27	0.44	18,543	0.28	0.45	2,109	-0.01	0.40
Child is underweight (W/A < -2sd)	0.13	0.34	18,543	0.14	0.35	2,109	-0.01	0.17
Child is wasted (W/H < -2sd)	0.05	0.23	18,543	0.05	0.23	2,109	0.00	0.97
Unimproved water source	0.40	0.49	18,962	0.40	0.49	2,548	0.01	0.54
Distance to water	0.24	0.43	18,831	0.24	0.43	2,540	0.00	0.98
Unimproved toilet type	0.59	0.49	18,964	0.62	0.49	2,548	-0.03	0.01
Floor and exterior walls natural	0.48	0.50	18,962	0.51	0.50	2,547	-0.03	**0.00**
Indoor air pollution	0.23	0.42	18,965	0.16	0.37	2,548	0.07	**0.00**
Multidimensional poverty*								
K=2: Children deprived in 2-5 dim.	0.66	0.47	18,970	0.67	0.47	2,548	-0.01	0.15
K=3: Children deprived in 3-5 dim.	0.40	0.49	18,970	0.38	0.48	2,548	0.02	0.07

In bold: difference between the two groups is statistically significant at a 99% confidence level.
Calculated using two-sample t test with equal variances.
*Multidimensional poverty rates recalculated without health-related indicators, based on the following 5 dimensions:
(1) Development; (2) Nutrition excl. vitamin A supplement; (3) Water; (4) Sanitation; (5) Housing.

Annex 3B:

Comparison of children of age 5-17, with and without a household member eligible for the Women's/Men's Questionnaire

	At least 1 member eligible for W/M Questionnaire			None of members eligible for W/M Questionnaire			Difference	
Characteristic/indicator	**Mean**	**St.D.**	**Obs.**	**Mean**	**St.D.**	**Obs.**	**Mean Diff.**	**p-value**
Child's age	10.50	3.64	50,923	10.91	3.29	5,631	-0.41	**0.00**
Child lives in rural area	0.70	0.46	50,923	0.78	0.41	5,631	-0.08	**0.00**
Household composition								
No. of 0-5 year-old children	1.08	1.01	50,923	0.32	0.63	5,631	0.76	**0.00**
No. of 6-12 year-old children	1.99	1.19	50,923	1.70	1.22	5,631	0.29	**0.00**
No. of 13-17 year-old children	1.13	1.01	50,923	0.91	0.90	5,631	0.22	**0.00**
No. of 18-59 year-old adults	2.15	1.07	50,923	1.16	1.07	5,631	0.98	**0.00**
No. of elderly (60+)	0.18	0.45	50,923	0.66	0.67	5,631	-0.48	**0.00**
No working-age adult (18-59)	0.01	0.12	50,923	0.30	0.46	5,631	-0.29	**0.00**
Dependency ratio	2.42	1.56	50,240	2.59	1.65	3,945	-0.17	**0.00**
Labour constraint household	0.22	0.41	50,923	0.48	0.50	5,631	-0.26	**0.00**
Child lives without parents	0.13	0.34	50,650	0.57	0.50	5,623	-0.44	**0.00**
Child is orphan (single/double)	0.12	0.32	50,557	0.23	0.42	5,595	-0.11	**0.00**
Household head is female	0.36	0.48	50,923	0.50	0.50	5,631	-0.15	**0.00**
Age of household head	44.12	12.37	50,917	59.47	13.75	5,631	-15.35	**0.00**
Household head's education								
No schooling	0.24	0.43	50,662	0.48	0.50	5,592	-0.24	**0.00**
Primary education	0.49	0.50	50,662	0.39	0.49	5,592	0.11	**0.00**
Secondary education	0.20	0.40	50,662	0.10	0.30	5,592	0.10	**0.00**
Higher education	0.07	0.26	50,662	0.03	0.17	5,592	0.04	**0.00**
Household's relative wealth								
Wealth index score	-19654	92637	50,923	-53128	87659	5,631	33474	**0.00**
Among lowest 2 wealth quintiles	0.53	0.50	50,923	0.64	0.48	5,631	-0.12	**0.00**
Deprivation indicators								
Child is not attending school	0.10	0.30	50,896	0.15	0.35	5,630	-0.05	**0.00**
Child behind grade-for-age (8-17y)	0.28	0.45	34,372	0.31	0.46	3,964	-0.02	**0.00**
No information devices	0.13	0.33	50,921	0.29	0.45	5,631	-0.17	**0.00**
Unimproved water source	0.40	0.49	50,909	0.44	0.50	5,631	-0.04	**0.00**
Distance to water	0.25	0.43	50,640	0.32	0.46	5,605	-0.07	**0.00**
Unimproved toilet type	0.60	0.49	50,907	0.68	0.46	5,631	-0.09	**0.00**
Floor and exterior walls natural	0.47	0.50	50,903	0.56	0.50	5,628	-0.09	**0.00**
Indoor air pollution	0.17	0.37	50,908	0.18	0.39	5,631	-0.02	**0.00**
*Multidimensional poverty**								
K=2: Children deprived in 2-5 dim.	0.63	0.48	50,923	0.75	0.43	5,631	-0.11	**0.00**
K=3: Children deprived in 3-5 dim.	0.38	0.48	50,923	0.50	0.50	5,631	-0.13	**0.00**

In bold: difference between the two groups is statistically significant at a 99% confidence level.
Calculated using two-sample t test with equal variances.
*Multidimensional poverty rates recalculated without indicators on health-related knowledge, literacy, and exposure to media, based on the following 5 dimensions: (1) Education (attendance and grade-for-age); (2) Information (availability of information devices); (3) Water; (4) Sanitation; (5) Housing.

Annex 4:

Proportion of children excluded from the multidimensional poverty analysis due to survey design: total and by county (weighted)

	Children aged 0-4: Child's mother has not answered Woman's Questionnaire	Children aged 5-17: None of household members was eligible for Woman's / Man's Questionnaire
Total	**12%**	**9%**
Baringo	9%	10%
Bomet	6%	7%
Bungoma	19%	10%
Busia	19%	11%
Elgey-Marakwet	10%	11%
Embu	6%	8%
Garissa	9%	11%
Homa Bay	14%	14%
Isiolo	10%	11%
Kajiado	11%	8%
Kakamega	21%	13%
Kericho	9%	8%
Kiambu	11%	6%
Kilifi	13%	5%
Kirinyaga	7%	8%
Kisii	16%	7%
Kisumu	13%	9%
Kitui	14%	8%
Kwale	7%	7%
Laikipia	9%	6%
Lamu	12%	10%
Machakos	10%	9%
Makueni	12%	7%
Mandera	10%	15%
Marsabit	7%	18%
Meru	12%	9%
Migori	11%	12%
Mombasa	9%	6%
Muranga	10%	10%
Nairobi	8%	3%
Nakuru	6%	7%
Nandi	9%	8%
Narok	7%	9%
Nyamira	15%	10%
Nyandarua	13%	9%
Nyeri	10%	7%
Samburu	7%	12%
Siaya	14%	12%
Taita-Taveta	12%	6%
Tana River	14%	7%
Tharaka Nithi	13%	10%
Trans-Nzoia	17%	9%
Turkana	15%	20%
Uasin-Gishu	13%	9%
Vihiga	23%	14%
Wajir	15%	15%
West Pokot	8%	9%
Observations	*21,518*	*56,554*

Annex 5A:

Deprivation rates by dimension and indicator (weighted) and number of observations, by age-group and year

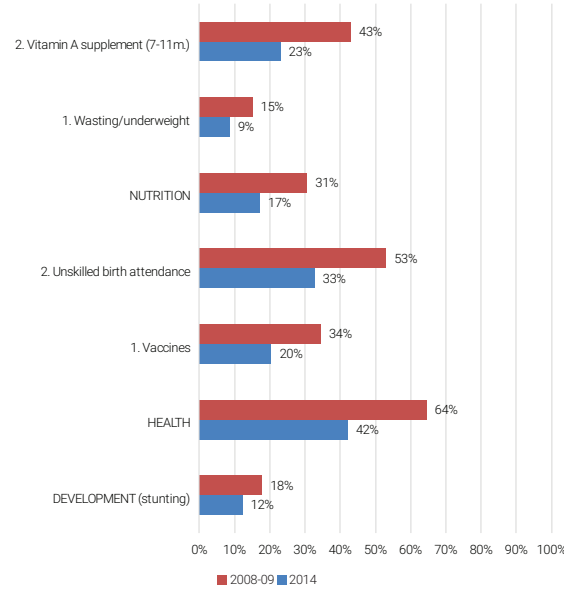
	2008-09		2014	
Age 0-11 months				
DEVELOPMENT (stunting)	18%	*1,227*	12%	*3,839*
HEALTH	64%	*1,225*	42%	*3,770*
1. Vaccines	34%	*1,225*	20%	*3,769*
2. Unskilled birth attendance	53%	*1,225*	33%	*3,769*
NUTRITION	31%	*1,237*	17%	*3,855*
1. Wasting/underweight	15%	*1,227*	9%	*3,839*
2. Vitamin A supplement (7-11m.)	43%	*510*	23%	*1,643*
Age 12-59 months				
DEVELOPMENT (stunting)	38%	*4,557*	29%	*16,813*
HEALTH	44%	*4,188*	33%	*15,200*
1. Vaccines	33%	*4,172*	29%	*15,135*
2. Mother's knowledge on ORS	19%	*4,155*	7%	*15,185*
NUTRITION	58%	*4,557*	37%	*15,088*
1. Wasting/underweight	18%	*4,557*	13%	*16,813*
2. Vitamin A supplement	66%	*3,502*	28%	*15,088*
Age 0-4 years				
Development	34%	*5,784*	26%	*20,652*
Health	49%	*5,413*	35%	*18,970*
Nutrition	53%	*5,794*	33%	*18,943*
Water	49%	*6,088*	43%	*21,517*
Sanitation	61%	*6,088*	54%	*21,512*
Housing	52%	*6,088*	53%	*21,518*
Age 5-14 years				
EDUCATION	32%	*10,855*	22%	*46,631*
1. School attendance	9%	*10,855*	6%	*46,631*
2. Grade-for-Age 2+ y. delay (8-14 yrs.)	35%	*6,861*	25%	*29,789*
HEALTH-RELATED KNOWLEDGE	42%	*9,847*	33%	*41,231*
1. Household knowledge on ORS	20%	*9,499*	8%	*39,551*
2. Household knowledge on HIV/AIDS	31%	*9,846*	28%	*41,231*
INFORMATION	26%	*9,847*	25%	*41,231*
1. Information device availability	21%	*10,867*	11%	*46,641*
2. Household exposure to mass media	18%	*9,847*	22%	*41,231*
Age 15-17 years				
EDUCATION	57%	*2,236*	37%	*9,903*
1. School attendance	13%	*2,234*	12%	*9,895*
2. Grade for Age 3+ years delay	49%	*1,873*	28%	*8,547*
3. Illiteracy	14%	*1,608*	8%	*7,373*
HEALTH-RELATED KNOWLEDGE	46%	*2,064*	38%	*8,963*
INFORMATION	26%	*2,064*	27%	*8,963*
1. Information device availability	19%	*2,237*	9%	*9,911*
2. Exposure to mass media	19%	*2,064*	24%	*8,963*

	2008-09		2014	
Age 0-11 months				
Age 5-17 years				
Education	36%	*13,091*	25%	*56,534*
Health-related Knowledge	43%	*11,911*	34%	*50,194*
Information	26%	*11,911*	25%	*50,194*
Water	50%	*13,104*	46%	*56,551*
Sanitation	59%	*13,100*	58%	*56,538*
Housing	49%	*13,104*	51%	*56,552*
Age 0-17 years				
WATER	50%	*19,192*	45%	*78,068*
1. Water source	42%	*19,192*	37%	*78,050*
2. Distance to water	21%	*19,098*	21%	*77,616*
SANITATION (toilet type)	60%	*19,188*	57%	*78,050*
HOUSING	50%	*19,192*	52%	*78,070*
1. Floor and walls	39%	*19,176*	43%	*78,040*
2. Indoor air pollution	18%	*19,192*	17%	*78,052*

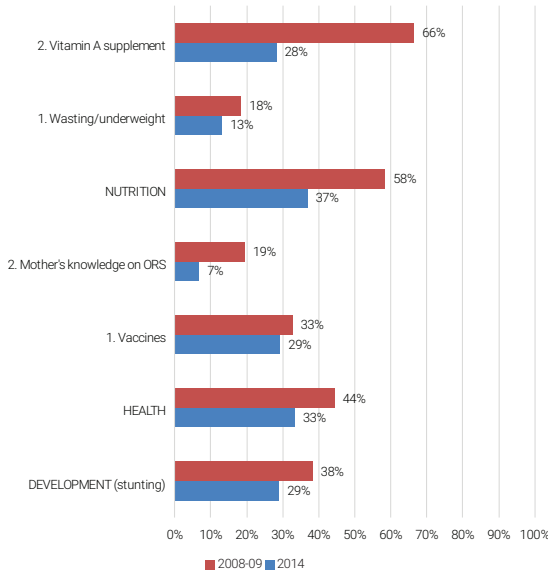
Annex 5B:

Deprivation rates by dimension and indicator (weighted), by age group and year

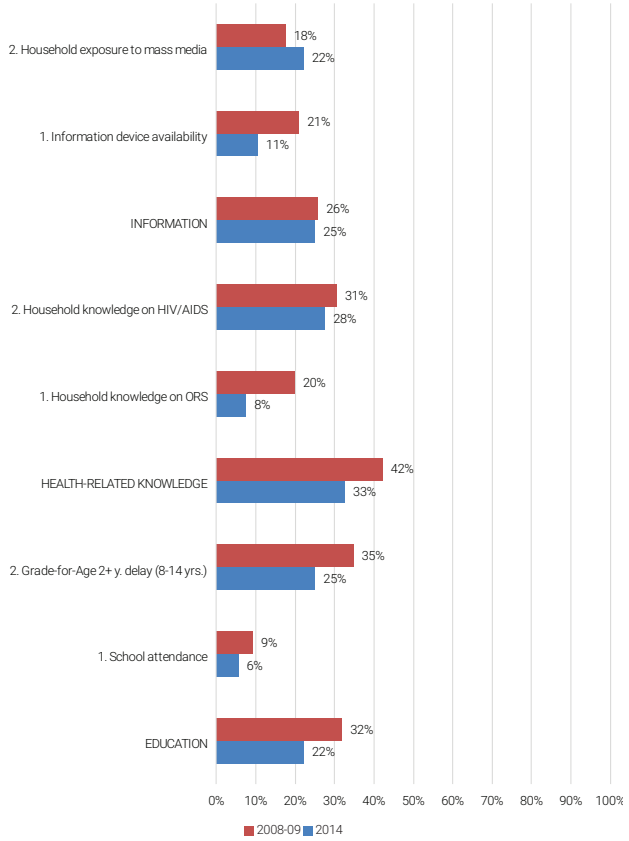
% of children deprived per dimension/indicator (age:0-11 months)



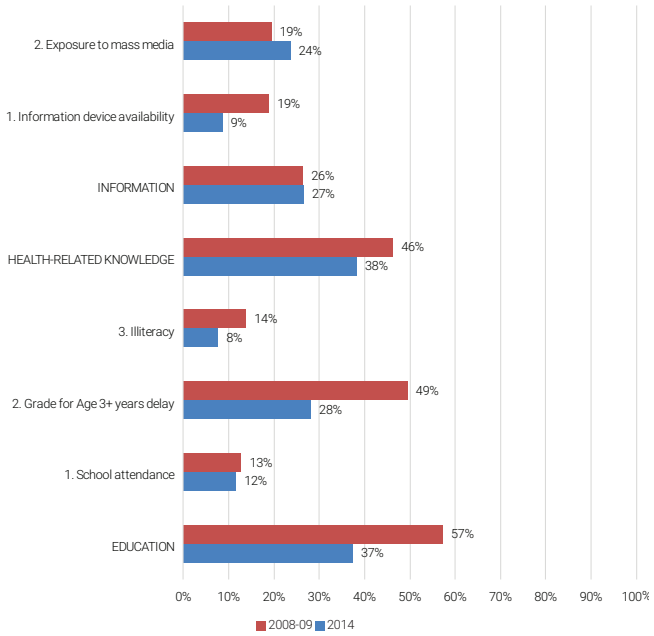
% of children deprived per dimension/indicator (age: 12-59 months)



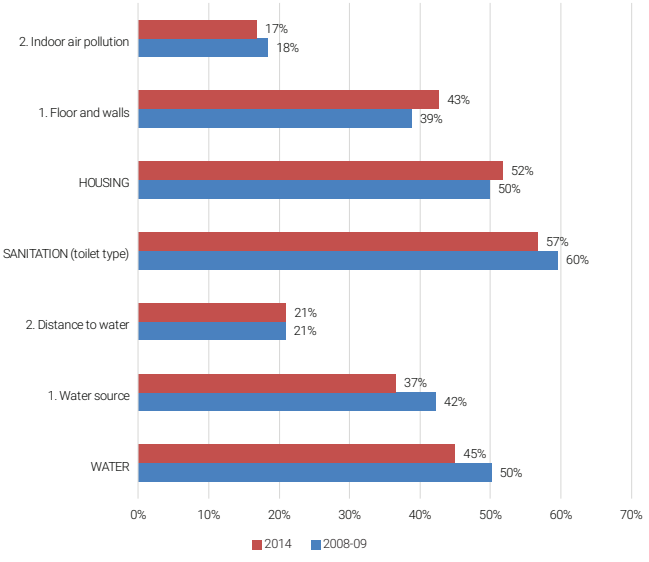
% of children deprived per dimension/indicator (age: 5-14 years)



% of children deprived per dimension/indicator (age: 15-17 years)



% of children deprived per dimension/indicator (age: 0-17 years)



Annex 6:

Deprivation rates by dimension, by age: total, by area, and by county

	Children below age five			Children of age 5-17 years			Children of age 0-17 years		
	Development	Health	Nutrition	Education	Health-related Knowledge	Information	Water	Sanitation	Housing
Total	26%	35%	33%	25%	34%	25%	45%	57%	52%
Rural	29%	38%	35%	29%	36%	30%	55%	69%	59%
Urban	20%	29%	28%	15%	28%	13%	21%	28%	33%
Baringo	29%	29%	42%	30%	35%	38%	72%	46%	57%
Bomet	35%	26%	34%	19%	22%	18%	65%	83%	68%
Bungoma	24%	33%	18%	26%	26%	28%	43%	85%	81%
Busia	22%	37%	23%	32%	36%	21%	44%	79%	83%
Elgey-Marakwet	30%	19%	25%	20%	17%	22%	48%	61%	44%
Embu	28%	15%	26%	17%	39%	22%	47%	68%	45%
Garissa	15%	57%	37%	62%	71%	72%	49%	50%	56%
Homa Bay	18%	45%	21%	27%	24%	29%	62%	64%	73%
Isiolo	19%	30%	31%	36%	49%	51%	29%	39%	73%
Kajiado	18%	53%	50%	28%	48%	24%	34%	46%	46%
Kakamega	28%	39%	36%	25%	36%	20%	27%	76%	77%
Kericho	27%	36%	39%	19%	35%	17%	54%	18%	68%
Kiambu	16%	26%	22%	7%	27%	4%	11%	62%	16%
Kilifi	39%	38%	54%	44%	36%	46%	38%	55%	29%
Kirinyaga	18%	33%	27%	10%	24%	21%	33%	42%	38%
Kisii	25%	29%	46%	19%	26%	34%	36%	76%	72%
Kisumu	18%	31%	27%	20%	24%	8%	38%	30%	57%
Kitui	46%	37%	31%	27%	54%	41%	80%	63%	30%
Kwale	30%	28%	21%	38%	50%	54%	53%	74%	64%
Laikipia	27%	30%	21%	20%	29%	21%	52%	76%	49%
Lamu	29%	43%	26%	31%	36%	25%	44%	67%	50%
Machakos	27%	21%	36%	12%	30%	16%	63%	36%	10%
Makueni	24%	22%	24%	15%	24%	12%	64%	55%	15%
Mandera	34%	78%	78%	69%	70%	64%	62%	62%	60%
Marsabit	26%	43%	52%	51%	58%	64%	80%	67%	69%
Meru	25%	25%	39%	22%	39%	30%	48%	64%	15%
Migori	25%	66%	29%	30%	40%	24%	80%	53%	77%
Mombasa	21%	32%	21%	16%	30%	14%	19%	1%	18%
Muranga	20%	29%	24%	7%	55%	11%	42%	39%	23%
Nairobi	18%	26%	22%	9%	27%	5%	7%	10%	16%
Nakuru	27%	27%	30%	15%	22%	12%	37%	52%	56%
Nandi	30%	18%	39%	27%	16%	26%	45%	71%	77%
Narok	33%	49%	44%	35%	48%	18%	76%	43%	78%
Nyamira	26%	22%	32%	13%	14%	25%	53%	57%	72%
Nyandarua	29%	26%	23%	9%	34%	5%	31%	74%	33%
Nyeri	16%	31%	26%	7%	28%	5%	22%	46%	16%
Samburu	30%	46%	46%	48%	38%	67%	64%	87%	85%
Siaya	25%	34%	39%	26%	25%	21%	46%	52%	65%
Taita-Taveta	23%	26%	28%	11%	21%	14%	40%	22%	34%
Tana River	28%	43%	40%	51%	39%	57%	68%	87%	82%
Tharaka Nithi	32%	15%	33%	23%	37%	39%	62%	70%	49%
Trans-Nzoia	29%	43%	36%	29%	21%	24%	37%	62%	48%
Turkana	23%	65%	52%	55%	63%	81%	74%	87%	71%
Uasin-Gishu	30%	32%	37%	18%	27%	16%	34%	59%	64%
Vihiga	24%	19%	25%	21%	29%	9%	19%	79%	78%
Wajir	26%	71%	53%	64%	65%	70%	71%	74%	52%
West Pokot	45%	67%	57%	50%	52%	55%	79%	67%	87%
Observations	20,652	18,970	18,943	56,534	50,194	50,194	78,068	78,050	78,070

Annex 7:

Sample size and population distribution by explanatory variable used for measuring factors associated with deprivation

Variable	Obs.	Mean	Std. Dev.	Min	Max
Stunting (age 0-4): height-for-age below -2 SD from ref. population	20,652	26%	0.44	0	1
Lowest 2 wealth quintiles (ref. highest 3 wealth quintiles)	21,518	46%	0.50	0	1
Mother's education: no or primary (ref. secondary/higher)	19,021	69%	0.46	0	1
Mother's age at first birth below 18 (ref. 18+)	19,021	31%	0.46	0	1
Mother has no knowledge about ORS for treating diarrhoea	18,950	7%	0.26	0	1
Child's gender is male (ref. female)	21,518	51%	0.50	0	1
Child's age	21,518	2.05	1.40	0	4
No. of children aged 0-4 in household	21,518	1.63	0.73	1	6
No. of children aged 5-14 in household	21,518	1.62	1.50	0	12
No. of children aged 15-17 in household	21,518	0.27	0.54	0	6
No. of adults aged 18-59 in household	21,518	2.11	0.94	0	11
No. of adults aged 60+ in household	21,518	0.13	0.39	0	3
Child lives in rural area (ref. urban)	21,518	67%	0.47	0	1
Incomplete vaccination (age 0-4) (ref. fully immunized acc.to age)	18,904	27%	0.45	0	1
Lowest 2 wealth quintiles (ref. highest 3 wealth quintiles)	21,518	46%	0.50	0	1
Mother has no or only preschool education	19,021	12%	0.33	0	1
Mother has primary education	19,021	56%	0.50	0	1
Mother is single: not in union/widowed/divorced/separated	19,021	15%	0.35	0	1
Child's gender is male (ref. female)	21,518	51%	0.50	0	1
Child's age is 1-2 years	21,518	40%	0.49	0	1
Child's age is 3-4 years	21,518	41%	0.49	0	1
No. of children aged 0-4 in household	21,518	1.63	0.73	1	6
No. of children aged 5-14 in household	21,518	1.62	1.50	0	12
No. of children aged 15-17 in household	21,518	0.27	0.54	0	6
No. of adults aged 18-59 in household	21,518	2.11	0.94	0	11
No. of adults aged 60+ in household	21,518	0.13	0.39	0	3
Child lives in rural area (ref. urban)	21,518	67%	0.47	0	1
Child not attending school (age 6-14) (ref. went to school during survey year)	42,356	5%	0.21	0	1
1st (poorest) wealth quintile	42,367	24%	0.43	0	1
2nd (poorer) wealth quintile	42,367	22%	0.42	0	1
3rd (middle) wealth quintile	42,367	21%	0.41	0	1
4th (richer) wealth quintile	42,367	18%	0.38	0	1
Household head has no or only preschool education	42,286	18%	0.38	0	1
Household head has primary education	42,286	52%	0.50	0	1
Child is orphan (single/double) (ref. both parents alive)	42,323	12%	0.32	0	1
Child lives without parents while one or both parents are alive (ref. child lives with one or both parents)	42,321	12%	0.32	0	1
Child's gender is female (ref. male)	42,367	50%	0.50	0	1
Child's age	42,367	9.85	2.59	6	14
No. of children aged 0-4 in household	42,367	0.77	0.86	0	6
No. of children aged 5-14 in household	42,367	2.77	1.33	1	12
No. of children aged 15-17 in household	42,367	0.42	0.64	0	5
No. of adults aged 18-59 in household	42,367	2.06	1.08	0	11
No. of adults aged 60+ in household	42,367	0.21	0.48	0	4
Child lives in a labour constraint household	42,367	22%	0.42	0	1
Household head's age is 60+	42,363	15%	0.36	0	1

Variable	Obs.	Mean	Std. Dev.	Min	Max
Child lives in rural area (ref. urban)	42,367	73%	0.44	0	1
Child not attending school (age 15-17) (ref. went to school during survey y.)	9,895	12%	0.32	0	1
1st (poorest) wealth quintile	9,911	19%	0.39	0	1
2nd (poorer) wealth quintile	9,911	22%	0.41	0	1
3rd (middle) wealth quintile	9,911	23%	0.42	0	1
4th (richer) wealth quintile	9,911	20%	0.40	0	1
Household head has no or only preschool education	9,895	16%	0.37	0	1
Household head has primary education	9,895	50%	0.50	0	1
Child is orphan (single/double) (ref. both parents alive)	9,555	19%	0.39	0	1
Child lives without parents while one or both parents are alive	9,555	14%	0.35	0	1
Child's gender is female (ref. male)	9,911	49%	0.50	0	1
Child's age	9,911	15.97	0.81	15	17
No. of children aged 0-4 in household	9,911	0.58	0.81	0	6
No. of children aged 5-14 in household	9,911	1.87	1.50	0	12
No. of children aged 15-17 in household	9,911	1.33	0.60	1	6
No. of adults aged 18-59 in household	9,911	2.19	1.22	0	11
No. of adults aged 60+ in household	9,911	0.25	0.51	0	3
Child lives in a labour constraint household	9,911	21%	0.40	0	1
Household head's age is 60+	9,910	19%	0.39	0	1
Child lives in rural area (ref. urban)	9,911	72%	0.45	0	1

Annex 8:

Sample size and population distribution by explanatory/profiling variable: all children under 18

Variable	Observations	Mean
Children aged under age 5 as a share of all children under 18	69,893	28%
Child living in rural area	69,893	70%
Child living in a household with 4 or more children aged 0-12	69,893	33%
Household head has no education	69,542	15%
Household head has primary education	69,542	53%
Household head has secondary or higher ed.	69,542	33%
Mother has no education	57,235	13%
Mother has primary education	57,235	60%
Mother has secondary or higher ed.	57,235	28%
Mother is single (not in union, widowed, divorced, separated)	57,235	15%
Mother was under 18 when first giving birth	57,235	33%
Father works all year and is paid	14,438	67%
Father is not continuously employed and/or is not paid	14,438	33%
Father's occupation: Professional/technical/managerial	14,280	13%
Father's occupation: agriculture - self-employed	14,280	34%
Father's occupation: Household and domestic	14,280	18%
Father's occupation: skilled manual	14,280	9%
Father's occupation: unskilled manual	14,280	20%
Child living in a labor constraint household	69,893	17%
Mortality: at least one child under 5 in household has died in last 5 years	59,089	4%
Orphan (single/double)	69,527	9%
Child lives without parents *(only children aged 5-17)*	50,650	13%
Child lives without parents while parent(s) alive *(only children aged 5-17)*	50,556	9%

Annex 9:

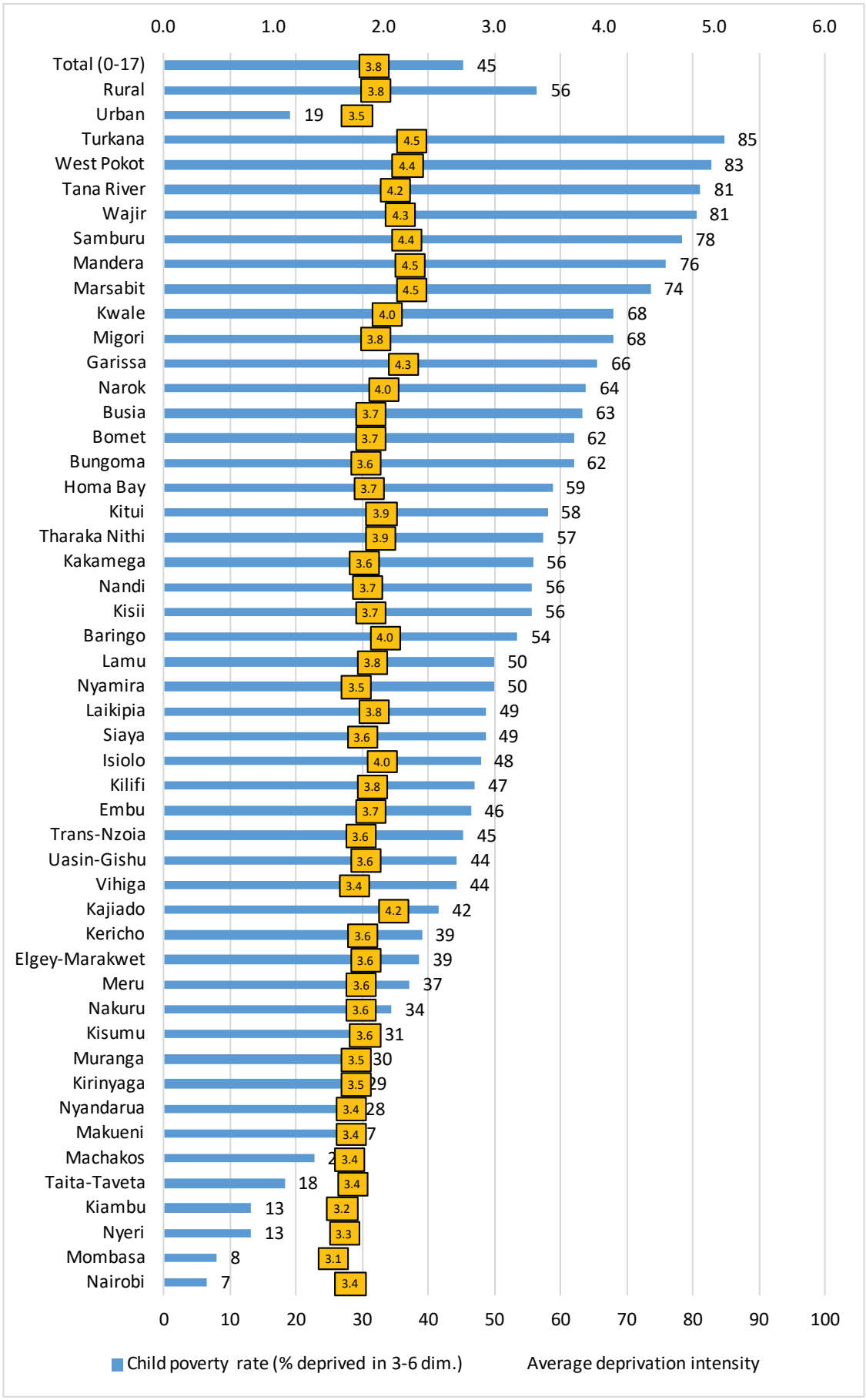
Multidimensional Poverty (MP) and child population in Kenya

	Average deprivation intensity (K=1)	MP rate (K=2)	MP rate (K=3)	Average deprivation intensity (K=3)	MP index (K=3)	Contribution to the total MP index	Total population	Children as % of total population	Total No. of children	Total No. of MP children (K=3)
Kenya (0-17)	2.7	68%	45%	3.8	0.29	100%	42,961,000	49%	21,064,614	9,549,192
Urban	2.0	41%	19%	3.5	0.11	11.6%	14,782,081	42%	6,140,149	1,176,983
Rural	3.0	80%	56%	3.8	0.36	88.4%	28,178,922	53%	14,924,465	8,431,223
Baringo	3.0	75%	54%	4.0	0.36	1.5%	488,280	52%	252,835	135,348
Bomet	3.0	83%	62%	3.7	0.39	3.5%	1,000,398	53%	532,643	330,125
Bungoma	3.0	87%	62%	3.6	0.38	6.4%	1,848,720	58%	1,068,005	661,660
Busia	3.0	86%	63%	3.7	0.40	3.1%	871,154	56%	488,305	309,099
Elgey-Marakwet	2.5	64%	39%	3.6	0.23	0.8%	373,228	53%	196,225	75,822
Embu	2.7	67%	46%	3.7	0.29	1.2%	592,021	42%	247,785	115,145
Garissa	3.5	80%	66%	4.3	0.47	2.1%	455,939	58%	264,515	173,552
Homa Bay	2.9	83%	59%	3.7	0.36	4.4%	1,300,289	59%	765,940	449,979
Isiolo	2.8	69%	48%	4.0	0.32	0.5%	159,280	55%	87,859	42,065
Kajiado	2.9	58%	42%	4.2	0.29	1.8%	810,909	46%	370,069	153,867
Kakamega	2.8	79%	56%	3.6	0.34	4.8%	1,721,686	54%	923,386	515,842
Kericho	2.4	65%	39%	3.6	0.23	1.5%	784,110	49%	380,543	148,469
Kiambu	1.7	40%	13%	3.2	0.07	0.9%	1,955,667	39%	757,136	100,245
Kilifi	2.7	72%	47%	3.8	0.30	4.0%	1,507,580	53%	802,405	377,023
Kirinyaga	2.2	52%	29%	3.5	0.17	0.6%	565,303	39%	221,290	63,583
Kisii	2.9	80%	56%	3.7	0.35	3.4%	1,148,583	52%	592,129	329,645
Kisumu	2.3	51%	31%	3.6	0.19	1.9%	1,160,066	52%	599,928	188,055
Kitui	3.0	82%	58%	3.9	0.38	3.8%	1,157,585	52%	598,269	347,203
Kwale	3.4	83%	68%	4.0	0.46	3.7%	889,168	53%	475,486	323,706
Laikipia	2.8	71%	49%	3.8	0.31	1.2%	456,685	50%	229,547	111,915
Lamu	2.8	75%	50%	3.8	0.31	0.3%	133,628	49%	66,023	32,982
Machakos	2.0	56%	23%	3.4	0.13	1.2%	1,256,459	45%	562,760	127,698
Makueni	2.1	60%	27%	3.4	0.15	1.2%	985,622	48%	475,059	128,925
Mandera	3.8	89%	76%	4.5	0.57	2.0%	349,262	65%	226,820	172,315
Marsabit	3.8	89%	74%	4.5	0.55	0.9%	195,818	56%	108,885	80,101
Meru	2.4	68%	37%	3.6	0.22	2.6%	1,547,355	45%	688,809	255,889
Migori	3.2	88%	68%	3.8	0.43	4.4%	1,030,408	60%	617,915	419,838
Mombasa	1.5	27%	8%	3.1	0.04	0.3%	1,069,008	36%	386,987	31,086
Muranga	2.2	50%	30%	3.5	0.17	1.1%	982,389	41%	401,144	118,476
Nairobi	1.6	21%	7%	3.4	0.04	0.9%	3,901,202	36%	1,420,241	93,302
Nakuru	2.3	62%	34%	3.6	0.20	3.1%	1,951,029	46%	888,866	306,261
Nandi	2.9	81%	56%	3.7	0.34	2.7%	907,768	51%	462,796	257,787
Narok	3.2	84%	64%	4.0	0.42	4.3%	1,033,451	58%	596,470	380,939
Nyamira	2.7	75%	50%	3.5	0.29	1.2%	493,505	50%	248,856	124,241
Nyandarua	2.1	63%	28%	3.4	0.16	0.8%	656,406	48%	315,334	89,760

	Average deprivation intensity (K=1)	MP rate (K=2)	MP rate (K=3)	Average deprivation intensity (K=3)	MP index (K=3)	Contribution to the total MP index	Total population	Children as % of total population	Total No. of children	Total No. of MP children (K=3)
Nyeri	1.7	39%	13%	3.3	0.07	0.3%	747,136	38%	285,589	37,658
Samburu	3.9	90%	78%	4.4	0.57	1.1%	198,894	60%	120,051	94,098
Siaya	2.7	74%	49%	3.6	0.29	2.2%	888,678	53%	474,580	230,677
Taita-Taveta	1.9	43%	18%	3.4	0.10	0.2%	297,925	43%	128,689	23,532
Tana River	3.8	96%	81%	4.2	0.57	1.7%	321,469	57%	184,532	149,855
Tharaka Nithi	3.1	77%	57%	3.9	0.38	1.2%	415,347	46%	189,778	108,941
Trans-Nzoia	2.6	72%	45%	3.6	0.27	2.7%	1,180,505	53%	631,170	286,007
Turkana	4.1	95%	85%	4.5	0.63	3.2%	564,298	59%	335,395	284,296
Uasin-Gishu	2.6	67%	44%	3.6	0.27	2.2%	1,066,614	46%	495,119	219,674
Vihiga	2.5	79%	44%	3.4	0.25	1.2%	592,042	54%	318,087	140,715
Wajir	3.8	94%	81%	4.3	0.58	2.6%	442,773	63%	280,398	225,738
West Pokot	4.0	94%	83%	4.4	0.61	3.1%	505,360	59%	299,962	248,148
Source: Authors' calculations using KDHS 2014 data										

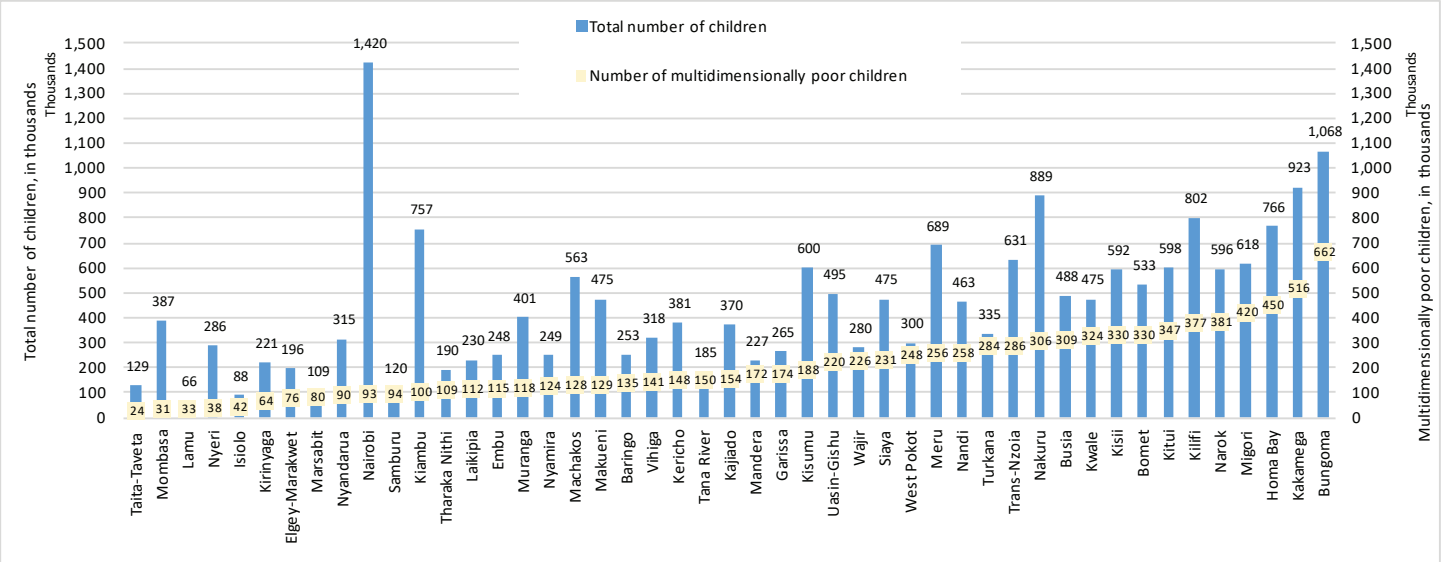
Annex 10:

Child poverty rates and average number of deprivations by county for children under 18 deprived in 3-6 dimensions



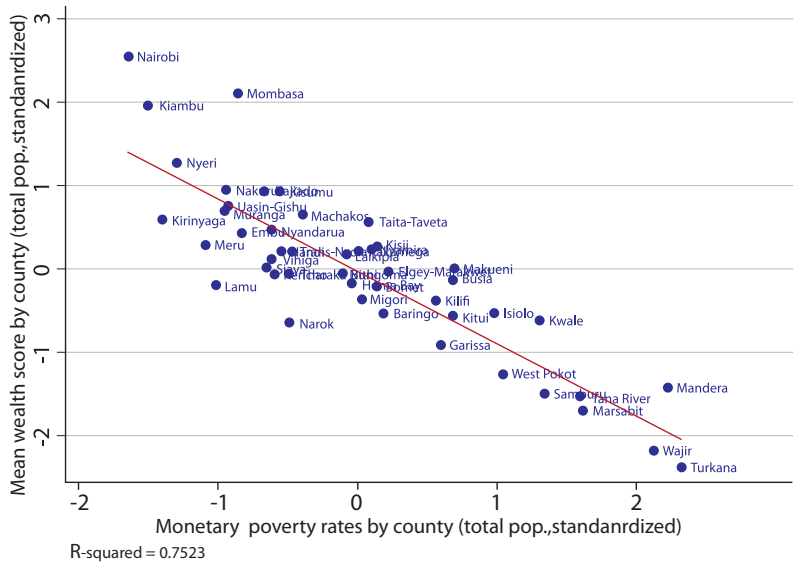
Annex 11:

Absolute number of children per county and absolute number of poor children per county



Annex 12:

Correlation between monetary poverty (KNBS 2009) and the wealth score (KDHS 2014) by county



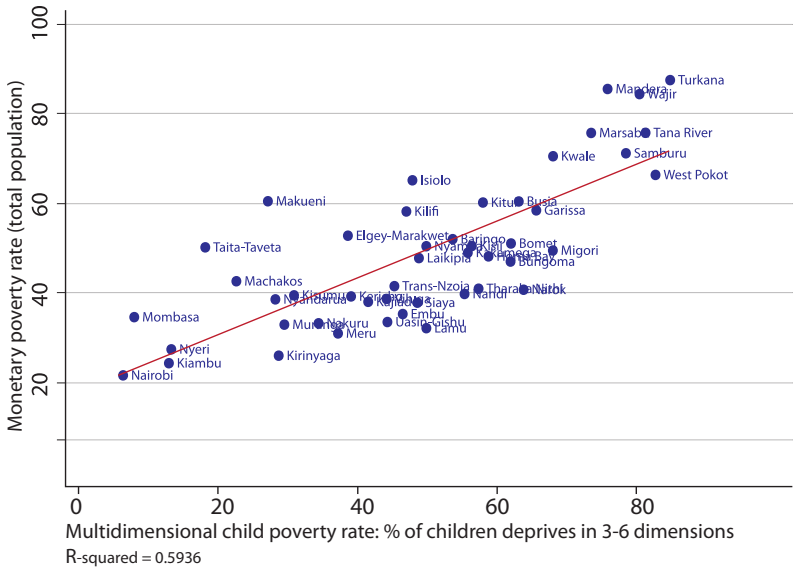
Notes:

The wealth score by household is available in KDHS 2014 survey data and is based on dwelling conditions and the number and type of assets owned by each of the households included in the survey;
Mean wealth score by county was calculated by authors based on KDHS 2014 data;
Monetary poverty measure is based on the consumption level of household members in 2009, identifying individuals as poor if their consumption is below the poverty line; Monetary poverty rates by county are retrieved from "Spatial Dimensions of Well-being in Kenya: Where are the Poor?" (KNBS, 2014).

Both measures are standardized to allow for comparison. The two measures correlate strongly ($R^2 = 0.75$).

Annex 13:

Correlation between monetary poverty rates (KNBS 2009) and child poverty rates (DHS 2014), by county



(Footnotes)

1 In KDHS 2014 data, this is the case for 23% of girls aged 15-17 and 66% of boys aged 15-17.

2 Idem

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