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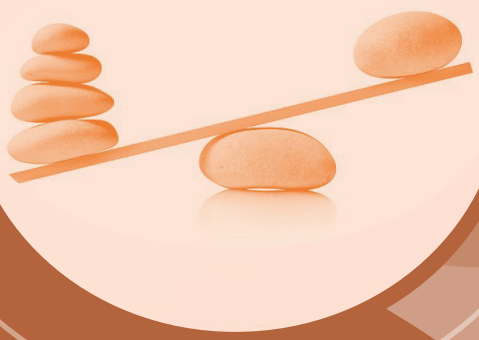

INEQUALITIES IN WELLBEING IN KENYA

Based on 2009 and 2019 Kenya Population and Housing Census

KENYA VISION 2030

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UN WOMEN

KENYA VISION 2030

unicef
for every child

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Real Towers, Upper Hill

P.O. Box 30266 - 00100 Nairobi, Kenya

Tel: +254-20-3317583, +254-20-2911000/1, +254-20-3317612/22/23/51

Email: info@knbs.or.ke / directorgeneral@knbs.or.ke/ library@knbs.or.ke

Facebook: Kenya Stats

Twitter: @KNBStats

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Kenya Counties Map

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Acronyms and Abbreviations

AfDB	African Development Bank
APBET	Alternative Provision of Basic Education and Training
ASAL	Arid and semi-arid lands
BPfA	Beijing Platform for Action
CA	Communications Authority
CDF	Constituency Development Fund
CEDAW	Convention on Elimination of All Forms of Discrimination Against Women
CIDPs	County Integrated Development Plans
CIRT	Computer Incident Response Team
CPR	Comprehensive Poverty Report
CRC	Convention on the Rights of the Child
EAC	East Africa Community
EB	Estimates Best
ECDE	Early childhood development education
ELL	Elbers, Lanjouw, and Lanjouw
FDSE	Free Day Secondary Education
FGM	Female genital mutilation
FGT	Foster-Greer-Thorbecke
FPE	Free Primary Education
GBV	Gender-based violence
GDP	Gross Domestic Product
GEWE	Gender Equality & Women's Empowerment
GLS	Generalized least squares
GoK	Government of Kenya
HELB	Higher Education Loans Board
HH	Household
ICCPR	International Covenant on Civil and Political Rights
ICT	Information and Communication Technology
ILO	International Labour Organization
IT	Information Technology
KCHS	Kenya Continuous Household Survey
KENSUP	Kenya Slum Upgrading Programme
KIHBS	Kenya Integrated Household Budget Survey
KNBS	Kenya National Bureau of Statistics
KPHC	Kenya Population and Housing Census
KSh	Kenyan Shilling

KSPforR	Kenya Statistics Programme-for-Results
LATF	Local Authority Transfer Fund
LNOB	Leaving No One Behind
LPG	Liquefied petroleum gas
MD	Multidimensional
MDG	Millennium Development Goals
MODA	Multiple Overlapping Deprivation Analysis
MSE	Mean squared error
MTP	Medium-Term Plan
MWSI	Ministry of Water, Sanitation and Irrigation
NCCS	National Council for Children's Services
NCPS	National Child Protection System
NEMIS	National Education Management Information System
NFSs	Non-Formal Schools
NLP	National Land Policy
NOFBI	National Optic Fibre Network Backhaul Initiative
ODF	Open defecation free
OHCHR	Office of the United Nations High Commissioner for Human Rights
PPP	Public private partnership
PwDs	Persons with disabilities
RBA	Rights-based approach
SAE	Small Area Estimation
SDG	Sustainable Development Goal
SEQIP	Secondary Education Quality Improvement Project
TVET	Technical and Vocational Education and Training
UDHR	Universal Declaration of Human Rights
UHC	Universal health coverage
UN	United Nations
UNICEF	United Nations Children's Fund
VIF	Variance inflation factors
WATSAN	Water and Sanitation
WSRB	Water Services Regulatory Board

Foreword

Kenya's long-term development blueprint, Vision 2030, aims to transform Kenya into "a newly industrialized, middle-income country through the provision of a high quality of life to all its citizens in a clean and secure environment". Its Social Pillar 2030 underscores the Government's commitment to eliminate poverty and inequalities. The prioritization of inequality in national development planning is given more impetus by the 2030 Sustainable Development Agenda with its overarching principle of leaving no one behind. Specifically, Sustainable Development Goal 10 is aimed at reducing inequalities within and among countries and calls for the national and international prioritization of addressing and remedying discrimination and unequal statuses to allow for a more productive and just society.

Globally, studies have shown that growing inequalities could be a threat to long-term sustainable social and economic development. To address this potential development challenge, evidence on the prevalence of inequality, including all its dimensions, is required for informed policy and the design of appropriate interventions at national and devolved levels. Towards this end, the Government, through the Kenya National Bureau of Statistics initiated a study on inequality in 2021. This report, therefore, presents the findings on inequalities on wellbeing based on the Kenya Population and Housing Census data collected by the Bureau in 2009 and 2019.

This study is a major milestone as it provides evidence on the distribution of geographical and temporal social-economic exclusion, poverty, and inequality, and their drivers. It provides evidence on inequalities in outcomes across the following well-being dimensions: education, economic activity, child protection, health, information, housing and energy, water, and sanitation, as well as aggregate measures of monetary and multidimensional poverty.

The findings of the study show major improvements in the reduction of deprivation in both monetary and multidimensional poverty in Kenya during this period. In 2009, approximately 7 out of 10 (26.3 million people) were multi-dimensionally poor, and 46 per cent (17.6 million) were monetarily poor. A decade later, half of all Kenyans (24.2 million) were multi-dimensionally poor, and approximately 33 per cent (15.8 million Kenyans) were monetarily poor.

Children comprise more than 43 per cent of both monetary and multidimensionally poor population. However, the incidence of children and young people deprived in education decreased between 2009 and 2019. Progress in the child protection sector has also been considerable. Child labour and child marriage rates have decreased, while there has been an increase in birth registration rates. Improvements in labour market outcomes have also been substantial. The proportion of persons aged 26-59 years outside the labour market, underemployed timewise or in vulnerable employment decreased. Across basic housing amenities and conditions, there was also progress on access to improved sanitation and to energy sources used for lighting. Considerably fewer households are now deprived of access to information as a result of an increase in ownership of digital devices and increased exposure to media among adults.

However, despite this progress in well-being, geographical inequalities persist between areas of residence and counties, implying that progress has not been equal over the decade. Across all dimensions of poverty and well-being, the rural areas and counties like Garissa, Turkana, Wajir, Mandera, Marsabit, West Pokot, Samburu, and Tana River remained the poorest and most deprived. Baringo, Migori, Homa Bay, Elgeyo/Marakwet, Kitui, and Narok also ranked among the most deprived or made the least progress across a select number of dimensions among child protection, access to safe drinking water, energy and housing.

The study also unraveled several demographic and socio-economic characteristics as key drivers of deprivation and inequality. The gender of an individual and of the household head, is strongly associated with deprivation, as is orphanhood, disability status, the number of children in the household, educational attainment, and the employment status of adult household members.

In summary, the evidence on the extent and magnitude of inequalities in well-being shows that reducing inequalities requires transformative change. Greater efforts are needed to improve service delivery - especially among those who are left further behind - by targeting more investments to increase access to education, health, water and sanitation, social protection, social services, and decent jobs for young people and other vulnerable socioeconomic groups.

It is my hope that the evidence on inequalities in well-being in Kenya presented in this report will provide a baseline and more impetus, to not only design better inequality-reducing policies and interventions but also to monitor and report on the effectiveness of programmes more regularly. The results of this study will also help to inform the fourth Medium Term Plan (MTP IV) 2023-2027 and the third generation of County Integrated Development Plans (CIDP III).

The Government wishes to extend its gratitude to UNICEF and UN Women for the financial and technical support provided through the Joint Devolution Programme funded by Sweden, Finland and Italy. Special thanks to Kenya National Bureau of Statistics under the leadership of the Director General, Mr. Macdonald Obudho, for leading the whole process and in the preparation of this report.

James Muhati
PRINCIPAL SECRETARY
STATE DEPARTMENT FOR ECONOMIC PLANNING
THE NATIONAL TREASURY AND ECONOMIC PLANNING

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Macdonald G. Obudho, MBS
DIRECTOR GENERAL
KENYA NATIONAL BUREAU OF STATISTICS

Terms and Definitions

Average deprivation intensity: The average number of deprivations experienced by the multidimensionally poor population.

Deprivation incidence: The proportion of individuals/households deprived in an indicator/dimension of non-monetary wellbeing over the total reference population.

Gender gap: Calculated as the absolute difference in deprivation incidence in an indicator/dimension between girls/women and boys/men divided by the deprivation incidence in the indicator/dimension among girls/women. A positive sign implies that deprivation among girls/women is higher compared to boys/men, whereas a negative sign the opposite, higher deprivation among boys/men compared to girls/women.

Horizontal inequality: Accounts for disparities in realization of rights and basic needs based on one's sex, age, disability, religion, ethnicity, location, or another characteristic.

Inequality of opportunity: Differences in opportunity stemming from difference fixed at birth, stemming from parental characteristics, or from social discrimination (age, sex, location).

Inequality in outcome: Differences in consumption or income, educational attainment, health status, access to basic amenities or fulfilment of other basic needs and rights.

Intersecting inequality: Measures exclusions that members of the same group may face, for instance, youths in the poorest quintiles in rural areas.

Labour constrained household: Households where none of the able-bodied household members aged 18 years and above are working.

Monetary poor: Individual lives in a household with monthly adult equivalent per capita expenditure below the overall poverty line, i.e., amount necessary to cover minimum food and non-food needs.

Multidimensionally poor: Individual is deprived in three or more dimensions out of the five or six analysed in correspondence with her/his age.

Nuclear family: Household consisting of both parents and their children.

Per cent change: Change in deprivation incidence between 2009 and 2019 calculated as follows: (deprivation incidence in 2019 - deprivation incidence in 2009)/deprivation incidence in 2009. Negative change signifies decrease in deprivation/poverty incidence, whereas positive change signifies increase in deprivation/poverty incidence.

Poverty gap/depth: The difference of consumption expenditure of the individual/household relative to the overall poverty line.

Small area estimation: A statistical technique for estimating and imputing poverty estimates for small sub-populations using welfare models from representative large surveys.

Vertical inequality: Measures how resources are distributed among individuals or households in a society by ranking them according to a wellbeing outcome like income or consumption level.

Vulnerable employment: Person aged 18-59 years is working in the informal sector "Jua Kali", is self-employed in the informal economy or agriculture, is engaged in pastoral activities (self-employed or employee), or is working in individual private households (e.g., domestic workers).

Executive Summary

This report presented findings on inequalities in monetary and non-monetary wellbeing outcomes in Kenya, their trends of change between 2009 and 2019, across geographical locations, and the underlying socio-economic drivers. The purpose of the analysis was to provide evidence to support prioritization of the needs of children, youths, women, and other population groups in national and county development plans and budgets to ensure inclusive growth and sustainable development, and that no one is left behind.

In addition to providing evidence on policy and budgetary planning at the national and county level, the findings of the report are readily usable for monitoring Kenya's progress in achieving SDG targets 1.1, 1.2, SDG 3-8 and SDG 10 targets. The findings also provide ample evidence for monitoring and tracking progress of the Vision 2030 and the "Big Four" Agenda, and for informing child-centered, gender-sensitive, and rights-based approaches in policies, programmes, and public finance.

Deprivation and inequality analysis in the report was based on the conceptual framework of Stewart (2002) which distinguishes between three types of inequality: 1) vertical inequality, 2) horizontal inequality, and 3) intersecting inequality. Vertical inequality measures how resources are distributed among individuals or households in a society by ranking them according to a wellbeing outcome like income or consumption level. Horizontal inequality accounts for disparities in realization of rights and basic needs based on one's sex, age, disability, religion, ethnicity, location, or another characteristic. Intersecting inequality sheds light into exclusions that members of the same group may face, for instance, youths in the poorest quintiles in rural areas (Stewart, 2002). Both horizontal and intersecting inequalities are crucial for identifying the left-behind groups of population in a country's development.

Inequality in non-monetary wellbeing outcomes was measured following UNICEF's Multiple Overlapping Deprivation Analysis (MODA) methodology[1] and the parameters that were used in the most recent poverty and deprivation analyses conducted and published by KNBS, UNICEF and UN WOMEN Kenya Country Office.[2] MODA methodology defines multidimensional [child] poverty as nonfulfillment of the rights listed in the Convention on the Rights of the Child (CRC) 1989[3], other international agreements and conventions (depending on the age group) and national legislative frameworks (esp. constitutions). The parameters included in the analysis were selected through participatory consultations with KNBS, sector representatives, and development partners from UNICEF and UN WOMEN Kenya Country Office. For children under 18 years, wellbeing outcomes across the dimensions of education, child protection, information, water, sanitation, and housing and energy and their constituting indicators were analysed. For youths aged 18-34 years and adults aged 35-59 years, the analysis focused on outcomes in the dimensions of education, economic activity, information, water, sanitation, and housing and energy. For the elderly aged 60 years and above, the dimensions were the same as for youths and adults, excluding economic activity. A person was defined as multidimensionally poor if s/he was deprived in three or more dimensions out of the five/six analysed for her/his respective age group.

In absence of consumption or income data in Kenya Population and Housing Census (KPHC) datasets, small areas estimation (SAE) of monetary poverty was carried out using consumption models from Kenya Integrated Household Budget Survey (KIHBS) 2005-06 and KIHBS

1 de Neubourg, C., Chai, J., de Milliano, M., Plavgo, I., & Wei, Z., (2012), "Step-by-step Guidelines to the Multiple Overlapping Deprivation Analysis (MODA). Available at: https://www.unicef-irc.org/publications/pdf/iwp_2012_10.pdf

2 Kenya National Bureau of Statistics 2020a, 2020b, 2017.

3 United Nations, 1989, Convention on the Rights of the Child, available at: https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child

2015-16 datasets to simulate welfare in KPHC 2009 and KPHC 2019 datasets, respectively. An individual was considered monetarily poor if s/he lived in a household with monthly adult equivalent consumption below the overall poverty line. In 2019, the overall poverty lines in monthly adult equivalent terms for KIHBS 2015-16 were KSh 3,252 and KSh 5,995 in rural and urban areas, respectively. In 2009, the overall poverty line in rural areas was KSh 1,562 and in urban areas KSh 2,913 monthly per adult equivalent.[4]

There was major improvements in Kenya between 2009 and 2019 across most dimensions of wellbeing – education, child protection, information, economic activity, water, and sanitation – and across all age groups. As a result, there had been a substantial decrease in multidimensional poverty incidence, while progress in reducing monetary poverty had been slower. The sections below present key findings across sectors, trends in gender disparities, and in monetary and multidimensional poverty at the national and subnational levels for 2009 and 2019.

Nevertheless, inequalities in wellbeing outcomes – monetary and non-monetary – were widespread geographically, temporally in terms of counties' progress between 2009 and 2019, and across different population groups and their characteristics. Deprivation and poverty incidence in all domains of wellbeing and across all population groups was significantly higher in rural areas and in Garissa, Turkana, Wajir, Mandera, Marsabit, West Pokot, Samburu, and Tana River. Baringo, Migori, Homa Bay, Elgeyo/Marakwet, Kitui, and Narok also ranked among the most deprived counties or showed the smallest progress in a select number of indicators or dimensions among child protection, access to safe drinking water and/or housing and energy. These findings suggest that these areas and counties remain left behind in development.

Considerable progress was made in educational outcomes in Kenya between 2009 and 2019, especially among secondary school age children and youths. Deprivation incidence in secondary school education dropped from 49.6 to 29 per cent among children aged 14-17 years, while deprivation in primary school education among 6-13-year-olds declined from 30.1 to 23.7 per cent. Among youths aged 18-34 years, deprivation in secondary school completion decreased from 76.2 per cent in 2009 to 52.6 per cent in 2019. Progress over the decade was most notable among teenagers aged 14-17 years in both urban and rural areas, and among youths aged 18-34 years in urban areas. Across counties, the largest reductions in deprivation incidence in education among youths were recorded in Kiambu, Nyeri, Marsabit, Kajiado, and Samburu, while Kwale, Kilifi, Busia, Siaya, and Kakamega recorded the smallest progress. Deprivation incidence in education remained high in 2019 among young pre-schoolers aged 3 years, at 73.7 per cent, among youths aged 18-34 years (52.6 per cent), adults aged 35-59 years (75.1 per cent), and the elderly aged 60 years and above (73.9 per cent).

Reductions in deprivation incidence in child protection were substantial across the indicators of child labour, teenage pregnancy, and birth registration. Between 2009 and 2019, the deprivation rate in child protection declined from 35.2 to 8 per cent among 6-13-year-olds and from 34.6 to 14.3 per cent among 14-17-year-olds. This progress is primary attributed to the decline in child labour incidence and improvements in educational outcomes over the decade. Child labour incidence among 5-17-year-olds decreased from 34.6 to 8.4 per cent; the teenage pregnancy rate among girls aged 12-17 years decreased from 3.7 to 2.2 per cent, while the birth registration rate increased from 71.6 to 89 per cent. On the other hand, there was a rise in child marriage incidence among 12-17-year-olds, from 3.7 to 4.5 per cent, mainly attributed to the 30-per cent increase in incidence in rural areas from 3.8 to 5 per cent.

Even though the skilled birth attendance was high in 2019, 83.2 per cent, geographical disparities were widespread. While almost all children in urban areas (94.9 per cent) born during the five years preceding the census were delivered in health facilities, in rural areas the skilled birth attendance rate was 76.9 per cent. Samburu, Wajir, West Pokot, Mandera, Turkana, Marsabit, Tana

4 Based on KIHBS 2005-06 and KIHBS 2015-16 consumption aggregate modules in the datasets.

River, Garissa, and Narok remained left behind in access to health care services, with the lowest skilled birth attendance rates in 2019 ranging between 43 and 58 per cent. Kirinyaga and Nyeri had the highest skilled birth attendance rates in 2019, at 98 per cent.

Improvements in labour market outcomes between 2009 and 2019 were significant, especially in rural areas. Deprivation incidence in economic activity decreased by 25 per cent among persons aged 26-34 years, from 74.1 to 55.4 per cent, and among 35-59-year-olds, from 78.4 to 57.9 per cent. Nevertheless, more than half of youths (53.1 per cent) aged 18-25 years were not in education, employment or training in 2019, and more than 55 per cent of persons aged 26-59 years were either not participating in the labour market, were underemployed timewise, or were in vulnerable employment. Rural areas remained severely disadvantaged in terms of labour market opportunities. In 2019, 56.7 per cent of youths aged 18-25 years in rural areas were not in employment, education or training compared to 46.9 per cent of their peers in urban areas. Across counties, between 2009 and 2019 deprivation incidence in economic activity among 18-25-year-olds decreased the most – by around 30 per cent – in Busia, Kirinyaga, Nandi, Siaya, and Homa Bay. While changes in Wajir and Garissa were insignificant, deprivation incidence increased in Mandera, indicating that these counties remained behind in labour market outcomes among youths aged 18-25 years in 2019.

Deprivation in access to information decreased substantially over the decade, particularly in households' ownership of information devices and in media exposure among adults aged 18 years and above. At the national level, deprivation in ownership of information devices – TV, radio, phone, and computer – fell from 18.0 per cent in 2009 to 6.0 per cent in 2019. The deprivation incidence in exposure to media also decreased substantially among persons aged 18 years and above, while among children it increased. In 2019, more than 8 in 10 children aged 3-13 years had not used a computer, internet, or mobile phone from any location in the three months preceding the census, pointing to issues with educational outcomes and learning during school closures during the COVID-19 pandemic. On the other hand, among 35-59-year-olds deprivation in media exposure dropped from 30.2 per cent in 2009 to 12.2 per cent in 2019.

There were major improvements in access to basic amenities between 2009 and 2019, especially in sanitation. In 2019, nearly 4 in 10 Kenyans did not have access to safe drinking water, while 2 in 10 were deprived of improved sanitation. Deprivation incidence in access to safe drinking decreased from 47.4 per cent in 2009 to 38.4 per cent in 2019, largely attributed to the 17-percent decrease in incidence in rural areas, from 55.3 to 46 per cent. The change in the deprivation rate in urban areas was insignificant. Deprivation incidence in access to improved sanitation at the national level nearly halved between 2009 and 2019, from 38.8 to 21.2 per cent, respectively. Progress in improving access to adequate sanitation was greater in urban areas. At the county level, Nyeri, Kiambu, Nyandarua, and Murang'a recorded the largest progress in both access to safe drinking water and improved sanitation between 2009 and 2019. On the other hand, Garissa, Mandera, Samburu, and Turkana were left behind in access to both water and sanitation over the decade and recorded the highest deprivation rates and the smallest progress over time.

Improvements in the housing and energy dimension over the decade were less substantial compared to the other sectors, mainly driven by progress in urban areas, and expansion of the electricity grid in the country. Deprivation incidence in housing and energy decreased from 95.4 per cent in 2009 to 83.9 per cent in 2019. This change is largely attributed to the decline in deprivation incidence of adequate lighting sources (from 79 to 32.5 per cent), and the reduction in deprivation incidence in housing and energy in urban areas, from 82.5 in 2009 to 54.8 per cent in 2019. Progress in reducing deprivation in housing conditions, adequate cooking sources, and across rural areas was insignificant. At the county level, deprivation incidence in housing and energy decreased the most in Nairobi City and Kiambu (by more than 40 per cent), followed by Mombasa and Kajiado (by more than 24 per cent). Almost no change was recorded in Mandera, Turkana, Wajir, West Pokot, and Elgeyo/Marakwet between 2009 and 2019.

Kenya made significant progress in monetary and multidimensional (MD) poverty reduction between 2009 and 2019. The multidimensional poverty rate decreased from 68.2 per cent in 2009 to 50.8 per cent in 2019, largely attributed to the 39-per cent reduction in multidimensional poverty incidence in urban areas. Likewise, monetary poverty incidence decreased from 45.7 per cent in 2009 to 33.3 per cent in 2019, mainly affected by the nearly 27-percent decrease in poverty incidence in rural areas. Across counties, Kiambu, Nairobi City, Nyeri, Murang'a and Machakos recorded the largest reductions in multidimensional poverty incidence between 2009 and 2019. In Samburu, Garissa, Turkana, Mandera and Wajir – which also ranked among the poorest counties in Kenya in 2009 and 2019 - the reduction in multidimensional poverty incidence over the decade was very small, raising concerns about these counties being left behind in development since 2009. The largest reductions in monetary poverty incidence over the decade were noted in Nyeri, Homa Bay, Tharaka-Nithi, Machakos, and Narok. On the other hand, in Tana River, Samburu, and Busia, monetary poverty incidence decreased by less than 10 per cent between 2009 and 2019.

Notable improvements were also made in reducing deprivation intensity and monetary poverty gap, particularly in rural areas. The average deprivation intensity reduced from 4.1 to 3.6 dimensions between 2009 and 2019, respectively, and the monetary poverty gap nearly halved from 19.4 to 10.7. Reductions in average deprivation intensity and poverty gap over the decade were larger in rural areas, by 10.7 per cent and 48.9 per cent, respectively. At the county level, Turkana, Garissa, Marsabit, West Pokot, and Wajir recorded the largest reductions in average deprivation intensity, albeit ranked the poorest in multidimensional poverty incidence terms in 2019. Between 2009 and 2019, the poverty gap narrowed by the largest amount in Nyamira, Nyandarua, Kitui, Samburu and Nyeri. Changes in the poverty gap in Narok, West Pokot, and Bungoma were insignificant.

Inequalities in realization of basic rights and fulfilment of needs, including financial wellbeing, remained wide between rural and urban areas and across counties. In 2019, Kenyans residing in rural areas were more than twice as likely to be multidimensionally poor compared to the population in urban areas, with multidimensional poverty incidence rates of 61.9 and 25.8 per cent, respectively. The monetary poverty incidence in rural areas (36.9 per cent) was also significantly higher compared to the urban ones (25.6 per cent). Across counties, Turkana, Mandera, Wajir, Samburu, Marsabit, and Garissa are highlighted as left-behind counties, ranking the poorest in both monetary and multidimensional poverty in 2009 and 2019, and showing meagre progress over the decade.

The analysis highlighted **several demographic and socio-economic characteristics that contribute to horizontal and intersecting inequalities in Kenya** including **i) Sex.** Boys (esp. teenagers aged 14-17 years) were more likely to be deprived in education and to engage in child labour compared to girl children, while girls' wellbeing was affected by teenage pregnancy and higher incidence of child marriage during the age of 12-17 years. On the other hand, women aged 18 years and above were significantly more disadvantaged than men in terms of educational and employment outcomes. Both girls and women of all ages were more likely to be deprived in information than their male peers. Women aged 18 years and above were more likely to be multidimensionally poor than men, while girls under 18 were less likely to be multidimensionally poor than boys. Members of women-headed households also faced higher deprivation rates across all dimensions of wellbeing and had higher incidence in both monetary and multidimensional poverty; **ii) Orphanhood and living arrangements.** Orphaned children and children living only with one parent had higher deprivation incidence in education, and higher incidence in child labour and teenage pregnancy; **iii) Disability** was associated with deprivation in education among both children and adults aged 18+ years, and with deprivation in economic activity among persons aged 18-59 years; and **iv) Living in households with limited earning opportunities and strained financial resources** due to lower educational attainment among adults (inc. household head), labour-constrained households, households with a larger number of children younger than 18 years, and households composed of only grandparents and grandchildren and single mothers/ fathers and children.

This study recommends the following broad actions, while detailed sector interventions can be found in each respective chapter:

Mainstreaming LNOB in national- and county-level development policies and financing. Recognizing and mainstreaming vertical, horizontal, and intersecting inequalities in both policy planning and financing at national and subnational levels is the first step towards putting the LNOB agenda to action. Two broad, parallel approaches should guide the policies, programmes and financing to address inequalities and ensure that no one is left behind:

1. **Ensuring provision of services for all.**
2. **Establishing a Social Protection Floor for all to address vulnerabilities across different stages of the lifecycle and protect against different contingencies.**

Adjust public finance formulae to address disparities in county financing while carefully considering the needs of the left-behind population groups. Enhancing the socio-economic inclusion of the left-behind population groups requires increasing resource allocation and amending financing mechanisms in correspondence with the special needs of these population groups. Prioritizing budgetary allocations towards sectors or sub-sectors that concern the left-behind groups across counties the most could be the initial step in reforming financing as both the national and county governments identify means of expanding their fiscal space. Stronger budget execution and accountability mechanisms are also crucial in ensuring that the funds are benefitting the neediest.

Promote equity through enforcement of and effective implementation of related legislation. Interventions in the legal framework and its effective implementation are also necessary to tackle systematic and cross-cutting issues. Laws pertaining to social equity and gender equality that criminalize conduct and discrimination against certain groups would be highly beneficial in this regard. Similarly, making child labour elicit in the Employment Act, and effective implementation of laws related to female genital mutilation (FGM), child marriage, and teenage pregnancy would contribute greatly to tackling child protection issues.

Public awareness, communication, and outreach campaigns in partnerships with civil society organizations, religious and community leaders and members, champions of the causes, and other stakeholders are crucial for changing and dismantling discriminatory attitudes and ending harmful practices.

Continuous collection of data and usage of evidence to further the LNOB Agenda. In addition to ensuring continuous data collection, this study recommends that future census questionnaires: 1) Collect data consistently with KPHC 2009 and KPHC 2019 to allow for trend analysis, and 2) To the extent possible, address the existing gaps in non-monetary wellbeing indicators, especially in the domains of health, nutrition, and literacy. Timely publishing of administrative data and their usage in planning and budgeting at the national and subnational levels – including linkages to the census and/or survey data – for comprehensive analysis could be very useful.

1 Introduction and Background

1.0 Introduction

This report presents findings on monetary and non-monetary inequality in Kenya, their trends and underlying drivers. The purpose of the analysis is to provide evidence to support the prioritisation of the needs of children, youth, women, and other population groups in national and county development plans and budgets.

Inequality in non-monetary wellbeing outcomes was measured by applying UNICEF's Multiple Overlapping Deprivation Analysis (MODA) for single and multidimensional deprivation analysis, following lifecycle and rights-based approaches. The analysis covered the dimensions of education, child protection, information, economic activity, water and sanitation (WATSAN), and housing and energy. Multidimensional poverty headcount rate and average deprivation intensity represent summary measures of non-monetary wellbeing outcomes. Inequality in financial/monetary wellbeing outcomes was measured through consumption expenditure and includes aggregate measures of monetary poverty headcount rate and poverty gap. In absence of data on income or consumption in the census datasets, small area estimation (SAE) was applied to impute data on monetary poverty. Profiling of wellbeing outcomes by age, sex, location, and other socio-economic characteristics is intended to shed light into structural differences in inequalities in opportunity.

The analyses were carried out using Kenya Population and Household Census (KPHC) 2009 and KPHC 2019 datasets. For SAE of monetary poverty, Kenya Integrated Household Budget Survey (KIHBS) 2005-06 and 2015-16 datasets were used to construct the consumption model used in the simulation in census data.

The report presents evidence on the following:

1 The scale of geographical inequality in Kenya across monetary and non-monetary wellbeing outcomes.

2 Trend analysis of inequality in Kenya between 2009 and 2019 at the national, residence (urban/rural) and county level, and across various domains of wellbeing.

3 Gender inequalities in wellbeing in Kenya between 2009 and 2019, across different geographical areas, and across different domains of wellbeing.

4 Key socio-economic and geographical drivers of deprivation and inequality in Kenya in 2019.

5 Policy recommendations based on the report findings towards enhancing wellbeing outcomes and reducing inequalities.

1.1 Background

Agenda 2030 on Sustainable Development encourages countries to reduce inequalities and to end poverty in a sustainable manner (SDGs 1 and 10), and to achieve gender equality and women's empowerment through SDG 5 and related targets. It also promotes the principle of Leaving No One Behind (LNOB). To achieve these goals, countries were encouraged to increase their investments especially to the most vulnerable and marginalised populations. At the national level, Kenya's Vision 2030[5] envisages a fair and just society in which citizens have the required skills and capacities to contribute to economic, social and political development. In addition, Kenya's Constitution 2010

5 Government of Kenya, Kenya Vision 2030, available at: https://vision2030.go.ke/v2030-publications/

(Articles 43 and 53) provides for a range of rights and protections for the population in the domains of health, food security, water, housing, education, and social security.[6] Kenya is also obligated, through ratification of various covenants, to ensure that these rights are realised by not only all women and children but by the whole population.

The push for a devolved system of governance in the country was partially a response to enhance public service delivery with the aim of addressing socio-economic inequalities across households and regions. The Constituency Development Fund (CDF) and Local Authority Transfer Fund (LATF) are two of the most notable interventions in the area of decentralized funds. Other funds were established in support of various groups such as the Women Enterprise Fund, the Youth Fund, and several social protection programmes targeting orphaned and vulnerable children, the elderly, persons with disabilities, and other vulnerable groups. While these interventions have contributed to poverty reduction and socio-economic inclusion, inequalities and inequities remain widespread.

Recent evidence[7] shows that there are prevailing geographical inequalities in socio-economic outcomes in Kenya. Nearly 36.1 per cent of Kenyans were monetary poor in 2015-16[8] with the poverty incidence ranging between 16.6 per cent in Nairobi to 78.5 per cent in Turkana County. More than half of the population (53 per cent) were deprived of fulfilment of at least three basic needs or rights corresponding with their age, and the multidimensional poverty rate ranged from 12.6 per cent in Nairobi City to 91.5 per cent in Mandera.[9] Women are more likely to be multidimensionally poor and experience a greater deprivation intensity than men. The study found that 65.4 per cent of women aged 35-59 years were multidimensionally poor in 2015-16 compared to 56.1 per cent of men. Multidimensionally poor women experienced 4.5 deprivations on average out of the 7 analysed, while their male counterparts experienced average deprivation intensity of 4.3 dimensions.

The report also found that inequalities were widespread across all age groups.[10] Monetary poverty incidence among children under 18 ranged between 20.3 per cent in Meru and 82.7 per cent in Turkana; between 12.6 per cent in Nairobi and 76.4 per cent in Mandera among youths (18-34 years); between 15.6 per cent in Nairobi City and 77.8 per cent in Turkana among adult women; and between 16.3 per cent in Nyeri and 83.2 per cent in Turkana among the persons aged 60 years and above. Multidimensional poverty incidence among children ranged between 7.3 per cent in Nairobi City and 90.2 per cent in Mandera County, while among youths (aged 18-34 years) between 13.7 per cent in Nairobi City and 93.4 per cent in Mandera. Among the elderly, it ranged between 6.7 per cent in Nairobi City and 97.0 per cent in Turkana.[11]

Geographical disparities in children's wellbeing outcomes are partially explained by inequalities in accessibility, availability and affordability of basic goods and services. The KNBS (2020) Comprehensive Poverty Report (CPR) found that 28.6 per cent of children in Garissa County had not been vaccinated against measles compared to 1 per cent of their peers in Mombasa. In Garissa,

6 Government of Kenya, Constitution of Kenya, 2010. Accessible at: http://kenyalaw.org/lex/actview.xql?actid=Const2010

7 KNBS, Comprehensive poverty report: Children, youth, women, men and elderly, 2020. Available at https://www.genderinkenya.org/wp-content/uploads/2020/08/CPR-Report-10_08_2020.pdf

8 Living in households with monthly adult equivalent consumption expenditure per person below KSh 3,252 in rural areas and KSh 5,885 in urban areas. KNBS, Basic Report on Wellbeing in Kenya, 2018. Available at: https://www.knbs.or.ke/download/basic-report-well-kenya-based-201516-kenya-integrated-household-budget-survey-kihbs/

9 KNBS, 2020, Comprehensive poverty report: Children, youth, women, men and elderly. Available at https://www.genderinkenya.org/wp-content/uploads/2020/08/CPR-Report-10_08_2020.pdf

10 Monetary poverty incidence among children under 18 ranges between 20.3% in Meru and 82.7% in Turkana County, among youths (18-34 years) between 12.6% in Nairobi and 76.4% in Mandera, among adult women and men (35-59 years) between 15.6% in Nairobi and 77.8% in Turkana County, and among the elderly (60 year or over) between 16.3% in Nyeri and 83.2% in Turkana County. Multidimensional poverty incidence among children between 7.3% in Nairobi and 90.2% in Mandera County, among youths between 13.7% in Nairobi and 93.4% in Mandera, among adult women and men between 20.5% and 95.9% in Wajir, and among the elderly between 6.7% in Nairobi and 97% in Turkana (KNBS, 2020).

11 KNBS, 2020, Comprehensive poverty report: Children, youth, women, men and elderly. Available at https://www.genderinkenya.org/wp-content/uploads/2020/08/CPR-Report-10_08_2020.pdf

Mandera, and Wajir, more than 80.0 per cent of 4-year-olds did not attend preschool education compared to 3.0 per cent of their peers in Nairobi.[12] Geographical inequalities in outcomes were also wide among older children. More than 41 per cent of children aged 5-17 years in Mandera County were deprived in education compared to 15 per cent of their peers in Nyeri, while more than 1 in 3 children in Samburu, Migori and Baringo were engaged in labour compared to only 1 per cent of their counterparts in Mombasa and Kisii counties.[13] Counties with high deprivation rates in basic goods and services had the highest incidence of multidimensional poverty namely: Mandera (91.5 per cent), Wajir (90 per cent), Turkana (86.3 per cent), and Samburu (84.7 per cent).[14] The three largest contributors to multidimensional poverty were deprivation in housing, sanitation, and nutrition.[15]

Existing literature finds that inequality has negative social, economic, and political consequences. Economic growth in highly unequal societies tends to be slower. Unequal societies are also less successful in sustaining growth over long periods of time, and they tend to recover more slowly from economic slump since inequality reduces the impact of economic growth on wellbeing (Stiglitz, 2016; Mo, 2000). Inequality is also a major social concern since socio-economic disparities tend to incite crime and if left unimpeded may reach extreme levels and stimulate discontent that can result in political instability (Thorbecke & Charumilind, 2002; Alessina & Perotti, 1996). The latter can be more harmful if the disparities are prevailing among certain social groups since these inequalities facilitate mobilization towards extremism and violence. Therefore, studying inequality, its trends and drivers is of paramount importance to inform policies and interventions for sustainable development and inclusive growth.

1.2 Rationale for the Study

The government of Kenya has used economic growth strategy and fiscal policy jointly as the main approaches to inequality and poverty reduction since independence. In 2000s, several social protection programmes targeting various population groups have been introduced, reaching a coverage rate of 10.1 per cent of the population in 2019.[16] Despite the relatively high economic growth rates and the above-mentioned interventions, including decentralization of fiscal funds, the country has made modest progress on wellbeing as measured by poverty and inequality indicators. At the national level, the Gini coefficient increased slightly from 0.460 in 1994 to 0.470 in 2005/06 before declining to 0.408 in 2015/16. This level of inequality was higher than that of Ethiopia (0.350) and Tanzania (0.405), and lower than in Uganda (0.427) and Rwanda (0.437).[17] Similarly, the proportion of poor Kenyans remained high in 2015, at 36.1 per cent. This poverty incidence is significantly higher compared to Tanzania (26.4 per cent), Uganda (20.3 per cent), and Ethiopia (23.5 per cent).[18] Additionally, in the past five years Kenya has experienced multiple shocks including COVID-19, locust infestation, and frequent incidences of floods and droughts, which have likely led to an increase in monetary poverty and deprivation incidence.

A review of the literature on the most recent analysis of wellbeing and inequality indicates that there is a gap in comprehensive analysis of inequalities in outcomes and opportunities in Kenya.

12 Ibid.

13 Ibid.

14 Ibid.

15 Ibid.

16 ILO, 2019, Social Protection Dashboard, accessible at: https://www.social-protection.org/gimi/ShowCountryProfile.action?iso=KE

17 World Bank Databank, Gini Index: Ethiopia (2015), Kenya (2015), Rwanda (2016), Tanzania (2018), and Uganda (2018). Accessed at: https://data.worldbank.org/indicator/SI.POV.GINI?locations=TZ-KE-UG-RW-ET

18 World Bank Databank, Poverty headcount ratio at national poverty lines: Ethiopia (2015), Kenya (2015), Tanzania (2017), and Uganda (2019). Accessed at: https://data.worldbank.org/indicator/SI.POV.NAHC?locations=KE-UG-RW-ET-TZ

The latest study on monetary inequality was based on the Kenya Integrated Household Budget Surveys (KIHBS) 2005-06 and 2015-16 data.[19] Apart from being relatively outdated for effective policy formulation, its analysis focuses on the impact of fiscal policy (taxation and spending) on inequality and poverty for the population overall, rather than focusing on children and/or other vulnerable socio-economic groups. Moreover, the report does not investigate the underlying drivers of poverty, deprivation, and inequality.

Inequality remains a major challenge even as Kenya implements the devolved framework of governance, which underscores equity and equality of rights to basic needs and services across the country. Addressing both inter-county and intra-county inequality requires evidence to inform social and economic policies geared towards inequality reduction. Analyses of disparities in wellbeing outcomes and their socio-economic determinants are also crucial. Since high levels of inequality could be detrimental to economic growth, driving instability and undermining poverty reduction efforts, as well as fuelling political and social tensions, conflicts, and environmental degradation, it is imperative for all development interventions to prioritize inequality reducing strategies.

The findings of this study will provide valuable evidence to policy makers in two broad aspects. Firstly, Kenya has adopted the SDGs committing itself to reducing poverty and inequality and in so doing, to formulate policies and plans in pursuit of SDG 1 and SDG 10 targets. Secondly, the study includes a trend analysis of inequality between 2009 and 2019 at the national and county level, as well as by residence (rural and urban) using KPHC data. As such, the results provide a ten-year assessment of the effect of multisectoral programme interventions since the adoption of the new constitution in 2010 and devolution in 2013.

By focusing on inequality trends and diagnostics of the many inequalities that exist in Kenya at various levels, this study is expected to contribute immensely towards measuring and reporting on inequality in line with SDG 10 on addressing inequalities as well as other SDGs on social sector outcomes with a special focus on poverty (SDG 1), children (SDGs 2-4) and gender equality (SDG 5). The findings will generate knowledge and serve as a foundation for inequality assessment, reporting and monitoring on the achievement of SDGs.

1.3 Structure of the Report

This report is structured as follows: **Chapter 1** gives a brief introduction of the study, background, rationale, and its purpose; **Chapter 2** presents the conceptual framework, methodologies applied in the study, data, and limitations of the analysis; **Chapters 3-8** present the key findings on trends in temporal and spatial inequalities in the dimensions of education, child protection, economic activity, information, health and water and sanitation (WATSAN), and housing and energy for 2009 and 2019. Each of the chapters includes a review of main legal, policy and programme documents in the respective sector, presents results of deprivation and inequality at the national, residence, and county level, and by socio-economic characteristics. In some instances, regression analysis was carried out to identify factors associated with deprivation in the respective wellbeing outcomes; **Chapter 9** presents the results on monetary and multidimensional poverty summary indicators for 2009 and 2019 at the national, area of residence, and county level, and by age groups; **Chapter 10** presents findings on gender inequalities in wellbeing outcomes across various dimensions listed above and for monetary and multidimensional poverty by presenting two sets of results: 1) Trends in deprivation/poverty incidence among girls/women and boys/men in 2009 and 2019, and 2) Changes in the gender gap in wellbeing outcomes between 2009 and 2019; and **Chapter 11** summarizes the findings of the report and provides broader, overarching recommendations for tackling deprivation, poverty and inequality in the country.

19 KNBS, 2018, Basic report on wellbeing in Kenya: Based on the 2015/16 Kenya Integrated Household Budget Survey (KIHBS), available at: https://www.knbs.or.ke/download/basic-report-well-kenya-based-201516-kenya-integrated-household-budget-survey-kihbs/

2 Methodology

This chapter describes the background of the study, conceptual framework, and methodologies used. Overall, the study followed the lifecycle and rights-based approaches for non-monetary and monetary inequality analysis. The chapter is organized in five sections. Section 2.0 describes the SDGs and legal documents in Kenya that served as the foundation of the analysis in the study. Section 2.1 presents the conceptual framework for inequality measurement, including definition of terms based on existing literature, as well as its practical application in similar studies in other countries. Section 2.2 presents the methodology for measurement of non-monetary inequality using UNICEF's MODA approach for single and multidimensional deprivation analysis. Section 2.3 presents the methodology for measurement of monetary inequality using small area estimation to predict consumption expenditure in census datasets using KIHBS data. Section 2.4. discusses the data and limitations.

2.0 Background

The principle of *Leaving No One Behind* (LNOB) of the Sustainable Development Agenda is the foundation of analysis of this study, particularly targets under SDG 10 *"Reduce inequality within and among countries"*, and targets under SDGs 1-5[20] listed in Table 2.1. Additionally, Articles 43 and 53 of Kenya's 2010 Constitution[21] stipulate the citizens' rights to health, education, water, housing, and protection, providing a basis for a rights-based approach (RBA) to the analysis and proposed policy measures and interventions derived from the findings.

As described in the following sections, the analysis in this study will focus on *inequality of outcomes*, namely consumption expenditure; multidimensional poverty; early childhood survival; skilled birth attendance; educational attainment; child protection; employment; usage of information devices and exposure to media; accessibility and adequacy of WATSAN; and adequacy of housing conditions and energy sources.

Table 2.1 Relevant SDGs and targets

SDG 1	1.1. By 2030, eradicate extreme poverty for all people everywhere
	1.2. By 2030, 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
SDG 2	2.2. By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women, and older persons
SDG 3	3.1. By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births
	3.2. By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 100,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births
	3.8. Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality, and affordable essential medicines and vaccines for all

20 United Nations 2015.

21 Parliament of Kenya 2010.

SDG 4	4.5. By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples, and children in vulnerable situations
SDG 5	Achieve gender equality and empower all women and girls
SDG 10	10.1. By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average
	10.2. By 2030, empower and promote the social, economic, and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status
	10.3. Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies, and practices and promoting appropriate legislation, policies, and action in this regard

As discussed in Chapter 1, this study aims to address three broad research objectives: 1) Assess the scale of geographical (spatial) inequality in Kenya; 2) Carry out a trend (temporal) analysis of inequality between 2009 and 2019 at different geographical levels, and 3) Shed light into inequalities of opportunity by investigating the socio-economic factors associated with deprivation and inequality.

Carrying out *spatial* and *temporal inequality* analysis requires making several important decisions: i) defining the concept of inequality guiding the analysis, ii) choosing and defining the parameters of inequality including domains and indicators of wellbeing outcomes for each age group following the rights-based and lifecycle approaches, and profiling variables (in addition to time and geolocation), and iii) defining the approach for measuring inequality for each indicator (including for aggregate measures).

2.1 Inequality: The Conceptual Framework

The analysis in this study distinguishes between and measures three types of inequality: 1) *vertical inequality*, 2) *horizontal inequality*, and 3) *intersecting inequality* as conceptualized and defined by Stewart (2002, 2013), and illustrated in Figure 2.1. These approaches of inequality measurement have been applied by Lenhardt and Samman (2015) and Samman et al. (2021) in studies assessing inequality in human development and providing guidance on LNOB measurement.

Vertical inequality measures how resources are distributed among individuals or households in a given population. It typically involves ranking of individuals/households (HH) in a country (or subnational/regional levels) according to a wellbeing outcome or attribute like the income level, multidimensional poverty incidence, or deprivation from a basic need or service such as access to safe drinking water.[22]

Horizontal/group-based inequality captures a vital dimension of human wellbeing – that of the group/social identity – to account for differences in realization of basic needs and rights based on one's sex, age, disability, race, ethnicity, religion, location, etc. Stewart (2002) highlights that measuring horizontal inequalities is crucial to gain an insight on individual wellbeing and social stability as the esteem of a group depends on its relative position in the society across several dimensions including political participation, economic and social aspects.[23] She further elaborates that among other factors, horizontal inequalities are a result of unequal distribution of public goods, services

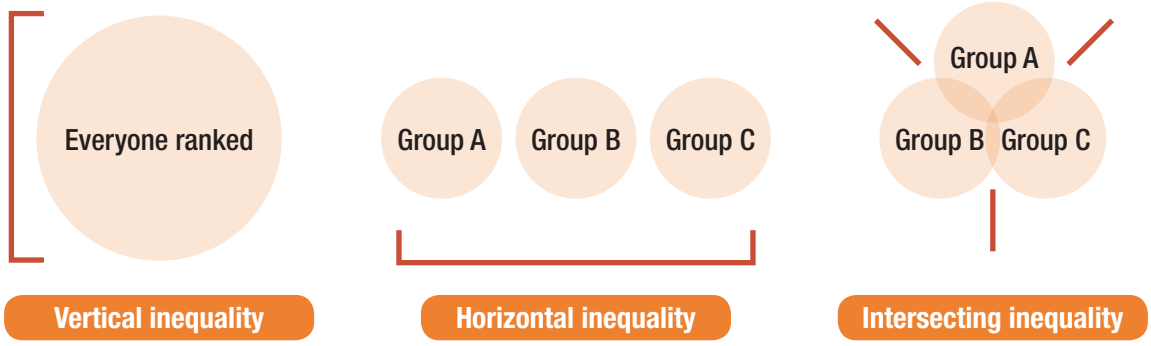
22 Stewart 2013; Lenhardt and Samman 2015.

23 Social aspects include education, health services, safe water, housing, unemployment, poverty, personal, and household security (Stewart 2002).

and resources, overt discrimination, networking, and self-selection with direct effects on individual and group welfare. According to Kabeer and Santos 2017, measuring group-based inequalities is crucial because they stem from cultural norms, values and practices, and how age, gender, disability, race, ethnicity, and caste are regarded by different groups in a given society.

Measuring *intersecting inequalities* adds to depth of inequality analysis by unmasking the level of exclusion that individuals of the same group may be experiencing, for instance women in the poorest quintiles in rural areas or women of different age groups by location. Lenhardt and Samman (2015) and Samman et al. (2021) argue that in wellbeing assessments, intersections of group-based factors – e.g., sex, age, and area of residence – are paramount for identifying groups that are left behind despite overall improvements in human development in the country.

Figure 2.1 **Concepts of inequality**



Source: Lenhard and Samman (2015).

2.2 Measurement of Non-monetary Poverty and Inequality: MODA Approach

In their guidelines for an actionable 2030 Agenda based on the LNOB principle, Samman et al. (2021) state that LNOB is best understood if it is built on concepts and measurement approaches previously used for poverty, deprivation, inequality, and social exclusion analysis. Therefore, inequality in non-monetary wellbeing outcomes in this study has been measured following UNICEF Multiple Overlapping Deprivation Analysis (MODA) methodology[24] and the parameters that were used in the most recent poverty and deprivation analyses conducted and published by KNBS, UNICEF and UN WOMEN Kenya.[25]

The MODA methodology was initially developed to measure multidimensional deprivation among children but has since been applied to other population groups following the same criteria for parameter selection and aggregation of results. MODA methodology defines multidimensional [child] poverty as nonfulfillment of the rights listed in the Convention on the Rights of the Child (CRC) 1989[26], other international agreements and conventions (depending on the age group) and national legislative frameworks (esp. constitutions).

24 de Neubourg, C., Chai, J., de Milliano, M., Plavgo, I., & Wei, Z., (2012), "Step-by-step Guidelines to the Multiple Overlapping Deprivation Analysis (MODA). Available at: https://www.unicef-irc.org/publications/pdf/iwp_2012_10.pdf

25 Kenya National Bureau of Statistics 2020a, 2020b, 2017.

26 United Nations, 1989, Convention on the Rights of the Child, available at: https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child

Deprivation is measured at the individual rather than household level, following a life-cycle approach – by defining different dimensions and indicators for different age groups considering the differing needs and risks based on one's age (Figure 2.2). This approach permits assessing whether certain child, women's, and overall human rights are upheld, needs fulfilled, and whether individuals have access to various goods and services necessary for their survival, development, and participation.

Figure 2.2 Conceptual framework for MODA methodology

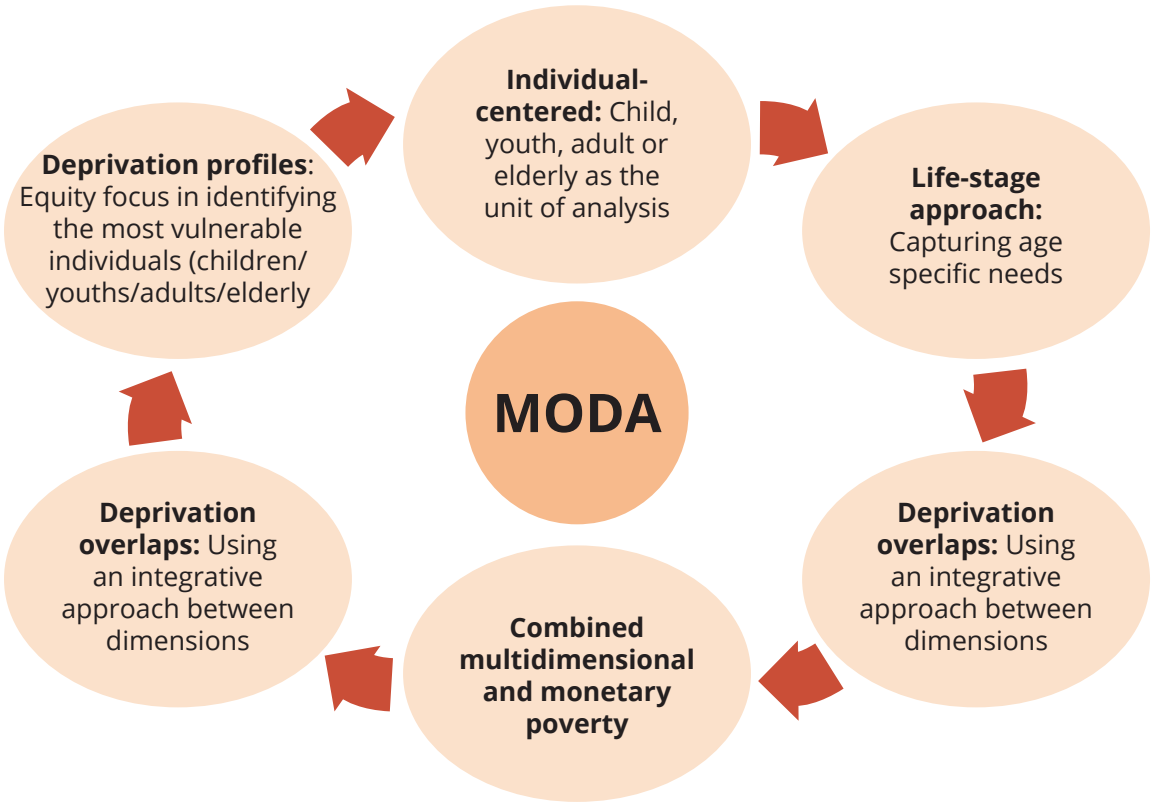


Table 2.2 and Table 2.3 present the parameters that were selected for measuring inequality in non-monetary wellbeing outcomes using the outputs from MODA for each of the following age groups: 1. Children <18 years (1.1. Children 0-3 years, 1.2. Children aged 4-5 years, 1.3. Children aged 6-13 years, 1.4. Children aged 14-17 years); 2. Youths (18-34 years)[27]; 3. Adults (35-59 years); and 4. Elderly (60+ years). Each indicator represents a basic right, need or service that is crucial for individual's wellbeing. Union approach was used to group indicators into dimensions to measure deprivation at the dimension level. An individual is considered deprived in a dimension if s/he is deprived in at least one of its constituting indicators. For instance, a child aged 12-17 years is considered deprived in the dimension of child protection if s/he is engaged in child labour, is married, or both. Single and dimension deprivation rates show the proportion of individuals deprived in an indicator/dimension in relation to the total population to which the specific indicator/dimension pertains.

Presentation of multidimensional poverty as a summary outcome of non-monetary wellbeing will cover multidimensional deprivation headcount rate and average deprivation intensity.

27 Data for youths aged 18-25 will also be included in the Annexes to allow for international comparisons.

Deprivation and inequalities in non-monetary wellbeing outcomes are presented at the national, residence (rural/urban), and county level, and by socio-economic characteristics such as age, sex, disability, marital status, orphanhood status and parental characteristics (among children), household size, and other household characteristics, to shed light into horizontal and intersecting inequalities. Where applicable/possible, regression analysis was carried out to complement analysis on horizontal inequalities.

Table 2.2 Dimensions selected for measurement of inequalities in non-monetary wellbeing outcomes using MODA approach

Children: 0-3 years	Children: 4-5 years	Children: 6-13 years	Children: 14-17 years	Youths: 18-34 years	Adults: 35-59 years	Elderly: 60+ years
Education (age 3 years)	Education	Education	Education	Education	Education	Literacy
Information	Child protection	Child protection	Child protection	Economic activity	Economic activity	Information
Water	Information	Information	Information	Information	Information	Water
Sanitation	Water	Water	Water	Water	Water	Sanitation
Housing and Energy	Sanitation	Sanitation	Sanitation	Sanitation	Sanitation	Housing and Energy
	Housing and Energy	Housing and Energy	Housing and Energy	Housing and Energy	Housing and Energy	

Table 2.3 Parameters selected based on available KPHC 2009 and KPHC 2019 data to measure deprivation and non-monetary inequality using the lifecycle approach

Dimension	Indicator	Individual/ Household -level	Age/ Age group	Definition of deprivation used in KPHC 2019 and KPHC 2009
Education	ECDE attendance	Individual level	3 years	Child is not attending a pre-primary learning institution (e.g. Kindergarten)
	ECDE attendance	Individual level	4-5 years	Child is not attending pre-school
	School attendance	Individual level	6-17 years	Child is currently not attending school/ learning institutions, has never attended, or has left school or training institution or is attending a basic literacy programme, polytechnic, or a faith-based learning institution
	Delay in schooling	Individual level	8-13 years	Child is attending school with 2 or more years of delay than appropriate for her/his age
	Delay in schooling	Individual level	14-17 years	Child is attending school with 3 or more years of delay than appropriate for her/his age

Dimension	Indicator	Individual/ Household -level	Age/ Age group	Definition of deprivation used in KPHC 2019 and KPHC 2009
Education	Secondary school completion	Individual level	18-59 years	Youth/adult has not completed secondary school education or has completed non-formal education (adult basic education/ adult secondary education/basic literacy programme/ or faith-based education). Adjustments to Kenya's education systems: (i) Persons born in the period before 1978 are expected to have completed 13 years of schooling by age 19 (7+4+2+3 system) to be considered non-deprived in educational attainment. (ii) Persons born between 1985 and 2016 (and expected to be at least 18 in 2016), expected to have completed at least 12 years of schooling (8+4+4 system) to be considered non-deprived in educational attainment
Literacy	Literacy	Individual level	60+	Individual aged 60 years and above is deprived if: 1) Never attended school; or 2) Attended school but left before completion (in KPHC 2009, also deprived if attended school in the past but completed less than 7 grades)
Child protection	Child labour	Individual level	5-17 years	Child has engaged in one of the following in the 7 days preceding the census: worked for pay, worked on own/family business, worked on own/family agricultural holding, internships, apprenticeships, and volunteer work
	Teenage mother	Individual level (female)	12-17 years	Girl aged 12-17 years has given birth to a child
	Child marriage	Individual level	12-17 years	Child is married, widowed, separated or divorced
Economic activity	Economic activity	Individual level	18-25 years	Youth aged 18-25 years are considered deprived in economic activity if i) not in education, employment or training; or ii) if in employment and underemployed timewise (working less than 28 hours a week), or iii) are in vulnerable employment – working in the informal sector "Jua Kali", self-employed in the informal economy or agriculture, employed in small-scale agriculture, engaged in pastoral activities (self-employed or employee), or working in individual private households (e.g., domestic workers).

Dimension	Indicator	Individual/ Household -level	Age/ Age group	Definition of deprivation used in KPHC 2019 and KPHC 2009
Economic activity			26-64 years	Persons aged 26-59 years are considered deprived in economic activity if: i) unemployed and not seeking for work, unemployed due to structural labour market issues (no work available, perception that one is too young or too old to work even though of working age), unemployed due to disability even though able to work or unemployed due to traditional gender roles (i.e., homemakers); ii) underemployed timewise (working less than 28 hours a week), or iii) in vulnerable employment – working in the informal sector "Jua Kali", self-employed in the informal economy or agriculture, employed in small-scale agriculture, engaged in pastoral activities (self-employed or employee), or working in individual private households (e.g., domestic workers).
Information	Ownership of information devices	Household level	3+ years	Person aged 3+ years lives in a household that does not possess any of the following information devices: radio, TV (digital/with decoder/analogue), mobile phone, landline telephone, computer
	Exposure to media	Individual level	3+ years	Person aged 3+ years has not used any of the following from any location in the past 3 months[28]: mobile phone service, computer service, or internet service[29]
Water	Source of drinking water	Household level	All age groups	The household's main source of drinking water is unimproved: pond, dam, lake, stream/river, unprotected spring, unprotected well, "Jabia," water vendor
Sanitation	Toilet type	Household level	All age groups	The household uses an unimproved toilet type: uncovered pit latrine, bucket latrine or bush.
Housing & Energy	Main building material of the dwelling (floor, walls, roof)	Household level	All age groups	The building material of roof, walls or floor is inadequate. Roof is made of grass thatch, makuti, dung/mud, tin cans, canvas/tents, nylon/cartons/cardboard. Walls are made of cane/palm/trunks, grass/reeds, mud/cow dung, cardboard, corrugated iron sheets, canvas/tents, nylon carto, stone with mud, uncovered adobe, and offcuts/reused wood/ wood planks categorized as unimproved. Floor is made of earth/sand, dung, palm/ bamboo, other material.

28 In KPHC 2009, the time period is shorter; "in the past month".

29 Or uses internet less often than monthly in KPHC 2019

Dimension	Indicator	Individual/ Household -level	Age/ Age group	Definition of deprivation used in KPHC 2019 and KPHC 2009
Housing & Energy	Lighting source	Household level	All age groups	The household's main lighting sources include paraffin pressure lamp, paraffin lantern, paraffin tin lamp, wood, torch/ spotlight solar charged, torch-spotlight dry cells, candles, and battery.
	Cooking fuel	Household level	All age groups	Household uses sources other than electricity, LPG, biogas, and solar power for cooking.

2.2.1 Multidimensional Deprivation Indices

2.2.1.1. Multidimensional Poverty Headcount Rate

The multidimensional poverty headcount rate (H) calculates the proportion of individuals (children/ youths/adults/elderly) out of the total reference population who are deprived in a given number of dimensions equal or above the set threshold/cut-off point (equivalent to the poverty line in monetary poverty analysis). The formula below is used to calculate H, and the report presents the multidimensional poverty incidence for the cut-off point of three or more dimensions for all age groups. In other words, a person is considered multidimensionally poor if s/he is deprived in three or more dimensions analysed.

The multidimensional poverty headcount rate is calculated using the formulas below:

$$H = \frac{q_K}{n_a}$$

$$q_K = \sum_{1-1}^{n} y_K$$

Where;

H : Multidimensional deprivation rate

q_K : Number of individuala deprived in at least K dimesions in the age group "a"

n_a : Total number of individuals in the age group "a"

y_K : Deprivation status of an individual depending on the cut-off point "K"

D_i : Number of deprivation that each individual experiences

K : Cut-off point

2.2.1.2. Average Deprivation Intensity

Average deprivation intensity (A) measures the depth of multidimensional poverty and is equivalent to the poverty gap in monetary poverty analysis. It is calculated as the proportion of the number of deprivations that a multidimensionally poor individual experiences over the total number of possible deprivations K (for children aged 0-3 years and elderly aged 60+ years, K=5; for children aged 4-17 years, youths aged 18-34 years, and adults aged 35-59 years, K=6). Average deprivation intensity is presented in two forms: 1) Average number of deprivations that a multidimensionally poor individual experiences, and 2) Proportion of deprivations that a multidimensionally poor individual experiences out of the total number of deprivations analysed.

Average deprivation intensity is calculated using the formulas below:

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

$$A \text{ ratio} = \frac{\sum c_K}{q_{Kx}\, d}$$

Where;

A: Average deprivation intensity (in number or ratio) of multidimensional deprivation according to the cut-off point K

q_K: Number of individuala deprived in at least K dimesions in the age group "a"

d: Total number of dimensions considered per individual

c_K: Number of deprivations each multidimensionally poor individual/experiences, with $c_K = D^* y_K$

n_a: Total number of individuals in the age group "a"

K: Cut-off point

2.3 Measurement of Monetary Poverty and Inequality

The indicators outlined in Table 2.2 enable measurement of inequality for SDG targets 1.2, SDG 3-5 targets, and SDG targets 10.2 and 10.3 listed in Table 2.1. To measure SDG 1.1. and SDG 10.1., in absence of consumption or income data in the KPHC datasets, small areas estimation of monetary poverty has been carried out using consumption models from KIHBS 2005-06 and KIHBS 2015-16 datasets to simulate welfare in KPHC 2009 and KPHC 2019 datasets, respectively. Two Foster-Greer-Thorbecke (FGT) indices - poverty headcount and poverty gap - described below were calculated and will be presented at the national level, by area of residence, and by county to gain an understanding on spatial inequalities in financial wellbeing.

- *The poverty headcount index (FGT_0)* - measures the proportion of the population that cannot afford to purchase a minimum basic basket of goods (including food and non-food items) as measured by the overall poverty lines in urban and rural areas.
- *The poverty gap index (FGT_1)* - measures the average consumption expenditure shortfall, or gap, of the poor relative to the poverty line. It provides information on how poor are the poor households/population in relation to the overall poverty line.

2.3.1 Small Area Estimation Methodology

Small area estimation methodology is used when household survey data are not sufficiently precise to generate robust estimates of welfare/poverty at low geographical levels and typically borrows strength from census data which do not contain income/consumption modules, to generate indirect estimates.[30] Elbers et al. (2003) establish an elaborate methodology and Simler et al. (2005) apply it to poverty measurement in Mozambique, outlining the following steps to generate the estimates:

1 Estimating the welfare measure in survey data – e.g., consumption per capita adjusted using adult equivalence scales and spatial variation in prices – using regression analysis with a set of independent variables that are found to be correlated with welfare in the literature, which must be available and consistent with the census dataset.

2 Using the regression coefficients from the survey to estimate the welfare measure in the census dataset and calculate the summary measures of monetary poverty and inequality such as Foster-Greer-Thorbecke (FGT) described above.

30 Rao and Molina, 2015.

2.3.1.1. Estimation of Monetary Poverty and Inequality

This study uses data from KIHBS 2005-06 and KIHBS 2015-16 to impute the welfare measure and estimate monetary poverty in KPHC 2009 and KPHC 2019 datasets, respectively. The estimates were generated using the World Bank user-generated codes, sae package, and by using models ELL (Elbers, Lanjouw, and Lanjouw) (2003) for the consumption model and ELL-EB (Estimates Best) to simulate poverty rates at three geographical levels in the census datasets – county, sub-county/ district, and division. The analysis was carried out in Stata statistical software following the most recent Guidelines to Small Area Estimation for Poverty Mapping by Corral, Molina, Cojocaru and Segovia (April 2022). The consumption and simulation models were initially tested in the 10 percent subsample of the KPHC datasets – 2009 and 2019 – and later ran on the full 100% census datasets after refining the models.

2.3.1.2. Estimating the Welfare Measure in Survey Data/Consumption Model in the Survey Data

The welfare measure in this report, the natural logarithm of monthly adult equivalent consumption, was modelled as an equation of a set of observable household characteristics:

$$(1)\ \ln Y_{ch} = X'_{ch}\beta + \eta_c + \varepsilon_{ch}$$

where:

Y_{ch} – monthly adult equivalent consumption of the household h residing in cluster *c*,

X'_{ch} – observable characteristics of the household in survey and census datasets,

β – coefficient vector

$\mu_{ch} = \eta_c + \varepsilon_{ch}$ – disturbance term where η_c applies to all households within a cluster and ε_{ch} is specific to the individual household.

The two components of the disturbance term - η_c and ε_{ch} - are not correlated with each other or the control variables. This specification of the error term accommodates for location-specific effect and allows for heteroscedasticity of the household-specific error component. To reduce the size of the unexplained location-specific error term - μ_{ch}- ELL (2003) suggest using cluster-level means of variables at the household level that are available in both survey and census datasets. These variables are calculated in the census dataset given its larger population and then merged to the survey dataset for the consumption model. According to Simler et al. (2005), inclusion of cluster means as controls in the regression also reduces bias in the small area estimates of poverty.

To identify controls for the empirical model of consumption expenditure (Equation 1), the means and distributions of the related variables were compared across the four data sources used for the study - surveys (KIHBS 2005-06 and KIHBS 2015-16) and census (KPHC 2009 and KPHC 2019). TA Table 1 in the Technical Annex displays these results. As a second step, a correlation analysis was run between consumption expenditure in KIHBS datasets and the potential control variables (including cluster/division means), and only the variables that had higher coefficients of correlation (>|10|) were included in the initial models. Numerous iterations of models were constructed and tested, including national-level models, urban- and rural-level models; provincial-level models (for 2009 estimates); urban models with and without Nairobi, Mombasa, and/or Kisumu; models including and excluding county controls; models with only dummy covariates; and so forth. Counties were included as controls in some of the models to account for variability in welfare across these geographical areas.

Equation 1 was estimated using generalized least squares (GLS), taking into account heteroskedasticity of ε_{ch}, the household component of the error term, and using the ELL error decomposition. The regression parameters were estimated using population weights, and the models were run separately for urban and rural areas (in KPHC 2019), whereas in KPHC 2009 three models were run for the estimations: Nairobi City, rural areas and urban areas excluding Nairobi. Divisions were set as clusters. The final variable selection for each model was determined through a stepwise selection procedure along with ex post diagnostics. TA Tables 2 – 8 in the Technical Annex display each of these steps using the construction of the consumption model for rural areas in KIHBS 2015-16 as an example.

As a first step, all the variables listed in TA Table 1 in the Technical Annex were included in the linear, Lasso regression for variable selection. Controls selected by the Lasso regression (TA Table 2) were used in a GLS regression model and non-significant variables removed sequentially (TA Table 3), followed by removal of multicollinear variables with variance inflation factors (VIF)>3 (TA Table 4). This was followed by several model checks after predicting residuals[31], outliers[32], leverage[33], influence[34], and Cook's distance[35]. Observations with high standardized residuals, high leverage, and Cook's distance were tagged and removed in the next steps of consumption model refinement and selection of the Alpha model (TA Table 5). Similar steps were followed for the Alpha selection model with the first one including application of the Lasso regression while incorporating the above-mentioned model checks (TA Table 6). Further refinements of the Alpha model included removal of multicollinear variables with (VIF)>5 (TA Table 7). The final consumption model was determined by removing once again the non-significant covariates sequentially (TA Table 8).

TA Tables 8-12 in the Technical Annex present the final consumption models and diagnostics of each using KIHBS 2005-06 and KIHBS 2015-16 datasets. Only the model for Nairobi in KIHBS 2005-06 is homoscedastic.

2.3.1.3. Simulating the Welfare Measures in Census Data

In this stage, the consumption model parameters and disturbances are applied to the census data to predict welfare measures – FGT – in the specified geographical levels: counties, sub-counties/districts, and divisions. Two monetary poverty lines were used in each data point:

- **KPHC 2009:** KSh 1,562 (rural areas) and KSh 2,913 (urban areas) monthly per adult equivalent consumption expenditure
- **KPHC 2019:** KSh 3,252 (rural areas) and KSh 5,995 (urban areas) monthly per adult equivalent consumption expenditure

Monte Carlo Simulation was used to obtain the reliable estimates of welfare. The average of the 100 simulations provided point estimates of mean consumption expenditure, monetary poverty headcount ratio and poverty gap, while the mean squared errors (MSEs) were estimated by running 200 bootstrap replications. For both years, monetary poverty rates from the urban and rural models (and in case of 2009 estimates for Nairobi) were aggregated at three geographical levels – counties, sub-counties and divisions – using their respective population distributions in 2009 and 2019 census datasets.

It must be noted that estimates of monetary poverty incidence and poverty gap are presented only at the national level, by area of residence (urban-rural), and county for purpose of consistency in reporting with multidimensional poverty and inequality.

31 Difference between the predicted value (based on the regression) and the observed value.

32 Observations with large residuals.

33 How far the independent variable deviates from its mean; observations with an extreme value on a predictor variable are points with high leverage.

34 Product of leverage and outlierness; an observation is influential if removing it changes substantially the estimates of the regression coefficients.

35 Combines information on leverage and residual of the observation.

2.4 Data and Limitations

Most of the analyses in this study have been carried out using datasets from Kenya Population Housing and Census (KPHC) of 2009 and 2019. As described in the previous section, in absence of an income or consumption module in census datasets, to measure monetary poverty and inequality through small area estimation, Kenya Integrated Household Budget Survey (KIHBS) 2005-06 and 2015-16 datasets were used. The outputs of the consumption module from these surveys were used to estimate and impute welfare measures in KPHC 2009 and KPHC 2019. Monetary poverty and inequality at the national and county level, and by area of residence were mapped using these estimates.

KPHC datasets were fairly rich in data to allow measurement of monetary and non-monetary wellbeing, and carry out trend analysis. Nevertheless, they posed several limitations which are discussed below. To begin with, the census datasets did not collect any data on anthropometric measures on children younger than five years, nutritional outcomes or food security among other age groups of the population. As demonstrated in the literature and previous deprivation analysis in Kenya, measuring deprivation in nutrition is crucial, especially among mothers and young children given its association with survival and other developmental and growth outcomes during later stages of a child's life and their future outcomes.

The KPHC questionnaires also lacked a module on health, therefore inequalities in access to vaccination among young children, access to healthcare services among women of reproductive age, and to reproductive health services and knowledge among adolescents and youth could not be captured by the study. Even though KPHC 2019 contained a question to skilled birth attendance for the last birth in the household,[36] trend analysis could not be carried out with 2009 data because the question was not asked in this round. Analysis of child survival and its inclusion in multidimensional poverty measurement were hampered by the large share of missing data in both 2009 and 2019 datasets.

Inequalities in education among children were constrained to school attendance and attendance of the right grade-for-age omitting out learning outcomes (such as numeracy and literacy skills). In the dimension of child protection, while the population sample was large enough to measure teenage pregnancy and child marriage – important factors in intersecting inequalities among girls with serious implications for their future outcomes – no information was available on children's engagement in household chores, which has shown to be an important exclusion factor in Kenya. Furthermore, in addition to missing data on access to healthcare services, the datasets did not contain any gender-specific indicators such as female genital mutilation, exposure to domestic violence, time use, and decision-making power of women, all of which capture important aspects of girls' and women's deprivation and would shed light into inequalities between girls/women and boys/men. Finally, the inequality analysis in economic activity among adults aged 18-59 years were constrained to labour market outcomes – employment status, number of hours worked per week among the employed, and the sector of employment – and did not cover compensation/remuneration.

In terms of measurement of inequality in monetary outcomes, SAE following the sae package and the Guidelines to Small Area Estimation for Poverty Mapping by Corral, Molina, Cojocaru and Segovia (April 2022) generated mean estimates of welfare (consumption expenditure, poverty rate, and poverty gap) at the county, sub-county/district and division rather than household level. While these estimates are robust given that they were imputed into census data, only their mean values at the specified geographical locations can be used for profiling. Unlike the analysis of inequalities in non-monetary wellbeing outcomes where profiling was possible using both individual and household characteristics, for inequality in monetary outcomes disaggregation of results was possible at geographical level (national, residence, and county), and by individual characteristics (age group, sex, sex of the household head) at the national and residence level.

36 Descriptive statistics of the indicator have been included in Chapter 7. Health and WATSAN.

3 Education and Training

3.0 Introduction

This chapter discusses deprivation and inequality in the dimension of education and training at the individual level. The chapter begins with a description of recent education sector policies and key interventions that are pertinent to the developments in the sector. Emphasis is on policies and interventions that might have had an impact on education inequalities between 2009 and 2019. This is followed by a discussion of deprivation rates in the education dimension. The deprivation dimension is discussed in the context of its indicators which correspond with the lifecycle and include school attendance (for early childhood education, primary and secondary education), delay in schooling among children aged 6-17 years, secondary school completion (for persons aged 18 to 59 years), and literacy[37] (for those aged 60 years or more). Besides the national deprivation rates, the indicators are disaggregated by geographical indicators - area of residence (rural versus urban) and county, and socio-economic characteristics.

3.1 Background and Context

Education has been identified as a powerful driver of development and is an instrument that builds up human capital, promotes economic growth, improves population well-being, and promotes income distribution while enhancing employment opportunities. This explains the global efforts, through international conventions and agreements that espouse access to education for all people. These conventions and agreements underscore the need to eliminate all forms of discrimination and barriers, which then open doors for all citizens to be served with their right to education.

The introduction of free primary education in Kenya (2003) assumed fees to be the barrier to enrolment, but net enrolment rate trends suggest other significant factors such as livelihoods differences, culture, etc. to be at play undermining education for all.

The government of Kenya is committed to providing quality education, training, science and technology to all Kenyans in line with the provisions of the Constitution of Kenya (2010).[38] Specifically, Article 43 (1) (f) stipulates that *"Every person has the right to education"* and 53 (1) (b) that *"Every child has the right to free and compulsory basic education"*. Under Vision 2030's strategy on education, Kenya has set a goal, *"to provide globally competitive quality education, training and research to her citizens for development and enhanced individual well-being"* by 2030.[39]

Education has also been prioritized in the government's Medium-Term Plan IV (MTP IV)[40] which will implement the second-last phase of Kenya Vision 2030 for the period 2023 – 2027. Under the government's Big 4 Agenda, the education sector's contribution was the provision of the necessary skilled human capital and promotion of research and development.[41]

37 Proxied by primary school completion or completion of an adult literacy programme.

38 Government of Kenya, 2010, Constitution of Kenya, available at: http://kenyalaw.org/lex/actview.xql?actid=Const2010

39 Government of Kenya, 2008, "Kenya Vision 2030, available at: https://countytoolkit.devolution.go.ke/sites/default/files/resources/Vision-2030-Popular-Version_0.pdf

40 Government of Kenya, 2018, "Third Medium Term Plan 2018-2022: Transforming Lives: Advancing socio-economic development through the "Big Four"", available at: http://vision2030.go.ke/wp-content/uploads/2019/01/THIRD-MEDIUM-TERM-PLAN-2018-2022.pdf

41 Ibid.

Key global interventions include(d) the Millennium Development Goal (MDG) 2 that sought to achieve universal primary education by 2015 and the Sustainable Development Goal 4 (SDG 4). As a result of the MDG initiative, enrolment in primary education in developing regions improved from 83 per cent in 2000 to reach 91 per cent in 2015.[42] The SDGs seek to provide further push to this achievement in Goal 4 which aims to "ensure inclusive and equitable *quality* education and promote lifelong *learning* opportunities for all" by 2030. Specifically, Target 4.1 aims to ensure that *"By 2030, all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes"*. SDG 4 is also domiciled in Kenya's 2018-2022 National Education Sector Strategic Plan. Additionally, under the African Union, Kenya has committed to *"have fully developed human capital as (its) most precious resource, through sustained investments based on universal early childhood development and basic education, and sustained investments in higher education, science, technology, research and innovation, and the elimination of gender disparities at all levels of education"* by 2063.[44]

3.2 Key Policy Interventions and Programmes

The government of Kenya has put in place several policy initiatives to ensure the provision of quality education for all, including:

- **Early Childhood Development and Education Programme.** The government of Kenya has integrated early childhood development education (ECDE) into the basic education curriculum. This was done through the adoption of a policy framework and service standard guidelines for early childhood development in 2006, covering children from birth up to age five. This initiative has greatly enhanced retention at the lower primary school level. In 2014, this function was transferred to the county governments which are now expected to provide ECDE. However, due to the modest financial support from the county governments, communities and parents provide the bulk of the financing.[45]
- **Free Primary Education (FPE).** The FPE programme was launched in 2003. Under this programme, the Ministry of Education caters for the recurrent expenses of public primary schools through capitation grants. This initiative has greatly boosted enrolment at the primary school level.
- **The Home-Grown School Meals Programme** initiated in 2009 aims at retaining learners in schools in food-insecure counties and communities through the provision of school meals. In 2016, the programme supported up to 900,000 children across Kenya.[46]
- **Free Day Secondary Education (FDSE).** The FDSE was launched in 2008 and aims to enhance equity and access to secondary education, as well as transition from primary to secondary. The initiative envisages achieving this through provision of capitation grants, construction of new secondary schools (and adding day secondary schools) and increasing transition to secondary education.
- **The Secondary Education Quality Improvement Project (SEQIP).** This World Bank supported project aims to enhance transition from primary to secondary education in targeted areas and improve student learning in secondary education. The project objectives

42 United Nations, Millennium Development Goals, available at: https://www.un.org/millenniumgoals/education.shtml

43 Ministry of Education, 2018, "National Education Sector Strategic Plan for the Period 2018-2022", available at: https://assets.globalpartnership.org/s3fs-public/document/file/kenya-nessp-2018-2002.pdf?VersionId=tdCPzVW5gwJ1DODlRJsOWkwpP7BDDrKv

44 African Union, 2015, "Agenda 2063 – The Africa we Want", available at: https://au.int/sites/default/files/documents/36204-doc-agenda2063_popular_version_en.pdf

45 World Bank, 2016, Scaling up preschool in Kenya: Costs, constraints and opportunities, available at: https://documents1.worldbank.org/curated/en/762961482316633811/pdf/111215-BRI-ELPPolicyBriefKenya-PUBLIC.pdf

46 Ministry of Education, Ministry of Health, and Ministry of Agriculture, Livestock and Fisheries, 2017, "National School Meals and Nutrition Strategy 2017-2022", available at: https://docs.wfp.org/api/documents/WFP-0000116843/download/

include: (i) Improving the quality of teaching in targeted areas; (ii) Improving retention in upper primary and secondary schools and enhancing transition from primary to secondary schools, including through improvements in infrastructure; and (iii) Supporting education system reforms.[47]

- **Secondary School Bursaries.** This programme aims to enhance access, equity and retention at secondary level by providing bursaries to vulnerable groups such as orphans, children from poor families, girls, poor families in slum areas, pockets of poverty in high potential areas, and in the arid and semi-arid lands (ASAL). The programme has been continued despite introduction of free tuition secondary education to cover additional costs (e.g., boarding fees) associated with secondary school attendance.
- **Grants to Non-Formal Schools (NFSs)**. In a bid to further enhance access to educational opportunities for children in hardship/disadvantaged zones, the government has since 2003 provided grants for teaching and learning materials to non-formal schools (NFSs) and Alternative Provision of Basic Education and Training (APBET) institutions that meet set criteria. Data from the Ministry of Education indicates that the programme currently supports 208 registered NFSs and is continuously making efforts to assess and register all the viable NFSs and APBET.[48]

With respect to revitalizing Technical and Vocational Education and Training (TVET) and expansion of university education, the government has implemented a number of interventions, such as infrastructure grants and training of TVET instructors, expansion of university education and expanded access to higher education loans and scholarships through the Higher Education Loans Board (HELB).

Box 3.1 Recent strategies, policies, and plans in the education sector

National Education Sector Strategic Plan 2018-2022 – This is an all-inclusive sector wide plan that spells out policy priorities, programs, and strategies for the education sector over a period of five years.[49]

Policy Framework for Nomadic Education in Kenya (2009) – Aims at coordinating delivery of quality education to nomadic communities in Kenya (support for low-cost boarding schools in ASALS areas).[50]

National Adult and Continuing Education Policy (2010) – Provides continuing education programs for youths and adults.

National Guidelines for School Re-Entry in Early Learning and Basic Education 2020[51] – Aim to improve retention, transition, and completion rates at all levels of education through provision of a framework for re-entry of learners who drop out of school, including children with disabilities.

47 World Bank, n.d., "Kenya Secondary Education Quality Improvement Project: Summary", accessed at: https://projects.worldbank.org/en/projects-operations/project-detail/P160083

48 Government of Kenya, "Kenya Vision 2030: Other Education Programmes", available at: https://vision2030.go.ke/project/other-education-programmes/

49 Ministry of Education, 2018, "National Education Sector Strategic Plan for the Period 2018-2022", available at: https://assets.globalpartnership.org/s3fs-public/document/file/kenya-nessp-2018-2002.pdf?VersionId=tdCPzVW5gwJ1DODlRJsOWkwpP7BDDrKv

50 Ministry of Education & UNICEF Kenya, 2010, "Policy Framework for Nomadic Education in Kenya", available at https://repository.kippra.or.ke/bitstream/handle/123456789/1120/Policy%20Framework%20for%20Nomadic%20Education%20in%20Kenya-compressed.pdf?sequence=1&isAllowed=y

51 Ministry of Education, 2020, "National Guidelines for School Re-Entry in Early Learning and Basic Education", available at: https://www.popcouncil.org/uploads/pdfs/2020RH_NationalSchoolReEntryGuidelines.pdf

National Pre-Primary Education Policy Standard Guidelines 2018 – Developed in line with the National Policy Framework for Reforming Education and Training in Kenya with the aim of operationalizing the National Pre-Primary Education Policy to ensure provision of quality services effectively and efficiently.[52]

Sector Policy for Learners and Trainees with Disabilities 2018 – Provides for inclusive and equitable quality education and training for all learners and trainees with disabilities.[53]

National Standards for Quality Assurance Framework (2021) – Provides for education assessment to ensure quality education.

National Education Management Information System (NEMIS) was started by the Ministry of Education in 2017 to account for and track all learners from pre-primary through basic education to address existing barriers because every learner counts.

3.3 Horizontal Inequality Analysis

3.3.1 National Level Analysis

Deprivation in the dimension education decreased between 2009 and 2019 for all age groups except for the first age group which includes children aged three years (see Annex 1 and Annex 2). Figure 3.1 shows an increase in deprivation from 68.0 per cent in 2009 to 73.7 per cent in 2019 among these children. This increase was mainly caused by a change of the education system in *from 8-4-4 to 2-6-6-3 system*.[54] In the new system, the pre-primary education emphasised on covering learners aged between 4-5 years. Consequently, the higher level of deprivation at pre-primary education level can be attributed to the exclusion of 3-year-old learners previously captured in the 8-4-4 system. For the rest of the age groups, the highest decline in the dimensions' deprivation can be observed among older children (especially aged 14-17 years) and youths (18-34 years), with declines of 41.5 and 31.0 per cent respectively. In 2009, deprivation rates were the highest for adults aged 35-59 years (75.1 per cent), followed by the elderly (age 60+ years) (73.9 per cent) and youths (age 18-34 years) (52.6 per cent). The situation changed slightly in 2019 despite improvements in retention in enrolment and improved accessibility. The adults aged 35-59 years remained the most disadvantaged in terms of education, however, they were followed by two age groups with similar deprivation rates; elderly (60+ years) and young children aged 3 years old, pointing to issues with accessibility, availability and attendance of pre-primary education.[55] Deprivation of the elderly in education – proxied by literacy – has decreased by 3.4 percentage points; from 77.3 to 73.9 per cent between 2009 and 2019, respectively.

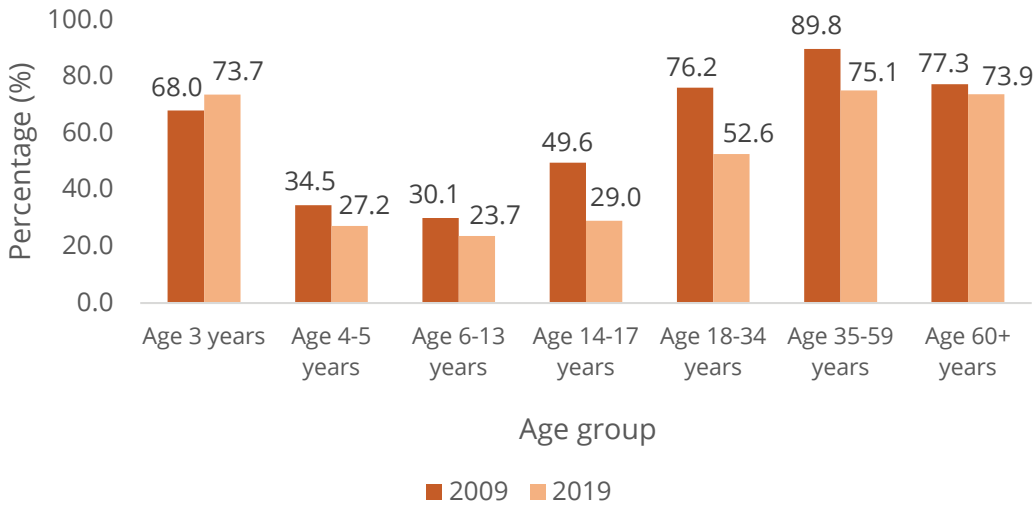
52 Ministry of Education, 2018, "National Pre-Primary Education Policy Standard Guidelines", available at: https://planipolis.iiep.unesco.org/sites/default/files/ressources/pre-primary_policy_guidelines_11_1.pdf

53 Ministry of Education, 2018, "Sector Policy for Learners and Trainees with Disabilities", available at: https://planipolis.iiep.unesco.org/sites/default/files/ressources/kenya_sector_policy_learners_trainees_disabilities.pdf

54 Government of Kenya, 2019, A Policy Framework for Education and Training: Reforming Education and Training in Kenya, available at: https://www.education.go.ke/sites/default/files/2022-05/policy-framework-for-education-training.pdf

55 For the analysis in the education sector, analysis for the first age group (0-3 years old) have been adjusted to 3 years old only.

Figure 3.1 **Percentage (%) of the population deprived in the education dimension[56], by age group, 2009 and 2019**



Source: KHPC 2009 and KHPC 2019

In 2009, 13.1 per cent of children aged 6-13 years were not attending school compared to 2019, showing a decline in deprivation of incidence to 10.9 per cent. The share of children aged 8-13 years[57] who attended school with two or more years of delay decreased more significantly; from 25.9 per cent in 2009 to 19.0 per cent in 2019. The reduction in deprivation incidence in the two indicators of the dimension was more substantial among 14-17-year-olds. In 2009, 20.6 per cent of these children were not in school with this share decreasing to 13.7 per cent in 2019. Between 2009 and 2019, the share of secondary school-age children who were three or more years behind in schooling decreased by half, as can be observed in Table 3.1. From these results it is also apparent that more children experienced a delay in schooling compared to being out of school.

Table 3.1 **Percentage (%) of children deprived in education indicators at the national level, by age group, 2009 and 2019**

Age group	6-13 years		14-17 years	
Indicator	2009	2019	2009	2019
School attendance	13.1	10.9	20.6	13.7
Delay in school	25.9	19.0	36.2	17.7

Source: KHPC 2009 and KHPC 2019

A key observation from these results is that at the national level, there is a noticeable improvement in both school attendance and delay in schooling as deprivation rates have declined in 2019 compared to 2009. Performance across areas of residence and counties indicate variations in the rate of improvement and uncover the deterioration in performance in specific counties. This will be discussed in the upcoming sections.

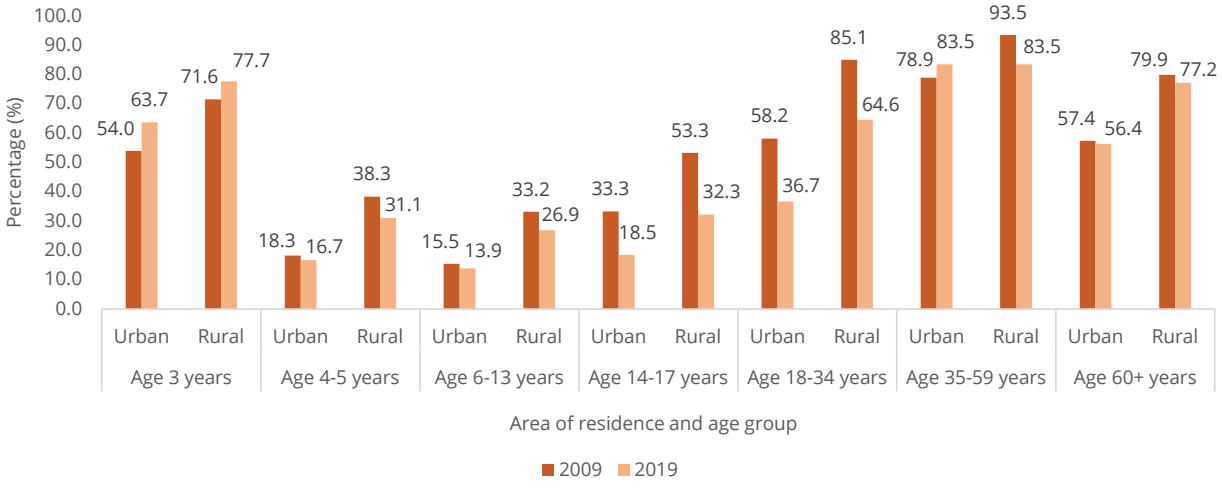
56 It is important to keep in mind that indicators within the education dimension differ according to age groups.

57 For children aged 6-13, delay in schooling has been used as an indicator in the education dimension where a child attending a grade that is two or more years lower than appropriate for her/his age. Calculation of deprivation excludes children aged 6 and 7 years given the official primary school starting age of 6 years in Kenya.

3.3.2 Analysis by Area of Residence

Figure 3.2, Annex 1 and Annex 2 present the percentage of the population deprived in the education dimension disaggregated by age group and area of residence between 2009 and 2019. For all age groups, apart from children aged three years, deprivation in education by area of residence decreased between 2009 and 2019. The highest decrease in deprivation rates was observed among 14-17-year-olds in urban areas (44.5 per cent) and rural areas (39.5 per cent), and among youths (18-34 years) in urban areas (36.9 per cent). However, for adults aged 35-59 years, deprivation rates increased in urban areas. In addition, there were large inequalities by area of residence. Compared to urban areas, rural areas were severely disadvantaged in the education dimension despite reductions in deprivation rates between 2009 and 2019. Challenges in education were pronounced in rural areas among children and older age groups. This indicates that efforts to address educational outcomes in rural areas were not effective.

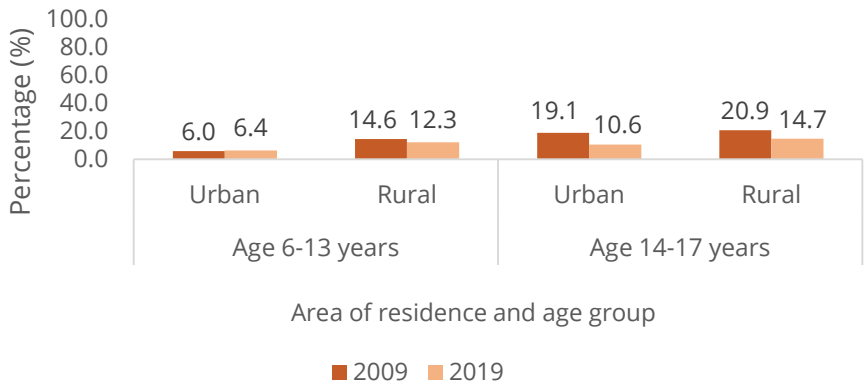
Figure 3.2 **Percentage (%) of the population deprived in the education dimension, by age group and area of residence, 2009 and 2019**



Source: KHPC 2009 and KHPC 2019

Children at the age of six years enrol in compulsory primary education cycle for eight consecutive years, yet 10.9 per cent of all children aged 6 -13 years were not attending school in 2019 as shown in Table 3.1, Figure 3.3 and Annex 3. In 2019, deprivation incidence in school attendance in rural areas was twice that in urban areas, 12.3 per cent and 6.4 per cent, respectively. Between 2009 and 2019, there was an insignificant change in deprivation in school attendance in urban areas, while in rural areas the deprivation rate decreased from 14.6 to 12.3 per cent among children aged 6-13 years. Among children aged 14-17 years, improvements in school attendance rates were substantial in both urban and rural areas. In 2009, 19.1 per cent of children living in urban were out of school compared to 10.6 per cent in 2019. Among children living in rural areas, the deprivation rate decreased from 20.9 to 14.7 per cent (Figure 3.3).

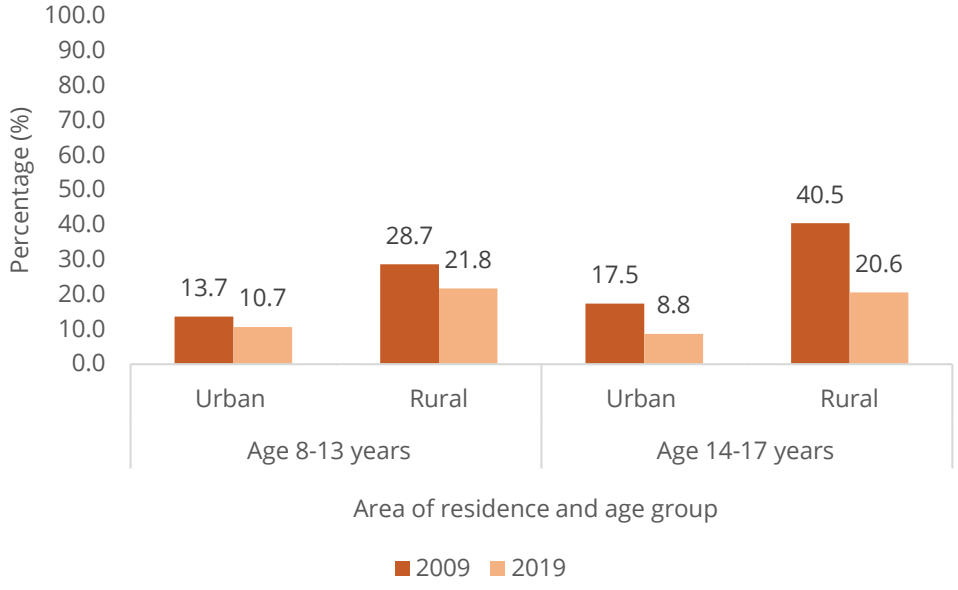
Figure 3.3 **Percentage (%) of children deprived in school attendance, age 6-17 years, by area of residence, 2009 and 2019**



Source: KHPC 2009 and KHPC 2019

Figure 3.4 shows trends analysis in the indicator delay in schooling. The situation improved overall between 2009 and 2019, with relatively higher improvement for children aged 14-17 years. Nevertheless, both primary and secondary school-age children show a higher prevalence of deprivation in rural areas compared to the urban areas.

Figure 3.4 **Percentage (%) of children attending school with delay, age 8-17 years, by area of residence, 2009 and 2019**



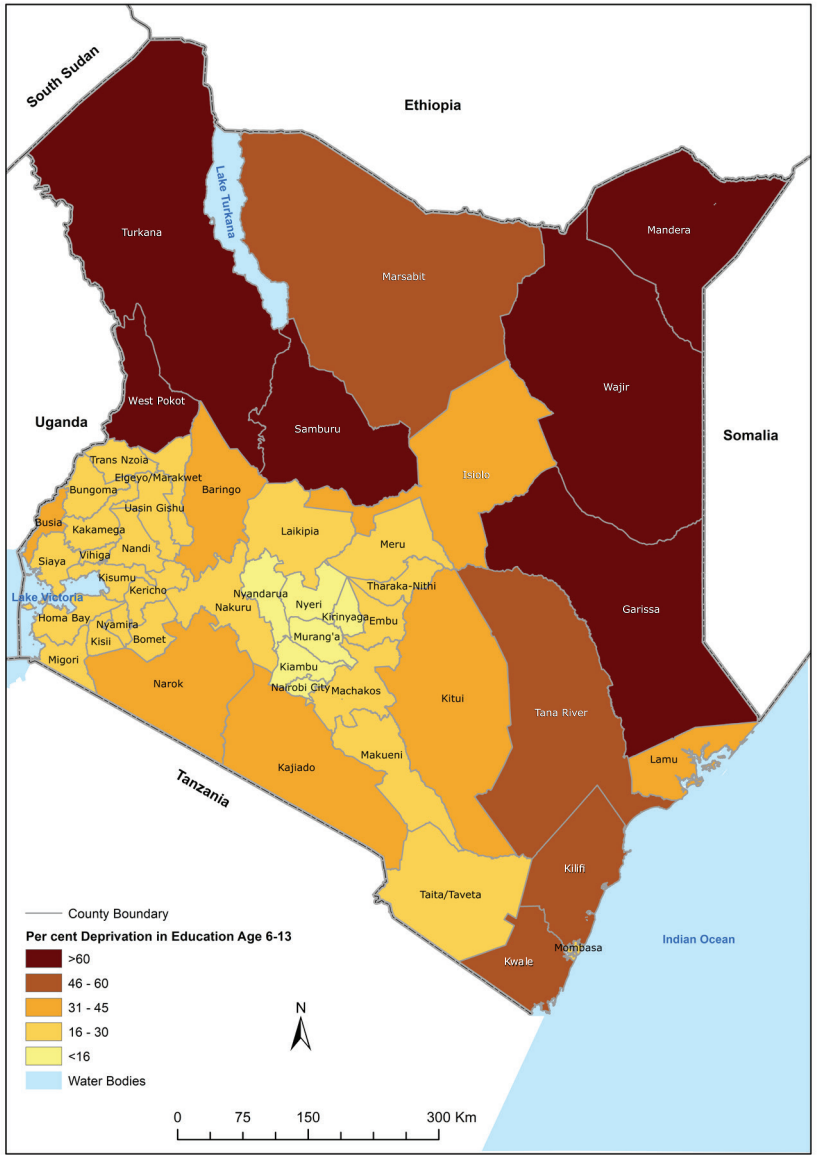
Source: KHPC 2009 and KHPC 2019

3.3.3 Analysis by County

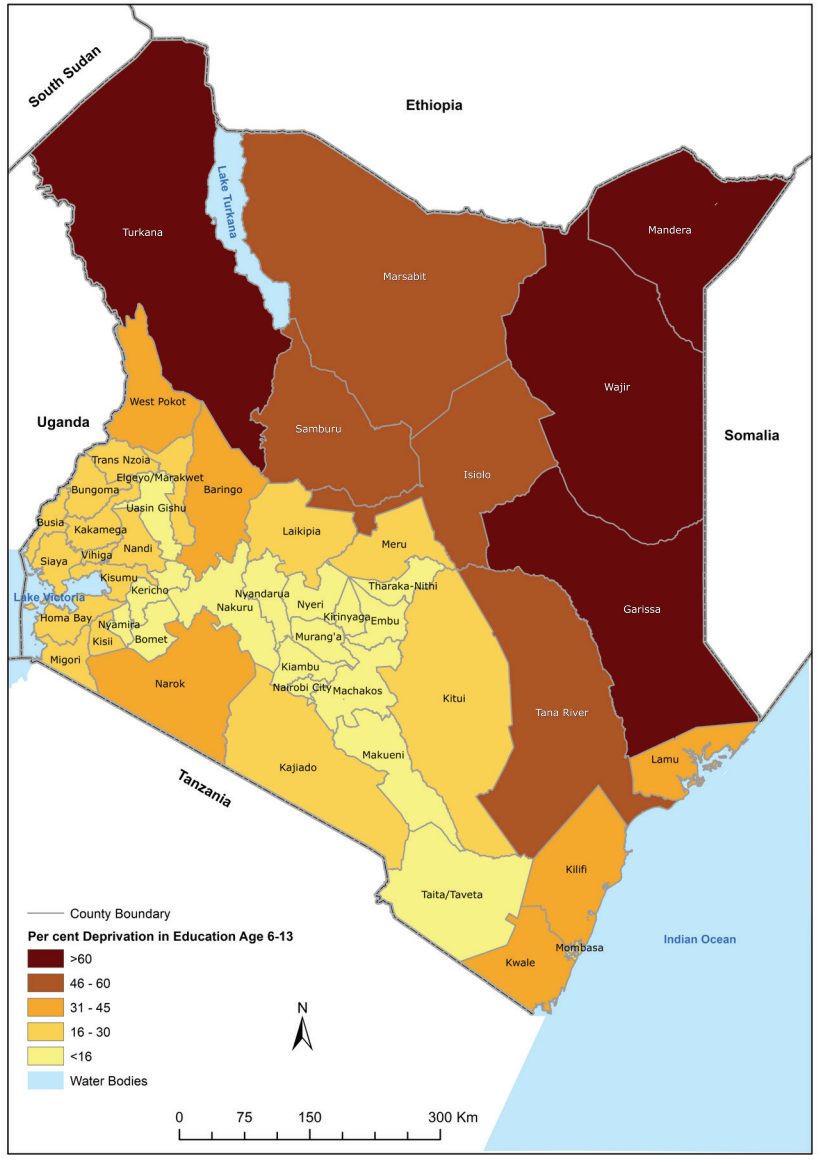
This section discusses inequalities in education across counties between 2009 and 2019 for different age groups. Although there were variations in disparities between counties, the results show that the counties performing poorly in terms of the education dimension for one age group tended to perform poorly for others (see Annex 1-3). Wajir recorded the highest deprivation for children under five years old in 2009 and 2019. Additionally, children under the age of five who lived in Garissa, Mandera, and Marsabit were more disadvantaged in pre-school attendance compared to children in the other counties. Deprivation rates for children aged three years old increased since 2009 by an average of 12.7 per cent. Deprivation rates have declined by between 2.4 and 20.4 per cent for children aged 4 – 5 years in four of the poorest-performing counties - Garissa, Wajir, Mandera and Marsabit. Deprivation incidence increased in all other counties except for Isiolo, Samburu and Tana River and the above-mentioned.

All children aged 6-17 years depict the same trend of deprivation in education in the five most deprived counties in 2019: Turkana, Garissa, Wajir, Mandera and Marsabit. These counties had the highest deprivation rates in education among children aged 6-13 and 14-17 years in both 2009 and 2019. Among these counties, there were no improvements in educational outcomes among children aged 6-13 between 2009 and 2019; in fact, the deprivation rate increased by 8.8 per cent in Mandera, by 9.5 per cent in Garissa, and 4.3 per cent in Wajir. Across other counties, there has been an average improvement of 21.1 per cent between 2009 and 2019 (Map 3.1, Figure 3.5, Annex 1).

Map 3.1 **Percentage (%) of children deprived in the education dimension, age 6-13 years, by county, 2009 (left) and 2019 (right)**

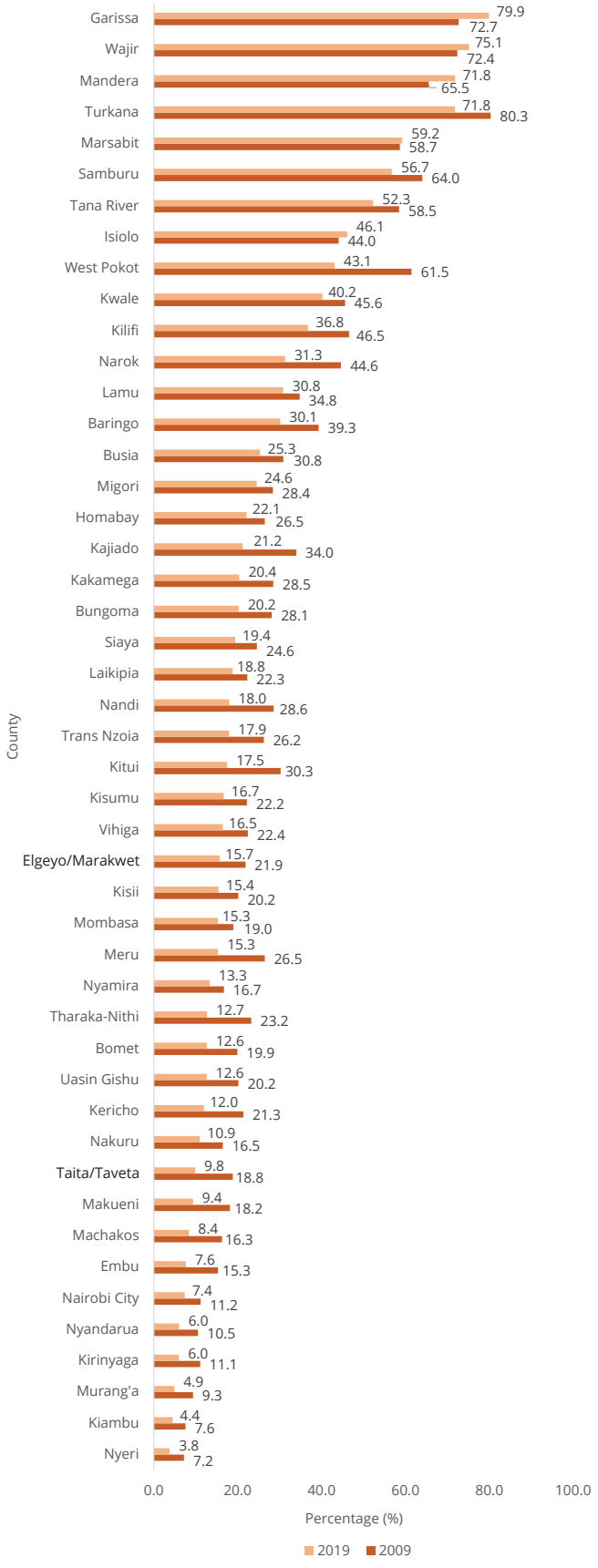


Source: KHPC 2009



Source: KHPC 2019

Figure 3.5 **Percentage (%) of children deprived in the education dimension, age 6-13 years, by county, 2009 and 2019**



N=1,180,550

*** p<0.01, ** p<0.05, * p<0.1

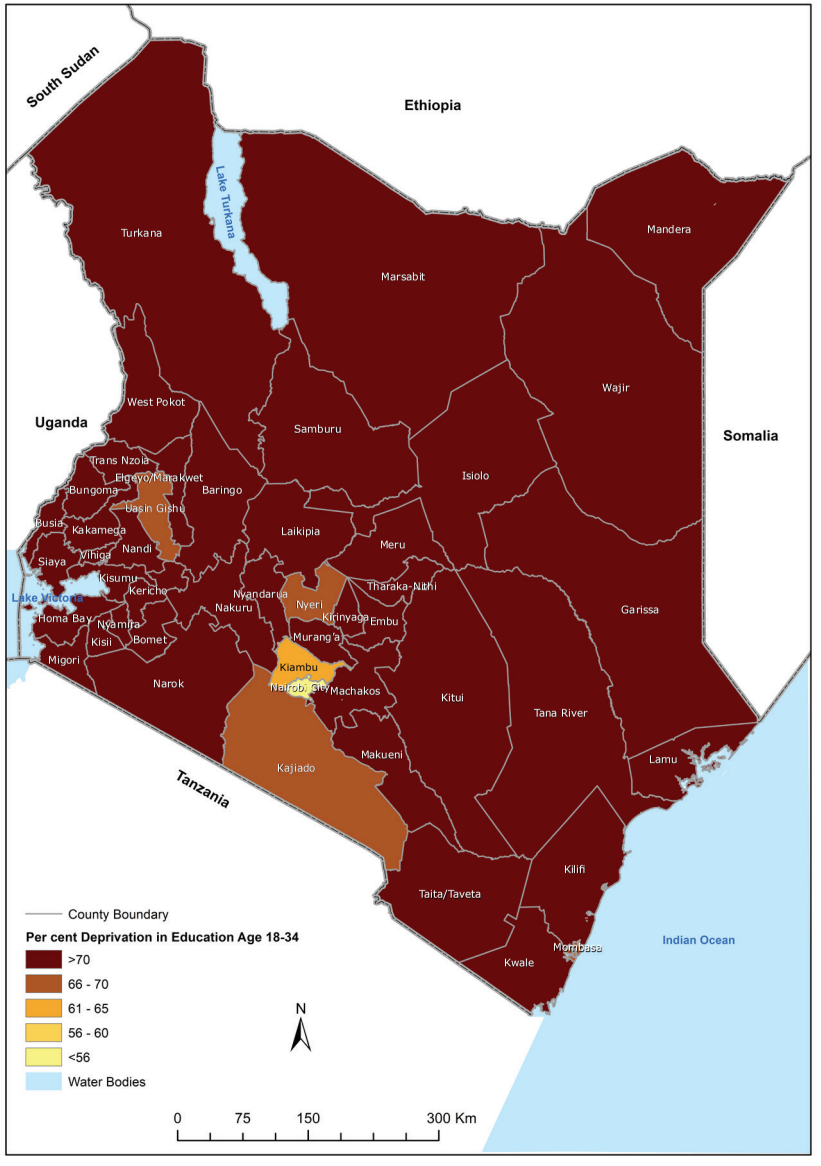
Source: KHPC 2009 and KHPC 2019

Conversely, there have been significant improvements in the education dimension among children 14-17 years in all counties since 2009, with a 41.6 per cent average decrease in deprivation rates (Annex 1). It has been observed that the same counties performed poorly in both 2009 and 2019 in deprivation in education among children under 18 (Figure 3.5). This is applicable also to the top-performing counties. Indeed, Nyeri, Kiambu, Murang'a, Kirinyaga, and Nyandarua had the lowest deprivation rates in the education dimension among children. In the following sections, results will be discussed for the older age groups but for the adults, different trends can be observed.

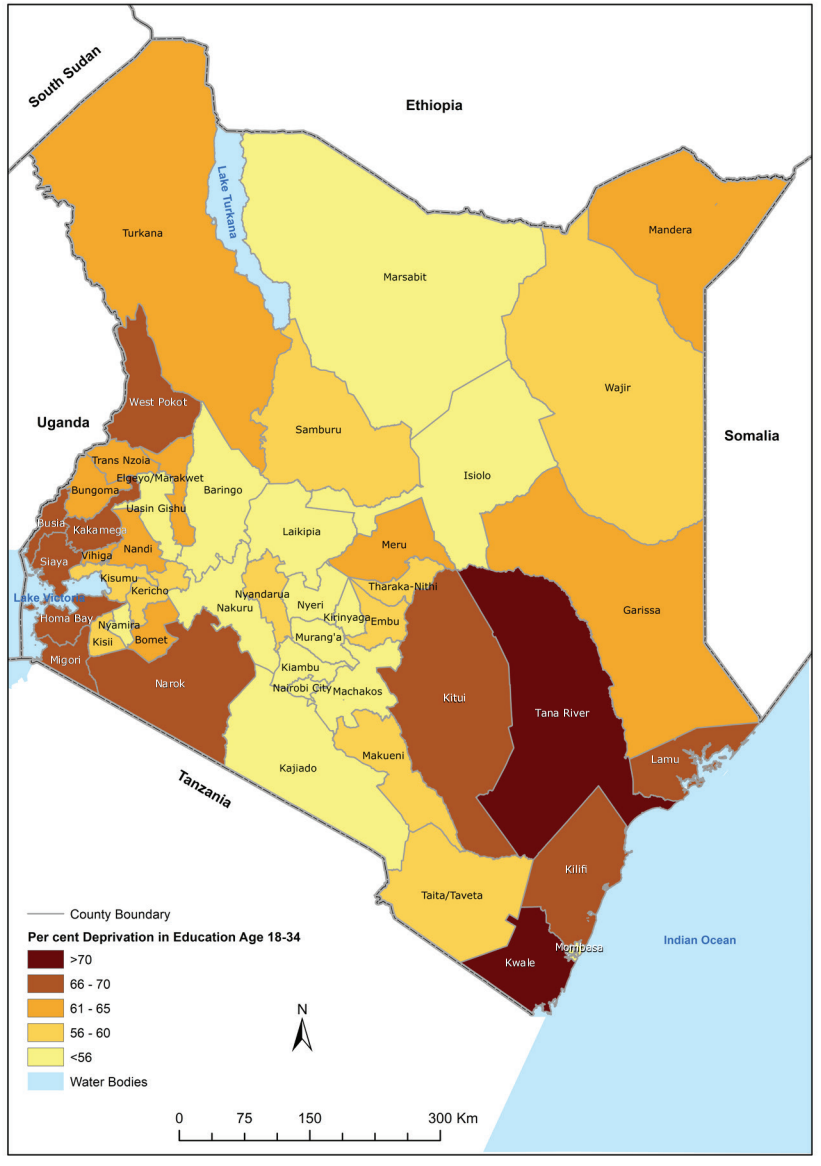
In 2019, deprivation rates in secondary school completion among youths aged 18-34 years were the highest in Kwale (72.2 per cent), Tana River (70.3 per cent), and West Pokot, Kilifi, Siaya, Busia and Lamu, which shared the third place with a deprivation of around 69.0 per cent. These counties had high deprivation rates in 2009 as well, but they did not rank among the poorest performers. Nairobi City, Kiambu, Nyeri, Kajiado and Uasin Gishu had the lowest deprivation rates in the education dimension in both years.[58] It is important to note that counties with the lowest or highest deprivation in education are those that experienced the most or least progress in educational outcomes since 2009 (Map 3.2, Figure 3.6, Annex 2). The counties include Kiambu, Nyeri, Marsabit, Kajiado and Samburu in particular, where deprivation incidence in secondary school completion among youths 18-34 years declined by between 38.1 and 44.4 per cent. In Kwale, Kilifi, Busia, Siaya, and Kakamega deprivation incidence decreased by between 18.6 and 21.3 per cent between 2009 and 2019 (Figure 3.6).

58 The five best performing counties for the 18–35-year-olds in 2019: Nairobi city (32 per cent), Kiambu (33 per cent), Nyeri (40 cent), Kajiado (41 cent) and Uasin Gishu (46 cent).

Map 3.2 Percentage (%) of youths deprived in secondary school completion, age 18-34 years, by county, 2009 (left) and 2019 (right)

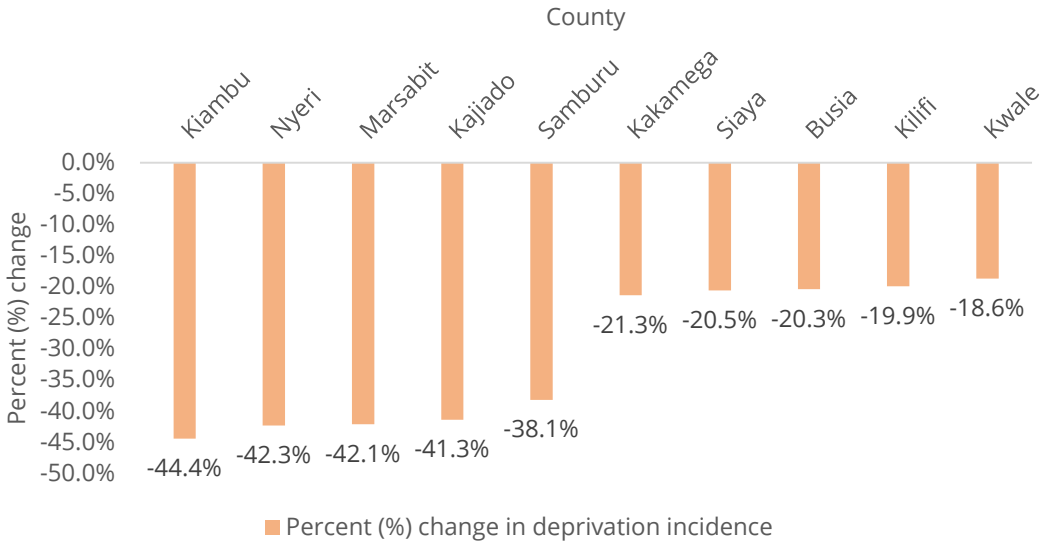


Source: KHPC 2009



Source: KHPC 2019

Figure 3.6 **Percent (%) change in deprivation incidence in education between 2009 and 2019, age 18-34 years, five best performing counties (left) and five poorest performing counties (right)**



Source: KHPC 2009 and KHPC 2019

Among Kenyans aged 35-59 years, inequality in deprivation in the education dimension across counties was the narrowest compared to other age groups (Annex 2). In 2019, 85.7 per cent of adults aged 35-59 years in Lamu had not completed secondary education compared to 55.8 per cent in Wajir and 56.0 in Nairobi City counties. The high levels of deprivation in Nairobi City can be explained by the large informal settlements which are deprived of public education facilities. Siaya and Nyandarua also ranked among the most deprived (85.3 and 84.8 per cent, respectively) in 2019, followed by Kitui, Murang'a and Busia counties which recorded deprivation rates of around 84.0 per cent each. Between 2009 and 2019, deprivation incidence declined the most in Wajir (43.2 per cent), Mandera (38.4 per cent), Marsabit (34.9 per cent), Garissa (34.9 per cent) and Turkana (31.1 per cent). It is important to note that all these counties ranked amongst the poorest-performing counties in 2009. The high education deprivations for Mandera and Marsabit counties can be attributed to the nomadic nature of livelihoods and associated low uptake of formal education opportunities.

In 2019, deprivation in the education[59] dimension for the elderly was the highest in Turkana, Wajir, Mandera and Marsabit with a deprivation rate of around 98.0 per cent each, followed by Garissa with 97.0 per cent (Annex 2). Turkana and Marsabit had the highest deprivation rates in 2009 as well, followed by Samburu and West Pokot. The counties with the lowest deprivation incidence in 2019 were similar to those in 2009. In 2019, Nairobi City had the lowest deprivation rate of 40.4 per cent, followed by Kiambu at 55.2 per cent, Nyeri at 56.7 per cent, Mombasa at 58.9 per cent and Murang'a with 63.7 per cent.

3.3.4 Socio-Economic Drivers of Inequality

Table 3.2 displays deprivation rates in pre-school attendance by certain household conditions and characteristics that are associated with these outcomes. The results show that characteristics of the household head are associated with young children's deprivation in education. In 2019, children aged four to five years in female-headed households were nearly 16 per cent more likely to be deprived than children in male-headed households. The gender of the household head had little impact on deprivation among children aged three years. Similarly, the gap in education

59 Measured by completion of primary school or adult literacy programmes as a proxy for literacy.

deprivation between households headed by a person with disability and person without disability was small for children aged three years. For those between four and five years, there was a 26 per cent increase in deprivation for children living in households headed by persons without disability. Children aged 3-5 years whose household head had completed secondary or higher education were less likely to be deprived in education compared to their peers whose household head had lower educational attainment. Children from labour-constrained households and households with more children were more likely to be deprived in education. For instance, children aged 4-5 years who lived in households with five or more children younger than 18 were more than twice as likely to be deprived in education as children in households with 1-2 children under 18 years.

Table 3.2 **Percentage (%) of children deprived in pre-school attendance, age 3-5 years, by demographic and socio-economic characteristics, 2019**

Individual and household characteristics		3 years	4-5 years
National		**73.7**	**27.2**
Sex	Girl	72.1	26.3
	Boy	75.2	28.1
HH head sex	HH head is a woman	73.9	30.1
	HH head is a man	73.5	25.4
HH head marital status	Married	74.0	27.8
	Not married	71.0	23.7
HH head disability status	Person with disability	72.3	22.3
	Person without disability	73.9	28.1
HH head educational attainment	HH head completed secondary/higher education	62.8	10.1
	HH head not completed secondary education	73.6	19.2
HH labour constraint	HH labour constrained	77.1	34.2
	HH not labour constrained	71.0	21.9
Nr of children in the HH	1-2 children<18 in HH	68.7	16.8
	3-4 children<18 in HH	74.2	25.1
	5+children<18 in HH	79.7	41.1

Source: KHPC 2019

Both individual and household characteristics are relevant for deprivation in the dimension of education[60] among children aged 6-17 years. Table 3.3 shows that in 2019, boys were more likely to be deprived in education than girls, as were children who lived in households headed by women compared to their peers in male-headed households. The disability status and educational attainment of the household head were also relevant. Children in households headed by a person with disability were less likely to be deprived in education, as were children living in households headed by adults with secondary or higher educational attainment. Additionally, children living in households with more children under 18 and in labour constrained households were more likely to be deprived compared to their peers. The deprivation rate in education among 14-17-year-olds living in labour constrained households was 36.1 per cent compared to 24.8 per cent of their peers living in households that were not labour-constrained.

60 Indicators for the Education dimension: school attendance (6-17 years old) and delay in schooling (8-17 years old).

Table 3.3 **Percentage (%) of children deprived in the education dimension, age 6-17 years, by demographic and socio-economic characteristics, 2019**

Individual and household characteristics		6-13 years	14-17 years
National		**23.7**	**29.0**
Sex	Girl	21.3	25.0
	Boy	26.1	32.9
HH head sex	HH head is a woman	26.3	30.6
	HH head is a man	21.9	27.9
HH head marital status	Married	24.0	29.3
	Not married	22.2	28.0
HH head disability status	Person with disability	21.3	26.9
	Person without disability	24.2	29.5
HH head educational attainment	HH head completed secondary/higher education	6.5	11.2
	HH head not completed secondary education	16.4	22.4
HH labour constraint	HH labour constrained	29.9	36.1
	HH not labour constrained	19.4	24.8
Nr of children in the HH	1-2 children<18 in HH	13.6	22.0
	3-4 children<18 in HH	20.2	25.5
	5+children<18 in HH	35.8	40.0

Source: KHPC 2019

Finally, Table 3.4 shows the deprivation rate by characteristics at the individual and household levels for adults aged 18+ years. Results for youths aged 18-34 years do not differ significantly from older age groups, therefore this section will discuss the results only for this age group. In 2019, young women were more likely to be deprived in the education dimension than young men. Additionally, youths with disability were more likely to be deprived in education compared to their peers without disability. Gender and educational attainment of the household head were also relevant. Youths living in female-headed households and households with heads who had not completed secondary education were more likely to be deprived in education. Similarly, youths living in households with a larger number of children under 18 were more likely to be deprived in education.

Table 3.4 **Percentage (%) of youths, adults and elderly deprived in school attendance and literacy, by demographic and socio-economic characteristics, 2019**

Individual and household characteristics		18-34 years	35-59 years	60+ years
National		**52.6**	**75.1**	**73.9**
Sex	Woman	54.3	77.3	83.1
	Man	50.8	73.1	62.7
Disability status	Person with disability	61.8	82.7	77.3
	Person without disability	52.0	73.7	70.9
HH head is a woman	HH head is a woman	53.0	76.9	84.1
	HH head is a man	52.4	74.4	66.9

Individual and household characteristics		18-34 years	35-59 years	60+ years
HH head educational attainment	HH head completed secondary/higher education	15.2	15.0	24.7
	HH head not completed secondary education	74.6	95.3	64.4
HH labour constraint	HH labour constrained	61.7	82.5	78.1
	HH not labour constrained	49.0	71.9	69.0
Nr of children in the HH	No children<18 in HH	38.5	75.1	70.7
	1-2 children<18 in HH	50.0	71.9	73.8
	3-4 children<18 in HH	65.2	75.5	77.3
	5+children<18 in HH	72.1	85.0	82.3

Source: KHPC 2019

Box 3.2 Factors explaining the trends/inequalities

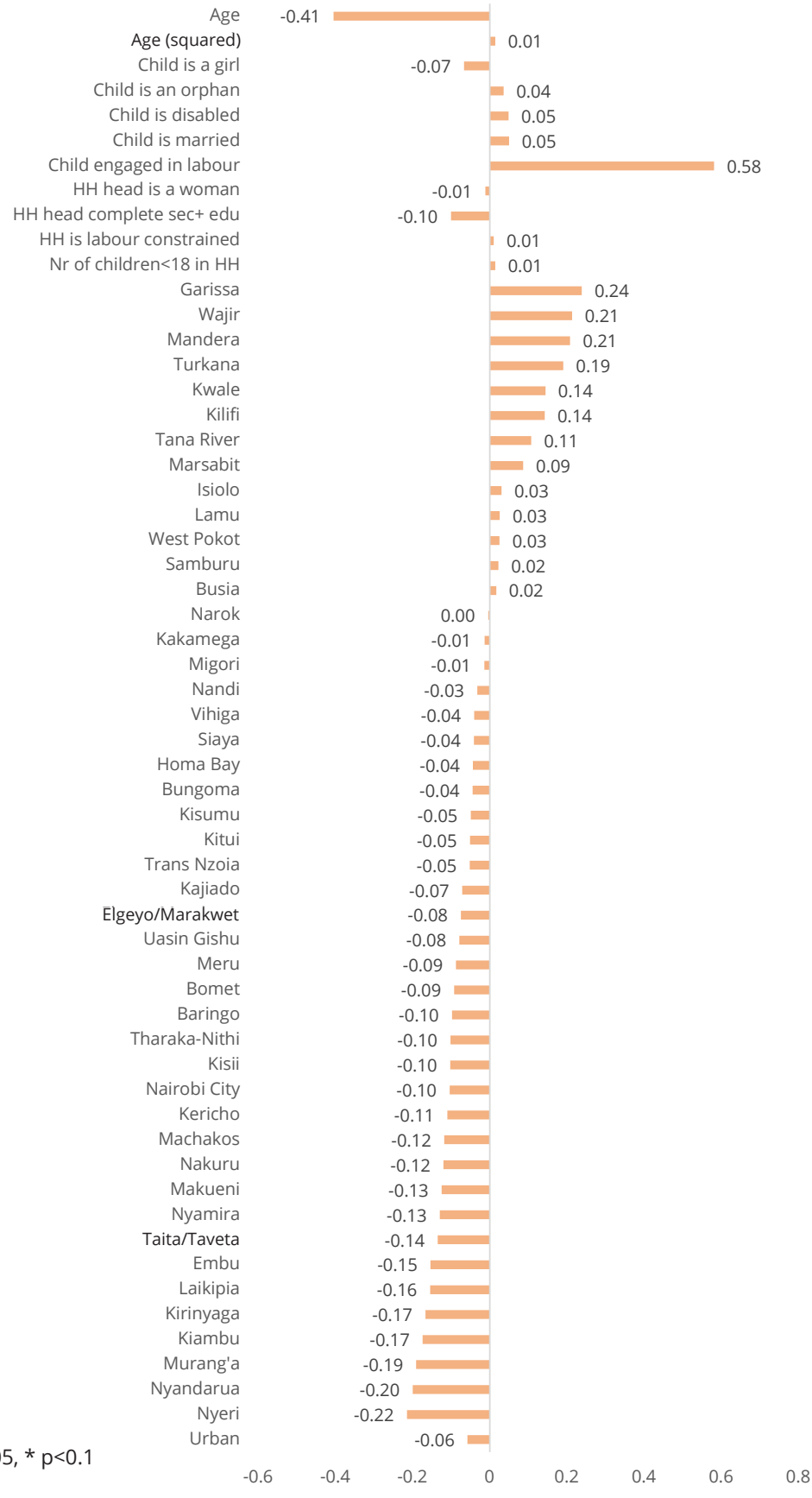
Overall characteristics which play a role in the determination of deprivations remained roughly compared 2009, especially for older age groups. Deprivation was the highest for individuals living in female-headed-households compared to a male-headed-household (26.3 against 21.9 per cent for children between 6 and 13 years old). Moreover, the education of the household head was one of the most significant characteristics in the deprivation rate with a 90 per cent difference for children between four and five years old, 152 per cent difference for children aged 6-13 years and 100 per cent difference for children aged 14-17 years where the household head had not completed at least secondary schooling. Labour constraints of a household also represented an important factor in deprivation rates. A deprivation increase of around 33 percent for children older than three years can be observed if the household is labour-constrained. Lastly, deprivation rates were higher for households with more children per household, an 87 per cent increase for youths aged 18-34 years between households with no children and those with five or more. For older age groups, an increase of around 14 per cent in deprivation rates in education can be observed. Hence, household characteristics are important, particularly characteristics which proxy the available financial resources, pointing to the need for support of families with more children with cash transfers to improve their educational outcomes.

In related progression levels, the completion (95 per cent) and transition rate (91 per cent) improved in 2020 from 84 per cent and 81 per cent, respectively in 2016 due to the government policy of ensuring 100 per cent transition from primary (ages 6 to 13 years) to secondary schools (ages 14 to 17 years) (Economic Survey, 2021). The government is also implementing Free Primary Education Policy since 2003 and Free Day Secondary Education since 2008. The policies are in tandem with Sustainable Development Goal (SDG) 4, target 4, which aims at ensuring that all children complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes by 2030 as well as opportunities to access the labour market.

3.3.4.1 Regression Analysis: Factors Associated with Deprivation in the Education Dimension

Regression analysis of factors associated with deprivation in the education dimension among children aged 6-17 years in 2019 shows that individual and household characteristics, as well as children's residence, are all relevant (Figure 3.7 and Annex 16.1).

Figure 3.7 **Factors associated with deprivation in education, age 3-17 years, 2019**



N=5,252,848
*** p<0.01, ** p<0.05, * p<0.1

Source: KHPC 2019

Children who are engaged in labour or married are more likely to be deprived in the dimension, however, the older the children within the observed age group, the less likely they are deprived in the dimension. Other characteristics show a very high association with deprivation. Children with a disability and children who are orphaned are more likely to be deprived in education. Similarly, children who have more siblings and who come from a labour-constrained household, are more likely to be deprived, albeit not as highly deprived as the characteristics discussed above. On the other hand, girls or children living in a female-headed household are less likely to be deprived compared to boys or children from male-headed households. Moreover, the area of residence is significant with children from urban areas less likely to experience deprivation. Regarding the counties, children residing in Garissa, Wajir, Mandera, are significantly more likely to be deprived in the education dimension compared to children in Mombasa, while children residing in Nyeri, Nyandarua, and Murang'a are less likely to be deprived.

3.4 Conclusion and Recommendations

Educational outcomes improved significantly between 2009 and 2019, particularly among secondary school-age children and the youth. Deprivation dropped by nearly 42 per cent among children aged 14-17 years, by more than 23 per cent among those aged 6-13 years, and 21 per cent among children aged 4-5 years. Conversely, for the youngest children, the prevalence of deprivation increased by 12 per cent and remained high, nearly 74 per cent in 2019. Although, changes to the education system between 2009 and 2019 might explain this, pre-primary school enrolment should receive dedicated attention in policymaking and budgets given its importance in future educational and labour market outcomes.

Improvements in access to education and educational attainment were also significant among youths aged 18-34 years, with a decrease in deprivation of around 31 per cent between 2009 and 2019. However, more than half of this age group had not completed secondary education in 2019, raising concerns about their labour market outcomes. Higher rates of deprivation can be observed for the adults aged 35-59 years and the elderly (60+ years). Three out of four adults aged between 35 and 59 years had not completed secondary or higher education in 2019. Likewise, 74 per cent of the elderly were illiterate. The gap in educational attainment between women and men widens as age progresses with women significantly more deprived than men.

Despite these improvements, inequalities persist and are highly associated with several geographical and socio-economic characteristics. For instance, all age groups consistently experience greater deprivation rates in rural areas. In addition, counties such as Garissa, Turkana, Wajir, Mandera and Marsabit have shown higher deprivation rates compared to other counties, especially for children and the elderly. All these counties are in arid and semi-arid lands which were characterized by lower levels of public investments in infrastructure since Kenya's independence in 1963. Nonetheless, characteristics which proxy the available financial resources in a household show the most significant inequalities. For instance, where the household head did not complete secondary education, the child is 60 per cent more likely to be deprived in education than when the head has completed at least secondary education. For children from labour-constrained households, deprivation rates are 35 per cent higher compared to their peers.

In spite of the improvements, deprivation and inequalities in education remained significant in 2019. Therefore, this study recommends that:

(i) The government makes substantial investments in pre-primary education to improve enrolment rates and quality of learning. Since little differences are observed for young children (3 years old) regardless of their socio-economic background, it is assumed that full access is not established in the country yet. This could be achieved through construction of new ECDE classes and provision of capitation grants for pre-primary education as part of universal basic education.[61] Education resources can be targeted to counties with low school attendance, paying close attention to demographic inequalities to reduce the gaps and education deprivations. Universal pre-primary education will not only benefit the children but will also reduce the unpaid care burden of women enabling them to participate in the labour market and contribute to economic development.

(ii) In order to enhance progress in schooling, high enrolment rates must be sustained, and the quality of learning must be assured through the following:

   a) Monitoring of school and teacher performance continuously to inform respective interventions and investments.

   b) Enhance homegrown school feeding programmes in schools in collaboration with other stakeholders and local communities using locally produced foods. This can be highly beneficial if counties with high deprivation rates are targeted e.g., Garissa, Turkana, Wajir, Mandera and Marsabit.

   c) Provide cash transfer benefits to households with strained financial resources - labour-constrained households and households with many children – and to households with orphans, to assist with children's enrolment and continued school attendance. Such programmes would simultaneously assist with tackling also the issue of children's engagement in child labour, as one of the impediments to children's school attendance.

(iii) Re-engineer and strengthen the provision of technical and university education through collaborations and partnerships between higher learning institutions and industries to address the education deprivations among adults aged 35-59 years and expand the support scheme for students deprived of education at technical and university level.

   a) The government should expand the support schemes for students deprived of education at the technical and university level. University education should be available to all who qualify so that they realize their full potential. Effective bursary schemes should be introduced for genuinely needy cases. In addition, the Higher Education Loans Board (HELB) should give loans to deserving cases at all levels of the academic ladder. Similarly, since Higher Education Loans Board (HELB) is currently the only institution supporting students at universities and TVET with loans, there is a need to explore other sources of funding including bringing in the commercial banks and other corporate institutions to support needy students with educational scholarships.

(iv) Provide literacy programmes for youth and adults aged 35 years and above given the high deprivation rates in education while paying particular attention to reducing the gap between women and men.

61 Universal pre-primary education not only benefits the child but reduces the unpaid care burden of a women enabling them to play a bigger part in economic development.

4 Child Protection

4.0 Introduction

This chapter examines deprivations and inequalities in the child protection dimension. The discussions focus on three indicators that were included in multidimensional deprivation measurement among children[62] - child labour, child marriage, and teenage pregnancy, and on birth registration.[63] Child labour was defined as engagement of children in any economic activity in the seven days preceding the census including paid and unpaid work in family business, agricultural holding, apprenticeships, internships and volunteer work, and was measured for children aged 5 to 17 years. The other two indicators were measured for children aged 12 to 17 years; a child who was married, widowed, divorced or separated was considered deprived, whereas girls aged 12-17 who have given birth to a child were considered deprived in the indicator teenage pregnancy. Birth registration was measured at the household level and refers to the births in the last five years preceding the censuses and whether they were notified/registered.

The chapter first provides a background on issues in child protection in Kenya, an overview of related legislation and policy frameworks, and then presents the results at national and subnational levels and by children's socio-economic characteristics.

4.1 Background and Context

Child protection is a multi-sectoral and multi-disciplinary issue that requires engagement of a myriad of stakeholders in tackling it. It is therefore critical to ensure that there is an effective and functional child protection system in place that promotes children's well-being. As a result, the government of Kenya has established a framework for the National Child Protection System that is consistent with the country's commitment to the UN Convention on the Rights of the Child (1989)[64] and the African Charter on the Rights and Welfare of the Child (1990).[65] The government has also developed and implemented policies and enacted legislation to protect children.

Child protection is also embedded in the Constitution of Kenya (2010). Article 53. Children which guarantees children's rights to education, nutrition, shelter, health care, etc., also stipulates that *"(1) Every child has the right (a) to a name and nationality from birth; (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."* [66]

62 The MODA methodology adopts a rights-based approach considering child protection as a right of every child. Child labour, child marriage and teenage pregnancy are protection violations that are highly associated with the development of children and their wellbeing outcomes in other domains, including education, health status, and future outcomes.

63 This indicator was not included in measurement of multidimensional poverty measurement among children as it does not fulfill the criterion of variance for indicators. However, the results are presented by geographical disaggregation given its importance in the domain of child protection.

64 UN, 1989, Convention on the Rights of the Child, available at: https://www.ohchr.org/sites/default/files/crc.pdf

65 African Union, 1990, African Charter on the Rights and Welfare of the Child, available at: https://au.int/sites/default/files/treaties/36804-treaty-african_charter_on_rights_welfare_of_the_child.pdf

66 Government of Kenya, 2010, Constitution of Kenya, available at: http://www.kenyalaw.org:8181/exist/kenyalex/actview.xql?actid=Const2010

The 2030 Agenda for Sustainable Development embodies the highest aspirations for a bright future for the world's children, and the SDGs are a crucial opportunity to realize their rights in all countries. Fulfilling children's rights by reaching those who are the furthest behind is a prerequisite for achieving the 2030 Agenda overall. Several SDG goals and targets[67] tackle child protection issues explicitly (Box 4.1).

Box 4.1 Related SDG goals and targets

SDG 5. Achieve gender equality and empower all women and girls

Target 5.2. Eliminate all forms of violence against women and girls, including trafficking, sexual, and other types of exploitation.

Target 5.3. Eliminate all harmful practices, such as child, early and force marriage, and female genital mutilation.

SDG 8. Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all

Target 8.7. Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure prohibition and elimination of the worst forms of child labour… and by 2025 end child labour in all its forms.

SDG 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

Target 16.2. End abuse, exploitation, trafficking, and end all forms of violence and torture of children", and 16.9. "By 2030, provide legal identity for all, including birth registration".

Despite near-universal ratification of the UN Convention on the Rights of the Child, millions of children around the world continue to be left behind and their rights denied, particularly those who face the most discrimination or live in precarious situations of vulnerability, such as children on the streets, in institutions, or in migration situations.[68] Furthermore, because of their vulnerable stage of life and development, children bear a disproportionate share of the consequences of poverty, violence, inequality, and exclusion. A substantial number of children living in Eastern and Southern Africa face several risks of child protection, including early marriage and child labour.[69] As a result, by prioritizing children's rights in SDG action plans, the call to ensure "No Child Left Behind" can be accelerated, as a child rights-based approach multiplies future development gains.

4.2 Key Interventions and Programmes

The child protection system in Kenya was established in 2001 by the Coalition on Child Rights and Child Protection. After its initial phase, the National Council for Children's Services (NCCS) was established to safeguard and promote the rights and welfare of children in the country through a multisectoral approach. In 2022, an amended Children Act[70] was enforced. The Department of Children's Services within the Ministry of Gender, Children and Social Development is responsible for developing, supervising and coordinating children services to ensure to full implementation of child welfare activities.

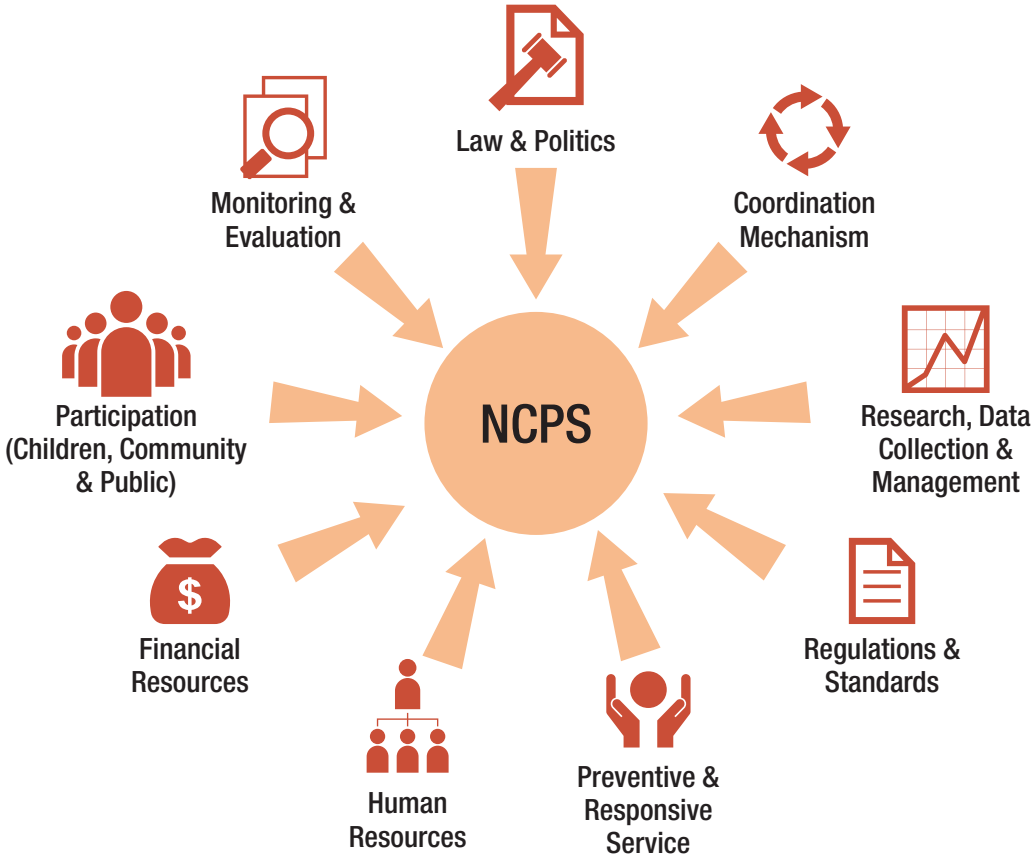
67 SDG 5. Gender equality, SDG 8. Decent work and economic growth, and SDG 16. Peace, justice and strong institutions, available at: https://sdgs.un.org/goals

68 UNICEF, Working paper: Children "left behind", available at: https://www.unicef.org/media/83581/file/Children-Left-Behind.pdf

69 Maestral International, 2011, Child Protection Systems: Mapping and Assessing Eastern and Southern Africa, available at: https://resourcecentre.savethechildren.net/pdf/5093.pdf/

70 Republic of Kenya, 2022, The Children Act, 2022, available at: https://www.judiciary.go.ke/download/the-children-act-2022/

Figure 4.1 **Components of a National Child Protection System (NCPS)**



Source: The National Council for Children's Services (2011) [71].

4.3 Horizontal Inequality Analysis

4.3.1 Child Labour

4.3.1.1 Analysis at the National Level and by Area of Residence

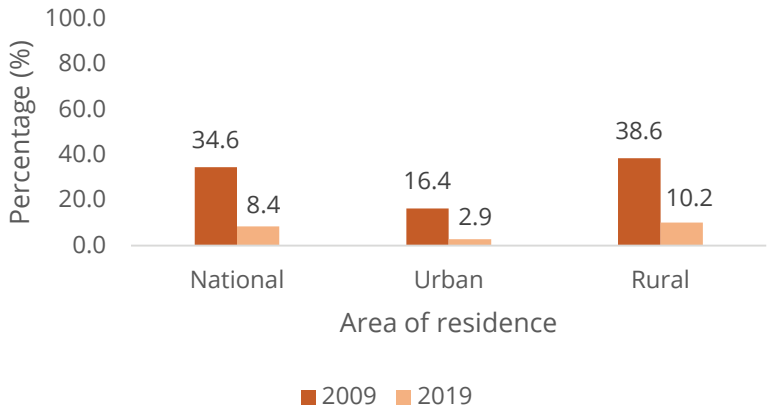
Figure 4.2 and Annex 4 illustrate child labour incidence rates among children aged 5-17 years for 2009 and 2019 at the national and level and by area of residence. At the national level, over the decade, the child labour rate decreased from 34.6 to 8.4 per cent, or by 75.8 per cent. This significant change is mainly attributed to public campaigns against child labour and government initiatives in upholding child rights. Particularly impactful policy interventions included the free primary education (since 2003) and free day secondary education (since 2008) as well as the 100 per cent transition policy from primary to secondary education. The reduction in poverty during the period from 46.0 in 2005/06 to 36.1 per cent in 2015/16 was also a key contributing factor.[72]

71 The National Council for Children's Services, 2011, "The Framework for the National Child Protection System for Kenya", available at: https://www.socialserviceworkforce.org/system/files/resource/files/The%20Framework%20for%20the%20National%20Child%20Protection%20System%20for%20Kenya.pdf

72 KNBS, 2018, Basic report on well-being in Kenya: Based on the 2015/16 Kenya Integrated Household Budget Survey (KIHBS), available at: https://www.knbs.or.ke/download/basic-report-well-kenya-based-201516-kenya-integrated-household-budget-survey-kihbs/

Disaggregation of results by children's area of residence reveals geographical disparities in realization of children's rights and fulfilment of basic needs with stark inequalities observed between urban and rural areas (Figure 4.2). In 2019, three times more children in rural areas were engaged in child labour compared to urban areas, or 10.2 per cent versus 2.9 per cent, respectively. It must also be noted that even though child labour incidence decreased substantially in both rural and urban areas, by 82 and 74 per cent respectively, the inequality between the two areas widened in 2019.

Figure 4.2 **Percentage (%) of children engaged in child labour, age 5-17 years, national level and by area of residence, 2009 and 2019**

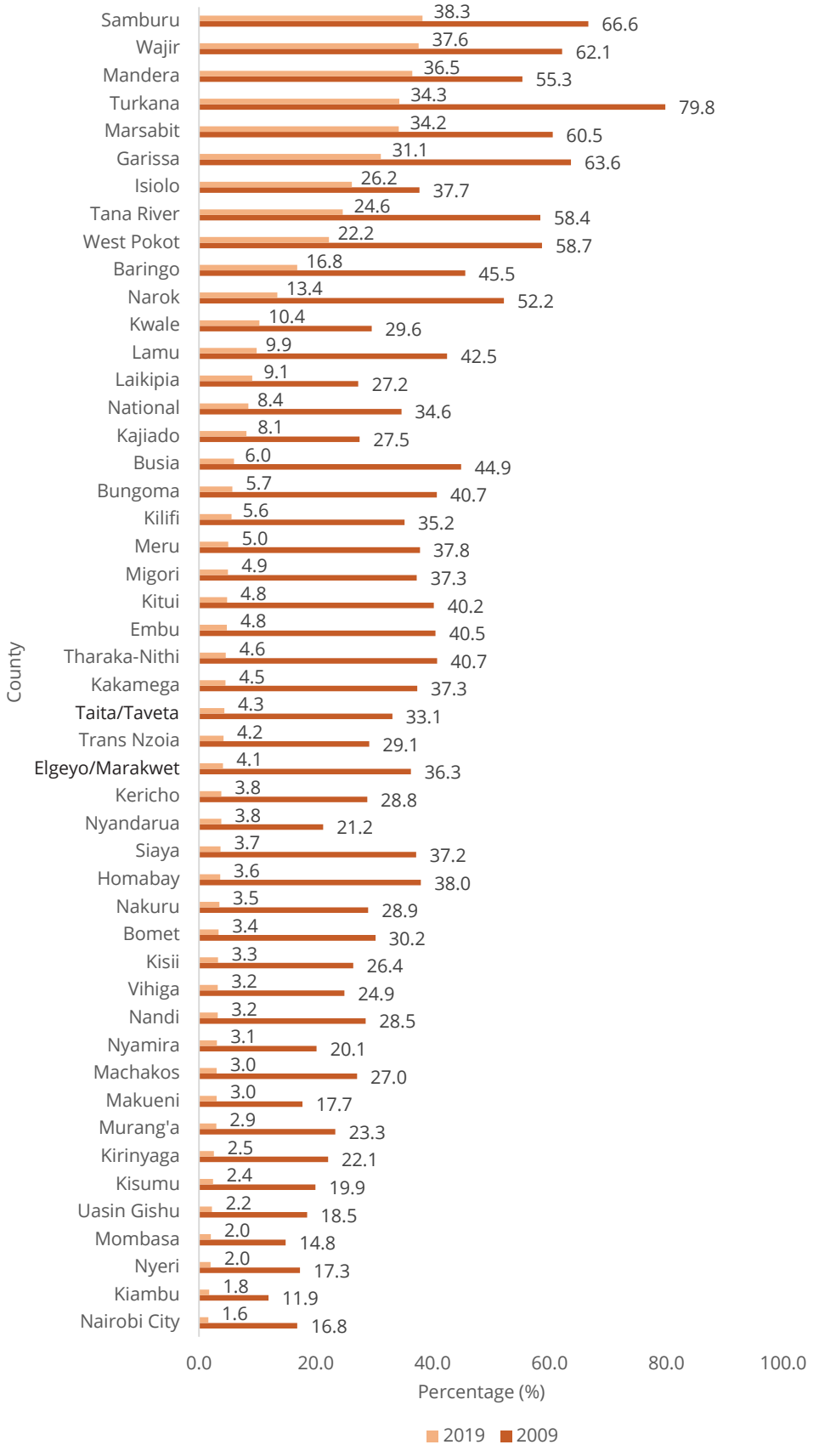


Source: KPHC 2009 and KPHC 2019

4.3.2.1 Analysis by County

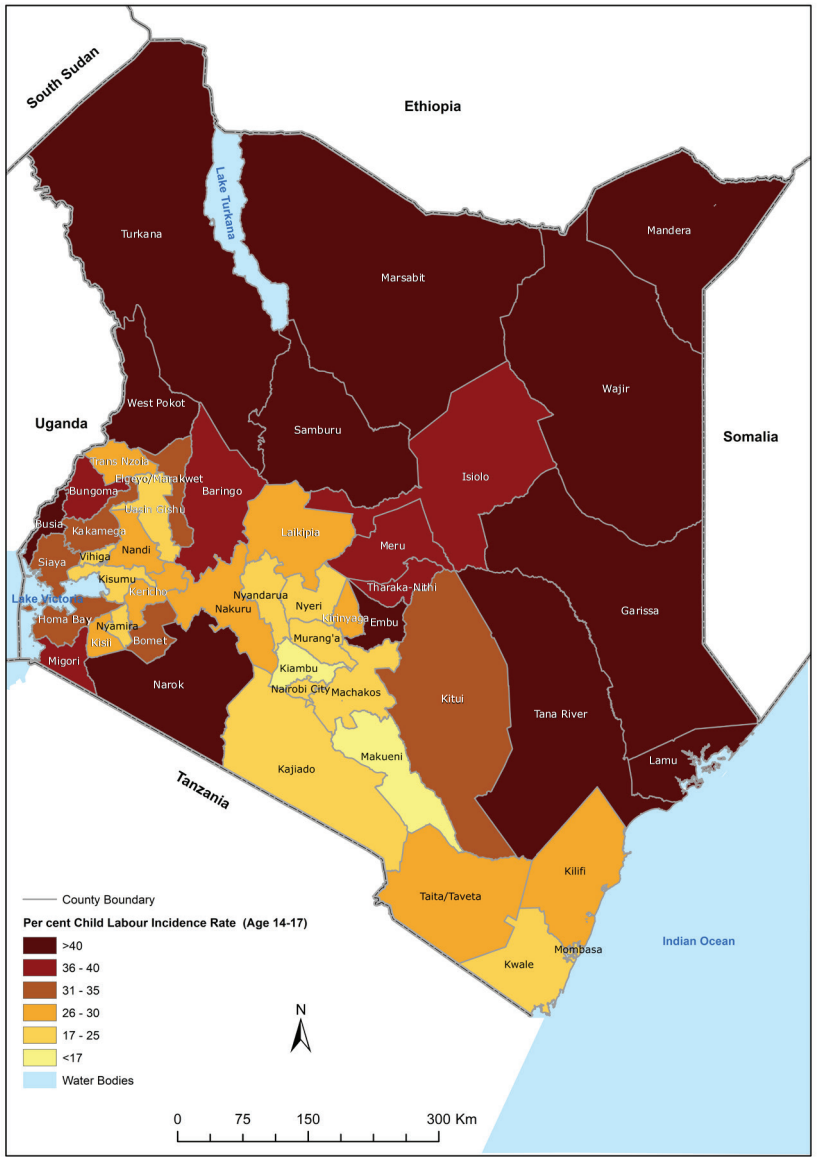
Incidence of child labour decreased across all counties between 2009 and 2019. Nevertheless, despite the improvements at the national level, Figure 4.3, Map 4.1 and Annex 4 show that there were large disparities in child labour incidence across counties. In 2019, nearly 4 in 10 children aged 5-17 years in Samburu and Wajir (37.6-38.3 per cent, respectively) were engaged in economic activity compared to only 1.6 per cent of their peers residing in Nairobi City. In 2019, Samburu, Wajir, Mandera, Turkana and Marsabit had the highest child labour incidence rates in the country ranging between 34.2 and 38.3 per cent. On the other hand, Nairobi City, Kiambu, Nyeri, Mombasa, and Uasin Gishu had the lowest rates, around 2.0 per cent each. In 2009, the five most deprived counties were similar to 2019, albeit not ranked in the same order; in Turkana, Samburu, Garissa, Wajir and Marsabit, between 60.5 and 79.8 per cent of children were engaged in child labour. Moreover, Kiambu, Mombasa, Nairobi City, Nyeri and Makueni had the lowest proportion of deprivation in terms of child labour with rates ranging between 11.9 and 17.7 per cent in 2009. The main factors explaining these geographical disparities are poverty levels and pastoralism. Counties with high monetary poverty incidence are generally more likely to have higher child labour incidence, for example Turkana, Wajir, Mandera, Samburu and Marsabit. Additionally, pastoralism remains a major economic activity in all these counties, therefore children are more likely to be engaged in taking care of the livestock.

Figure 4.3 **Percentage (%) of children engaged in child labour, age 5-17 years, by county, 2009 and 2019**

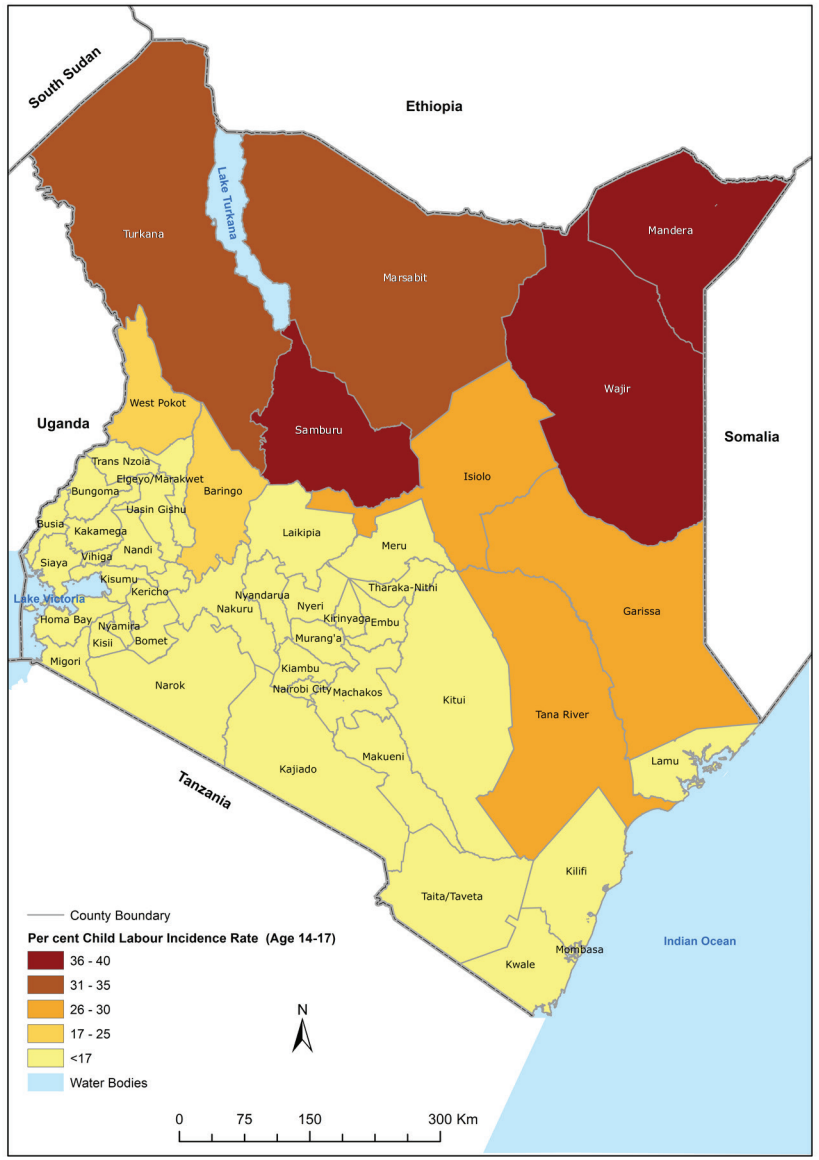


Source: KPHC 2009 and KPHC 2019

Map 4.1 **Percentage (%) of children engaged in child labour, age 5-17 years, by county, 2009 (left) and 2019 (right)**



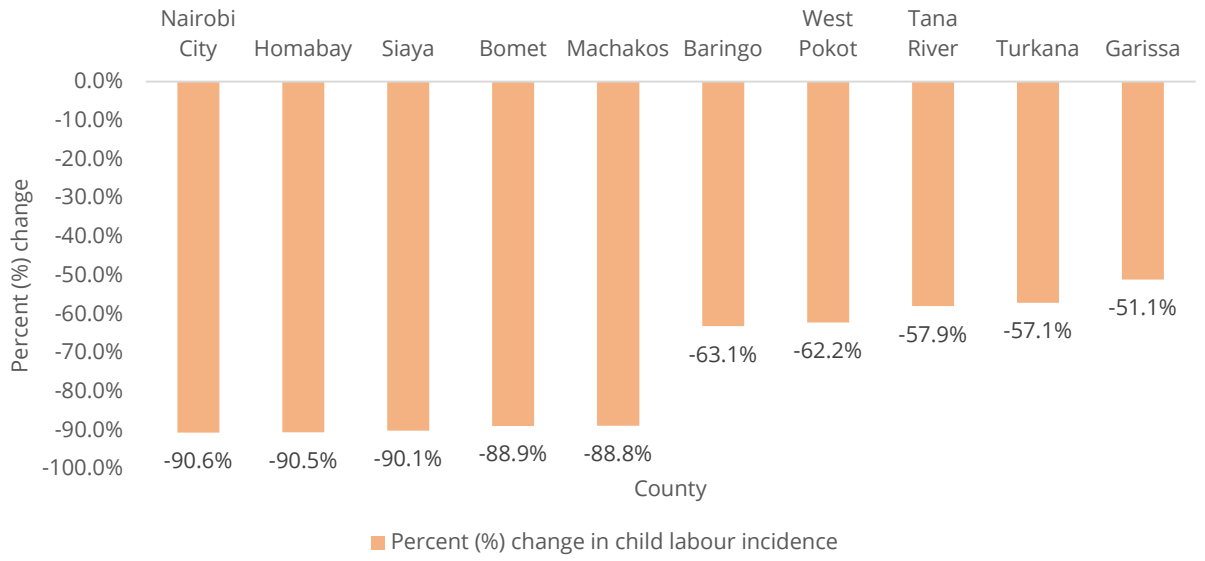
Source: KPHC 2009



Source: KPHC 2019

In Nairobi City, Homa Bay, Siaya, Bomet and Machakos the improvement between 2009 and 2019 was significant, with a decrease of between 88.8 and 90.6 per cent in child labour incidence. Progress was slower among the ten most deprived counties in the indicator in 2019: Garissa, Turkana, Tana River, West Pokot, and Baringo. In these counties child labour incidence decreased by between 51.1 and 63.1 per cent (Figure 4.4).

Figure 4.4 **Percent (%) change in child labour incidence between 2009 and 2019, age 5-17 years, five best performing counties (left) and five poorest performing counties (right)**



Source: KPHC 2019

4.3.3.1 Socio-Economic Drivers of Inequality

Table 4.1 presents figures of child labour rates for different demographic and socio-economic characteristics of children aged 5-17 years. The results show that boys were more likely to be engaged in economic activity compared to girls, as were children who had lost at least one parent, as well as those who were not living with at least one of their parents. An interesting figure that requires further investigation is that of children's disability status; 10.3 per cent of children with disability were engaged in economic activity in 2019 compared to 8.0 per cent of their peers without disability. A possible explanation for this difference could be that these children were excluded from the education system and resorted to working instead.

Household and household head characteristics were also associated with children's engagement in child labour. Children who lived in households with a larger number of children, pointing to strained financial resources, were more likely to engage in economic activity. 13.4 per cent of children living in households with five or more children were working in 2019 compared to 5.1 per cent of children living in households with 1-2 children. Children from households headed by women, labour constrained households, and households the head of which had not completed secondary education were also more likely to engage in economic activity in 2019.

Table 4.1 **Percentage (%) of children engaged in child labour, age 5-17 years, by demographic and socio-economic characteristics, 2019**

Individual and household characteristics		2019
National		**8.4**
Sex	Female	7.9
	Male	9.0
Single orphan	At least one parent deceased	9.7
	Both parents alive	8.3
Living arrangement	Living without at least 1 parent	9.4
	Living with both parents	8.0
Disability status of the child	Child with disability	10.3
	Child without disability	8.3
Number of children in the household	1-2 children<18 in HH	5.1
	3-4 children<18 in HH	6.8
	5+children<18 in HH	13.4
HH labour constraint	HH labour constrained	10.9
	HH not labour constrained	6.8
Sex of the HH head	HH head is a woman	9.6
	HH head is a man	7.7
Marital status of the HH head	HH head is married	8.8
	HH head is not married	6.8
Disability status of the HH head	Person with disability	6.4
	Person without disability	8.9
Educational attainment of the HH head	HH head completed secondary/higher education	2.4
	HH head not completed secondary education	3.8
Employment status of HH head	Paid employment	9.0
	Unemployed/Unpaid employment	7.7

Source: KPHC 2019

Table 4.2 displays the child labour incidence rates by various parental characteristics. Children whose mothers were married, whose parents had not completed secondary education, or whose father was not in paid employment were more likely to engage in economic activity in 2019. A finding that needs further investigation is the disability status of the mother and father. Children with parents with disability were less likely to work than their peers. This rate could partially be explained by their care duties for the parents.

Table 4.2 **Percentage (%) of children engaged in child labour, age 5-17 years, by parental characteristics, 2019**

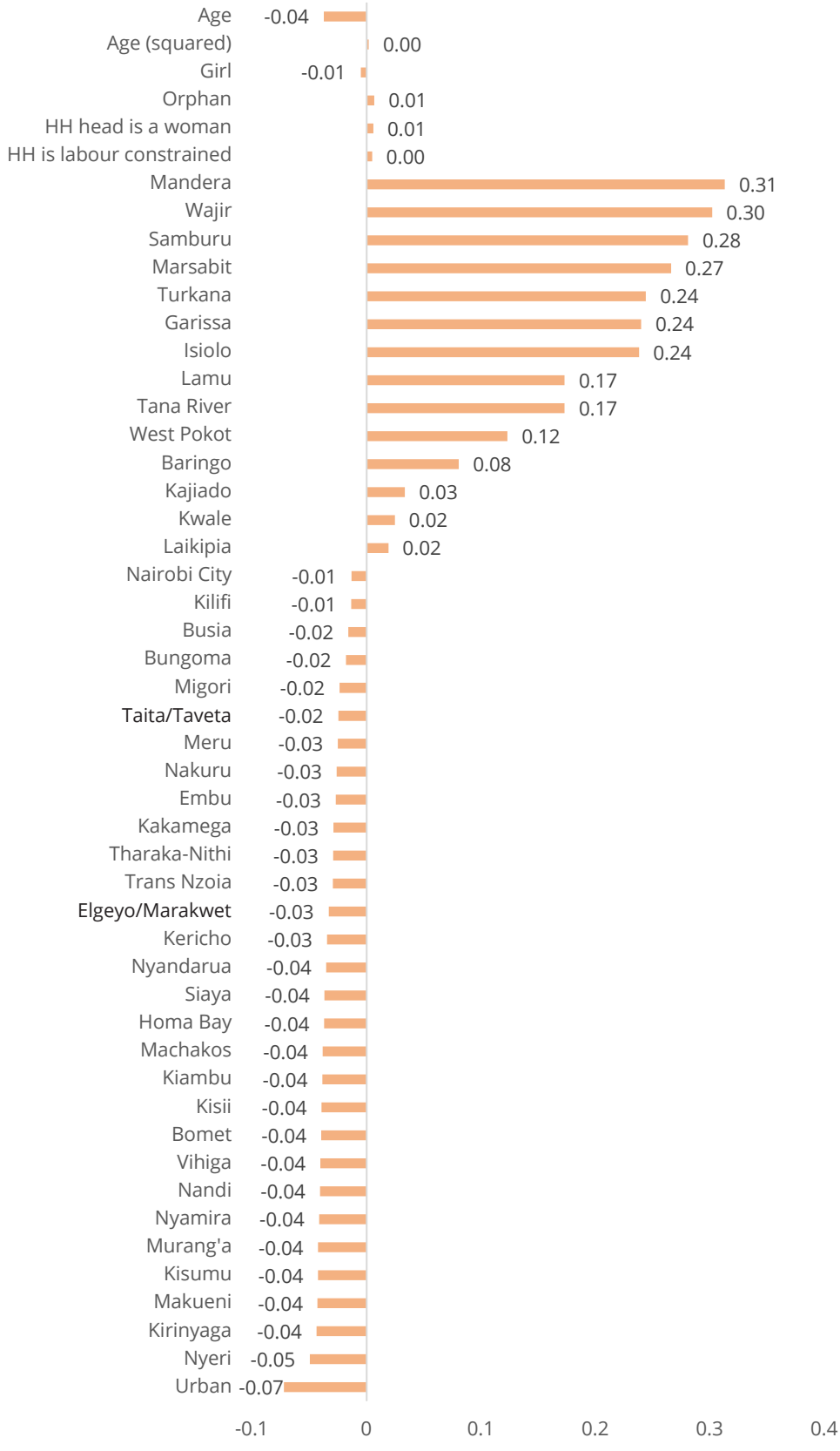
Parental characteristics		2019
National		**8.4**
Mother's marital status	Married	8.4
	Not married	5.8
Mother's educational status	Mother completed secondary/higher education	1.4
	Mother not completed secondary education	3.3
Mother's employment status	Paid employment	9.1
	Unemployed/Unpaid employment	6.7
Mather's disability status	Person with disability	6.4
	Person without disability	8.2
Father's educational attainment	Father completed secondary/higher education	2.5
	Father not completed secondary education	3.8
Father's employment status	Father in paid employment	8.4
	Father unemployed/unpaid employment	8.8
Father's disability status	Person with disability	6.7
	Person without disability	8.9

Source: KPHC 2019

4.3.1.3.1 Regression Analysis: Factors Associated with Child Labour

Regression analysis of factors associated with child labour among 5-17-year-olds in 2019 shows that some individual and household characteristics, as well as the place where children reside are relevant (Figure 4.5 and Annex 16.2). Children living in women headed households are more likely engage in economic activity than those living in men headed households. Child's sex and living arrangements are also relevant. Orphans are slightly more likely to engage in economic activity while girls are less likely to do so compared to boys. Compared to children residing in Mombasa, children residing in Mandera, Wajir, Samburu and Marsabit are significantly more likely to work, while children in Nyeri are less likely to do so. Similarly, children residing in urban areas are less likely to work compared to their peers in rural areas.

Figure 4.5 **Factors associated with child labour, age 5-17 years, 2019**



N=15,857,570

*** p<0.01, ** p<0.05, * p<0.1

Source: KPHC 2019

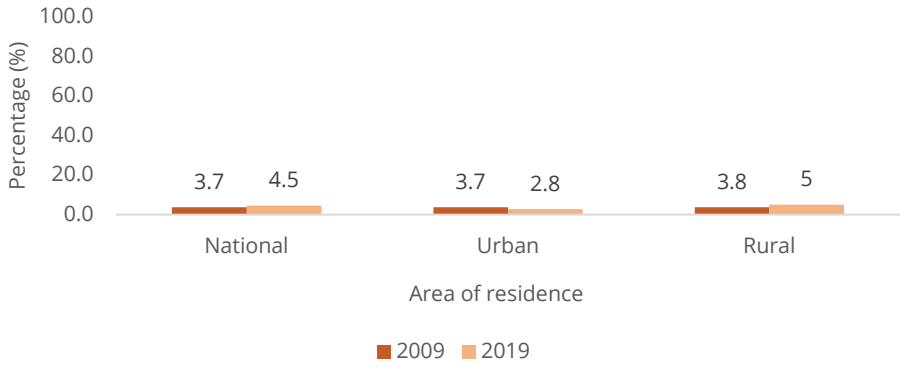
4.3.2 Child Marriage

4.3.2.1 Analysis at the National level and by Area of Residence

Child marriage refers to formal marriage or informal union between a child under the age of 18 years and an adult or another child. Child marriage is illegal in Kenya as per the 2001 Children Act, amended and enforced in 2022. Other laws such as the Sexual Offences Act, 2006[73], the Prohibition of Female Genital Mutilation Act, 2011[74] and the Marriage Act, 2014[75], also set the age of marriage at 18 years with the aim of protecting girl children from this harmful practice.

The incidence of child marriage among children aged 12-17 years increased from 3.7 per cent to 4.5 per cent between 2009 and 2019. This was mainly caused by the 30-per cent increase of its incidence in rural areas, from 3.8 to 5.0 per cent. On the other hand, in urban areas the rate decreased by more than 24 per cent. The discrepancy in child marriage incidence between urban and rural areas was significant in 2019. The share of children aged 12-17 years in rural areas who were married was nearly twice that in urban areas (Table 4.6 and Annex 4).

Figure 4.6 Child marriage incidence (%), age 12-17 years, at the national level and by area of residence, 2009 and 2019



Source: KPHC 2009 and KPHC 2019

4.3.2.2 Analysis by County

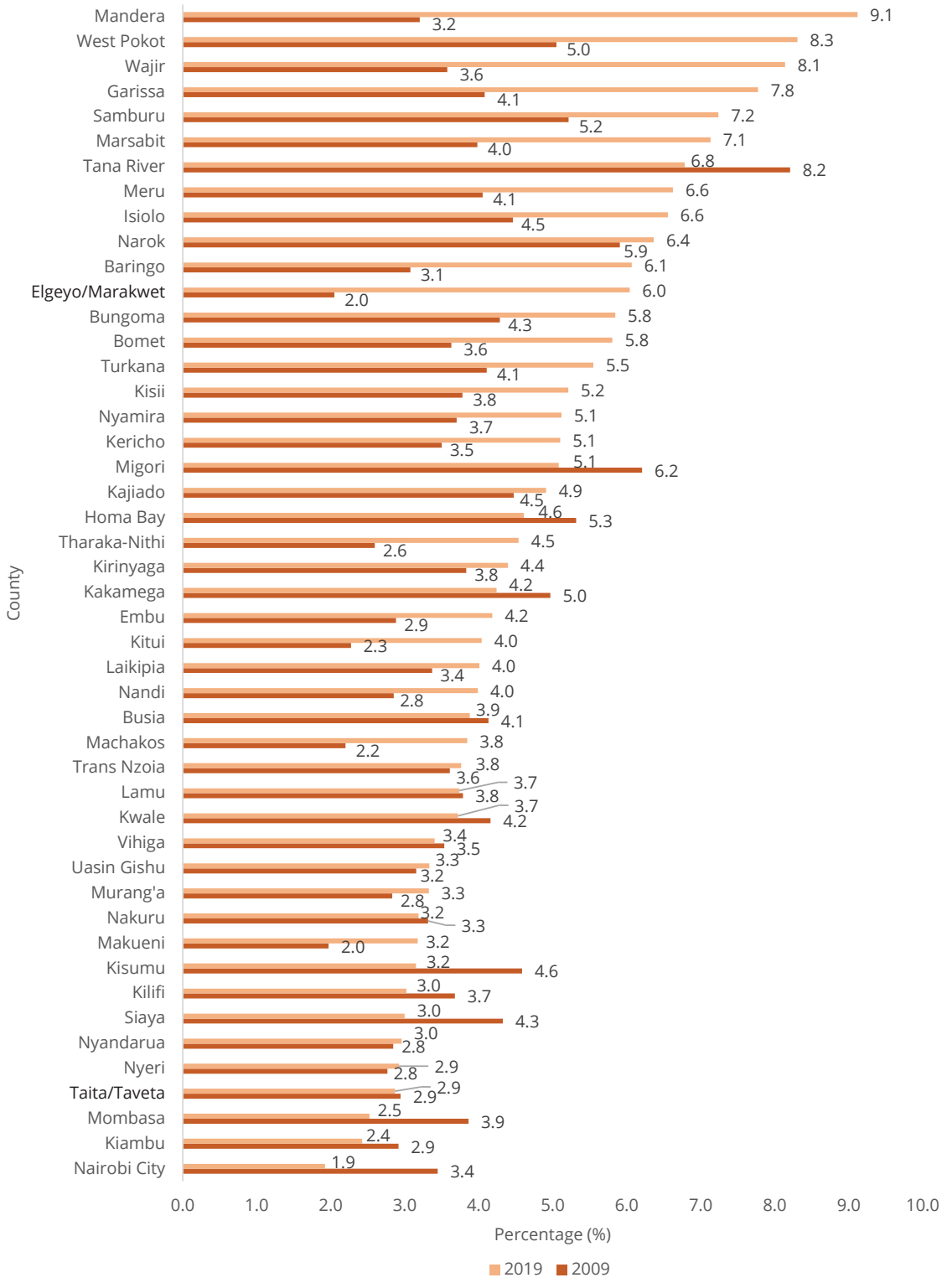
Inequalities in child protection measured by child marriage incidence across counties remained widespread in 2019. More than 9 per cent of children aged 12-17 years in Mandera were married/ had been married in 2019 compared to 1.9 per cent in Nairobi City. Mandera, West Pokot, Wajir, Garissa and Samburu had the highest child marriage incidence rates in Kenya in 2019 – between 7.2 and 9.1 per cent. In Nairobi City, Kiambu, Mombasa, Taita/Taveta, and Nyeri the incidence was the lowest in the country, ranging between 1.9 and 2.9 per cent. With exception of Samburu, the most deprived counties in this indicator in 2009 were replaced by other counties due to increases in child marriage incidence; in 2009, Tana River, Migori, Narok, and Homa Bay ranked among the most deprived, with child marriage rates between 5.2 and 8.2 per cent. On the other hand, in Makueni, Elgeyo Marakwet, Machakos, and Tharaka-Nithi child marriage incidence was the lowest in 2009, between 2.0 and 2.6 per cent (Figure 4.7 and Annex 4).

73 Accessible at: http://kenyalaw.org:8181/exist/kenyalex/actview.xql?actid=No.%203%20of%202006#:~:text=Any%20person%20who%20commits%20an,%5BAct%20No.

74 Accessible at: http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/ProhibitionofFemaleGenitalMutilationAct_No32of2011.pdf

75 Accessible at: http://kenyalaw.org:8181/exist/kenyalex/actview.xql?actid=No.%204%20of%202014

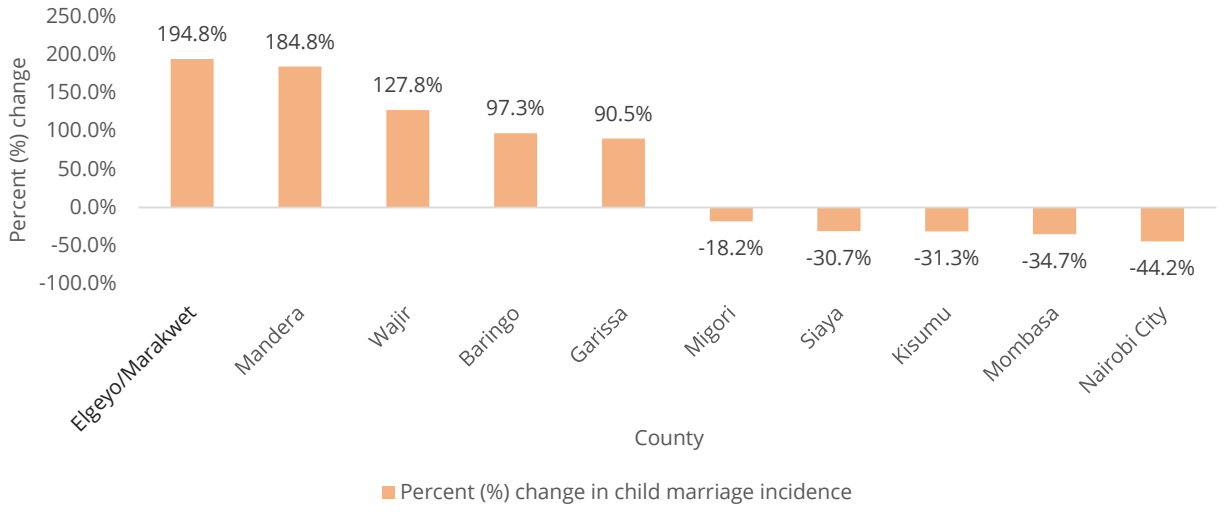
Figure 4.7 Child marriage incidence (%), age 12-17 years, by county, 2009 and 2019



Source: KPHC 2009 and 2019

Child marriage incidence increased in 31 out of the 47 counties in Kenya between 2009 and 2019 (see Annex 4). As depicted in Figure 4.8, the increase was drastic in Elgeyo/Marakwet and Mandera where the rate tripled, and in Wajir, Baringo and Garissa. On the other hand, in Migori, Siaya, Kisumu, Mombasa and Nairobi City child marriage incidence decreased by between 18.2 and 44.2 per cent.

Figure 4.8 **Percent (%) change in child marriage incidence between 2009 and 2019, age 12-17 years, five poorest performing counties (left) and five best performing counties (right)**



Source: KPHC 2009 and KPHC 2019

4.3.2.3 Socio-Economic Drivers of Inequality

Table 4.3 presents the child marriage rates by various demographic and socio-economic characteristics of children aged 12-17 years. The results show that individual characteristics are important; girls were more likely to be married during childhood compared to boys. In addition, children living with both parents were more likely to be married than those who had lost at least one parent.

In 2019, child marriage was also associated with household head and household-level characteristics. The incidence rate was the highest among households with five or more children under 18, 4.8 per cent compared to 4.3 per cent among households with 1-2 children. Children living in labour constrained households were also more likely to be married during childhood, as were those who lived in male-headed households, in households headed by adults who had not completed at least secondary education or were not in paid employment.

Table 4.3 **Percentage (%) of married children, age 12-17 years, by demographic and socio-economic characteristics, 2019**

Individual and household characteristics		2019
National		**4.5**
Sex	Female	5.1
	Male	4.0
Single Orphan	At least one parent deceased	3.2
	Both parents alive	4.7
Disability status of the child	Child with disability	3.7
	Child without disability	4.5
Number of children in the HH	1-2 children<18 in HH	4.3
	3-4 children<18 in HH	4.4
	5+children<18 in HH	4.8

Individual and household characteristics		2019
HH labour constraint	HH labour constrained	5.4
	HH not labour constrained	3.9
Sex of the HH head	HH head is a woman	3.3
	HH head is a man	5.4
Marital status of the HH head	HH head is married	5.3
	HH head is not married	1.1
Disability status of the HH head	Person with disability	3.1
	Person without disability	4.8
Educational status of the HH head	HH head completed secondary/higher education	3.3
	HH head not completed secondary education	4.1
Employment status of the HH head	Paid employment	4.1
	Unemployed/Unpaid employment	5.0

Source: KPHC 2009 and KPHC 2019

Table 4.4 presents child marriage incidence rates by parental characteristics. The results show that child marriage is associated with educational attainment and employment status of both parents. Children whose parents had completed at least secondary education or who were in paid employment were less likely to be married than their peers. Another factor that needs further investigation is the disability status of parents; child marriage incidence was lower among children with parents with disability. One explanation for this result is that these children have care responsibilities for their disabled parents.

Table 4.4 Percentage (%) of married children, age 12-17 years, by parental characteristics, 2019

Parental characteristics		2019
National		**4.5**
Mother's marital status	Married	5.0
	Not married	0.9
Mother's educational attainment	Mother completed secondary/higher education	3.3
	Mother not completed secondary education	4.0
Mother's employment status	Paid employment	4.0
	Unemployed/Unpaid employment	4.8
Mother's disability status	Person with disability	3.2
	Person without disability	4.6
Father's educational attainment	Father completed secondary/higher education	4.0
	Father not completed secondary education	5.0
Father's employment status	Father in paid employment	4.8
	Father unemployed/unpaid employment	6.4
Father's disability status	Person with disability	4.1
	Person without disability	5.6

Source: KPHC 2009 and KPHC 2019

4.3.2.3.1 *Regression Analysis: Factors Associated with Child Marriage*

Regression analysis of factors associated with child marriage among 12-17- year-olds in 2019 shows that some individual and household characteristics, as well as where children reside are relevant (Figure 4.9 and Annex 16.3). Factors that were strongly related with households' financial resources – educational attainment of the household head and household labour constraint – were also associated with child marriage. Children living in households headed by an adult who had completed secondary or higher education were less likely to be married.

Figure 4.9 Factors associated with child marriage, age 12-17 years, 2019

N=2,629, 301

*** p<0.01, ** p<0.05, * p<0.1

Source: KPHC 2019

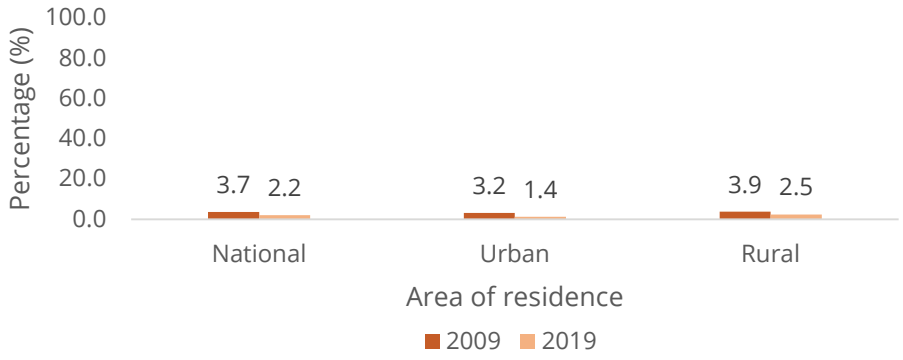
On the other hand, children living in labour constrained households were more likely to be deprived in this indicator. Furthermore, children living in women headed households were less likely to be married during childhood than those living in men headed households. Child's living arrangements were important; orphans were slightly less likely to be deprived in this indicator. Compared to children residing in Mombasa, children residing in Mandera, Wajir, and Garissa were significantly more likely to be married during childhood while children residing in Nyandarua, Nyeri, and Kiambu were less likely to be deprived in the indicator. Similarly, children residing in urban areas were less likely to be married during childhood compared to their peers in rural areas.

4.3.3 Teenage Pregnancy

4.3.3.1 Analysis at the National Level and by Area of Residence

The teenage pregnancy rate among girls aged 12-17 years in Kenya decreased by more than 40 per cent between 2009 and 2019, from 3.7 to 2.2 per cent, respectively. While there were improvements in the indicator in both urban and rural areas, in urban areas the incidence more than halved, from 3.2 to 1.4 per cent. The inequality in teenage pregnancy between urban and rural areas widened over the decade, both due to the higher incidence in rural areas and the slower progress during the period (Figure 4.10 and Annex 4).[76]

Figure 4.10 Teenage pregnancy incidence (%), girls aged 12-17 years, at the national level and by area of residence, 2009 and 2019



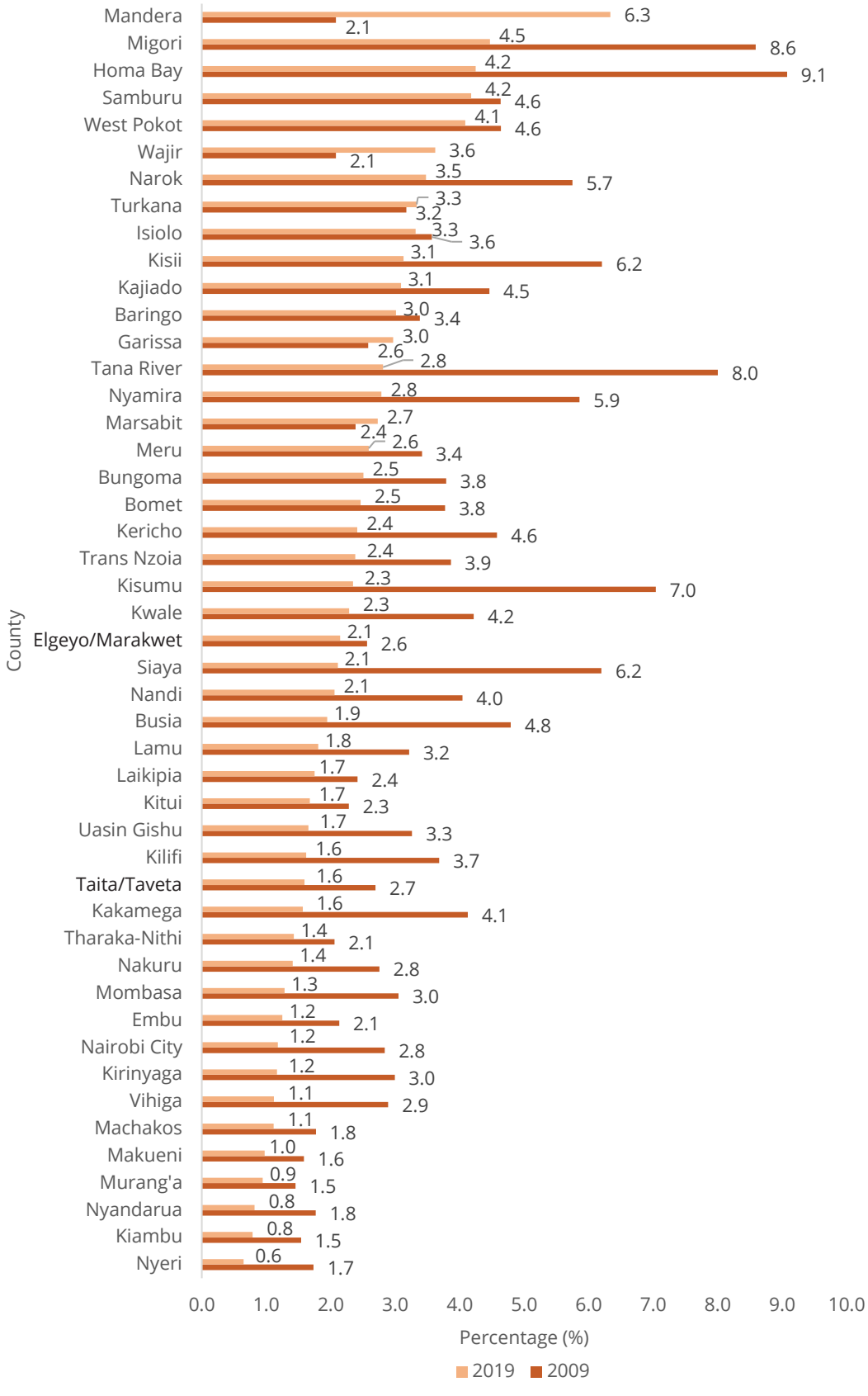
Source: KPHC 2009 and KPHC 2019

4.3.3.2 Analysis by County

The rates of teenage pregnancy at the county level in Figure 4.11 and Annex 4 demonstrate that inequalities remained prevalent. In 2019, 6.3 per cent of girls aged 12-17 years in Mandera had already had a child compared to 0.6 per cent in Nyeri. Along with Mandera, teenage pregnancy rates were the highest in Migori, Homa Bay, Samburu and West Pokot (between 4.1 and 6.3 per cent). On the other hand, the lowest incidence of teenage pregnancy – between 0.6 and 1.0 per cent – were recorded in Nyeri, Kiambu, Nyandarua, Murang'a, and Makueni. These five counties had the lowest incidence of teenage pregnancy also in 2009. Comparison of figures with 2009 rankings demonstrate that Homa Bay and Migori had not made progress in this area over the decade as they ranked among the five most deprived counties along with Tana River, Kisumu, and Kisii.

76 However, the COVID-19 pandemic aggravated the risk of children in terms of child marriage and teenage pregnancy as a result of exacerbated economic conditions, lack of parental supervision, and confinement restrictions. This analysis is based on KPHC data from 2009 and 2019 and measures the situation pre-COVID-19.

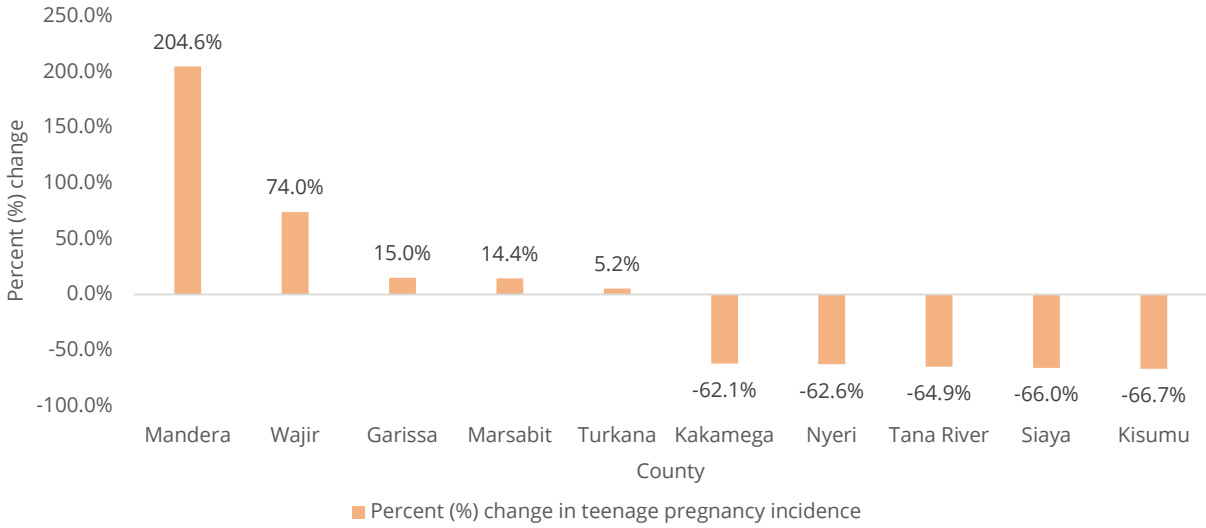
Figure 4.11 **Teenage pregnancy incidence (%), girls aged 12-17 years, by county, 2009 and 2019**



Source: KPHC 2009 and KPHC 2019

Even though teenage pregnancy incidence decreased nationally and across most counties in Kenya, in five counties the opposite trend can be observed in Figure 4.12 and Annex 4. In Mandera, the teenage pregnancy rate tripled between 2009 and 2019 – from 2.1 to 6.3 per cent – and it also increased substantially in Wajir, Garissa, and Marsabit, and less so in Turkana. In Kisumu, Siaya, Tana River, Nyeri and Kakamega on the other hand, the share of teenage pregnancies among 12-17-year-old girls shrunk by between 62.1 and 66.7 per cent over the decade.

Figure 4.12 **Percent (%) change in teenage pregnancy incidence between 2009 and 2019, girls aged 12-17 years, five poorest performing counties (left) and five best performing counties (right)**



Source: KPHC 2009 and KPHC 2019

4.3.3.3 Socio-Economic Drivers of Inequality

Table 4.5 displays the teenage pregnancy rates by various demographic and socio-economic characteristics of girls aged 12-17 years. The results show that orphanhood and living arrangements were associated with teenage pregnancy. Girls whose parents (one or both) were deceased and those living without at least one of their parents, were more likely to be deprived in this indicator. Household head and household characteristics were also associated with teenage pregnancy. In 2019, the incidence rates were higher among girls from households with a larger number of children, from labour constrained households, from households whose head had not completed secondary education, was not in paid employment, or had a disability.

Table 4.5 **Teenage pregnancy incidence (%), girls aged 12-17 years, by demographic and socio-economic characteristics, 2019**

Individual and household characteristics		2019
National		**2.2**
Single orphan	At least one parent deceased	3.7
	Both parents alive	2.0
Double orphan	Both parents deceased	5.3
	Both parents alive	2.2
Living arrangements	Living without at least 1 parent	3.8
	Living with both parents	1.4
Disability status of the child	Child with disability	2.2
	Child without disability	2.2

Individual and household characteristics		2019
Number of children in the HH	1-2 children<18 in HH	2.2
	3-4 children<18 in HH	1.9
	5+ children<18 in HH	2.7
HH labour constraint	HH labour constrained	3.1
	HH not labour constrained	1.7
Sex of the HH head	HH head is a woman	2.4
	HH head is a man	2.1
Marital status of the HH head	HH head is married	2.2
	HH head is not married	2.4
Disability status of the HH head	Person with disability	2.4
	Person without disability	2.2
Educational status of the HH head	HH head completed secondary/higher education	1.1
	HH head not completed secondary education	2.1
Employment status of the HH head	Paid employment	2.0
	Unemployed/Unpaid employment	2.5

Source: KPHC 2019

Furthermore, there were differences in deprivation based on the characteristics of girls' parents (Table 4.6). Higher parental education attainment levels were associated with lower teenage pregnancy rates. For example, in 2019, 1.5 per cent of girls whose mother did not complete secondary education had had a child compared to 0.3 per cent of girls whose mothers had completed secondary or higher education. Likewise, teenage pregnancy rates were higher among girls whose father had not completed secondary education, whose mother or father were not in paid employment, and whose parent/s had a disability.

Table 4.6 **Teenage pregnancy incidence (%), girls aged 12-17 years, by parental characteristics, 2019**

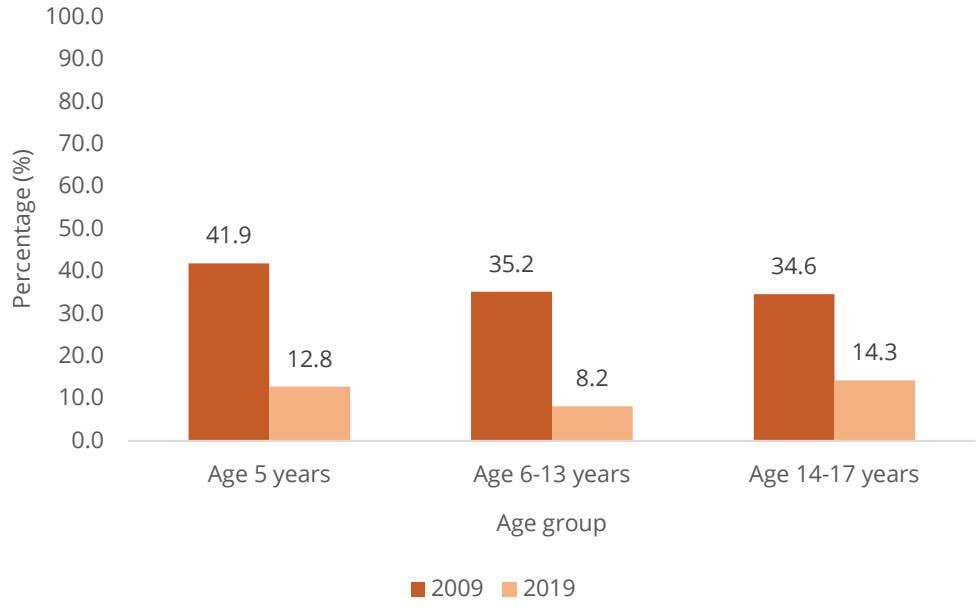
Parental characteristics		2019
National		**2.2**
Mother's marital status	Married	1.4
	Not married	2.0
Mother's educational attainment	Mother completed secondary/higher education	0.3
	Mother not completed secondary education	1.5
Mother's employment status	Paid employment	1.4
	Unemployed/Unpaid employment	1.6
Mother's disability status	Person with disability	2.3
	Person without disability	1.4
Father's educational attainment	Father completed secondary/higher education	1.3
	Father not completed secondary education	2.0
Father's employment status	Father in paid employment	1.9
	Father unemployed/unpaid employment	2.6
Father's disability status	Person with disability	2.3
	Person without disability	2.2

Source: KPHC 2019

4.3.4 Child Protection Dimension[77]

Figure 4.13 and Annex 5 show the deprivation in the child protection dimension for children aged 5-17 years disaggregated by age groups, for both 2009 and 2019. Deprivation decreased over the decade across all three age groups, but the change was larger among primary school age children (by 77.3 per cent) and children aged 5 years (69.5 per cent), primarily attributed to improvements in tackling child labour and partially through interventions in the education sector. Improvements in the child protection sector over the decade were notable in both rural and urban areas, but larger in the latter, with an 80-per cent decline among children aged 6-13 years. Nevertheless, inequalities in child protection by area of residence remained persistent and widened for all three age groups between 2009 and 2019. In 2019, less than 3 per cent of children aged 6-13 years in urban areas were deprived in child protection compared to 8.2 per cent of their peers in rural arears (Table 4.7 and Annex 5).

Figure 4.13 Percentage (%) of children deprived in the child protection dimension, by age group, 2009 and 2019



Source: KPHC 2009 and KPHC 2019

77 The child protection dimension was measured by the following three indicators: child labour, child marriage and teenage pregnancy among girls, whereas among boys it was constructed with child labour and child marriage indicators.

Table 4.7 **Percentage (%) of children deprived in child protection, by age group, national level and by area of residence, 2009 and 2019**

	National	Urban	Rural
2009			
5 years	41.9	20.6	46.8
6-13 years	35.2	15.7	39.4
14-17 years	34.6	21.7	37.5
2019			
5 years	12.8	3.5	16.1
6-13 years	8.2	2.6	10.0
14-17 years	14.3	7.7	16.3

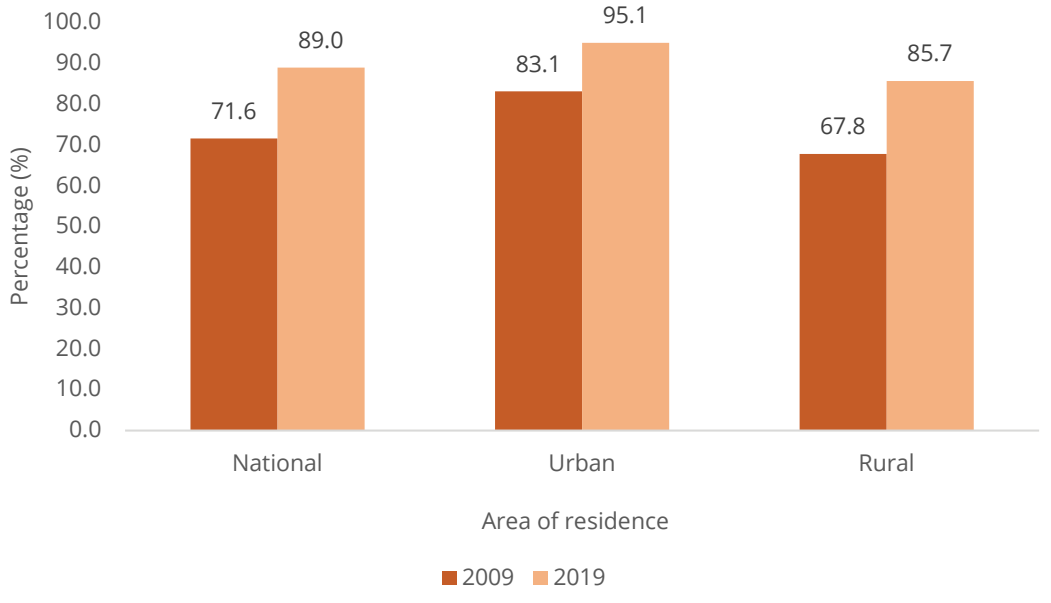
Source: KPHC 2009 and KPHC 2019

4.3.5 Birth Registration

4.3.5.1 Analysis at the National Level and by Area of Residence

Trend analysis of birth registration – notifications of the latest births that occurred in households in the five years preceding the two census years - show that improvements were substantial country-wide and in urban and rural areas. The share of birth registrations increased by 20 per cent, from 71.6 per cent in 2009 to 89.0 per cent in 2019. The improvements were more significant in rural areas, and the disparities between urban and rural areas narrowed (Figure 4.14).

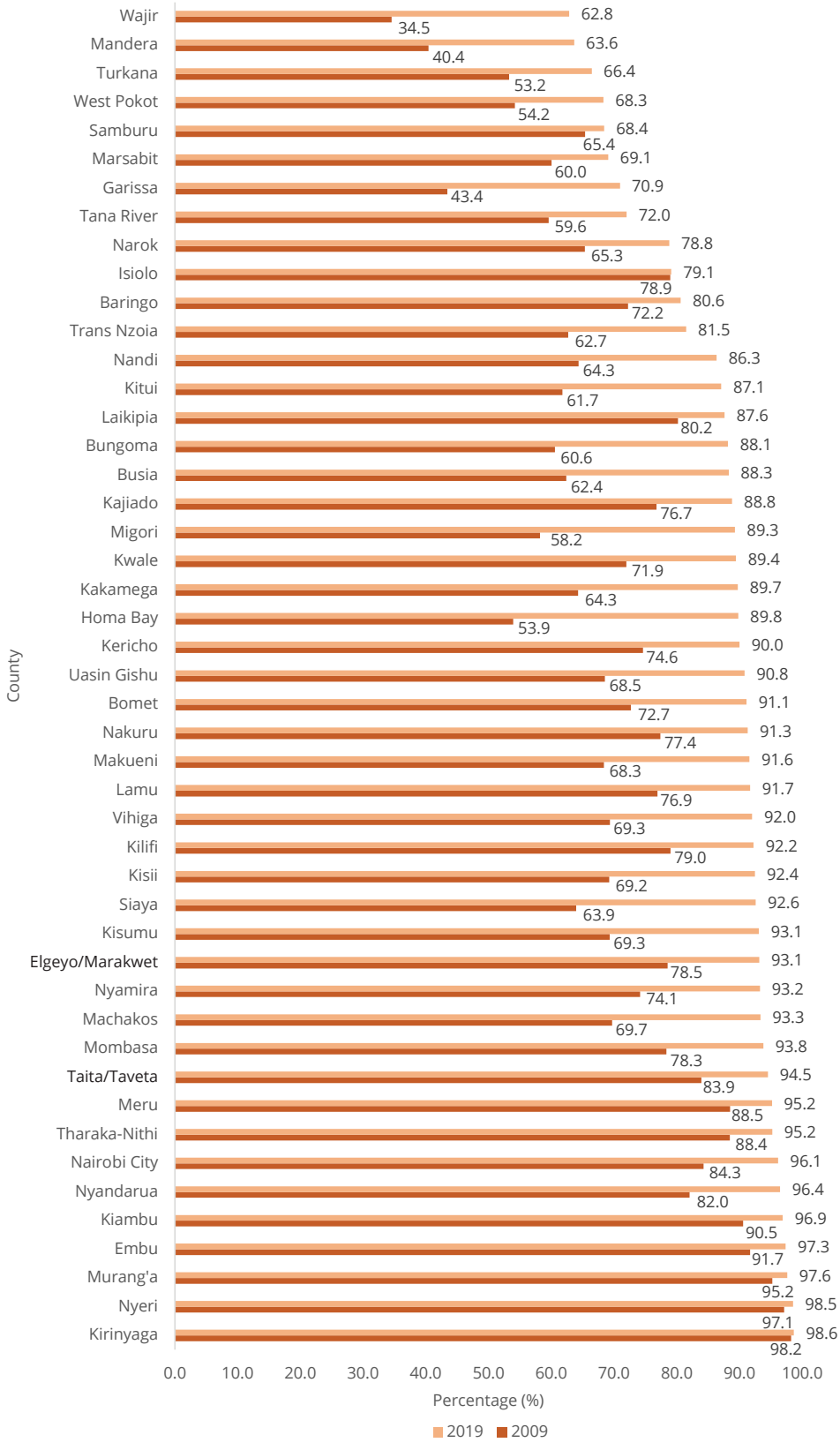
Figure 4.14 **Birth registration rates (%), last births in the 5 years preceding the census, at the national level and by area of residence, 2009 and 2019**



Source: KPHC 2009 and KPHC 2019

4.3.5.2 *Analysis by County*

Figure 4.15 **Percentage (%) of notified births, last births in the 5 years preceding the census, by county, 2009 and 2019**

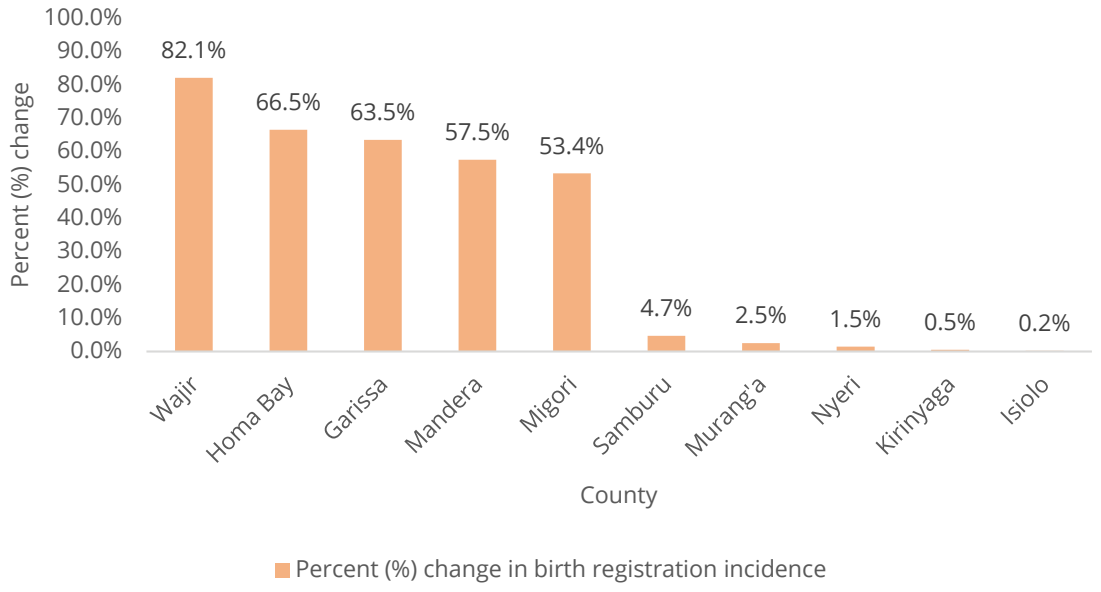


Source: KPHC 2009 and KPHC 2019

Despite the remarkable progress in birth registration between 2009 and 2019, disparities across counties remained prevalent. In 2019, only 6 in 10 births in Wajir that occurred in the five years preceding the census had been notified compared to almost 100 per cent of births in Kirinyaga and Nyeri (Figure 4.15). Along with Wajir, Mandera, Turkana, West Pokot and Samburu had the lowest birth registration rates in 2019 – 62.8 to 68.4 per cent – while Kirinyaga, Nyeri, Murang'a Embu and Kiambu the highest rates in both 2019 and 2009. Wajir, Mandera, and Turkana had the lowest birth registration rates also in 2009, ranking them among the five most deprived counties along with Garissa and Homa Bay.

Even though they ranked among the most deprived in birth registration in 2019, both Wajir and Mandera showed the most significant progress in this indicator between 2009 and 2019 (Figure 4.16). The share of registered births in Wajir increased by 82 per cent, from 34.5 to 62.8 per cent, respectively. Birth registration rates increased substantially in Homa Bay, Garissa and Migori over the decade. In other counties such as Samburu, Murang'a and Nyeri progress was meagre, albeit in Murang'a and Nyeri the birth registration rates were almost 100 per cent.

Figure 4.16 **Percent (%) change in birth registration rates between 2009 and 2019, last births in the past five years preceding the census, five best performing counties (left) and five poorest performing counties (right)**



Source: KPHC 2009 and KPHC 2019

4.4 Conclusion and Recommendations

Child labour among children aged 5-17 years in Kenya decreased from nearly 35 per cent in 2009 to 8 per cent in 2019. Yet, stark inequalities were observed between urban and rural areas. Furthermore, the incidence of child marriage among children aged 12-17 years increased from 3.7 per cent to 4.5 per cent between 2009 and 2019. This was mainly caused by the 30-per cent increase of its incidence in rural areas, from 3.8 to 5 per cent. Finally, the teenage pregnancy incidence among girls aged 12-17 years declined by more than 40 per cent between 2009 and 2019, from 3.7 to 2.2 per cent, respectively.

To tackle child protection issues, this study recommends to:

i) Clearly define and make child labour illicit in the Employment Act and ensure its implementation.

ii) Ensure effective enforcement of existing laws pertaining to child protection.

iii) Ensure that child protection services are available in all counties and sub-counties through sustainable financing mechanisms and staffing.

iv) Provide Cash Plus social assistance to vulnerable households with children. The results in this study have shown that children living in households with limited financial resources due to lower educational attainment, unemployment of household head and other adults in the household, and households with a larger number of children are more likely to engage in child labour, be married or have children during childhood.

- In tackling child labour, women headed households and boys aged 5-17 years should receive dedicated attention in design of interventions given the higher child labour incidence among these population groups.
- In tackling both child labour and teenage pregnancy, interventions must carefully consider the strong association between orphanhood. Children who had lost one or both parents or were living without at least one parent in 2019 were more likely to engage in child labour and the girls to have had a child.

v) In terms of allocation of resources and implementation of interventions and programmes in tackling child protection issues, prioritize Mandera, Samburu, Wajir, Turkana, West Pokot, Tana River, Garissa, Baringo, Migori and Homa Bay. These counties recorded the highest deprivation rates in child marriage, teenage pregnancy among girls, child labour, and the lowest birth registration rates compared to the other counties.

5 Economic Activity

5.0 Introduction

This chapter analyses inequalities in the economic activity dimension among persons aged 18-59 years with two different indicators of deprivation corresponding with one's lifecycle. Youths aged 18-25 years are considered deprived in economic activity if they are not in education, employment or training or if employed under unfavourable conditions (underemployed or in vulnerable employment described next). Persons aged 26-59 years are considered deprived in the economic activity dimension if: i) unemployed and not seeking for work, unemployed due to structural labour market issues (no work available, perception that one is too young or too old to work even though of working age), unemployed due to disability even though able to work or unemployed due to traditional gender roles (i.e., homemakers); ii) underemployed timewise (working less than 28 hours a week), or iii) in vulnerable employment – working in the informal sector "Jua Kali", self-employed in the informal economy or agriculture, employed in small-scale agriculture, engaged in pastoral activities (self-employed or employee), or working in individual private households (e.g., domestic workers).

The indicator of youths (aged 18-25 years) not in education, employment or training as a share of the total youth population serves as a broader measure of potential youth labour market entrants as it includes the young persons outside the labour force as opposed to the conventional measurements of youth unemployment or inactivity rates. Accounting for aspects of the nature of employment to measure deprivation in the economic activity dimension among those aged 26-59 years aims to shed light into structural economic impediments in Kenya such as job and earnings security, social security, and capacity of the labour market to absorb the available workforce in full-time employment.

The rates of deprivation and horizontal inequality are discussed at national and subnational levels, and by socio-economic characteristics.

5.1 Background and Context

Several rights enshrined in the Constitution of Kenya (2010)[78] grant the right of all citizens to equal opportunities in economic and social spheres, employment, and social security. Article 41. Labour rights stipulates that *"1) Every person has the right to fair labour practices, 2) Every worker has the right – (a) to fair remuneration and (b) to reasonable working conditions". Article 43. Economic and social rights grants every person with the right to "(e) social security"* and Article 27. Equality and freedom from discrimination stipulates that *"(3) Women and men have the right to equal treatment, including the right to equal opportunities in political, economic, cultural and social spheres"*.

Kenya boasts of a youthful population and interventions to tap on to the benefits of this segment of the population are outlined in various government plans and strategies, deriving from Article 55. Youth in its Constitution[79] which stipulates that *"The State shall take measures, including affirmative action programmes, to ensure that the youth – (a) access relevant education and training, (b) have opportunities to associate, be represented and participate in political, social, economic and other spheres of life, and (c) access employment"*. For example, the country has outlined a demographic

78 Government of Kenya, 2010, Constitution of Kenya, available at: http://kenyalaw.org/lex/actview.xql?actid=Const2010

79 Ibid.

dividend roadmap (Kenya Demographic Dividend Roadmap 2020 – 2030)[80], whose objective is to deliberately enhance Kenya's efforts to harnesses her youth potential to create a globally competitive and prosperous nation with a high quality of life for all citizens through the attainment of a demographic dividend.

The youth are the strength, wealth and drivers of innovation in Kenya. Deliberate and systematic efforts are necessary to appropriately equip and empower the youth to attain and realize their full potential and in turn, drive the attainment of development objectives set out in Kenya Vision (2030)[81] and international commitments which include African Union Agenda (2063)[82], United Nations Youth Strategy 2030[83] and several SDGs (2030), specifically targets of SDG 8 *"Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all"*, SDG 5 *"Achieve gender equality and empower all women and girls"* and SDG 10 *"Reduce inequality within and among countries"* (Box 5.1).

Box 5.1 Related SDG goals and targets

SDG 5. Achieve gender equality and empower all women and girls

Target 5.1. End all forms of discrimination against women and girls everywhere.

Target 5.4. Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the whole family as nationally appropriate.

Target 5.5. Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life.

SDG 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Target 8.5. By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.

Target 8.6. By 2020, substantially reduce the proportion of youth not in employment, education or training.

SDG 10. Reduce inequality within and among countries

Target 10.2. By 2030, empower and promote the social, economic, and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.

Target 10.3. Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard.

Target 10.4. Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality.

80 Government of Kenya and National Council for Population and Development, 2021, "Kenya's Demographic Dividend Roadmap", available at: https://ncpd.go.ke/wp-content/uploads/2021/10/Kenya-Demographic-Dividend-Roadmap-2020-2030.pdf

81 Government of Kenya, 2008, "Kenya Vision 2030, available at: https://countytoolkit.devolution.go.ke/sites/default/files/resources/Vision-2030-Popular-Version_0.pdf

82 African Union, 2015, "Agenda 2063 – The Africa we Want", available at: https://au.int/sites/default/files/documents/36204-doc-agenda2063_popular_version_en.pdf

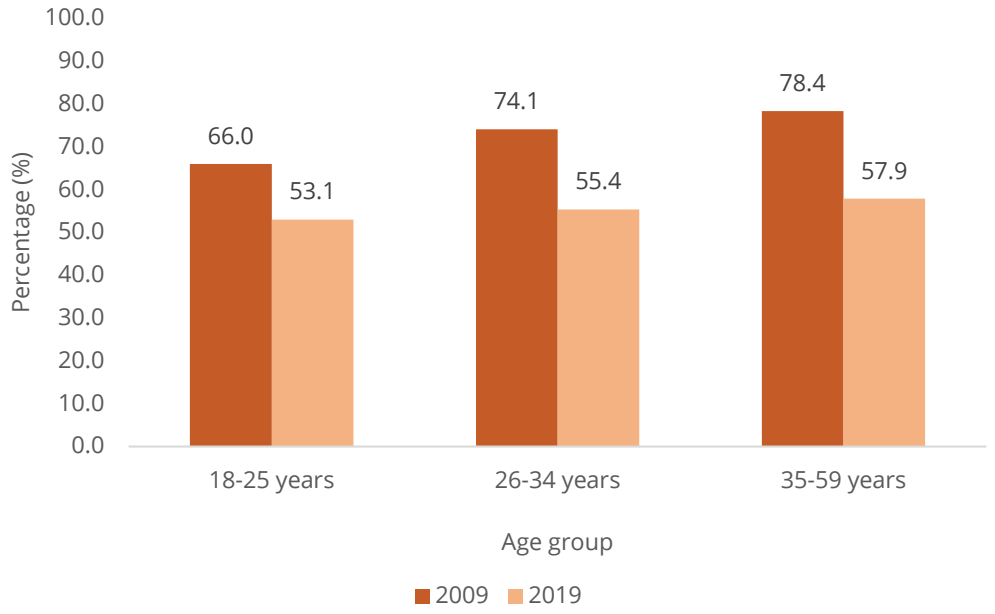
83 United Nations, 2018-19, "Youth 2030 – Working with and for Young People", available at: https://www.un.org/youthenvoy/wp-content/uploads/2018/09/18-00080_UN-Youth-Strategy_Web.pdf

5.2 Horizontal Inequality Analysis

5.2.1 National Level Analysis

More than half of Kenyans aged 18-59 years were deprived in the economic activity dimension in 2019, with the highest deprivation observed among persons in the age group 35-59 at 57.9 per cent, as shown in Figure 5.1. Compared to 2009, the deprivation rate decreased by more than 25 per cent among those aged 26-34 and 35-59 years, pointing to improvements in labour market outcomes due to improvements in educational attainment discussed in Chapter 3 and section 5.2.4 below. The share of youths aged 18-25 years who were not in education, employment or training or in vulnerable employment was 53.1 per cent in 2019 compared to 66 per cent in 2009, partly attributed to improvements in continued higher education.

Figure 5.1 **Percentage (%) of youths and adults deprived in the economic activity dimension, by age group, 2009 and 2019**

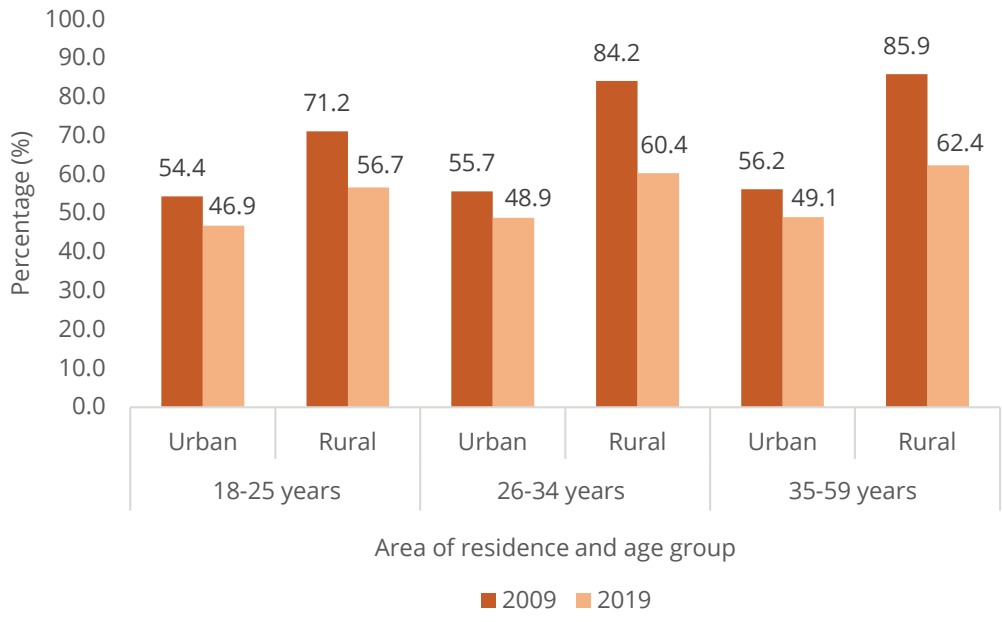


Source: KPHC 2009 and KPHC 2019

5.2.2 Analysis by Area of Residence

Inequalities in the economic activity dimension between rural and urban areas were evident across all age groups despite substantial improvements in rural areas between 2009 and 2019 (Figure 5.2). About 3 out of 5 persons aged 26-59 years in rural areas were deprived in economic activity in 2019 compared to less than half (49.0 per cent) in urban areas. Among youths aged 18-25 years residing in the rural areas, 56.7 per cent were not in education, employment or training or were in vulnerable employment in 2019 compared to 46.9 per cent of their peers in urban areas. The results show that the deprivation in economic activity among 26-59-year-olds in urban areas decreased by 13 per cent between 2009 and 2019, compared to the 28.0 per cent decline in rural areas. Reduction in deprivation incidence in economic activity among youths aged 18-25 years in rural areas was significantly higher compared to urban areas – 20.4 per cent and 13.8 per cent, respectively. This result suggests that education and employment programmes targeted to young adults need to address their particular needs based on their area of residence.

Figure 5.2 **Percentage (%) of youths and adults deprived in economic activity, by age group and area of residence, 2009 and 2019**

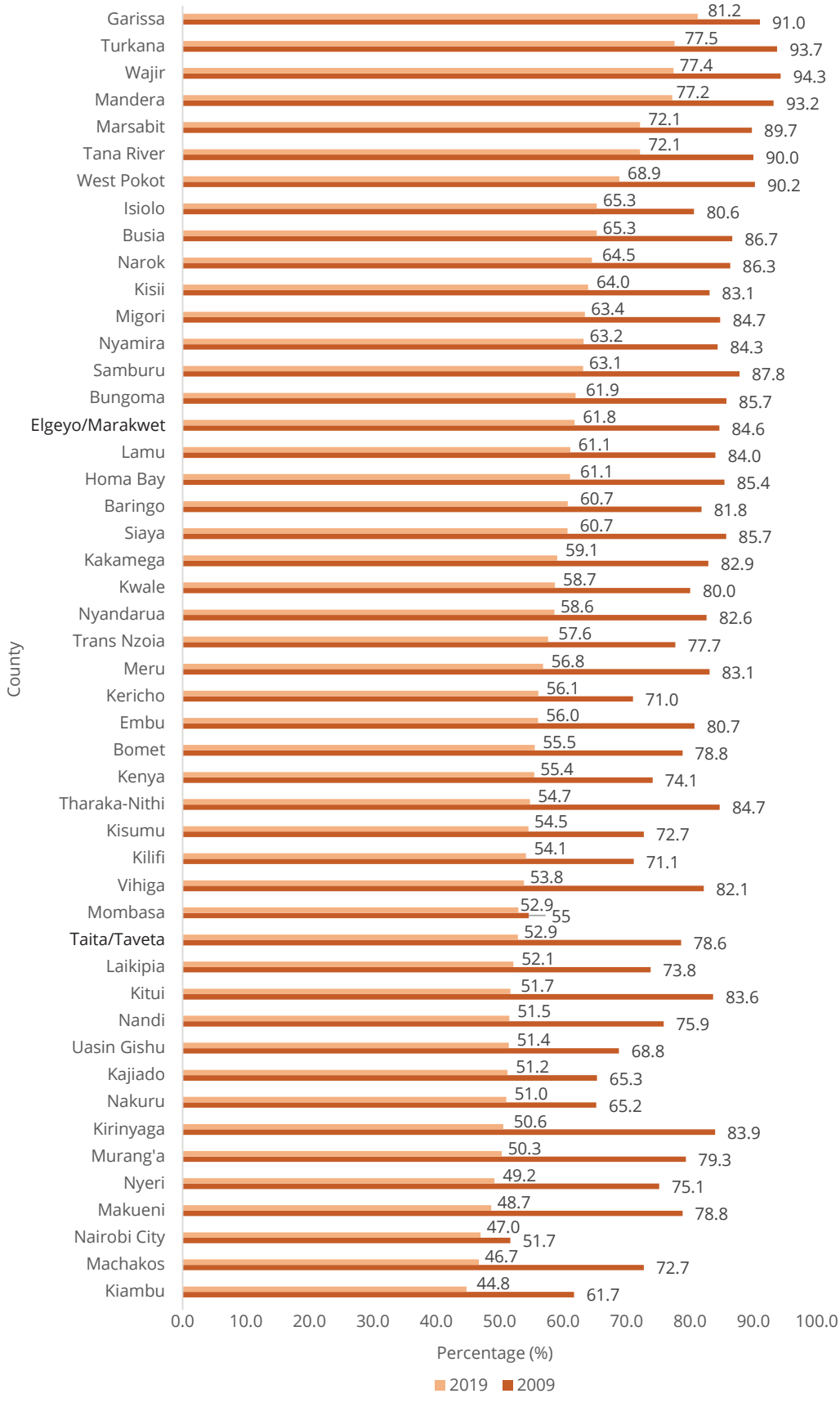


Source: KPHC 2009 and KPHC 2019

5.2.3 Analysis by County

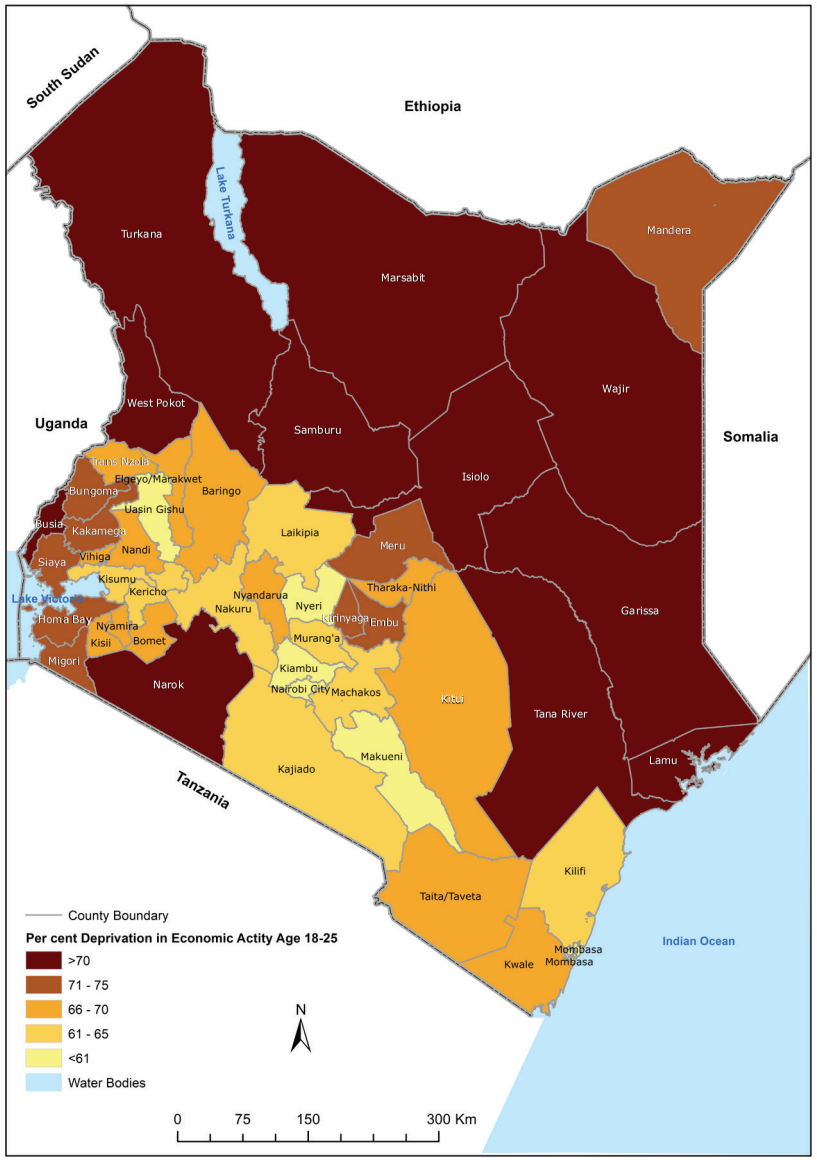
Analysis of the results by county of residence shows that inequalities in economic activity were evident among all age groups and that deprivation decreased substantially between 2009 and 2019 across all counties. In 2019, 8 in 10 youths aged 26-34 years in Garissa were deprived in economic activity compared to 4 out of 10 of their peers residing in Kiambu County, and the national average of slightly over half (55.4 per cent) (Figure 5.3). Along with Garissa, Turkana, Wajir, Mandera and Marsabit ranked among the most deprived counties in economic activity among all age groups in 2019 (Annex 6, Map 5.1). Kiambu, Machakos, Nairobi City, Makueni, Nyeri, Nandi and Uasin Gishu counties on the other hand had the lowest deprivation rates in 2019 ranging between 44 and 51 per cent. In 2009, Turkana, Mandera, Garissa, West Pokot, Wajir, Samburu and Tana River ranked as the most deprived counties in economic activity across all age groups (deprivation rates 80-96 per cent), while Nairobi City, Mombasa, Kiambu, Nakuru, Kajiado, Makueni and Uasin Gishu had the lowest deprivation incidence rates across all age groups, ranging between 35 and 70 per cent (Annex 6, Map 5.1). It must be noted that these counties comprise some of the largest urban areas in Kenya. Annex 6 shows county deprivation rates in economic activity for four age groups – 18-25 years, 26-34 years, 18-34 years, and 35-59 years – for 2009 and 2019.

Figure 5.3 **Percentage (%) of youths deprived in economic activity, age 26-34 years, by county, 2009 and 2019**

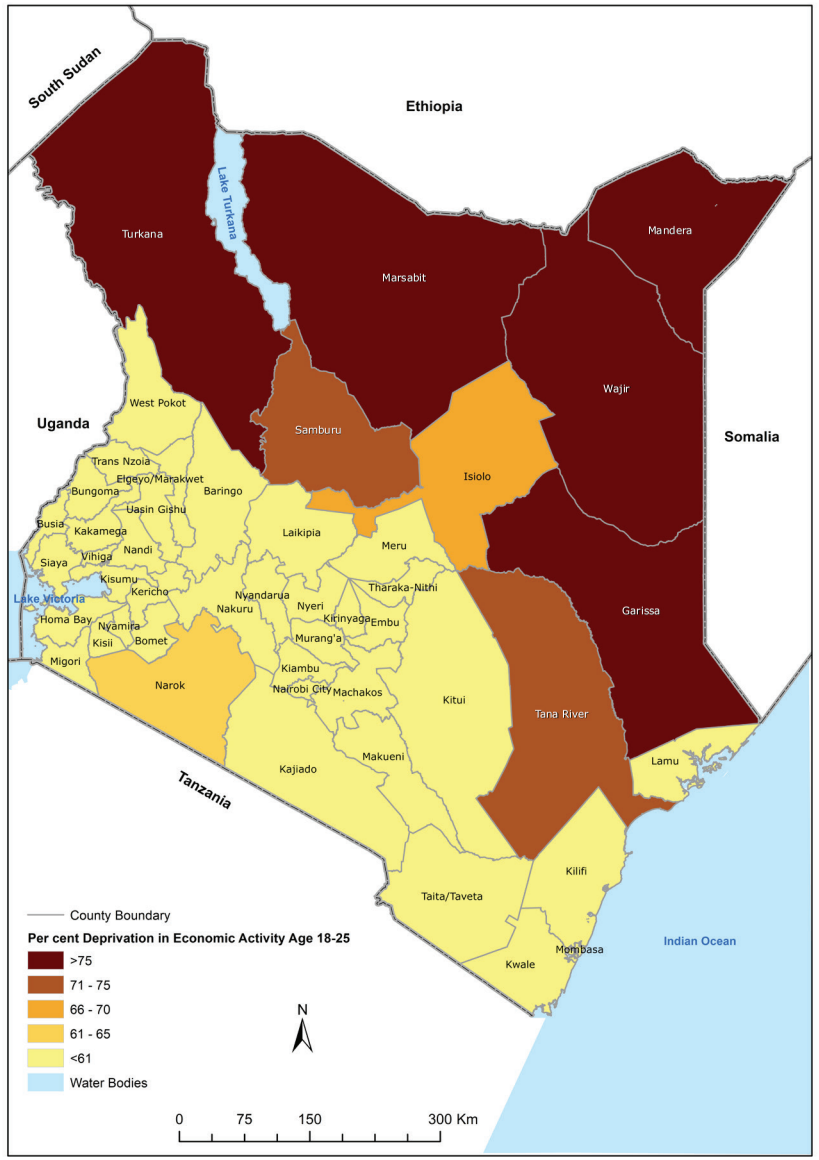


Source: KPHC 2009 and KPHC 2019

Map 5.1 **Percentage (%) of youths deprived in economic activity, age 18-25 years, by county, 2009 (left) and 2019 (right)**



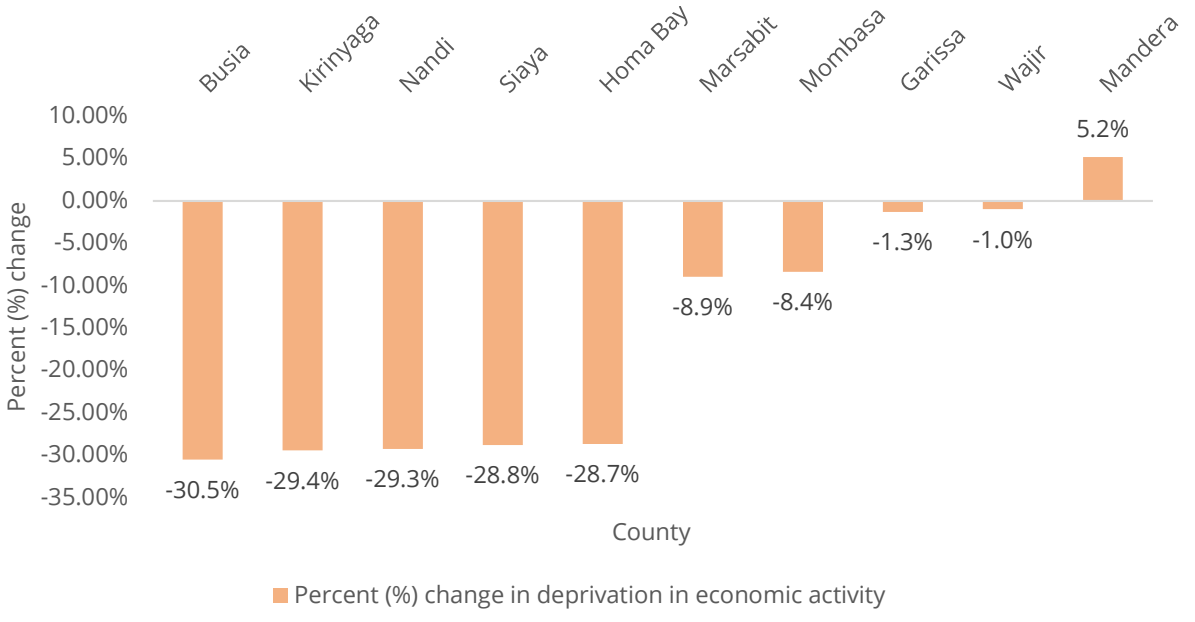
Source: KPHC 2009



Source: KPHC 2019

With exception of Mandera, all countries showed progress in deprivation in economic activity between 2009 and 2019 (Annex 6). Machakos, Makueni, Kitui, Kirinyaga, Nandi, Murang'a, Siaya, Homa Bay and Vihiga recorded the most significant progress across all age groups, whereas the lowest decline in deprivation rates in economic activity were found in Mandera, Nairobi City, Mombasa, Garissa, Turkana, Marsabit and Wajir. Figure 5.4 shows that the share of youths aged 18-25 years who were not in education, employment or training or who were in vulnerable employment decreased by nearly 30 per cent between 2009 and 2019 in Busia, Kirinyaga, Nandi, Siaya, and Homa Bay, pointing also to improvements in educational attainment, continued training, and employment. On the other hand, in Wajir and Garissa counties the progress was only meagre (around 1 per cent), in Mombasa and Marsabit counties between 8.4 and 8.9 per cent, respectively. In Mandera the share of youth deprived in economic activity increased by 5.2 per cent between 2009 and 2019.

Figure 5.4 **Percent (%) change in deprivation in economic activity between 2009 and 2019, age 18-25 years, five top performing counties (left) and five poorest performing counties (right)**



Source: KPHC 2009 and KPHC 2019

5.2.4 Socio-Economic Drivers of Inequality

Disaggregation of deprivation rates by demographic and socio-economic characteristics in Table 5.1 provides insights into structural inequalities in opportunities in economic activity across all age groups. This is meant to help identify population groups that require interventions designed to improve their educational attainment, skills, and their competitiveness in the labour market.

Despite improvements in gender equality in educational outcomes among children and youth, deprivation rates by sex show that women of all age groups were more likely to be deprived in economic activity than men. The gap was the widest among youths aged 26-34 years. In 2019, nearly 2 in 3 of women in this age group (65 per cent) were outside the labour market or in vulnerable employment compared to 47 per cent of their male peers, or 26 per cent more. Except among youths aged 18-25 years, persons with disability were also more likely to be deprived in economic activity.

Characteristics of the household head such as sex and educational attainment were also associated with labour market outcomes. The share of adults living in households headed by women and deprived in economic activity was higher than that of those belonging to men-headed households – e.g., 62.3 per cent compared to 55.8 per cent, respectively of persons aged 35-59 years. The educational attainment of the household head was even more crucial. More than half – 58.3 per cent - of youths aged 26-34 years living in households the head of which had not completed secondary education were deprived in economic activity compared to 44.6 of their peers living in households the head of which had attained secondary or higher education.

Deprivation in economic activity was also higher among households with a larger number of children under 18 years and among households headed by single mothers and single or both grandparents (among the age group 35-59 years), pointing to the need to prioritize these population groups in skills development, active labour market/activation, and social protection cash transfer programmes.

Table 5.1 **Percentage (%) of adults aged 18-59 years deprived in economic activity, by demographic and socio-economic characteristics, 2019**

Individual and household characteristics		18-25 years	26-34 years	35-59 years
National		**53.1**	**55.4**	**57.9**
Sex	Woman	59.4	63.2	65.1
	Man	46.2	46.7	50.8
Disability status	Person with disability	51.9	56.2	60.1
	Person without disability	53.1	55.4	57.5
HH head is a woman	HH head is a woman	51.9	57.9	62.3
	HH head is a man	53.7	54.2	55.8
HH head educational attainment	HH head completed secondary/higher education	45.7	44.6	41.1
	HH head not completed secondary education	51.4	58.3	59.8
Nr of children in the HH	No children<18 in HH	47.2	44.0	52.8
	1-2 children<18 in HH	56.9	54.7	57.1
	3-4 children<18 in HH	52.8	62.5	59.3
	5+children<18 in HH	52.9	66.2	65.4
HH type and composition	Single member HH	45.5	40.7	49.0
	HH head and spouse/s	67.9	48.3	56.8
	Male HH head and children	43.9	58.9	55.3
	Female HH head and children	47.0	63.9	64.9
	Nuclear family	58.9	60.4	58.6
	Grandfather with grandchildren	44.4	56.7	64.0
	Grandmother with grandchildren	42.9	54.8	72.0
	Grandparents with grandchildren	37.6	52.6	68.2
	Mixed HH-nuclear/other relatives & nonrelatives	56.3	49.0	48.3
	HH head and other relatives	51.0	54.9	60.3

Source: KPHC 2009 and KPHC 2019

5.2.4.1 *Regression Analysis: Factors Associated with Deprivation in Economic Activity*

Regression analysis of factors associated with deprivation in economic activity among youths aged 18-34 years in 2019 shows that individual and household characteristics, as well as where the youths reside are important (Figure 5.5 and Annex 16.4). Young women are more likely to be deprived in economic activity than young men. Likewise, youths with disabilities, youths living in labour constrained households, and those who have not completed at least secondary education are more likely to be deprived in economic activity. The likelihood of being deprived in economic activity also increases with age albeit at a diminishing rate. On the other hand, youths from urban areas, living in households where the head has completed secondary or higher education, and where the head is in paid employment are less likely to be deprived in economic activity, possibly due to better opportunities and financial wellbeing associated with the latter. Compared to youths residing in Mombasa, youths in other counties are slightly less likely to be deprived in economic activity but this result needs further investigation as a lot of these counties have higher deprivation rates than Mombasa in the dimension.

Figure 5.5 **Factors associated with deprivation in economic activity, age 18-34 years, 2019**

N=1,180,550

*** p<0.01, ** p<0.05, * p<0.1

Source: KPHC 2019

5.3 Conclusion and Recommendations

Kenya made major progress in improving labour market outcomes between 2009 and 2019, especially in rural areas and partly attributed to improvements in educational attainment. Nevertheless, more than half of youth and adults aged 26-59 years were deprived in economic activity in 2019, and 53 per cent of youth aged 18-25 years compared to 66 per cent in 2009 were not in education, employment or training or in vulnerable employment, noting very meagre progress during the decade. Deprivation in economic activity in urban areas decreased by less than 14 per cent across most age groups during the decade.

The inequalities in economic activity by area of residence remained widespread despite the substantial progress in rural areas and counties like Machakos, Makueni, Kitui, Kirinyaga, Nandi, Murang'a, Siaya, Homa Bay and Vihiga. Nearly 2 in 3 persons aged 26-59 years in rural areas were deprived in economic activity compared to less than half of their peers in urban areas. Across counties, deprivation in economic activity was significantly higher in Garissa, Turkana, Wajir, Mandera and Marsabit in 2019 where 7 out of 10 of the 26-34-year-olds were deprived in economic activity compared to 4 out 10 youths in Kiambu.

Deprivation in economic activity is associated with socio-economic characteristics of adults aged 18-59 years. Women, persons with disability, members of households headed by women, and those living in households the head of which has not completed at least secondary education are more disadvantaged in the labour market, continued education, and skills advancement. Moreover, the share of youths and adults deprived in economic activity living in households headed by single mothers and single or both grandparents are higher, pointing to issues with intersecting inequalities and prioritization of these groups in activation measures.

To address deprivation and inequalities in economic activity outcomes, it is necessary to:

i) Prioritize the furthest left-behind areas and counties in design of interventions and financing. Garissa, Turkana, Wajir, Mandera, Marsabit, West Pokot, Samburu and Tana River did not only rank among the most deprived counties in 2019, but also showed the least progress over the decade. Additionally, progress in economic activity between 2009 and 2019 was meagre among youths aged 18-25 years in urban areas. This calls for careful consideration in design of interventions to cater to the differing needs of youth residing in urban versus rural areas, as well as the differences in the labour market overall.

   a) Past programmes and financing mechanisms should be carefully reviewed – particularly among the counties that showed little progress over time (Marsabit, Garissa, Wajir, and Mandera) – as well as those that made major progress to explore the best practices.

ii) Enhance labour market activation of youths aged 18-25 years with special attention to continued education including technical and vocational education and transition from education to work.

iii) Encourage out-of-school youth to re-enter general education through flexible subsidized second chance programmes.

iv) Social protection programmes targeting social inclusion should include components of employment, activation, and skills development/advancement measures and prioritize the most disadvantaged groups. These include women, persons with disabilities, members of households headed by single mothers and grandparents, larger households, and labour constrained households.

6 Information

6.0 Introduction

This chapter discusses deprivation and inequalities in information. Two indicators were used to measure deprivation in this dimension - ownership of information devices (TV, radio, phone, and computer) measured at the household level and exposure to media (usage of a mobile phone, internet or computer from any location in the last three months)[84] measured at individual level for all persons aged three years and above.

The rates of deprivation and horizontal inequality are discussed at national and subnational levels, and by socio-economic characteristics.

6.1 Background and Context

Information is a key driver of economic, social and human development and as such is a key aspect of daily living. Kenya like other countries has been experiencing technological growth that has impacted the way data is generated, processed, stored and distributed. Information and Communication Technology (ICT) plays a key role in addressing challenges facing Kenyans in general. Several sectors such as finance, health, education, agriculture and the governance are quickly embracing technology for dissemination of information, enhancement of service delivery and to reach their customers more effectively and efficiently.

Constitution of Kenya (2010) guarantees the right to access information to all its citizens. Article 33. Freedom of Expression stipulates that *"(1) Every person has the right to freedom of expression, which includes – (a) freedom to seek, receive or impart information or ideas"* and Article 35. Access to information provides that *"(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"*.[85] The fact that access to information is enshrined in the constitution is a testament that it is pivotal to the awareness, promotion and enjoyment of other rights.

Access to information and freedom of expression have also long been recognized as fundamental human rights. For example, the UN Universal Declaration of Human Rights (UDHR) (1948)[86], the Office of the High Commissioner for Human Rights (OHCHR) and International Covenant on Civil and Political Rights (ICCPR)[87] (1976) each in their Article 19 recognize the right. Kenya acknowledges the importance of accessing information and safeguarding it also in the National ICT Policy Guidelines (2019)[88] that was designed to realize the potential of the digital economy by creating an

84 In KPHC 2009, due to differences in questionnaire design, a person aged 3+ years is considered deprived in media exposure if they have not used a mobile phone or computer in the last month or if they used internet less often than monthly.

85 Government of Kenya, 2010, Constitution of Kenya, available at: http://kenyalaw.org/lex/actview.xql?actid=Const2010

86 Article 19: "Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers". United Nations, 1948, Universal Declaration of Human Rights, available at: https://www.un.org/en/about-us/universal-declaration-of-human-rights

87 Article 19 (2) "Everyone 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 choice". OHCHR, 1976, International Convent on Civil and Political Rights, available at: https://www.ohchr.org/en/instruments-mechanisms/instruments/international-covenant-civil-and-political-rights

88 Ministry of Information, Communications, and Technology, Kenya, 2019, "National Information, Communications and Technology (ICT) Policy", available at: https://www.ict.go.ke/wp-content/uploads/2019/12/NATIONAL-ICT-POLICY-2019.pdf

enabling environment, especially in the communication and information sphere, for all citizens and stakeholders. Kenya Vision 2030[89] has also identified ICT as a key enabler to the attainment of its goals and aspirations. In the Vision, the IT sector is envisaged to transform Kenya into a knowledge and information-based economy by enabling access to quality, affordable and reliable ICT services which play an important catalytic role in the economic and social development of the country.[90]

Internationally, Kenya is a signatory to the 2030 Agenda for Sustainable Development Agenda which recognizes that [91] Kenya is also a signatory to the African Union Agenda 2063, which is Africa's blueprint and master plan for transforming Africa into the global powerhouse of the future. The blueprint recognizes the importance of information technology in driving the development agenda for Africa. The importance of information and communication is outlined in goals 4, 8, 16 and 17 of the agenda, envisioning a well-educated citizens and skills revolution underpinned by Science, Technology, and Innovation[92] (Box 6.1).

Box 6.1 Related SDG goals and targets

SDG 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Target 4.b. By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries.

SDG 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Target 8.2. Achieve higher levels of productivity through diversification, technological upgrading and innovation, including through a focus on high value added and labour-intensive sectors.

SDG 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

Target 16.10. Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements.

SDG 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Target 17.8. Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology.

89 Government of Kenya, 2008, "Kenya Vision 2030, available at: https://countytoolkit.devolution.go.ke/sites/default/files/resources/Vision-2030-Popular-Version_0.pdf

90 Ibid.

91 United Nations, 2015, Sustainable Development Agenda, available at: https://www.un.org/sustainabledevelopment/development-agenda/

92 African Union, 2015, "Agenda 2063 – The Africa we Want", available at: https://au.int/sites/default/files/documents/36204-doc-agenda2063_popular_version_en.pdf

6.2 Key Interventions and Programmes

The Government of Kenya has endorsed several policies, programmes, and initiatives in the information and communication sector including:

i) Rollout of the Digital Literacy Programme

This programme has radically changed teaching and learning in schools by entrenching ICT in the country's education system. The programme is meant to foster creativity and teach digital skills to all students.

ii) Fibre Network Connectivity

The government has invested in additional broadband infrastructure which has greatly boosted the country's digital economy. The overarching focus is to provide access to all Kenyans and seamless connectivity to the East African Community member states with proactive collaboration at regional and international levels. Access to last-mile devices like computers, phones and tablets is key to accelerating the transition to a knowledge-based economy and enables many more people to have access to information.

iii) Kenya Open Data

This is an initiative by the government to ensure that citizens can easily access information and data. Open Data Initiative is aimed at making key government data freely available to the public through a single online portal.

iv) Ajira Digital Program

The Ajira Digital Program is a government initiative driven by the Ministry of ICT to empower over one million young people to access digital job opportunities. The program seeks to position Kenya as a labour destination for multinational companies as well as encourage local companies and the public sector to create digital work.

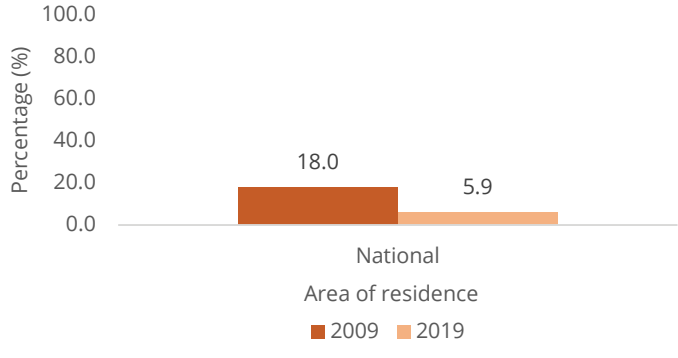
6.3 Horizontal Inequality Analysis

6.3.1 National Level Analysis

6.3.1.1 Ownership of Information Devices

Deprivation in households' ownership of information devices in Kenya declined by 67.2 per cent between 2009 and 2019 (Figure 6.1), despite the shift to mobile phones as the main information source compared to the conventional devices such as radio in 2009. Less than 6 per cent of households in 2019 did not own any information device, TV, radio, phone or computer compared to 18.0 per cent in 2009.

Figure 6.1 Percentage (%) of households deprived in ownership of information devices, 2009 and 2019

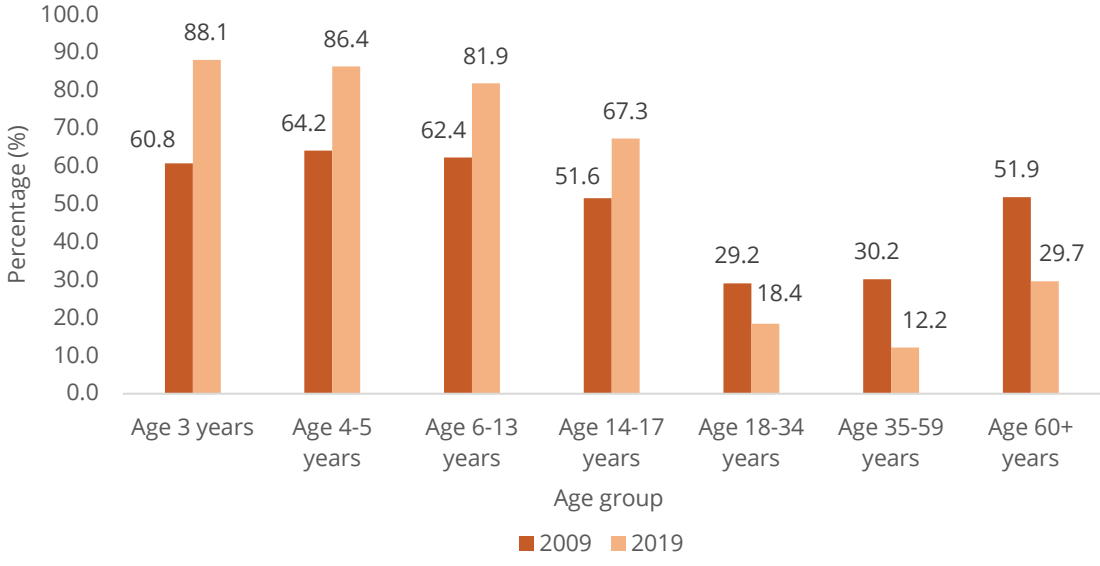


Source: KPHC 2009 and KPHC 2019

6.3.1.2 *Exposure to Media*

Deprivation in exposure to media also declined significantly among persons aged 18+ years while it has increased for children (Figure 6.2). In 2019, more than 8 in 10 children aged 3-13 years had not had exposure to media – used a mobile phone, internet or computer in the three months preceding the census - compared to 6 in 10 children in 2009. This high deprivation rate is of major concern for educational attainment implications in the context of school closure during the COVID-19 pandemic and distance learning arrangements. Deprivation was also high among youths in 2019, at 18.4 per cent, which is a concern given the importance of ICT in access to education, skills development and entry into the labour market, particularly in light of the government's vision for digitalization of certain sectors. Additionally, 29.7 per cent of the elderly aged 60+ years were deprived in exposure to media in 2019, raising concerns about their ability to access services and programmes, enabling them to participate in the community, and exercise their rights.

Figure 6.2 **Percentage (%) of individuals deprived in exposure to media, by age group, 2009 and 2019**



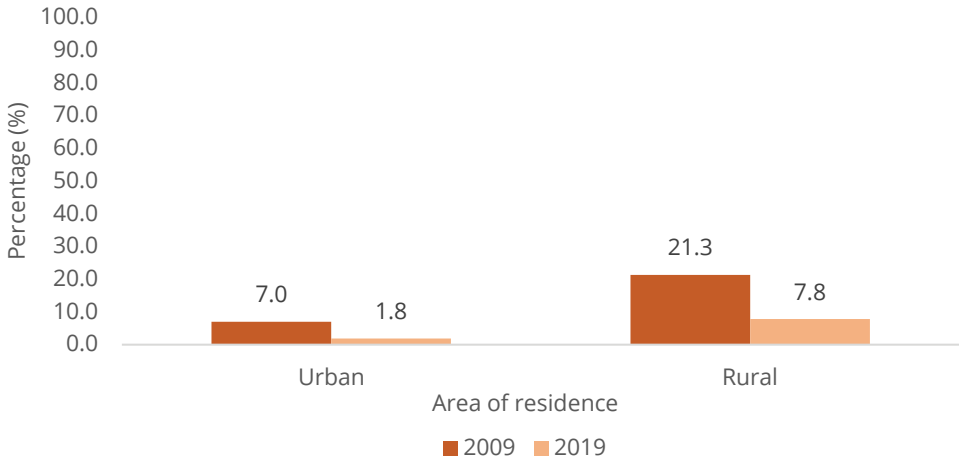
Source: KPHC 2009 and KPHC 2019

6.3.2 Analysis by Area of Residence

6.3.2.1 *Ownership of Information Devices*

Deprivation in ownership to information devices declined significantly in both urban and rural areas between 2009 and 2019 (Figure 6.3). Nearly 8 per cent of households in rural areas did not own any information device in 2019 compared to less than 1.8 per cent of households in urban areas. Despite the progress over the decade, disparity in ownership of information devices across rural and urban areas widened. In 2009, households in rural areas were three times more likely to be deprived in ownership of information devices compared to households in urban areas. In 2019, they were more than four times more likely to be deprived compared to urban households.

Figure 6.3 **Percentage (%) of households deprived in ownership of information devices, by area of residence, 2009 and 2019**

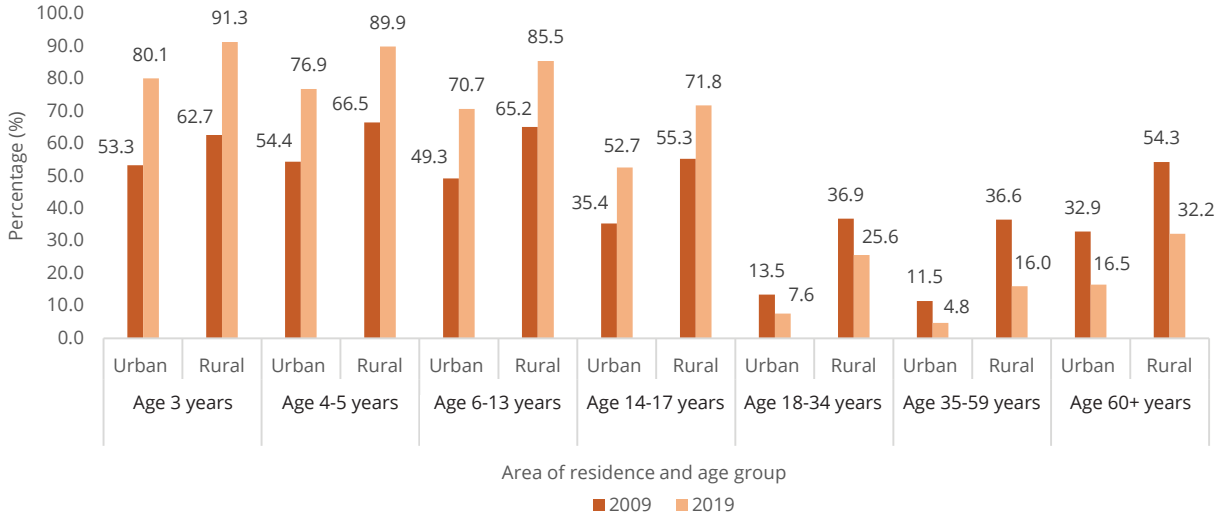


Source: KPHC 2009 and KPHC 2019

6.3.2.2 Exposure to Media

Inequality in exposure to media between rural and urban areas remained large in 2019, especially among adults, despite significant improvements between 2009 and 2019 (Figure 6.4). One in 4 youths aged 18-34 years in rural areas were deprived in exposure to media in 2019 compared to less than 7.6 per cent of their peers residing in urban areas. Trend analysis shows that the share of persons deprived in exposure to media decreased the most in urban areas, by 58 per cent among adults aged 35-59 years (from 11.5 per cent in 2009 to 4.8 per cent in 2019) and 50 per cent among the elderly (from 32.9 per cent in 2009 to 16.5 per cent in 2019). The increase in deprivation among children was also larger in urban areas; 53.3 versus 80.1 per cent of children aged three years between 2009 and 2019, respectively.

Figure 6.4 **Percentage (%) of individuals deprived in exposure to media, by age group and area of residence, 2009 and 2019**



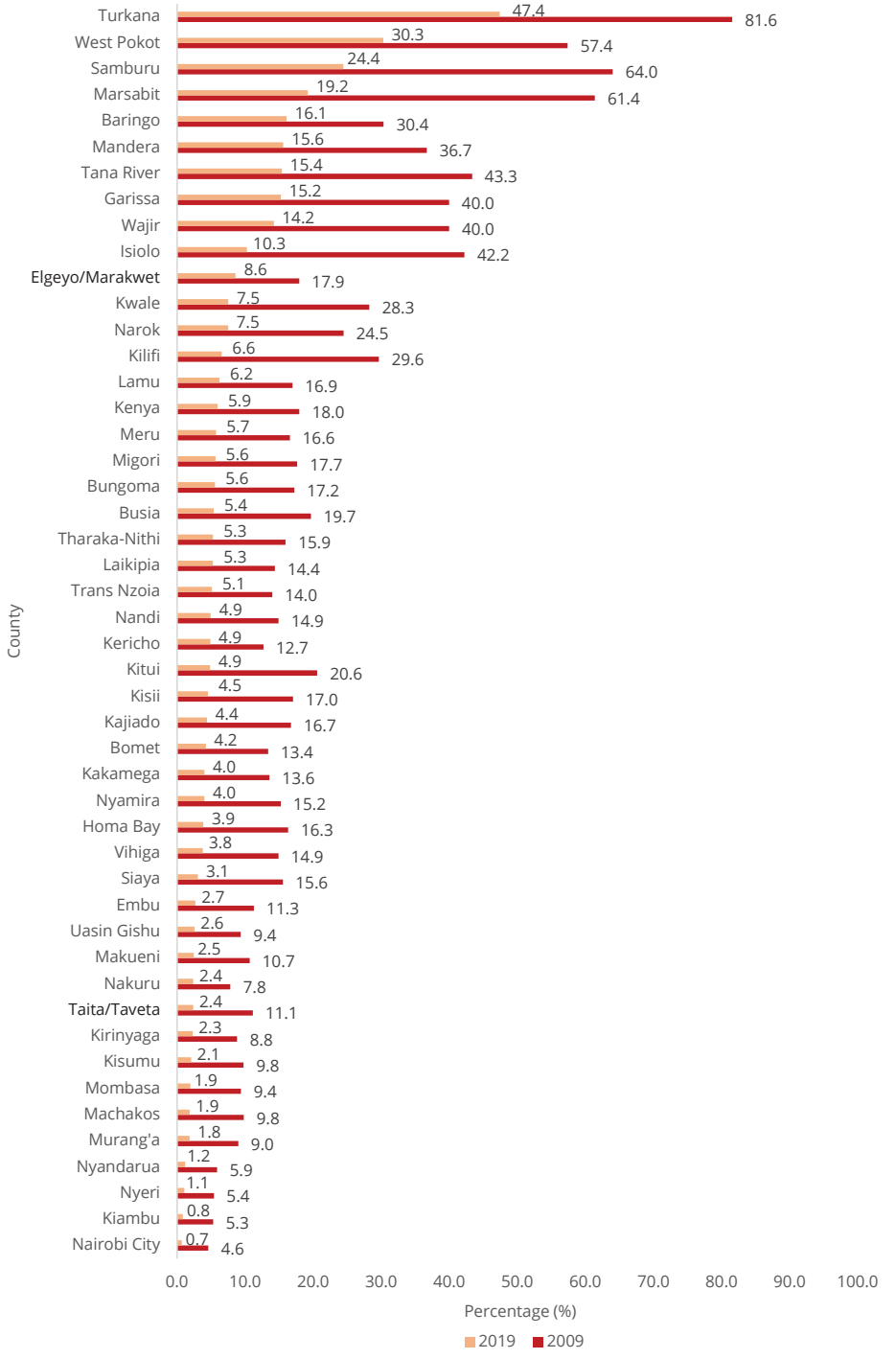
Source: KPHC 2009 and KPHC 2019

6.3.3 Analysis by County

6.3.3.1 Ownership of Information Devices

Inequality in ownership of information devices between counties remained very wide despite significant improvements between 2009 and 2019 (Figure 6.5). In 2019, nearly half of households in Turkana (47.4 per cent) did not own any information device compared to 0.7 per cent of households in Nairobi City and less than 6 per cent of households across Kenya on average. Along with Turkana, West Pokot, Samburu, Marsabit and Baringo ranked the most deprived in 2019. On the other hand,

Figure 6.5 Percentage (%) of households deprived in ownership of information devices, by county, 2009 and 2019

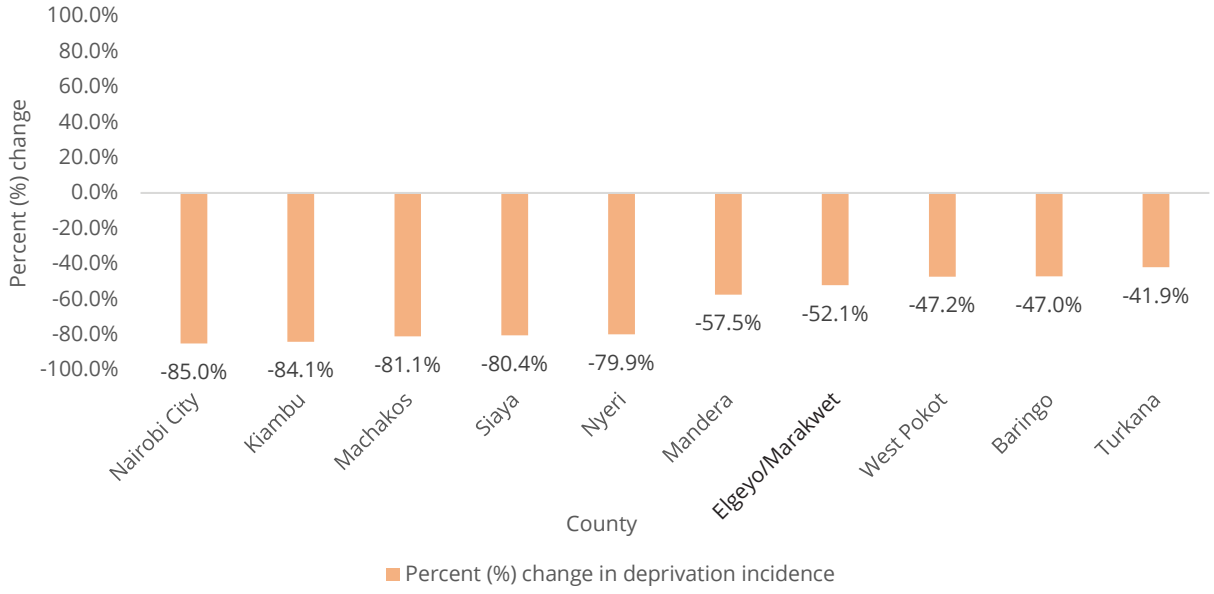


Source: KPHC 2009 and KPHC 2019

in Nairobi City, Kiambu, Nyeri, Nyandarua and Murang'a the deprivation rates were the lowest in 2019, ranging between 0.7 and 1.8 per cent. In 2009, Turkana, Samburu, Marsabit, West Pokot, and Tana River had the highest deprivation rates in ownership of information devices (ranging between 43.3 and 81.6 per cent). On the other hand, in Nairobi City, Kiambu, Nyeri, Nyandarua and Nakuru the deprivation incidence in 2009 was between 4.6 and 9.0 per cent.

Deprivation in households' ownership of information devices decreased across all counties (see Annex 7). Nairobi City, Kiambu, Machakos, Siaya, and Nyeri experienced the greatest improvement, whereas Turkana, Baringo, West Pokot, Elgeyo/Marakwet, and Mandera had the lowest. It must be noted nevertheless that Elgeyo/Marakwet had a significantly lower deprivation rate in the indicator compared to these counties. Figure 6.6 shows that the share of households deprived in information devices decreased by 81.1, 84.1 and 85.0 per cent in Machakos, Kiambu and Nairobi City respectively, whereas in Turkana it decreased the least, by 41.9 per cent.

Figure 6.6 **Percent (%) change in deprivation in ownership of information devices between 2009 and 2019, five best performing counties (left) and five poorest performing counties (right)**

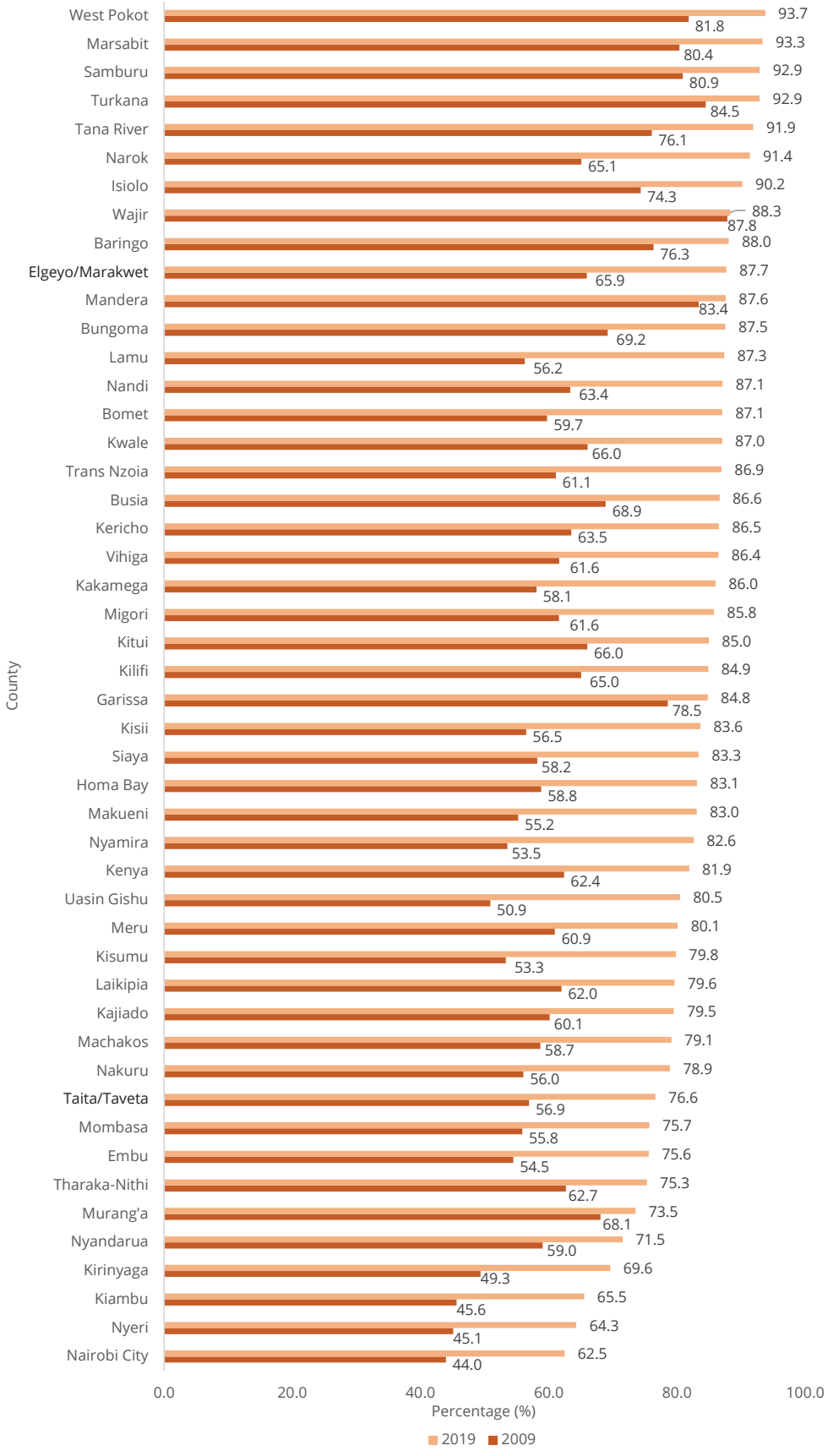


Source: KPHC 2009 and KPHC 2019

6.3.3.2 Exposure to Media

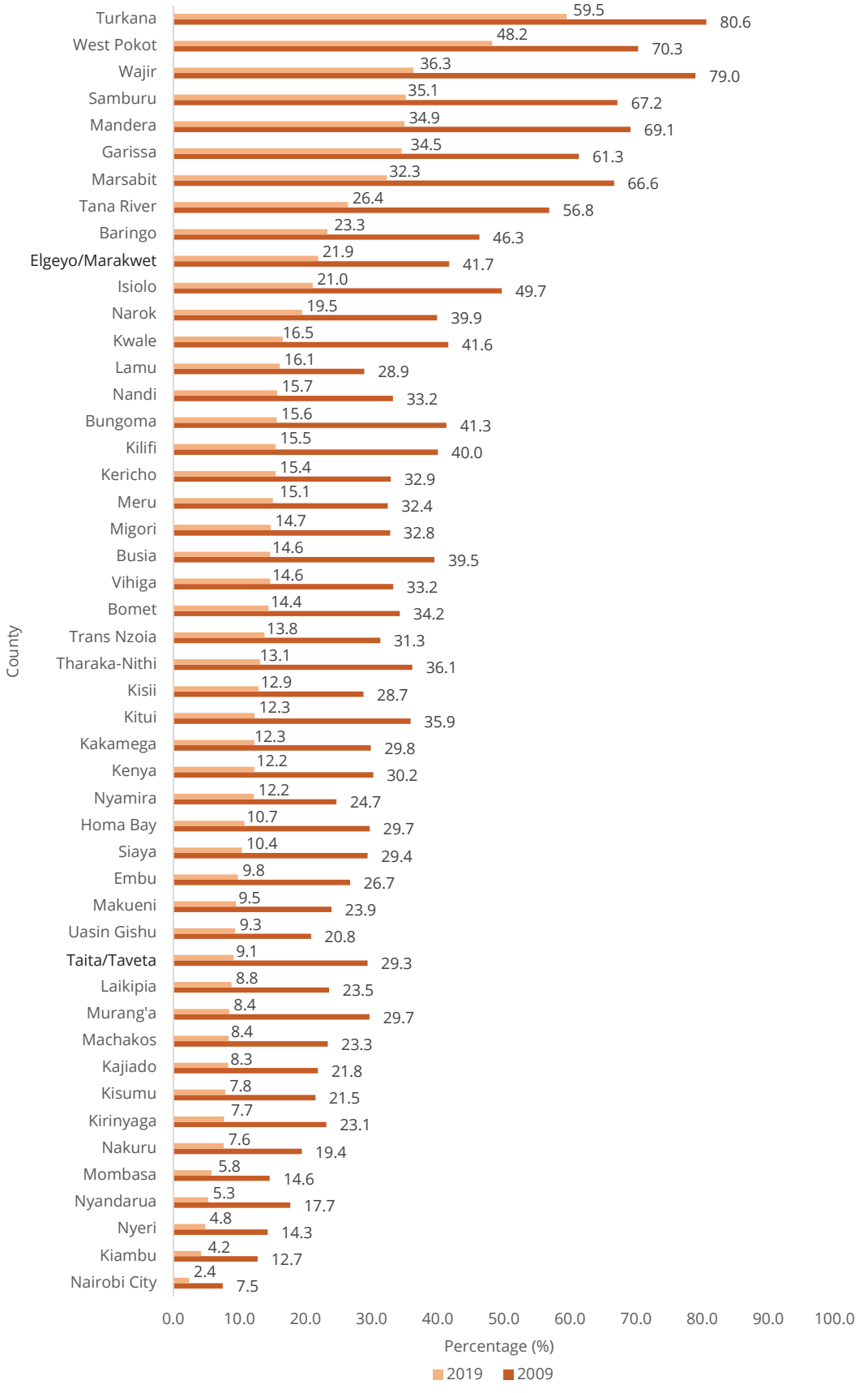
There were large inequalities in exposure to media across counties. In 2019, the majority of children aged 6-13 years in West Pokot (93.7 per cent) had not used a mobile phone, internet, or computer in the three months preceding the census compared to 62.5 per cent of their peers in Nairobi City (Figure 6.7). Among 35-59-year-olds, nearly 60 per cent in Turkana compared to 2.4 per cent in Nairobi City were deprived in exposure to media in 2019 (Figure 6.8). Along with West Pokot, Marsabit, Samburu, Turkana and Tana River ranked the most deprived counties in exposure to media among children aged 6-13 years in 2019, with incidence ranging between 91.9 and 93.7 per cent. On the other hand, Nairobi City, Nyeri, Kiambu, Kirinyaga, and Nyandarua ranked the least deprived with rates between 62.4 and 71.5 per cent. In 2009, Turkana, Wajir, West Pokot, Mandera and Samburu were the most deprived counties in exposure to media among 35-59-year-olds, with deprivation rates between 67.2 and 80.6 per cent, while Nairobi City, Kiambu, Nyeri, Mombasa and Nyandarua ranked the least deprived (between 7.5 and 17.7 per cent). Annex 8 and Annex 9 show county deprivation rates in media exposure for all age groups for 2009 and 2019.

Figure 6.7 **Percentage (%) of children deprived in exposure to media, age 6-17 years, by county, 2009 and 2019**



Source: KPHC 2009 and KPHC 2019

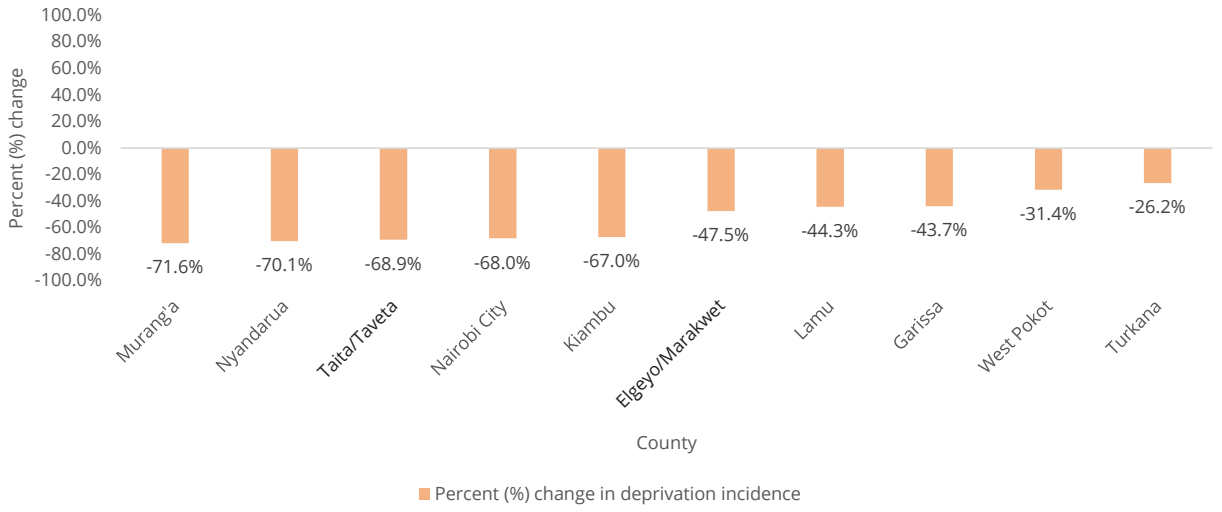
Figure 6.8 **Percentage (%) of adults deprived in exposure to media, age 35-59 years, by county, 2009 and 2019**



Source: KPHC 2009 and KPHC 2019

While deprivation in exposure to media among children aged 3-17 years increased between 2009 and 2019, among adults 18+ years it decreased significantly across all counties. In Murang'a, Nyandarua, Taita/Taveta, Nairobi City, and Kiambu, deprivation in exposure to media among adults aged 35-59 years decreased by between 67.0 and 71.6 per cent. On the other hand, in Turkana it declined by 26.2, West Pokot by 31.4, Garissa 43.7 and Lamu by 44.3 per cent, denoting the slowest progress across counties (Figure 6.9).

Figure 6.9 **Percent (%) change in deprivation in exposure to media between 2009 and 2019, age 35-59 years, five best performing counties (left) and five poorest performing counties (right)**



Source: KPHC 2009 and KPHC 2019

6.3.4 Socio-Economic Drivers of Inequality

Disaggregation of deprivation rates by demographic and socio-economic characteristics of children aged 3-17 years in Table 6.1 provides initial insights into factors associated with deprivation in exposure to media. While the differences by sex, disability, orphanhood and sex of the household head were very small for most age groups, characteristics of the household head, mother, and father of the child, as well as the household are important. Children whose mother, father, or household head had completed secondary or higher education were less likely to be deprived in media exposure, as were children whose parent(s) or household head were in paid employment. The number of children in the household was also important, pointing to strained financial resources. Children living in households with 1-2 children were less likely to be deprived of media exposure compared to children living in households with a larger number of children. Finally, a larger share of children living with one or both of their grandparents (and none of their parents) were deprived in media exposure compared to children from all the other household composition types.

Table 6.1 **Percentage (%) of children deprived in exposure to media, age 3-17 years, by age group and by demographic and socio-economic characteristics, 2019**

Characteristics		Age 3 years	Age 4-5 years	Age 6-13 years	Age 14-17 years
National		**88.1**	**86.4**	**81.9**	**67.3**
Sex	Girl	88.1	86.4	81.8	68.0
	Boy	88.1	86.4	81.9	66.7
Single orphan	One parent deceased	90.8	89.4	83.7	66.3
	Both parents alive	87.9	86.2	81.7	67.5
Disability status	Child with disability	..	85.9	82.5	65.3
	Child without disability	..	85.9	81.6	68.5
Sex of HH head	HH head is a woman	88.6	87.0	82.3	67.2
	HH head is a man	87.8	86.0	81.6	67.4
HH head education attainment	HH head completed secondary/higher education	77.4	73.1	65.9	49.4
	HH head not completed secondary education	90.4	88.5	83.0	67.3
HH head employment status	Paid employment	86.3	84.3	79.5	64.7
	Unemployed/Unpaid employment	90.5	89.1	85.0	70.6
Mother's educational attainment	Mother completed secondary/higher education	77.0	72.5	64.0	46.5
	Mother not completed secondary education	91.2	89.2	83.3	68.2
Mother's employment status	Mother in paid employment	86.4	84.5	79.5	65.7
	Mother unemployed/unpaid employment	89.6	88.1	84.4	71.4
Father's educational attainment	Father completed secondary/higher education	78.0	74.0	67.1	51.5
	Father completed secondary education	90.7	88.8	83.5	69.3
Father's employment status	Father in paid employment	85.9	83.9	79.2	65.4
	Father unemployed/unpaid employment	91.2	89.8	86.0	73.4
Number of children <18 in the household	1-2 children<18 in HH	83.6	80.4	73.7	57.3
	3-4 children<18 in HH	89.2	87.3	81.9	68.0
	5+children<18 in HH	92.5	91.4	87.9	75.8
HH labour constraint	HH labour constrained	90.6	89.2	84.8	69.3
	HH not labour constrained	86.1	84.2	79.8	66.1

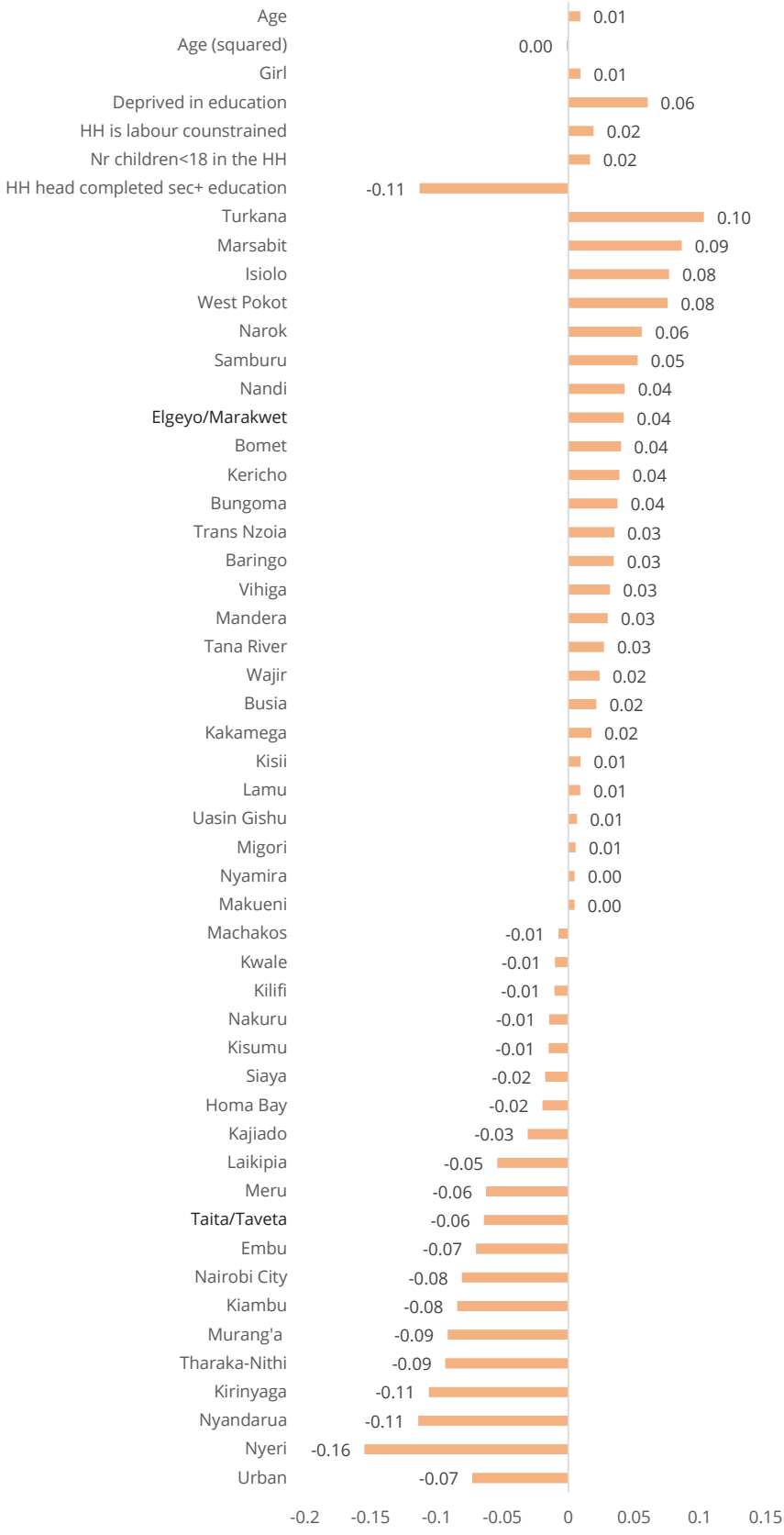
Characteristics		Age 3 years	Age 4-5 years	Age 6-13 years	Age 14-17 years
Household type and composition	HH head and other relatives	88.1	86.4	82.1	67.2
	HH head and non-relatives	78.5	77.9	74.6	45.5
	Mixed HH-nuclear/other relatives & nonrelatives	74.4	71.7	68.9	57.1
	Grandparents with grandchildren	89.6	87.9	82.1	66.8
	Grandmother with grandchildren	91.0	89.9	84.2	68.0
	Grandfather with grandchildren	93.3	88.7	84.5	66.5
	Nuclear family	89.1	87.4	82.9	70.0
	Female HH head and children	89.9	88.2	82.7	67.6
	Male HH head and children	90.0	88.9	83.5	67.2

Source: KPHC 2009 and KPHC 2019

6.3.4.1 Regression Analysis: Factors Associated with Deprivation in Media Exposure

Regression analysis of factors associated with deprivation in media exposure among children aged 3-17 years in 2019 shows that individual and household characteristics, as well as where children reside are all relevant (Figure 6.10 and Annex 16.5). Factors that are strongly associated with households' financial resources – educational attainment of the household head, household labour constraint, and number of children under 18 in the household – are also associated with deprivation to media exposure. Children living in households headed by an adult who has completed secondary or higher education are significantly less likely to be deprived in media exposure. On the other hand, children who have more siblings and those who live in labour constrained households are more likely to be deprived. A child's age, sex and whether she/he attends school are also important. Older children are more likely to be deprived in media exposure albeit at a diminishing rate. Likewise, girls are more likely to be deprived in the indicator than boys, as are children who are not attending school. Compared to children residing in Mombasa, children in Turkana, Marsabit, and Isiolo are significantly more likely to be deprived in media exposure, while children residing in Nyeri, Nyandarua, and Kirinyaga are less likely to be deprived. Similarly, children residing in urban areas are less likely to be deprived in exposure to media compared to their peers in rural areas.

Figure 6.10 **Factors associated with deprivation in exposure to media, age 3-17 years, 2019**



N=13,457,963

*** p<0.01, ** p<0.05, * p<0.1

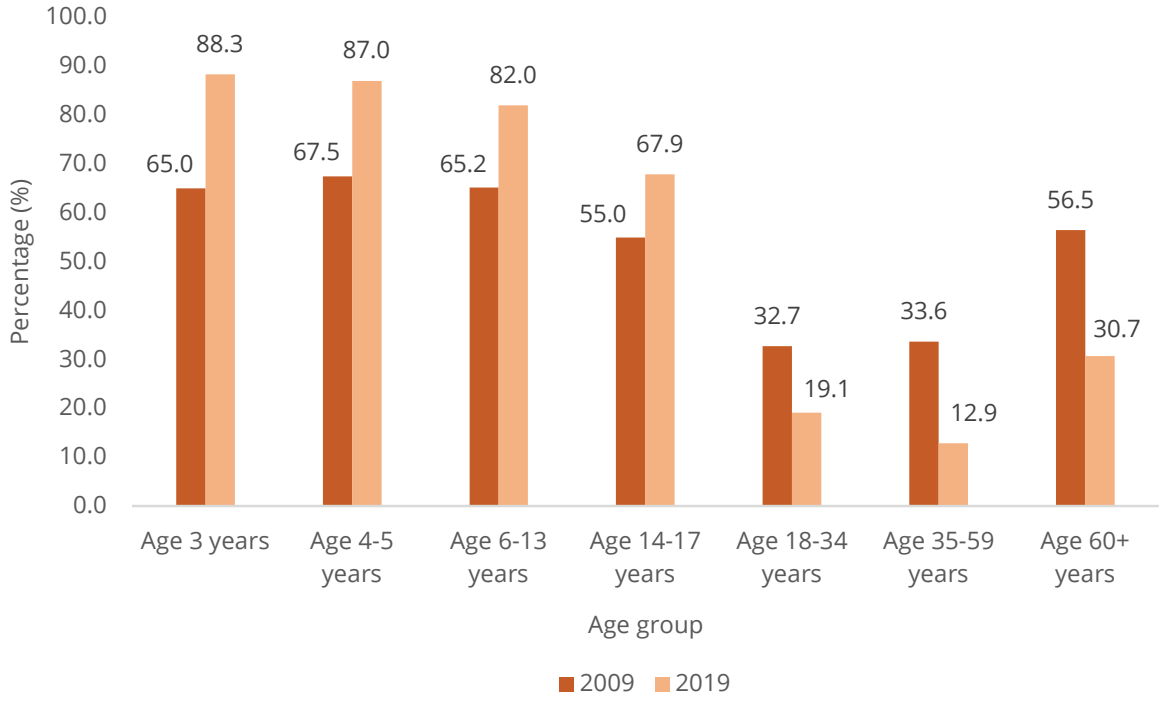
Source: KPHC 2019

6.3.5 Information Dimension

6.3.5.1 National Level Analysis

Aggregation of indicators of ownership of information devices and media exposure to measure inequalities in the dimension of information shows that deprivation decreased significantly among persons aged 18+ years between 2009 and 2019 (Figure 6.11). Incidence decreased the most among persons 35-59 years, from 33.6 to 12.9 per cent, followed by the elderly and youths. On the other hand, the trend among children was reversed; deprivation increased for all children aged 3-17 years, most significantly among 3-year-olds, from 65.0 to 88.3 per cent in 2009 and 2019, respectively.

Figure 6.11 Percentage (%) of individuals 3+ years deprived in the information dimension, by age groups, 2009 and 2019

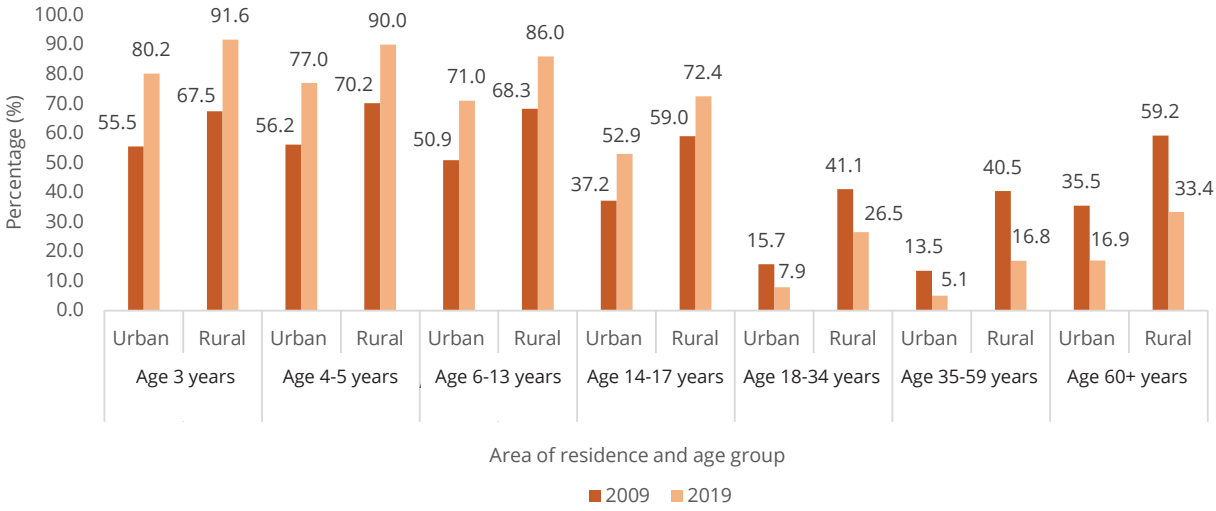


Source: KPHC 2009 and KPHC 2019

6.3.5.2 Analysis by Area of Residence

Despite significant improvements in information outcomes among adults over the decade, inequalities between urban and rural areas were prevalent and widened (Figure 6.12). In 2019, the share of youths in rural areas deprived in the information dimension was more than three times that in urban areas; 7.9 percent and 26.5 per cent, respectively. The most notable improvements between 2009 and 2019 were recorded among 35-59-year-olds in urban areas, with decrease in deprivation incidence by 62 per cent, followed by elderly and youths. The increase in deprivation incidence among children was also higher in urban areas.

Figure 6.12 **Percentage (%) of individuals aged 3+ years deprived in the information dimension, by age groups and area of residence, 2009 and 2019**

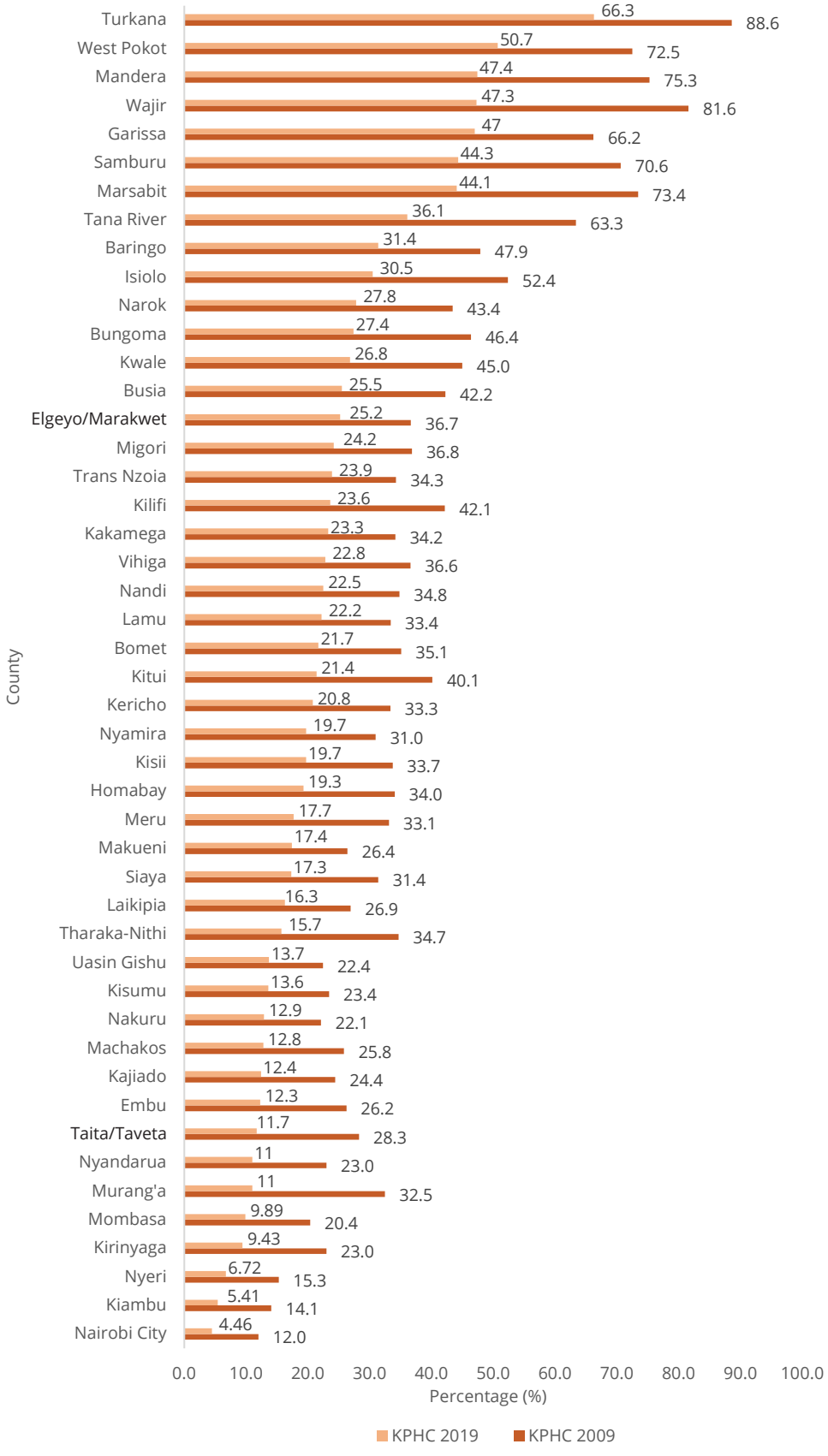


Source: KPHC 2009 and KPHC 2019

6.3.5.3 Analysis by County

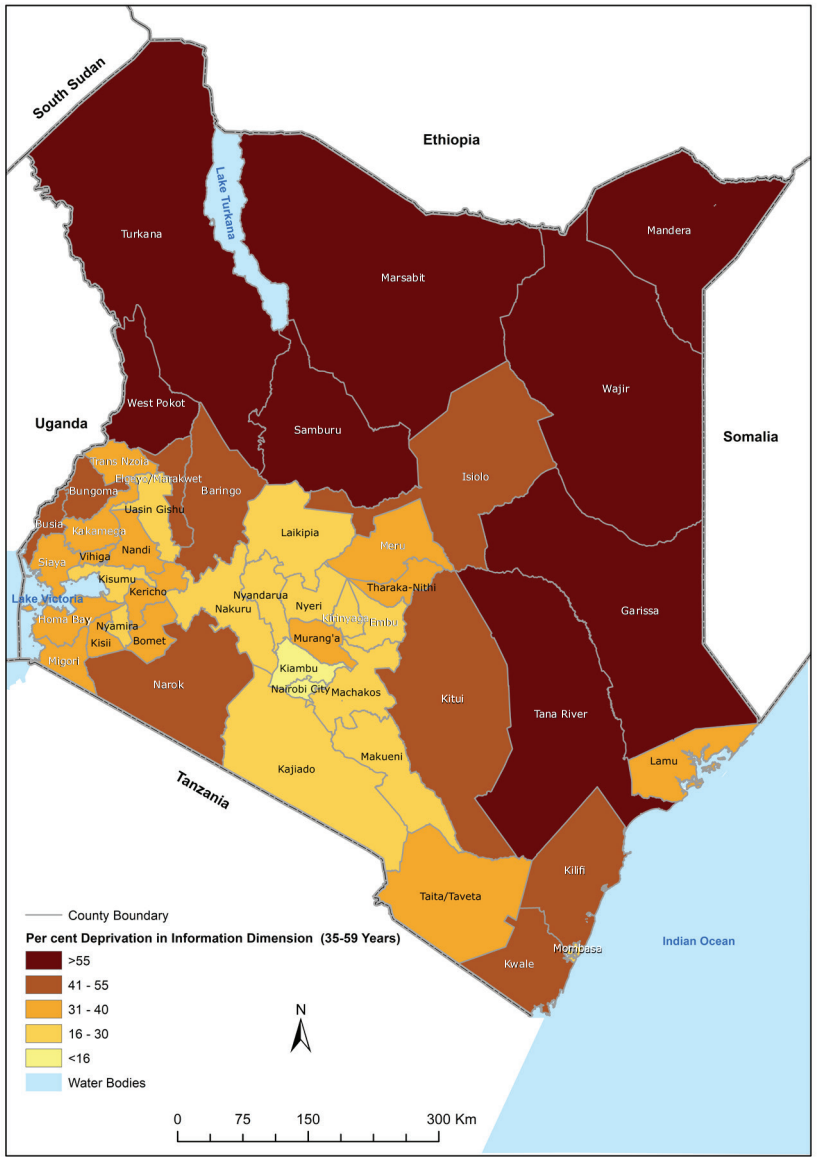
Inequality in the information dimension between counties remained widespread despite improvements among adults 18+ years between 2009 and 2019 (Figure 6.13 and Map 6.1). In 2019, 2 in 3 or 66.3 per cent of youths aged 18-34 years in Turkana were deprived in the information dimension compared to 4.5 per cent of their peers residing in Nairobi City, and on average less than 1 in 5 youths across Kenya. Along with Turkana, West Pokot, Mandera, Wajir, and Garissa ranked as the most deprived counties in deprivation in information among youths in both 2009 and 2019. Nairobi City, Kiambu, Nyeri, Kirinyaga and Mombasa had the lowest deprivation rates in 2019, ranging between 4.5 and 9.9 per cent. In 2009, Nakuru ranked among the five least deprived counties along with Nairobi City, Kiambu, Nyeri and Mombasa.

Figure 6.13 **Percentage (%) of youths deprived in the information dimension, age 18-34 years, by county, 2009 and 2019**

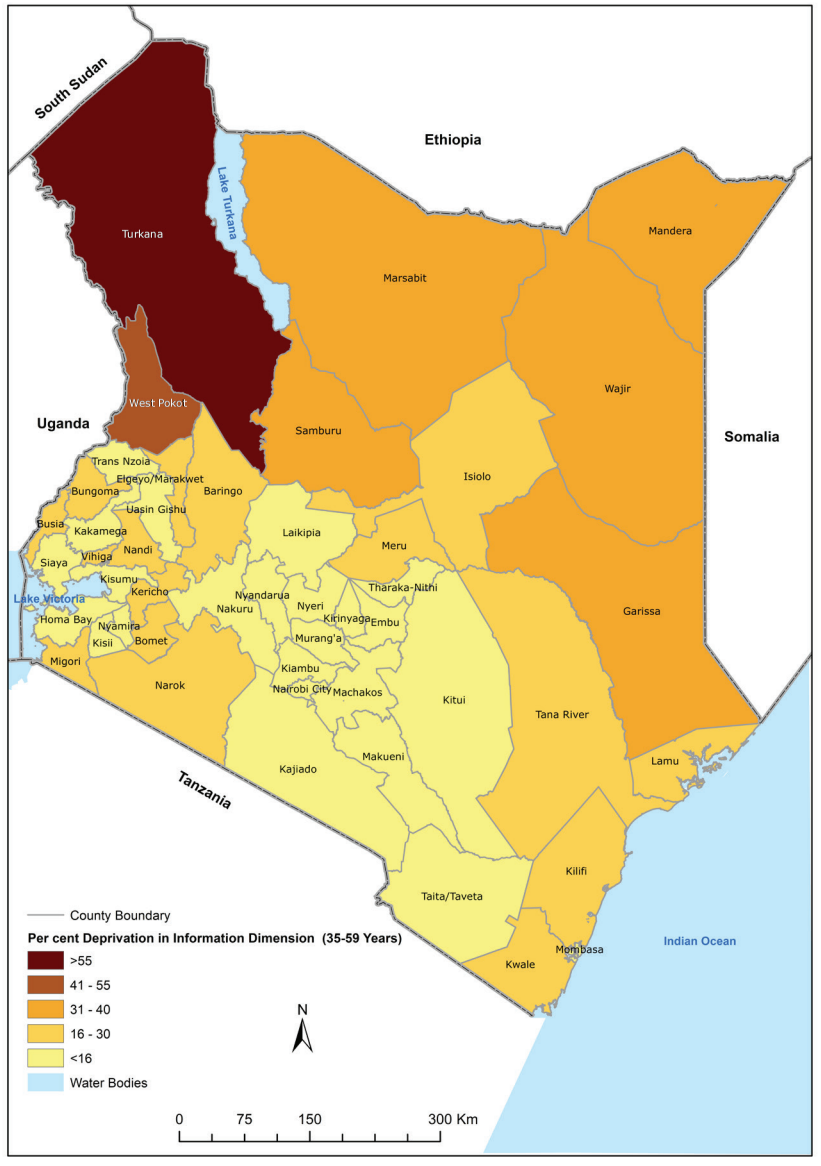


Source: KPHC 2009 and KPHC 2019

Map 6.1 **Percentage (%) of adults deprived in the information dimension, age 35-59 years, by county, 2009 (left) and 2019 (right)**



Source: KPHC 2009



Source: KPHC 2019

6.4 Conclusion and Recommendations

Improvements in access to information between 2009 and 2019 were substantial. At the national level, deprivation in ownership of information devices – TV, radio, phone, and computer - decreased from 18 to 6 per cent, respectively. Deprivation in exposure to media also decreased substantially among adults aged 18+ years, while among children it increased, possibly due to the switch to mobile phones as the main source of information as opposed to conventional sources like TV and radio in the past which were available and accessible to all household members. The high (and increasing) deprivation rate of children in media exposure as well as the high rate of youth – 18 per cent – who did not have exposure to any media in the three months preceding the census in 2019, raise concerns about both their educational outcomes in the context of the COVID-19 pandemic and labour market prospects among youth.

Despite the notable progress, particularly in urban areas, inequalities in access to information by residence remained widespread. In 2019, 8 per cent of households in rural areas compared to 2 per cent in urban areas were deprived in ownership of information devices, while 25 per cent of youths versus 8 per cent in rural and urban areas, respectively were deprived in exposure to media. Turkana, Samburu, West Pokot, Marsabit, Tana River and Baringo remained the most deprived counties in information, with manifold higher deprivation rates compared to counties like Nairobi City, Nyeri, Kiambu, Kirinyaga and Nyandarua.

Deprivation in information among children is associated with parental, household head, and household characteristics. Children whose mother, father or household head has completed at least secondary education or is in paid employment are less likely to be deprived in exposure to media than their peers. Other indicators that are proxies to strained and/or limited financial resources like the larger number of children or household type – i.e., children living only with their grandparents, are associated with higher deprivation rates.

This study recommends that:

i) Schools across the country are equipped with computers, other information devices and internet to ensure children's access to media and information while at school, tackling deprivation that they may be facing in their homes due to limited financial resources and other deprivations. Expanding access to electricity and information devices at the household level through wider ICT policies is imperative to reduce deprivation in the dimension effectively.

ii) Support programmes in partnership with the private sector that will enable households acquire ICT assets such as smart phones and laptops and increase mobile phone ownership to 100 per cent in line with the global agenda for Universal Access to Mobile Telephony.[93] Prioritize counties with high deprivation rates in ownership of information devices that showed little progress over the decade: Turkana, West Pokot, Samburu, Marsabit, Baringo, and Mandera.

iii) Harness the opportunities in information, technology and use innovative solutions and promote technology adoption in daily socio-economic activities. Given that the government is in the process of digitizing public services, effective digital transformation will require enhanced capacity building, provision of internet and electricity across the country.

iv) Counties with higher levels of deprivation will need to collaborate with the Communications Authority and telecom service providers to utilize the Universal Service Fund[94] in providing information and communication access in remote areas where market forces fail to expand information access. These include Turkana, West Pokot, Samburu, Marsabit, Baringo, Mandera, and tana River.

93 Universal access to mobile telephony: http://www.itu.int/itunews/manager/display.asp?lang=en&year=2007&issue=07&ipage=universal-telephony

94 Universal Service Fund: https://ca.go.ke/industry/universal-access/purpose-of-the-fund/

v) The information and technology personnel in public learning institutions can be deployed to support the development of information competence and skills among the public in their respective rural and remote areas.

vi) Enhance internet connectivity and provide free Wifi access at public buildings and key trade centres to boost internet use and information access in deprived areas. The National Optic Fibre Network Backhaul Initiative (NOFBI) programme can be expanded to the sub-county administrative units across all counties to further enable deployment of information solutions. A possible option is the government could include internet cost in the per capita grants to primary and secondary schools to facilitate access to free internet in learning institutions. The very disadvantaged schools can be considered for ICT Infrastructure support (computers, tablets and other ICT devices, reliable electricity power, good computer maintenance protocols) and capacity building for educators and learners.

7 Health, Water and Sanitation

7.0 Introduction

This chapter examines deprivations and inequalities in health, water and sanitation (WATSAN) wellbeing outcomes. Deprivation in health was measured using two proxy indicators at the household level: 1) Whether the child(ren) born in the past five years before the census survived, and 2) Whether the child(ren) born in the past five years before census were born in or outside a health facility. It is assumed that for a child born in a health facility, the mother delivered with assistance of a skilled health provider (doctor, nurse, midwife or clinical officer). This is used as a proxy indicator for measuring household access to healthcare services at the household level. Due to inconsistencies within KHPC 2009 data and the large share of missing values, these two indicators were not included in multidimensional poverty measurement.

Two indicators were used to measure deprivation in WATSAN: source of drinking water and toilet type. A person is considered deprived of access to a safe drinking water source if s/he lives in a household whose main water source is unimproved: pond, dam, lake, stream/river, unprotected spring, unprotected dwell, "Jabia," or water vendor. Deprivation in access to sanitation is defined as living in a household that has access to an unimproved toilet type: uncovered pit latrine, bucket latrine or bush. Since just one indicator has been used in each of these dimensions, the results presented in the chapter are both at the dimension and indicator level.

The rates of deprivation are discussed at national and subnational levels and across socio-economic characteristics.

7.1 Background and Context

Access to safe water and sanitation is key for well-being. These elements are interconnected and affect other dimensions of wellbeing such as nutrition and healthcare status, with profound socio-economic impacts overall. Access to water and sanitation have significant effects on vulnerable groups such as women and children. They are particularly important for women and girls given their traditional role as stewards of household water and managers of household sanitation, their reproductive and menstrual hygiene management needs, and their role in caring for home, children, elderly and/or other sick relatives.[95]

Health and health care, access to water, and adequate sanitation are recognized as fundamental rights in the Constitution of Kenya (2010). Article 43. Economic and social rights stipulates that *"(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; and (d) to clean and safe water in adequate quantities"*.[96] The Constitution singles out three additional population groups – children, minorities, and marginalized groups – in granting these rights including through affirmative policy actions.[97] Additionally, it provides broad principles that must govern the management of public resources including water.

95 Sanitation and Water for All, accessible at: https://www.sanitationandwaterforall.org/about/about-us/water-sanitation-hygiene

96 Government of Kenya, 2010, Constitution of Kenya, available at: http://kenyalaw.org/lex/actview.xql?actid=Const2010

97 Article 53. Children, (1) Every child has the right – (c) to basic nutrition, shelter and health care; Article 56. Minorities and marginalized groups – The state shall put in place affirmative action programmes designed to ensure that minorities and marginalized groups – (e) have reasonable access to water, health services and infrastructure – Ibid.

Kenya has ratified and committed to achieving several SDGs and related targets in the sectors of health and water and sanitation (WATSAN) as a signatory of the Sustainable Development Agenda, including SDG 3 *"Ensure healthy lives and promote well-being for all at all ages"* and SDG 6 *"Ensure availability and sustainable management of water and sanitation for all"* (Box 7.1.). Many of these goals and targets have been mainstreamed into Kenya Vision 2030 and several policy and strategy documents discussed in this section. Health and environment, and water and sanitation, constitute two of the eight sectors under the Social Pillar with respective goals aiming *"Equitable and affordable health care of the highest standards"* and *"Enhancing access to a clean, secure, and sustainable environment, water and sanitation."* [98]

Box 7.1 Related SDG goals and targets

SDG 3. Ensure healthy lives and promote well-being for all at all ages

Target 3.2. By 2030, end preventable deaths of new-borns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births.

Target 3.7. By 2030, ensure universal access to sexual and reproductive health-care services, including family planning, information and education, and the integration of reproductive health into national strategies and programmes.

Target 3.8. Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality, and affordable essential medicines and vaccines for all.

SDG 6. Ensure availability and sustainable management of water and sanitation for all.

Target 6.1. By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

Target 6.2. By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those living in vulnerable situations.

Health, water, and sanitation are mentioned explicitly also in Kenya's regional commitments, such as Agenda 2063 of the African Union. For instance, Aspiration 1 of the agenda based on inclusive growth and sustainable development that stipulates *"By 2063, African countries will be among the best performers in global quality of life measures"* lists provision of basic services such as health, water, sanitation, nutrition, education and shelter as the means to achieving the goal. Use and management of water resources for socio-economic development and regional cooperation are also mentioned under the objectives of Aspiration 1.[99]

On health, Kenya is committed to implementation of Universal Health Coverage (UHC). Progress towards UHC is a means to realizing the right to health as enshrined in the Kenyan Constitution, and ambitions set out in Vision 2030, the Kenya Health Policy 2014 – 2030, Sessional paper No 2 of 2017, Health Act 2017 and the Big 4 Agenda. It is also in line with Kenya's commitment to SDGs.[100]

98 Government of Kenya, 2008, "Kenya Vision 2030, available at: https://countytoolkit.devolution.go.ke/sites/default/files/resources/Vision-2030-Popular-Version_0.pdf

99 African Union, 2015, "Agenda 2063 – The Africa we Want", available at: https://au.int/sites/default/files/documents/36204-doc-agenda2063_popular_version_en.pdf

100 Ministry of Health, 2020. Kenya Universal Health Coverage (UHC) 2020-2030. Available at: https://www.health.go.ke/wp-content/uploads/2022/02/UHC-POLICY-2020-2030-FINAL.pdf

Another relevant policy is the recent Reproductive Health Policy 2022-2032, which is developed as a constitutional core mandate of the Ministry of Health to direct and guide the country on how to reduce the heavy burden of preventable reproductive health morbidity and mortality.[101] It also seeks to consolidate the gains achieved during the previous policy period and address the emerging challenges in reproductive health.

In recognition of the important contribution of water resources and adequate sanitation, the government of Kenya through the Ministry of Water, Sanitation and Irrigation (MWSI) has implemented various water sector reforms to enhance the availability and access to water and sanitation by all in accordance with the Water Act, 2016.[102] Two important documents include the Parliamentary Report advising drafting of the National Water Policy[103] and The National Environmental Sanitation and Hygiene Policy (2016-2030) which aims to *"ensure universal access to improved sanitation, clean and healthy environment by 2030."*[104] According to the Impact Report of 2019/20 by Water Services Regulatory Board (WSRB), 53 per cent of the population nationally had access to water in 2020.[105] Furthermore, as part of leaving no one behind and reaching vulnerable populations, Kenya has a specific framework for achieving open defecation free status (ODF) in the country, the National ODF Kenya 2020 Campaign Framework 2016/17-2019/20.[106]

7.2 Horizontal Inequality Analysis

7.2.1 Health: Child Survival and Birth Attendance

7.2.1.1 Analysis at the National Level and by Area of Residence

Analysis of the 2009 and 2019 census data showed that child survival rates were relatively high in Kenya. The child survival rates were at least 98.0 per cent in both 2009 and 2019, as shown in Figure 7.1. The disparities between urban and rural areas in 2019 were insignificant.

Regarding the indicator on skilled birth attendance[107] it was observed that in 2019, 83.2 per cent of births in the five years preceding the census were delivered in a health facility. Disparities were observed between rural and urban areas. In 2019, 94.9 per cent of children in urban areas compared to 76.9 per cent in rural areas were born in a health facility (Figure 7.2).

101 Ministry of Health, 2022, The National Reproductive Health Policy. Available at: https://www.health.go.ke/wp-content/uploads/2022/07/The-National-Reproductive-Health-Policy-2022-2032.pdf

102 Government of Kenya, The Water Act 2016, available at: https://wasreb.go.ke/downloads/Water%20Act%202016.pdf

103 National Assembly – Republic of Kenya, Departmental Committee on Environment and Natural Resources, 2021, "Report on Sessional Paper No. 1 of 2021 on National Water Policy", available at: http://www.parliament.go.ke/sites/default/files/2021-08/REPORT%20ON%20SESSIONAL%20PAPER%20NO.%201%20OF%202021%20ON%20NATIONAL%20WATER%20POLICY.pdf

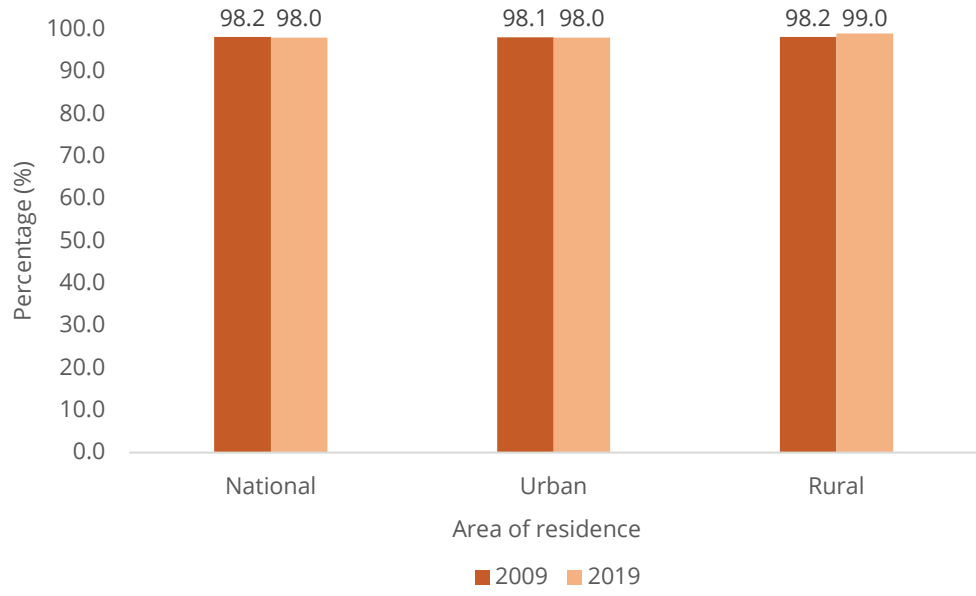
104 Ministry of Health, 2016, Kenya Environmental Sanitation and Hygiene Policy 2016-2030, available at: https://repository.kippra.or.ke/bitstream/handle/123456789/1803/Kenya%20Environmental%20and%20Sanitation%20Hygiene%20%20POLICY_1.pdf?sequence=1&isAllowed=y

105 Available at: https://wasreb.go.ke/downloads/WASREB_Impact_Report13.pdf

106 Ministry of Health, 2016, National ODF Kenya 2020 Campaign Framework 2016/17-2019/20, available at: https://www.health.go.ke/wp-content/uploads/2018/04/NATIONAL-ODF-KENYA-2020-CAMPAIGN-FRAMEWORK.pdf

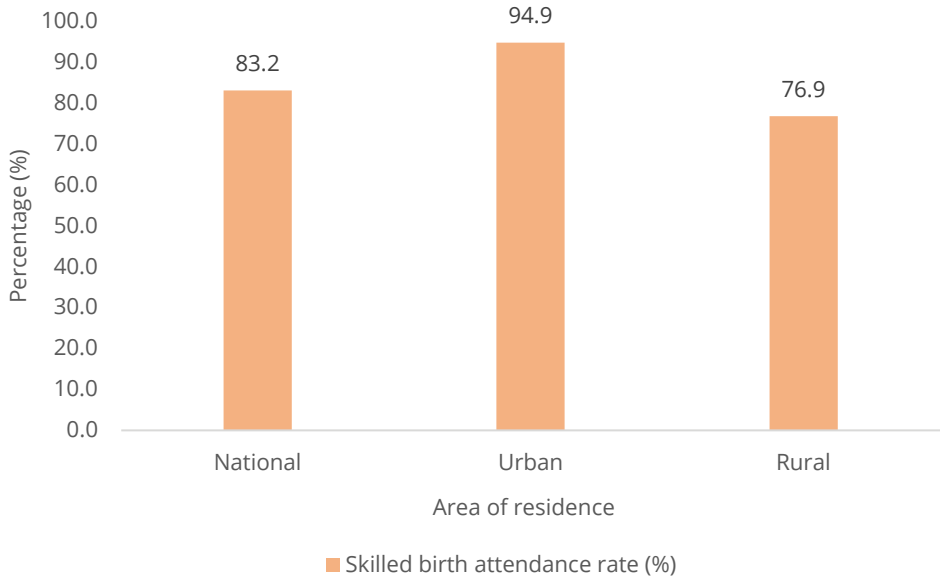
107 Data on skilled birth attendance is not available for 2009.

Figure 7.1 **Child survival (%), births in the five years preceding the survey, household level, national level and by area of residence, 2009 and 2019**



Source: KPHC 2009 and KPHC 2019

Figure 7.2 **Skilled birth attendance rate (%), births in the five years preceding the census, household level, national level and by area of residence, 2019**

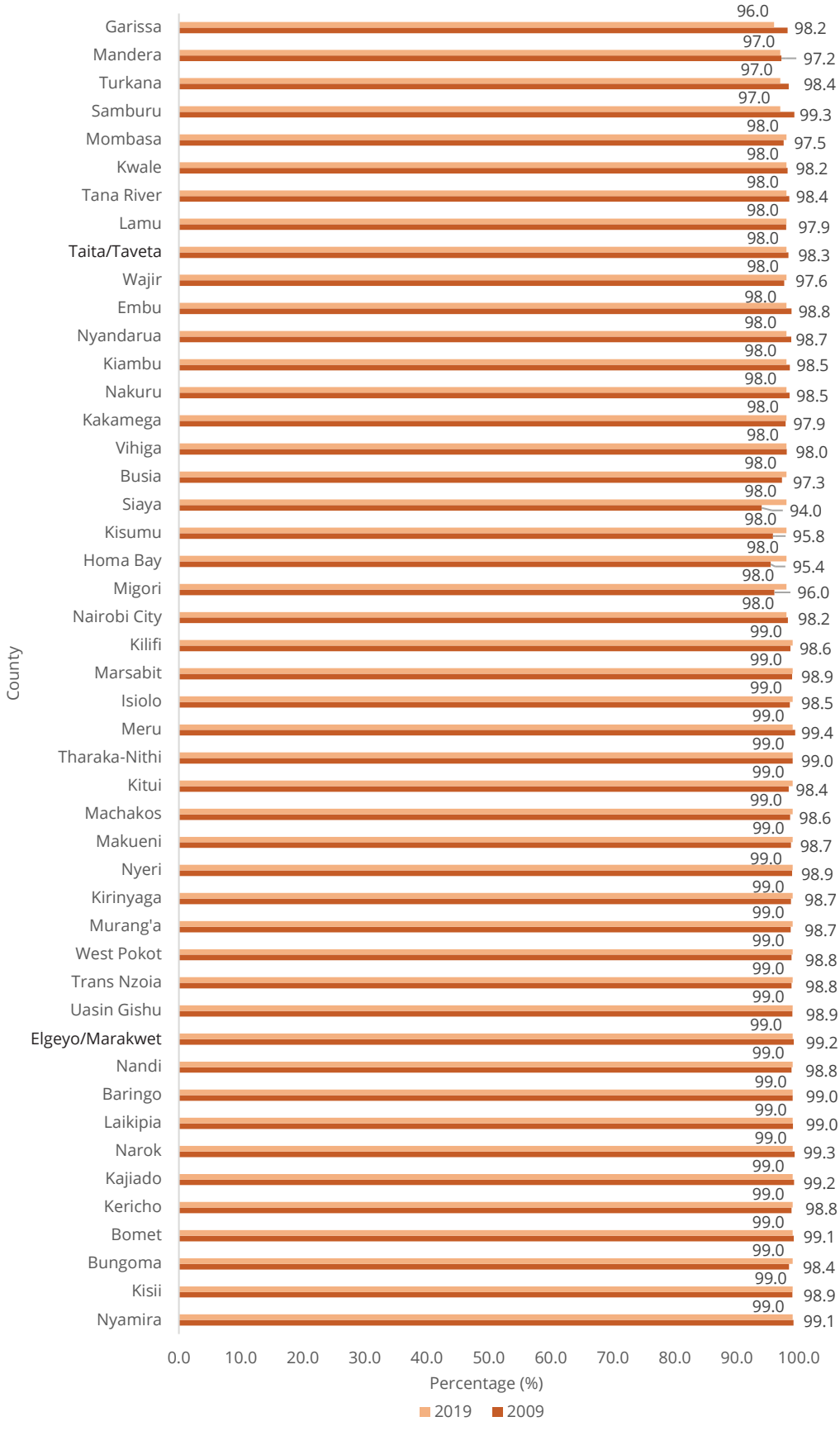


Source: KPHC 2009

7.2.1.2 Analysis at County Level

Disparities in the child survival rate across counties were not significant in 2009 and 2019 as shown in Figure 7.3. Ranking of counties by survival rate in 2009 showed that all counties except Homa Bay (95.4 per cent) and Siaya (94.0 per cent), had a survival rate of over 96 per cent. In Migori and Kisumu the rates stood at 96 and 95.8 per cent, respectively. In 2019, Garissa had a lower survival rate compared to the other counties 96 per cent, followed by Mandera, Turkana, and Samburu at 97 per cent. In the other counties, more than 98 per cent of children born in the five years preceding the survey had survived.

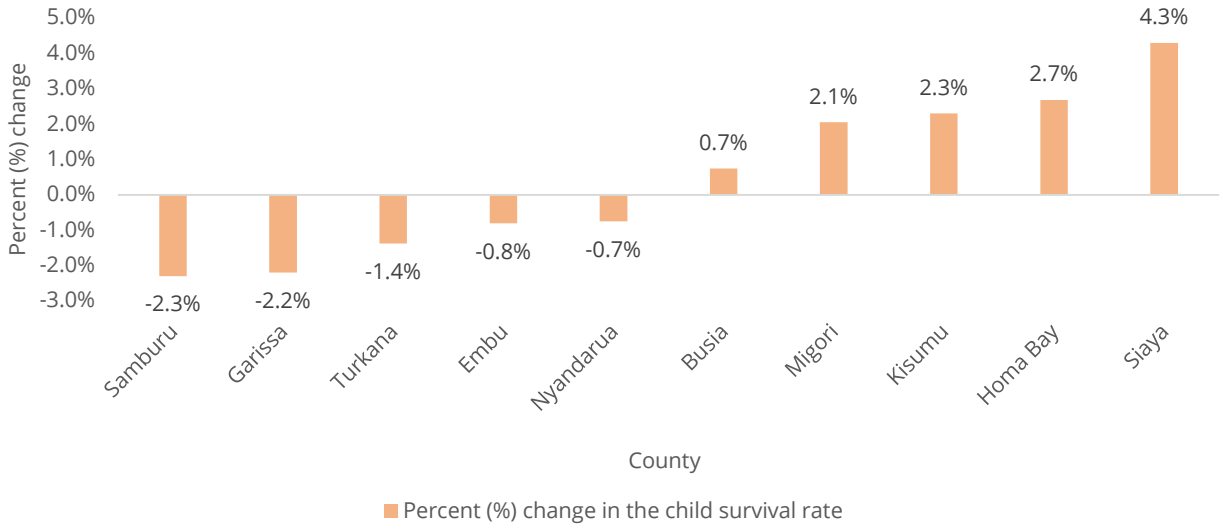
Figure 7.3 **Child survival (%), births in the five years preceding the survey, household level, by county, 2009 and 2019**



Source: KPHC 2009 and KPHC 2019

Figure 7.4 depicts the changes in child survival rates between 2009 and 2019 in ten select counties. Child survival rates increased most significantly in Siaya (4.3 per cent), followed by Homa Bay (2.7 per cent), Kisumu (2.3 per cent) and Migori (2.1 per cent). On the other hand, the largest declines were recorded in the counties of Samburu (2.3 per cent), Garissa (2.2 per cent) and Turkana (1.4 per cent).

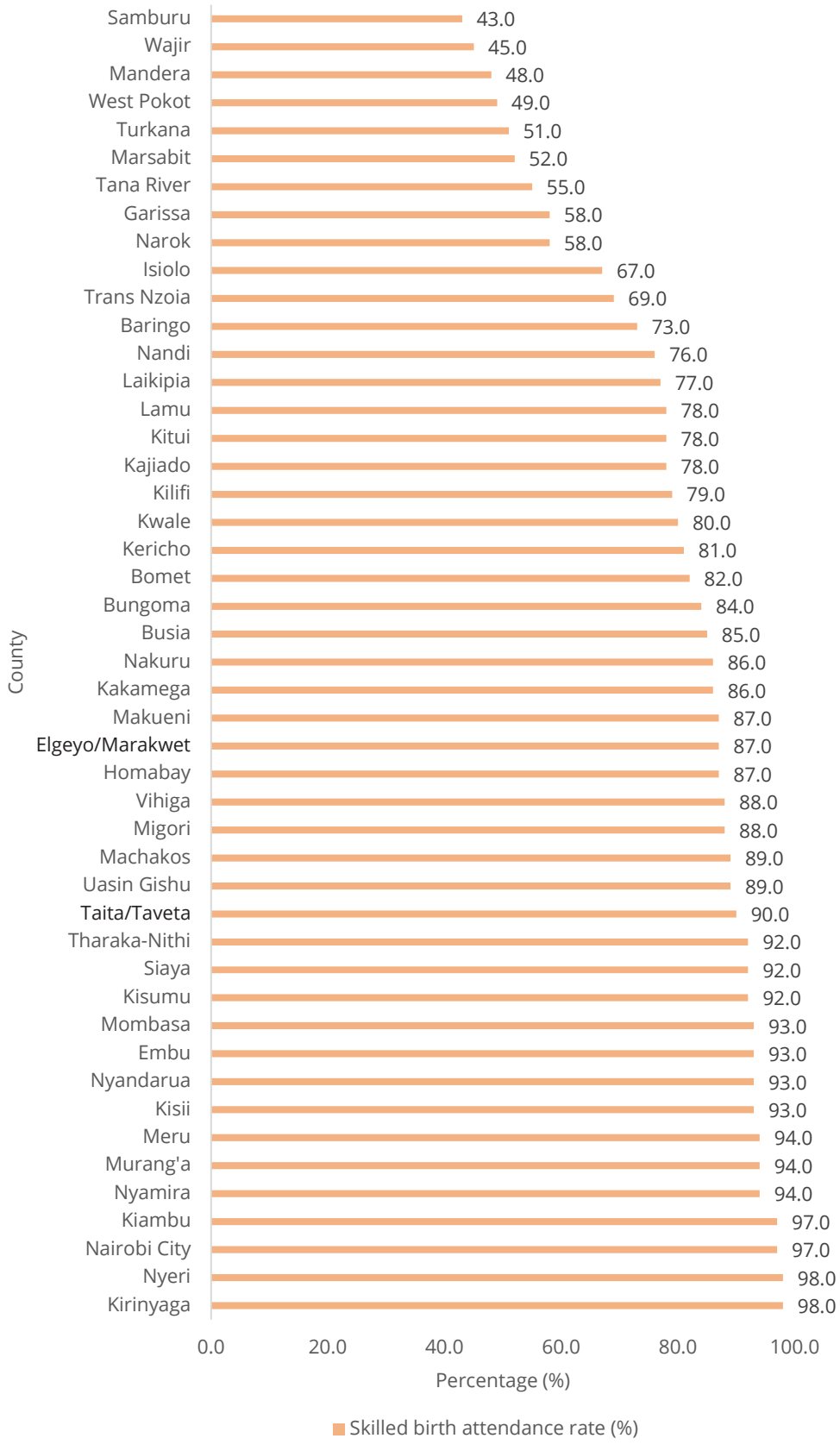
Figure 7.4 **Percent (%) change in the child survival rate between 2009 and 2019, five poorest performing counties (left) and five best performing counties (right)**



Source: KPHC 2009 and 2019

Disparities among counties were larger in the indicator of skilled birth attendance as shown in Figure 7.5. In 2019, less than 5 out of 10 children born in the five years preceding the census in Samburu (42.9 per cent), Wajir (44.6 per cent), Mandera (48.5 per cent) and West Pokot (49.4 per cent) were born in a health facility. Skilled birth attendance rates were also low in Turkana (50.9 per cent), Marsabit (51.7 per cent), Tana River (54.8 per cent), Narok (57.7 per cent) and Garissa (58.0 per cent) counties. On the other hand, counties with the highest skilled birth attendance rates were Kirinyaga and Nyeri, at 98.1 per cent and 97.9 per cent respectively. Skilled birth attendance was also high in Nairobi City (97.1 per cent) and Kiambu (96.6 per cent).

Figure 7.5 **Skilled birth attendance rate (%), births five years preceding the census, by county, 2019**



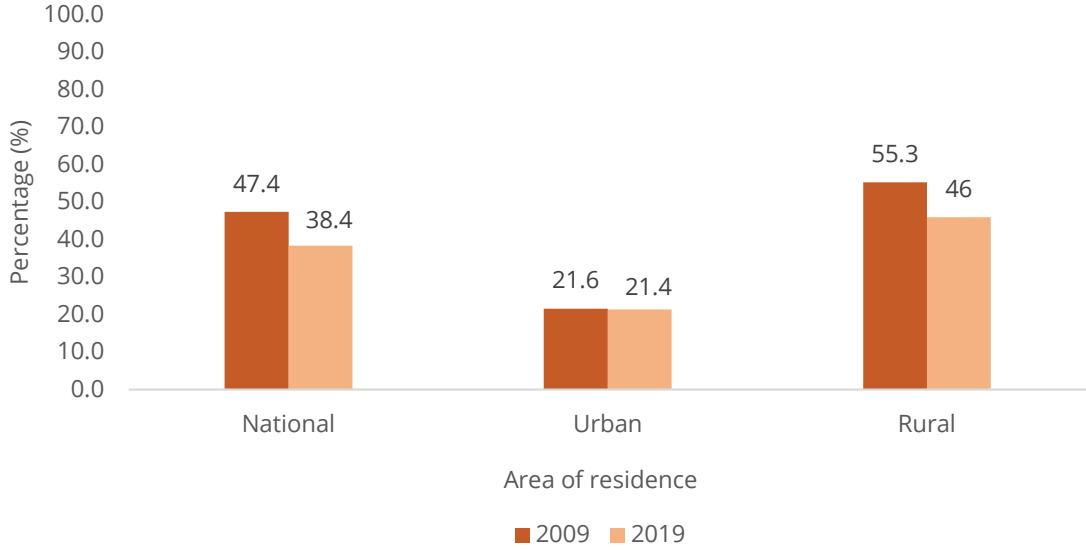
Source: KPHC 2019

7.2.2 Access to Safe Drinking Water

7.2.2.1 Analysis at the National Level and by Area of Residence

Figure 7.6 presents deprivation and inequalities in access to safe drinking water for 2009 and 2019. Findings show that access to safe drinking water improved significantly in Kenya between 2009 and 2019, with the national deprivation rate decreasing from 47.4 per cent to 38.4 per cent, respectively. Nevertheless, disparities remained wide between urban and rural areas. In 2019, 46 per cent of Kenyans in rural areas did not have access to safe drinking water, more than twice the share of the residents in urban areas at 21.4 per cent. During the decade, the biggest improvement in the sector was observed in rural areas, where deprivation decreased from 55.3 to 46 per cent. On the contrary, in urban areas the deprivation rate decreased by less than 1 per cent.

Figure 7.6 Percentage (%) of the population deprived in access to safe drinking water, national level and by area of residence, 2009 and 2019

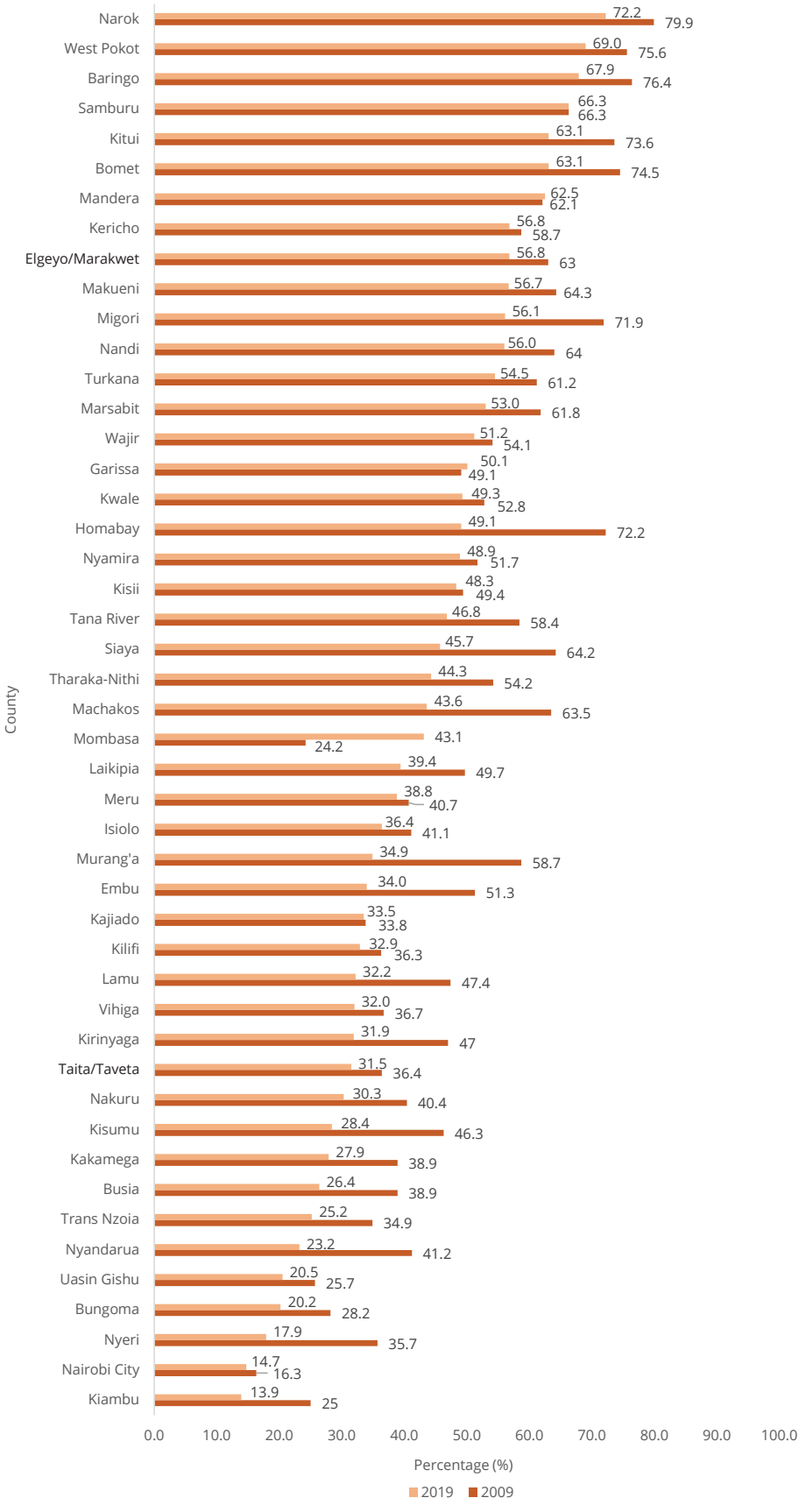


Source: KPHC 2009 and KPHC 2019

7.2.2.2 Analysis by County

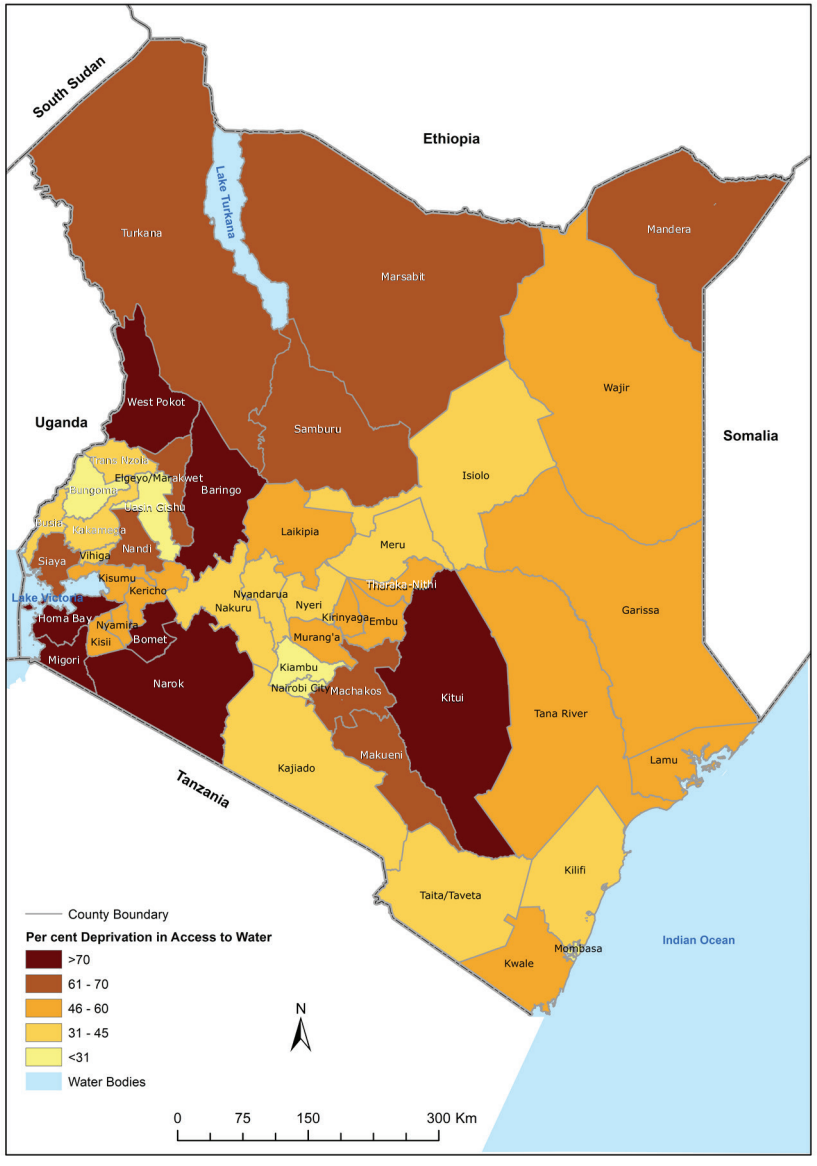
The proportions of the population deprived of safe drinking water by county are presented in Figure 7.7, Map 7.1, and Annex 10. Despite major progress in access to adequate water nationally, disparities between counties remained widespread. In 2019, nearly 3 in 4 residents of Narok County were deprived in access to water compared to only 13.9 per cent of residents of Kiambu. Ranking of counties by deprivation rates in 2009 and 2019 shows that Nyeri, Nairobi City, Kiambu, Bungoma and Uasin Gishu had the lowest deprivation rates. Counties with higher precipitation such as Kiambu and Nyeri tended to have lower deprivation rates. Besides precipitation, counties with hitherto larger investments in water infrastructure performed better than the others. On the other hand, Mombasa that ranked among the least deprived counties in 2009, had a derivation rate that was close to the country's average, implying that the deprivation nearly doubled between the two periods (from 24.2 to 43.1 in 2009 and 2019, respectively). This could be explained with the growing population in Mombasa over the decade. Narok, West Pokot, Baringo, Samburu and Kitui were the most deprived counties in access to water in both years, with deprivation rates ranging between 63.1 and 72.2 per cent in 2019 and between 66.3 and 76.4 per cent in 2009.

Figure 7.7 **Percentage (%) of the population deprived in access to safe drinking water, by county, 2009 and 2019**

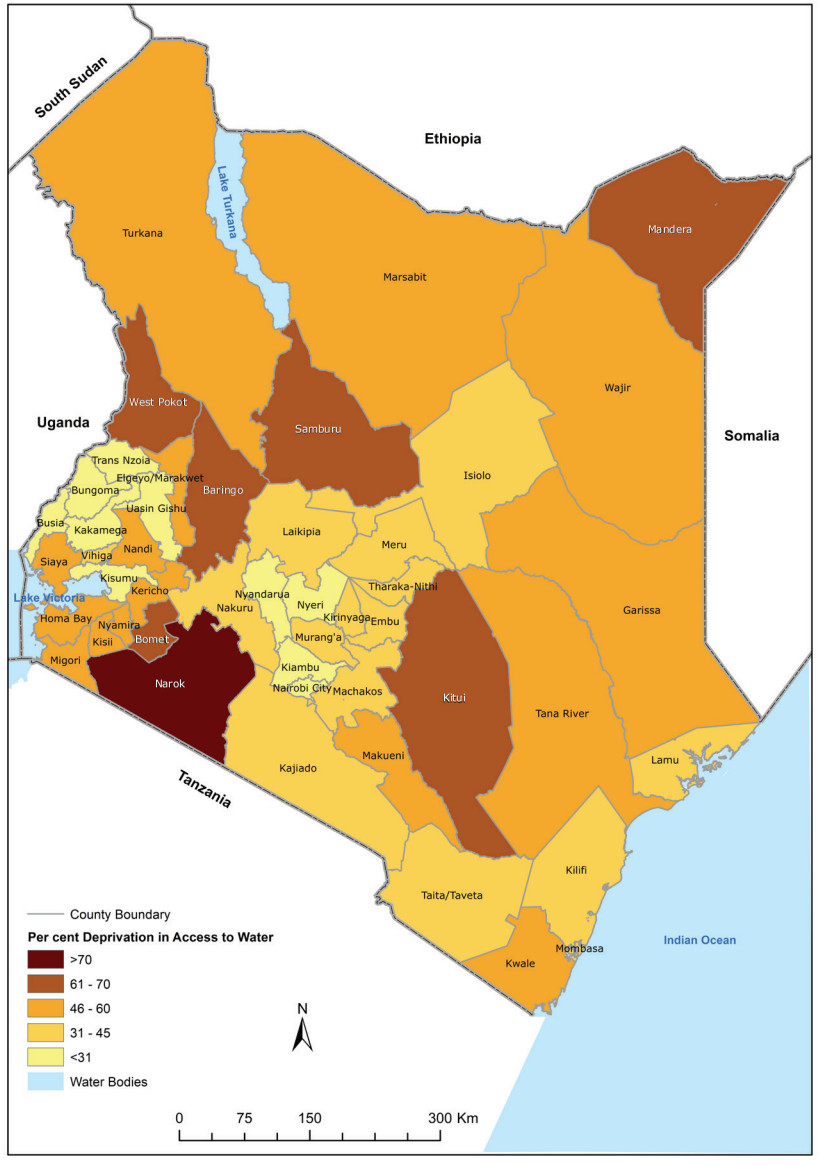


Source: KPHC 2009 and KPHC 2019

Map 7.1 **Percentage (%) of the population deprived in access to safe drinking water, by county, 2009 (left) and 2019 (right)**



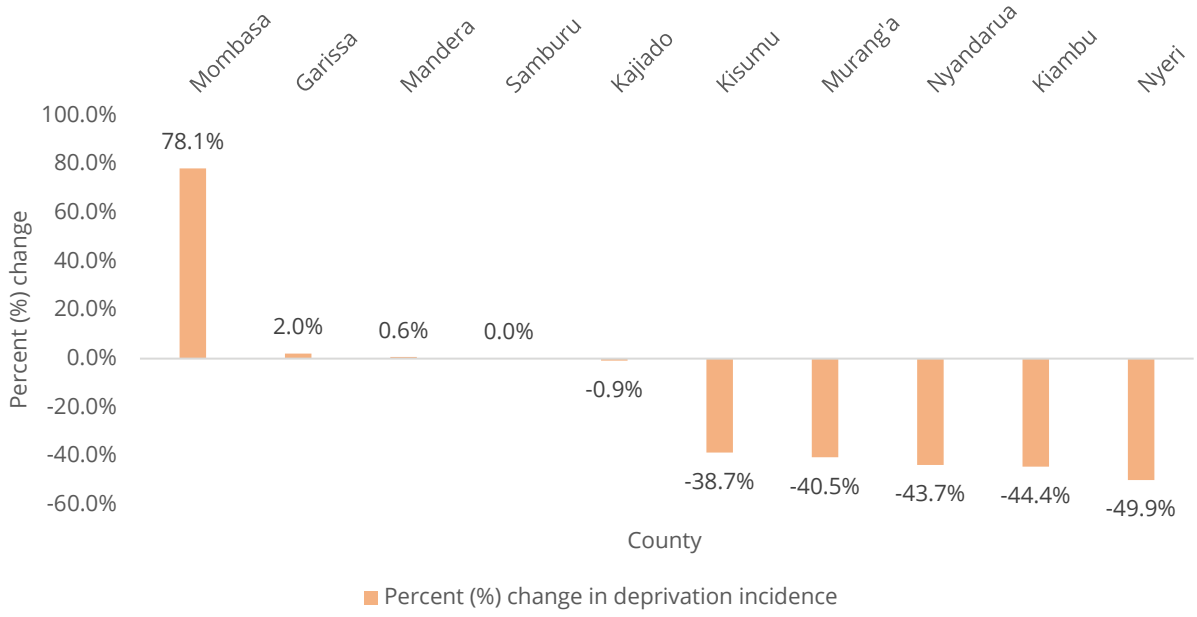
Source: KPHC 2009



Source: KPHC 2019

Figure 7.8 depicts trends of change in deprivation in water between 2009 and 2019 in ten counties; five that have recorded the highest decrease in deprivation rate and five counties that have seen an increase in the deprivation rate or an insignificant decrease in the deprivation rate. Overall, deprivation rates in access to water decreased in most of the counties, with the largest changes recorded in Nyeri, Kiambu, Nyandarua, Murang'a and Kisumu, by between 38.7 and 49.9 per cent. Mombasa is the only county that recorded a significant increase in deprivation, from 24.2 per cent in 2009 to 43.1 per cent in 2019, or a 78.1 per cent increase. Garissa and Mandera showed insignificant changes, 2.0 and 0.6 per cent, respectively, while in Samburu the deprivation rate remained unchanged between 2009 and 2019.

Figure 7.8 **Percent (%) change in access to safe drinking water between 2009 and 2019, five poorest performing counties (left) and five best performing counties (right)**



Source: KPHC 2009 and KPHC 2019

7.2.2.3 Socio-Economic Drivers of Inequality

Analysis of deprivation in access to safe drinking water by socio-economic characteristics is presented in Table 7.1. The results show that there were no significant disparities in deprivation to access to water across characteristics such as sex, disability status, and marital status of the household head. On the contrary, characteristics such as sex of the household head, their educational attainment, employment status, the number of children in the household, and labour constraint in the household showed notable differences in deprivation rates in 2019. Women-headed households were more likely to be deprived in access to safe drinking households compared to households headed by men. Moreover, households whose heads had not completed at least secondary education, were not in paid employment, and where there were more children were more likely to be deprived in access to water. Deprivation incidence was also higher among households comprising of only grandparent/s and grandchildren children, and single mother/ single father and children.

Table 7.1 **Percentage (%) of the population deprived in access to safe drinking water, by demographic and socio-economic characteristics, 2019**

Demographic and socio-economic characteristics		2019
National		**38.4**
Sex	Female	38.0
	Male	38.8
Disability	Person with disability	37.9
	Person without disability	38.2
Sex of the HH head	HH head is a woman	39.5
	HH head is a man	37.8
Marital status of the HH head	HH head is married	39.4
	HH head is not married	34.1
Disability status of the HH head	Person with disability	38.9
	Person without disability	38.3
Educational attainment of the HH head	HH head completed secondary/higher education	22.4
	HH head not completed secondary education	38.7
Employment status of the HH head	Paid employment	35.4
	Unemployed/Unpaid employment	42.7
Number of children in the HH	No children<18 in HH	30.1
	1-2 children<18 in HH	33.7
	3-4 children<18 in HH	40.6
	5+children<18 in HH	48.5
HH labour constraint	HH labour constrained	43.3
	HH not labour constrained	35.5
Household type and composition	HH head and other relatives	39.2
	HH head and non-relatives	25.0
	Mixed HH-nuclear/other relatives and nonrelatives	28.3
	Grandparents with grandchildren	38.0
	Grandmother with grandchildren	41.0
	Grandfather with grandchildren	41.9
	Nuclear family	40.2
	Female HH head and children	42.2
	Male HH head and children	43.1
	HH head and spouse/s	30.2
	Single member HH	29.5

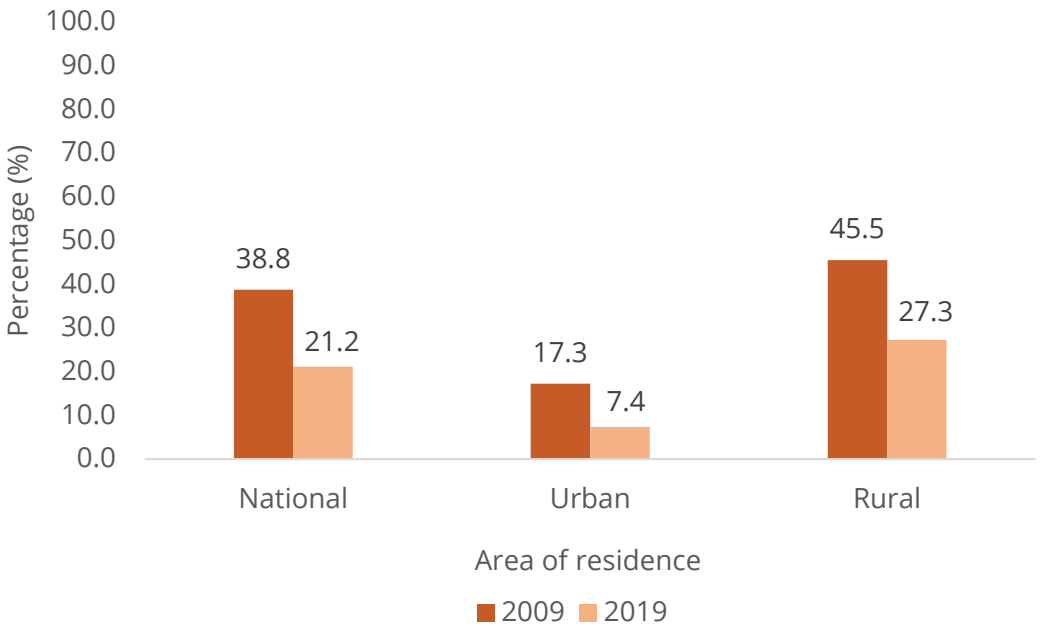
Source: KPHC 2019

7.2.3 Access to Improved Sanitation

7.2.3.1 Analysis at the National Level and by Area of Residence

Notable improvements in access to adequate sanitation were observed between 2009 and 2019. The deprivation rate to adequate sanitation at the national level almost halved in 2019 compared to the 2009 level, from 38.8 per cent to 21.2 per cent as shown in Figure 7.9. Improvements were substantial across both urban and rural areas; in urban areas, deprivation in improved sanitation decreased from 17.3 to 7.4 per cent whereas in rural areas from 45.5 to 27.3 per cent. Despite the notable progress, deprivation in rural settings remained significantly higher. While less than 1 in 10 persons living in urban areas were deprived of adequate sanitation in 2019, in rural areas this figure was nearly 3 in 10 persons.

Figure 7.9 **Percentage (%) of the population deprived in access to improved sanitation, national level and by area of residence, 2009 and 2019**

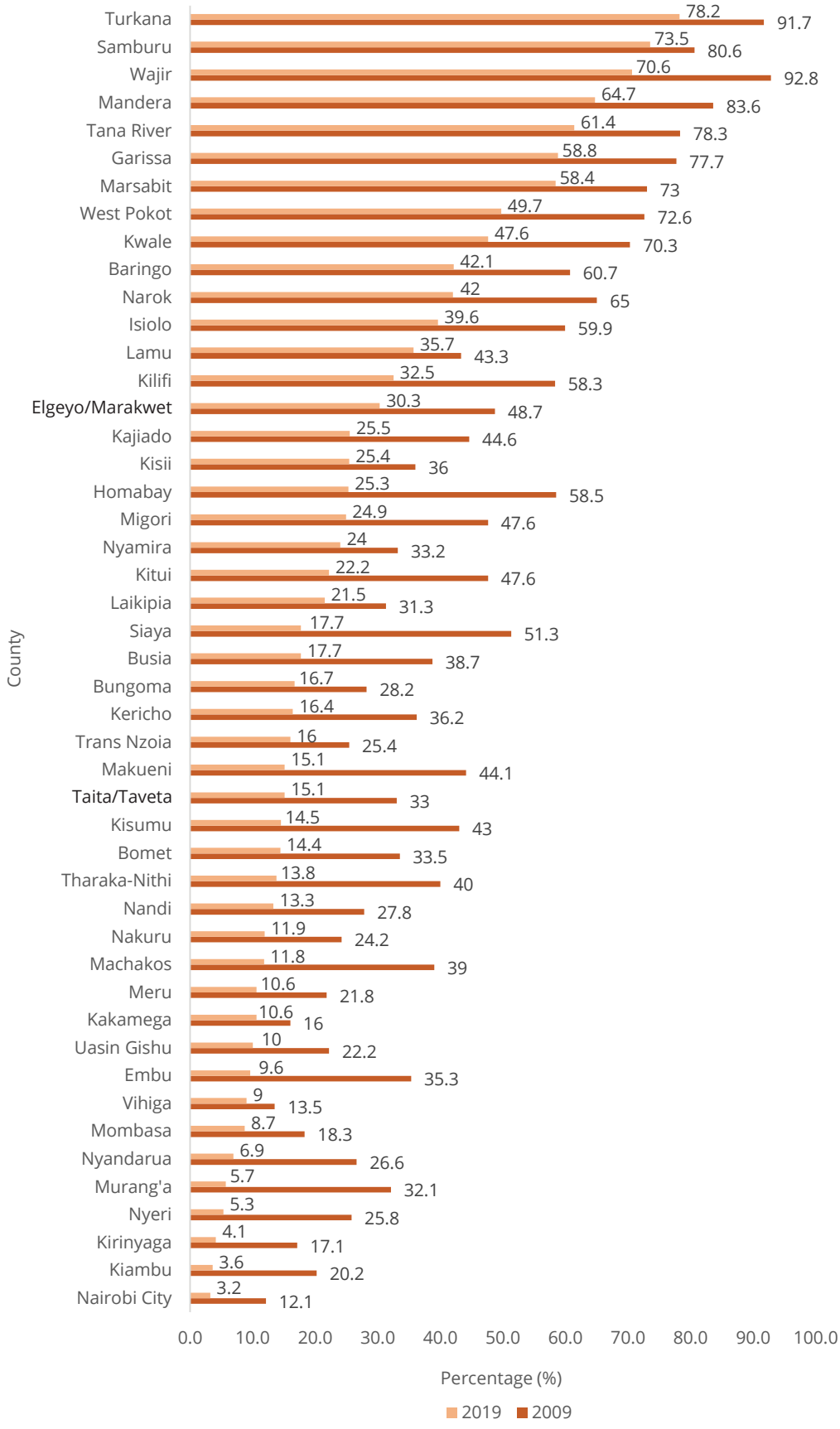


Source: KPHC 2009 and KPHC 2019

7.2.3.2 Analysis by County

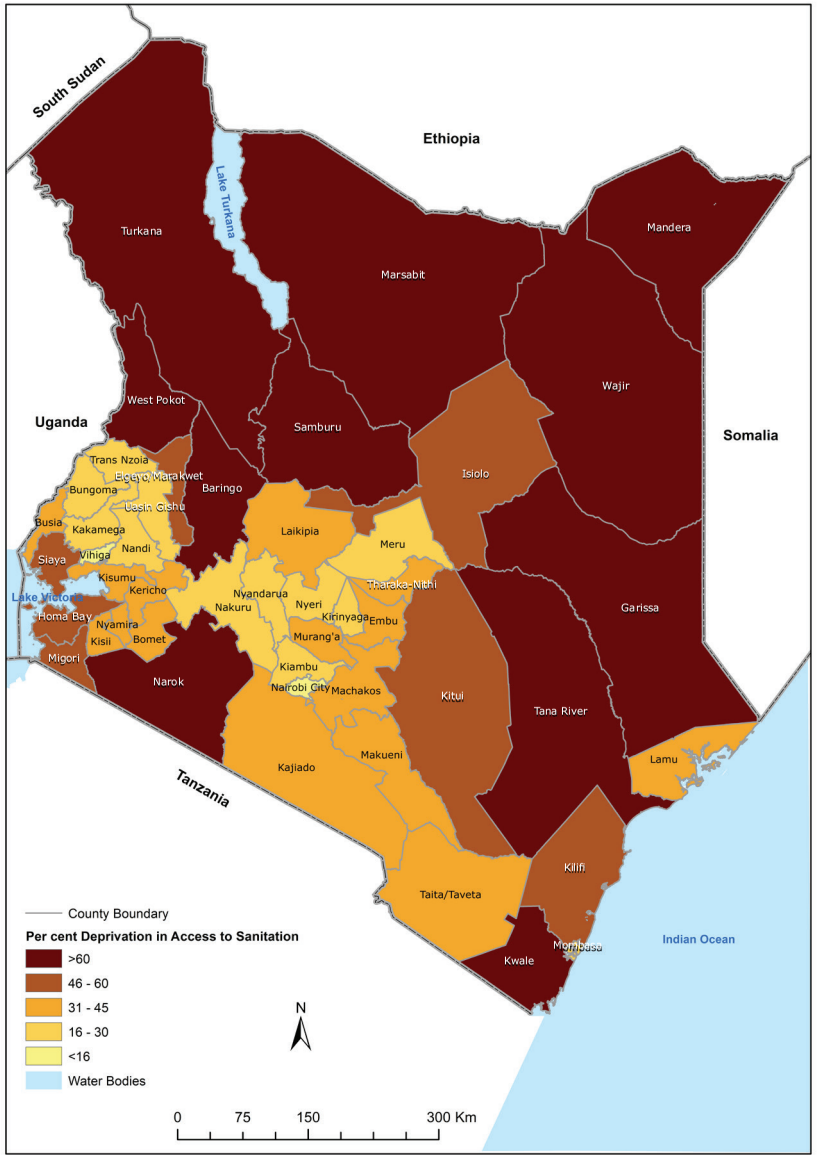
Despite major progress in access to adequate sanitation nationally, disparities between counties remained widespread (Figure 7.10, Map 7.2 and Annex 10). In 2019, nearly 8 out of 10 persons residing in Turkana – 78.2 per cent – did not have access to an improved toilet compared to only 3.2 per cent of persons residing in Nairobi City. Ranking of counties by deprivation incidence in sanitation shows that Nairobi City and Kirinyaga were the least deprived in sanitation in both 2009 and 2019. In 2019, Kiambu, Nyeri, and Murang'a also ranked among the five least deprived counties with deprivation rates ranging between 3.6 and 5.7 per cent, replacing Vihiga, Kakamega, and Mombasa in 2009 rankings. On the other hand, the most deprived counties were the same in 2009 and 2019. In 2019, the deprivation rates ranged between 61.4 and 78.2 per cent in Turkana, Samburu, Wajir, Mandera, and Tana River, while in 2009 between 78.3 and 92.8 per cent.

Figure 7.10 **Percentage (%) of the population deprived in access to improved sanitation, by county, 2009 and 2019**

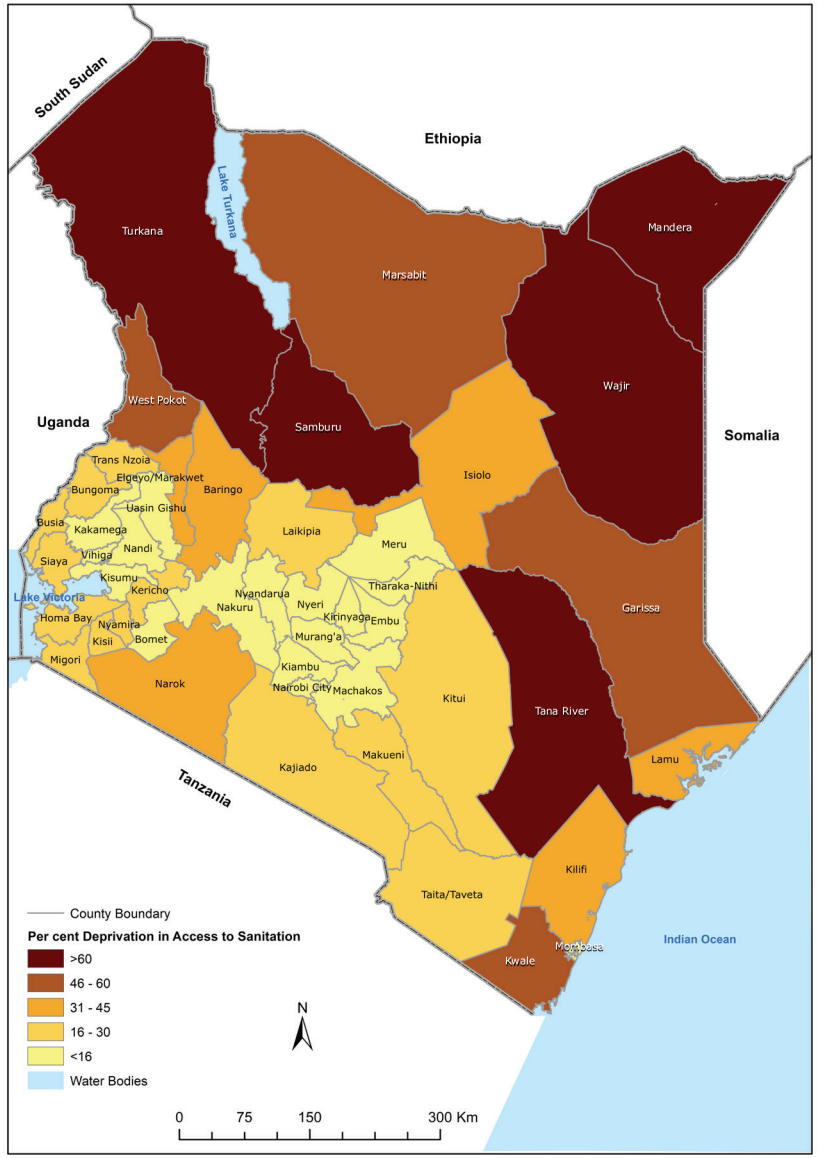


Source: KPHC 2009 and KPHC 2019

Map 7.2 Percentage (%) of the population deprived in access to improved sanitation, by county, 2009 (left) and 2019 (right)



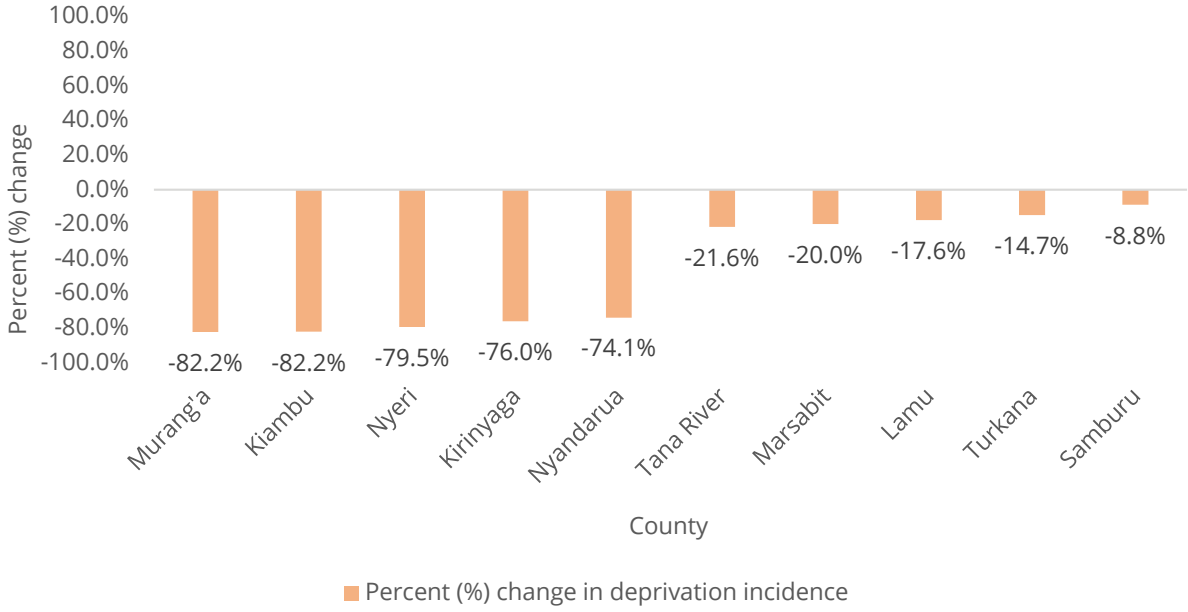
Source: KPHC 2009



Source: KPHC 2019

Figure 7.11 shows trends of change in deprivation in sanitation between 2009 and 2019 in ten counties; five that have experienced the smallest changes in deprivation and five where deprivation decreased the most. Improvements in access to adequate sanitation were significant in Murang'a, Kiambu, Nyeri, Kirinyaga and Nyandarua, where deprivation incidence decreased by between 74.1 and 82.2 per cent. On the other hand, in Samburu, Turkana, Lamu, Marsabit and Tana River the progress was smaller, highlighting that all these counties except for Lamu were left behind in realization of their right to adequate sanitation.

Figure 7.11 **Percent (%) change in deprivation incidence in access to improved sanitation between 2009 and 2019, five best performing counties (left) and five poorest performing counties (right)**



Source: KPHC 2009 and 2019

7.2.3.3 Socio-Economic Drivers of Inequality

Table 7.2 shows that there were no significant differences in deprivation in sanitation between girls/women and boys/men, or between persons with and without disability. On the other hand, characteristics of the household head were associated with deprivation in access to improved sanitation. Individuals living in women-headed households, in households with a HH head that that had not completed secondary or higher education or was not in paid employment were more likely to be deprived of adequate sanitation.

Household characteristics were also important. Households with a larger number of children were significantly more likely to be deprived in sanitation, with the highest deprivation rate recorded among households with five or more children, as were the labour constrained households, and households comprising only single mothers/fathers and children or grandparent/s and grandchildren.

Table 7.2 **Percentage (%) of the population deprived in access to improved sanitation, by demographic and household characteristics, 2019**

Individual and household characteristics		2019
National		**21.2**
Sex	Female	20.8
	Male	21.5
Disability	Person with disability	18.4
	Person without disability	20.9
Sex of HH head	HH head is a woman	24.2
	HH head is a man	19.4
Marital status of HH head	HH head is married	22.0
	HH head is not married	17.4
Disability status of HH head	Person with disability	19.1
	Person without disability	21.6
Educational attainment of HH head	HH head completed secondary/higher education	6.2
	HH head not completed secondary education	16.1
Employment status of HH head	Paid employment	17.8
	Unemployed/Unpaid employment	25.9
Number of children in the HH	No children<18 in HH	12.5
	1-2 children<18 in HH	15.1
	3-4 children<18 in HH	22.2
	5+children<18 in HH	35.2
HH labour constraint	HH labour constrained	28.0
	HH not labour constrained	17.0
Household type and composition	HH head and other relatives	20.8
	HH head and non-relatives	9.7
	Mixed HH-nuclear/other relatives and nonrelatives	14.1
	Grandparents with grandchildren	15.7
	Grandmother with grandchildren	22.9
	Grandfather with grandchildren	22.3
	Nuclear family	23.1
	Female HH head and children	26.3
	Male HH head and children	28.8
	HH head and spouse/s	11.9
	Single member HH	12.0

Source: KPHC 2019

7.3 Conclusion and Recommendations

Child survival rate was very high in Kenya in 2019, at or over 96 per cent in all the counties, and with insignificant differences between rural and urban areas. However, counties that experienced a decline in child survival rates between 2009 and 2019 need to be considered carefully in interventions – Samburu, Garissa, and Turkana. Rural areas also need dedicated interventions in the health care sector given that 23 per cent of births in 2019 took place outside health facilities, as do counties with low skilled birth attendance rates such as Samburu, Wajir, West Pokot, Mandera, Turkana, Marsabit, Tana Rivers, Garissa and Narok (between 43 and 58 per cent).

Nearly 4 in 10 Kenyans did not have access to safe drinking water in 2019 and 2 in 10 were deprived of adequate sanitation. However, there were remarkable improvements in both sectors between 2009 and 2019 albeit the decrease in deprivation was stronger in sanitation where it almost halved. Safe drinking water and basic sanitation are essential for the survival of children. Strong efforts need to be put to tackle issues in the sector, as Kenya is classified as a water scarce country. This coupled with more frequent cycles of severe and unpredictable weather conditions and increased rates of natural resource depletion will make water less available, especially in the country's arid and semi-arid areas, calling for urgent and sustainable solutions. Another structural issue facing the sector is that the water service providers in Kenya struggle to raise the capital and strengthen local capacities needed to accelerate water delivery.

Inequalities in access to water and sanitation were large across areas of residence and counties. Rainfall patterns as well as existing investments by national and county government, as well as international partners, are some of the key factors that explain part of these differences. In 2019, the share of the population in rural areas deprived in water was more than twice that in urban areas, 46 versus 21 per cent, respectively. Likewise, while nearly 3 in 10 persons in rural areas were deprived of adequate sanitation, in urban areas the deprivation rate was 1 in 10 persons. Furthermore, despite improvements, differences across counties were striking. In 2019, nearly a quarter – 72 per cent – of the residents of Narok County were deprived in water compared to 14 per cent of residents of Kiambu. Similarly, 78 per cent of the population of Turkana compared to 3 per cent of Nairobi City were deprived in sanitation. Moreover, progress between 2009 and 2019 across counties was unequal. For instance, the deprivation rate in water in Mombasa increased by more than 78 per cent during the period, possibly explained by the population growth during the decade. Nevertheless, this change requires further investigation. Further, Garissa, Samburu, and Turkana recorded almost no progress in access to safe drinking water between 2009 and 2019, pointing to the need for immediate interventions given that these counties also rank among the most deprived in water in Kenya.

Disaggregation of figures by socio-economic characteristics shows that there are intersecting inequalities in access to safe drinking water and adequate sanitation. In addition to disadvantages stemming from area and county of residence, women-headed households, labour constrained households, households with a larger number of children, and households the head of which has not completed at least secondary education were more likely to be deprived in both water and sanitation. Deprivation rates in both dimensions were the highest among households comprised of only single mothers/fathers and children and grandparent/s and grandchildren, implying that these groups need to be prioritized in cash (plus) transfer programmes for effective alleviation in deprivation incidence.

This study recommends the following for improvements in deprivation in health, water and sanitation to tackle inequalities:

i) Given the interaction between and overlap in deprivation in the health, sanitation and water dimensions, it is recommended to formulate comprehensive policies while engaging multiple stakeholders in policy planning and implementation such as the Ministry of Water, Sanitation and Irrigation Ministry of Health, Ministry of Public Service, Gender and Affirmative Action, Ministry of Agriculture and Livestock Development, Ministry of Roads and Transport,

Ministry of Lands, Public Works, Housing and Urban Development, Ministry of Education, Ministry of Labour and Social Protection, and the Ministry of East African Community, the ASALs and Regional Development. In order to maximize benefits and reach those in greatest need, WATSAN and health interventions must be integrated with other programs including agriculture, environment, governance, education, and maternal and child health. Reducing inequalities between counties and areas, by focusing on rural areas and most disadvantaged counties – Narok, West Pokot, Baringo, Samburu, Kitui, Mandera, Garissa, Wajir, Tana River, Turkana, and Marsabit – must be prioritized.

ii) Continue the efforts to improve sanitation across the country through awareness-raising campaigns which reach the especially marginalised and vulnerable population groups.

Mobilize financing for the WATSAN sector with a focus on reducing inequalities across counties, while addressing the rural urban inequalities. Counties will need to increase water supply in households, institutions and public places by fast tracking ongoing water projects such as drilling of boreholes, construction of dams and water pans. Promote water harvesting through roof catchments and provision of tanks to poor households; and ensuring rehabilitation of the existing water sources by protection of water springs and wetlands.

iii) It is recommended to further study the factors influencing choice of skilled birth attendance. Since there is an important difference between rural and urban areas, and across counties with skilled birth attendance rates ranging between 42.9 and 58 per cent in Samburu, Wajir, Mandera, West Pokot, Turkana, Marsabit, Tana River, Narok and Garissa, the following elements should be analysed:

- Whether women living in rural areas and the above-mentioned counties are constrained when seeking for skilled birth delivery attendance because the service is not available or accessible, which would require extending health facilities in in these areas and mobilizing the investment that it requires.
- Whether women living in rural areas and above-mentioned counties do not have enough information on the importance of delivering in a health facility, which would require strong awareness-raising campaigns.
- Whether skilled birth attendance is hampered by unaffordability, which would require social assistance interventions or subsidization of the service.
- The effect of service quality issues must also be assessed.

v) Monitor closely the counties that have noted a decline in the child survival rates – Garissa, Mandera, Turkana, and Samburu - to identify the issues and intervene with corresponding programmes.

vi) Cash plus social assistance programmes are crucial in addressing deprivation and reducing inequalities also in health, water and sanitation sectors. Analysis of socio-economic factors associated with deprivation in WATSAN point to several vulnerable groups that should be prioritized in these programmes: (1) monetary poor households – given the association of higher deprivation and inequality with low educational attainment and unemployment of household heads, as well as labour constraint of households; (2) women-headed households; (3) households comprised of grandparents and grandchildren, and households with single mothers/father and children; and (4) households with a larger number of children.

8 Housing and Energy

8.0 Introduction

This chapter focuses on deprivations and inequalities in the housing and energy dimension. Deprivation in housing and energy was measured through three indicators: type of the main building materials of the floor, walls and roof of the dwelling, main lighting source and main cooking fuel. A person is considered deprived in adequate housing if living in a dwelling where either of the three - walls, roof or floor - are made of inadequate materials that do not secure its permanent durability and protect the inhabitants against extreme climatic conditions.[108] Using means other than electricity, gas lamps, solar energy, generator or biogas as the main lighting source[109] is considered a deprivation, as is using sources other than electricity, LPG, biogas, and solar power for cooking.[110]

The rates of deprivation in housing and energy indicators and dimension are presented at the national and subnational levels – area of residence (urban/rural) and county, and by socio-economic characteristics.

8.1 Background and Context

Access to housing and energy is a fundamental human right enshrined in the UN Declaration of Human Rights, Article 25 *"Everyone has the right to a standard of living adequate for the health and wellbeing of oneself and of his family, including food, clothing, housing and medical care"*.[111] However, UN Habitat estimates that 24 per cent of the world population and 56 per cent of the population in Sub-Saharan Africa live in slum areas and informal settlements, deprived of multiple basic needs and services.[112] One of the key factors in growing disparities in access to housing globally is the rapid growth of urban populations and the inability of urban planning and development to absorb and accommodate these individuals at the same pace and address the increasing needs for housing, WASH, health, education and other services.

Kenya has also witnessed a substantial increase in its population over the past fifty years, and recently more so of its urban population. In 2018, about 47 per cent of the urban population lived in informal settlements[113] exposing many families to health hazards and associated health risks and diseases. Affordable housing remains a major challenge in the country, with many people unable to buy or build their own decent homes.

Access to adequate housing is embedded in the Constitution of Kenya (2010). Article 43. Economic and Social Rights stipulates that *"(1) Every person has the right (b) to accessible and adequate housing,*

108 Inadequate roof materials: grass thatch, makuti, dung/mud, tin cans, canvas/tents, nylon/cartons/cardboard; inadequate wall materials: cane/palm/trunks, grass/reeds, mud/cow dung, stone with mud, uncovered adobe, offcuts/reused wood/wood planks; and inadequate floor materials: earth/sand, dung, palm bamboo.

109 Inadequate lighting sources: paraffin pressure lamp, paraffin lantern, paraffin tin lamp, wood, torch/spotlight-solar charged, torch/spotlight-dry cells, candle, battery (car/charged).

110 Inadequate cooking fuels: paraffin, firewood, charcoal.

111 United Nations, 1948, Universal Declaration of Human Rights, available at: https://www.un.org/sites/un2.un.org/files/2021/03/udhr.pdf

112 UN Habitat, 2022, "COVID-19: Key Facts and Data", available at: https://unhabitat.org/covid-19/key-facts-and-data

113 The World Bank Databank, 2022, "Population living in slums – Kenya", accessed at: https://data.worldbank.org/indicator/EN.POP.SLUM.UR.ZS?locations=KE

and to reasonable standards of sanitation", and access to basic shelter is also listed among the rights that every child in Kenya is entitled to in Article 53.[114] The Government of Kenya has committed to provision of adequate housing also through ratification of the Sustainable Development Agenda. SDG 11, Target 11.1 states *"By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums."*[115]

In terms of policy and strategy documents, Kenya Vision 2030 economic blueprint recognizes housing and urbanization as a key focus of the social sector pillar and aimed to construct 500,000 affordable and decent houses during the implementation period of the plan Third Medium-Term Plan (MTP) (2018-2022)[116]. Additionally, the National Land Policy (NLP) 2009 recognizes and prioritizes the need for tenure security for all Kenyans. This policy has encouraged development and ownership of property through enhancing the ability to secure financing and legal ownership tenure associated in order to enable households to develop more improved housing.

8.2 Key Interventions and Programmes

In the housing sector, in December 2017 the government of Kenya committed to deliver affordable housing as part of the Big Four Agenda. It is worth noting that the Kenya Slum Upgrading Programme (KENSUP) was launched and implemented in six urban centres: Kisumu, Mombasa, Nyeri, Kakamega, Nakuru and Nairobi between 2004 and 2020 with the aim of improving the livelihoods of persons living and working in slums through various initiatives.[117]

In the energy sector, the government of Kenya in collaboration with development partners has implemented a series of programs that aims to ensure that more households have access to clean and affordable energy. Key among these programs is the Last Mile Connectivity Programme which was financed by the government and the African Development Bank (AfDB) from September 2015, targeting 314,200 households in the initial phase[118] and the Rural Electrification Program whose aim is to increase access to electricity in the rural areas.

8.3 Horizontal Inequality Analysis

8.3.1 National Level Analysis

Improvements in the housing and energy dimension between 2009 and 2019 were less substantial compared to the other domains of wellbeing. More than 8 in 10 Kenyans (83.9 per cent) were deprived of adequate housing and energy in 2019 compared to more than 9 in 10 (95.4 per cent) in 2009 (Figure 8.1). This decrease was largely attributed to improvements in the energy sector and expansion of the electrical grid throughout the country. Figure 8.2, Figure 8.3, and Figure 8.4 show that the largest reduction in deprivation was observed in the lighting source used by the household, with 79 per cent deprived in 2009 as opposed to 32.5 per cent in 2019 (Figure 8.3). Access to adequate housing materials registered the smallest progress between 2009 and 2019.

114 Article 53. Children, (1) Every child has the right – (c) to basic nutrition, shelter, and health care, Government of Kenya, 2010, Constitution of Kenya, available at: http://kenyalaw.org/lex/actview.xql?actid=Const2010

115 UN, Sustainable Development Goals, available at: https://sdgs.un.org/goals/goal11

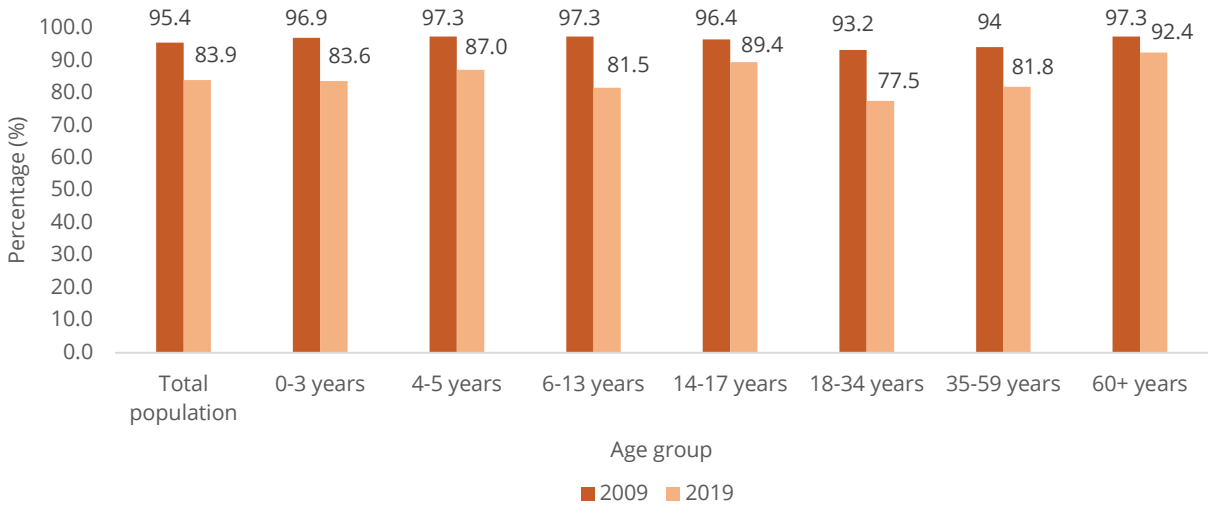
116 Government of Kenya, 2018, Third Medium Term Plan 2018-2022. Transforming Lives: Advancing socio-economic development through the "Big Four", available at: http://vision2030.go.ke/wp-content/uploads/2019/01/THIRD-MEDIUM-TERM-PLAN-2018-2022.pdf

117 Ministry of Transport, Infrastructure, Housing & Urban Development, 2022, Kenya Slum Upgrading Programme (KENSUP), available at: https://housingandurban.go.ke/kenya-slum-upgrading-programme-kensup/

118 Kenya Power and Lighting Company (KPLC), 2020, Last Mile Connectivity, available at: https://www.kplc.co.ke/content/item/1120/last-mile-connectivity

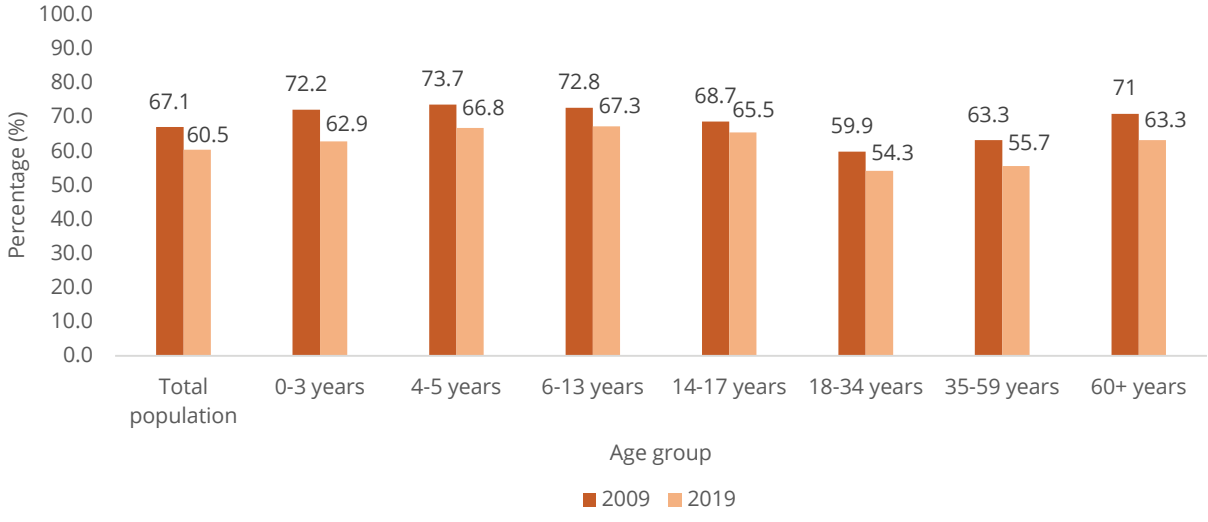
Deprivation from adequate housing material decreased by less than 10 percentage points, from 67.1 in 2009 to 60.5 per cent in 2019 (Figure 8.2). Deprivation from adequate cooking fuel remained high – 80.6 per cent of Kenyans in 2019 lived in households that used fuels that exposed them to health hazards or other risks (Figure 8.4).

Figure 8.1 **Percentage (%) of the population deprived in the housing and energy dimension, by age group, 2009 and 2019**



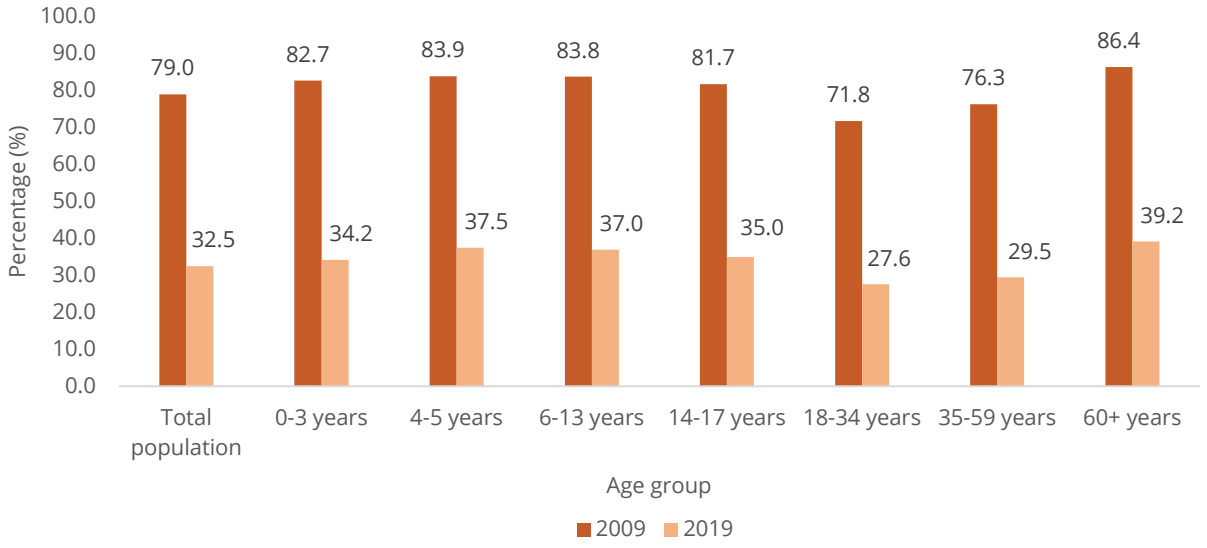
Source: KPHC 2009 and KPHC 2019

Figure 8.2 **Percentage (%) of the population deprived in the adequate housing indicator, by age group, 2009 and 2019**



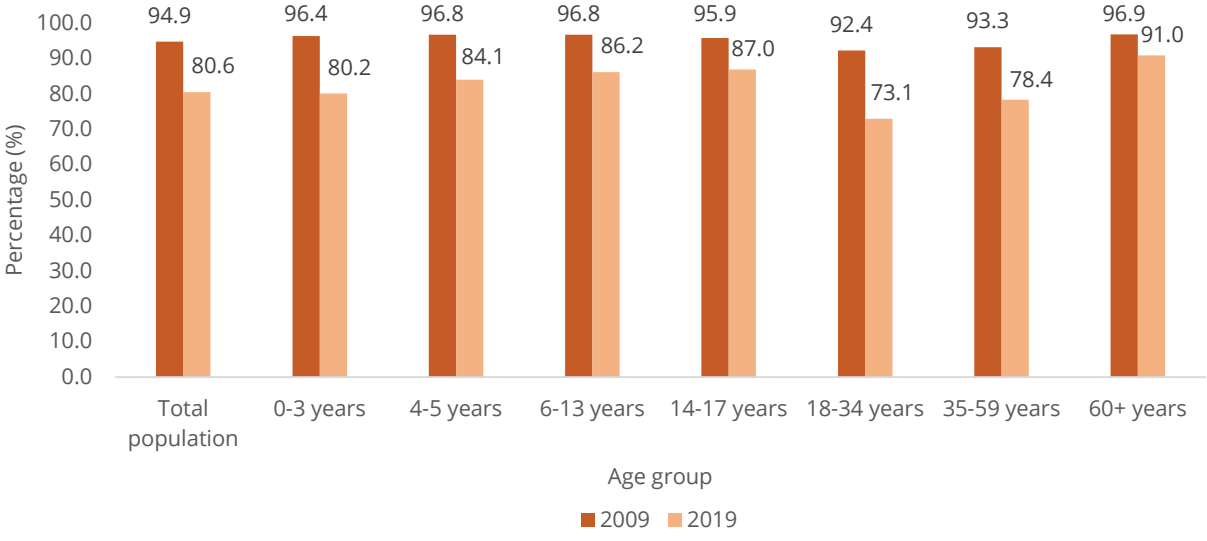
Source: KPHC 2009 and KPHC 2019

Figure 8.3 **Percentage (%) of the population deprived in the lighting source indicator, by age group, 2009 and 2019**



Source: KPHC 2009 and KPHC 2019

Figure 8.4 **Percentage (%) of the population deprived in the cooking fuel indicator, by age group, 2009 and 2019**

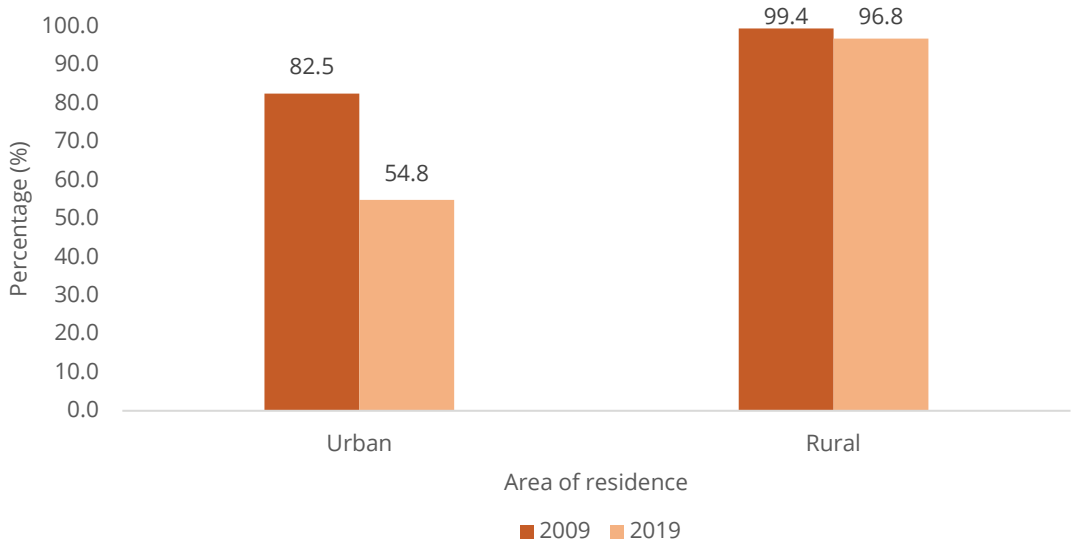


Source: KPHC 2009 and KPHC 2019

8.3.2 Analysis by Area of Residence

Progress in the housing and energy sector has been remarkable in urban areas (Figure 8.5 and Annex 11). About 8 in 10 Kenyans in urban areas were deprived in the dimension in 2009 compared to slightly more than 5 in 10 in 2019, marking a 28 per cent decrease in deprivation incidence. In rural areas on the other hand, deprivation in housing and energy decreased marginally from 99.4 per cent to 96.8 per cent. This resulted in significant widening of inequality between rural and urban areas; in 2019, residents of rural areas were 75 per cent more likely to be deprived in the dimension compared to those in urban areas.

Figure 8.5 **Percentage (%) of the population deprived in the housing and energy dimension, by area of residence, 2009 and 2019**



Source: KPHC 2009 and KPHC 2019

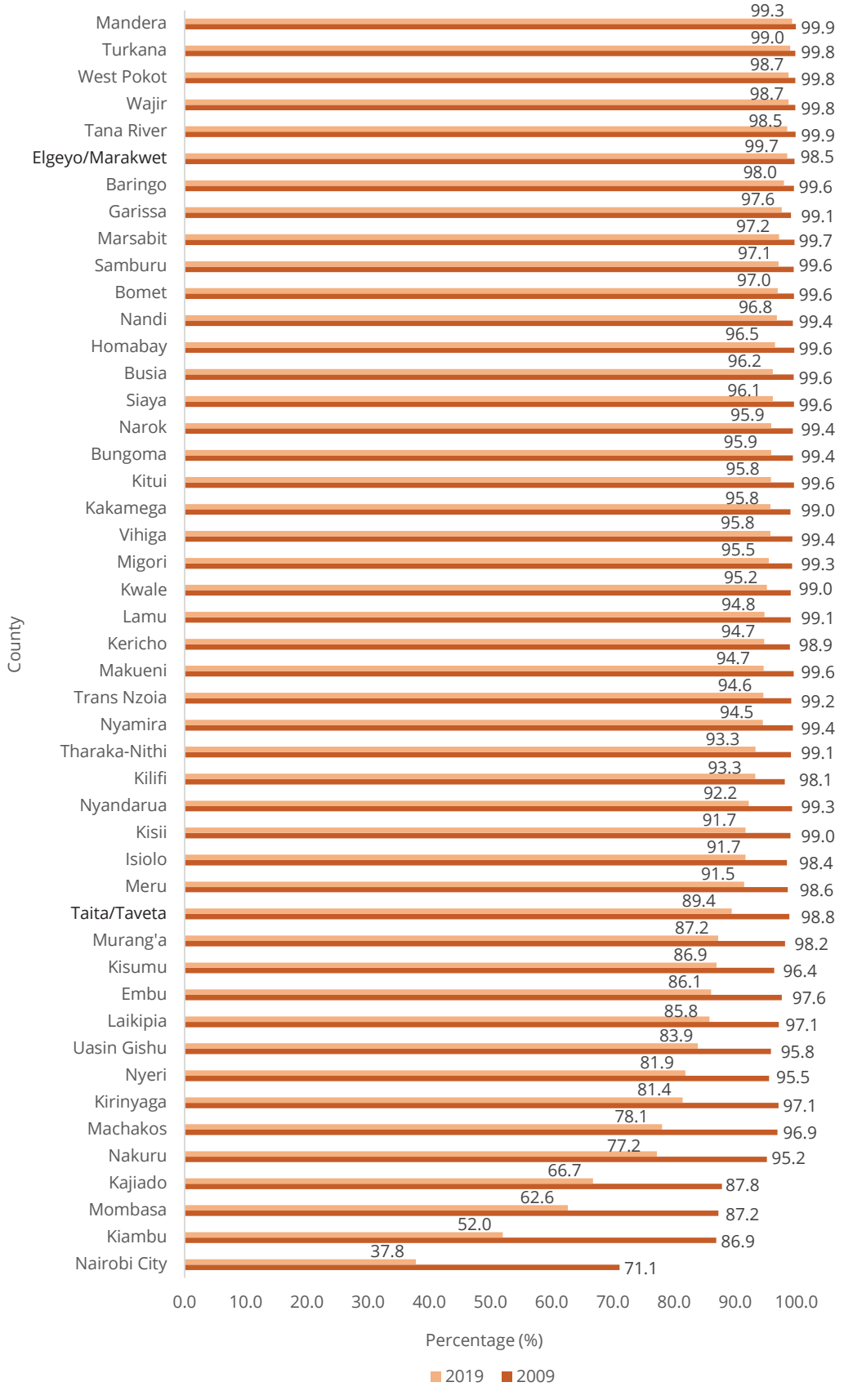
8.3.3 Analysis by County

Inequalities in housing and energy across counties remained widespread in 2019 as shown in Figure 8.4 and Annex 11. Nearly all (99 per cent) residents of Mandera, Turkana, West Pokot, Wajir and Tana River counties were deprived in the dimension. In Nairobi City, Kiambu, Mombasa, Kajiado, and Nakuru counties deprivation incidence was the lowest ranging from 37.8 per cent to 77.2 per cent. The ranking of the most deprived and the least deprived counties in 2009 was the same as in 2019, pointing to limited improvements in the sector across counties.

Inequalities across counties remained wide also when mapping deprivation incidence by county in the dimensions of housing material (Map 8.1) and cooking fuel (Map 8.2) in 2009 and 2019. In 2019, 93.2 of the population in Turkana were deprived of adequate housing compared to 20.3 per cent in Mombasa. In addition to Turkana, West Pokot, Wajir, Mandera and Tana River had the highest deprivation rates in 2019, between 86.1 and 93.2 per cent. On the other hand, the lowest deprivation rates were recorded in Mombasa, Nairobi, Kiambu, Machakos and Makueni, ranging between 20.3 and 42.9 per cent. The rankings of most and least deprived counties in 2009 were similar to 2019, with two differences. Narok ranked among the top five deprived counties instead of West Pokot, while Nakuru stood among the least deprived counties in 2009 instead of Makueni.

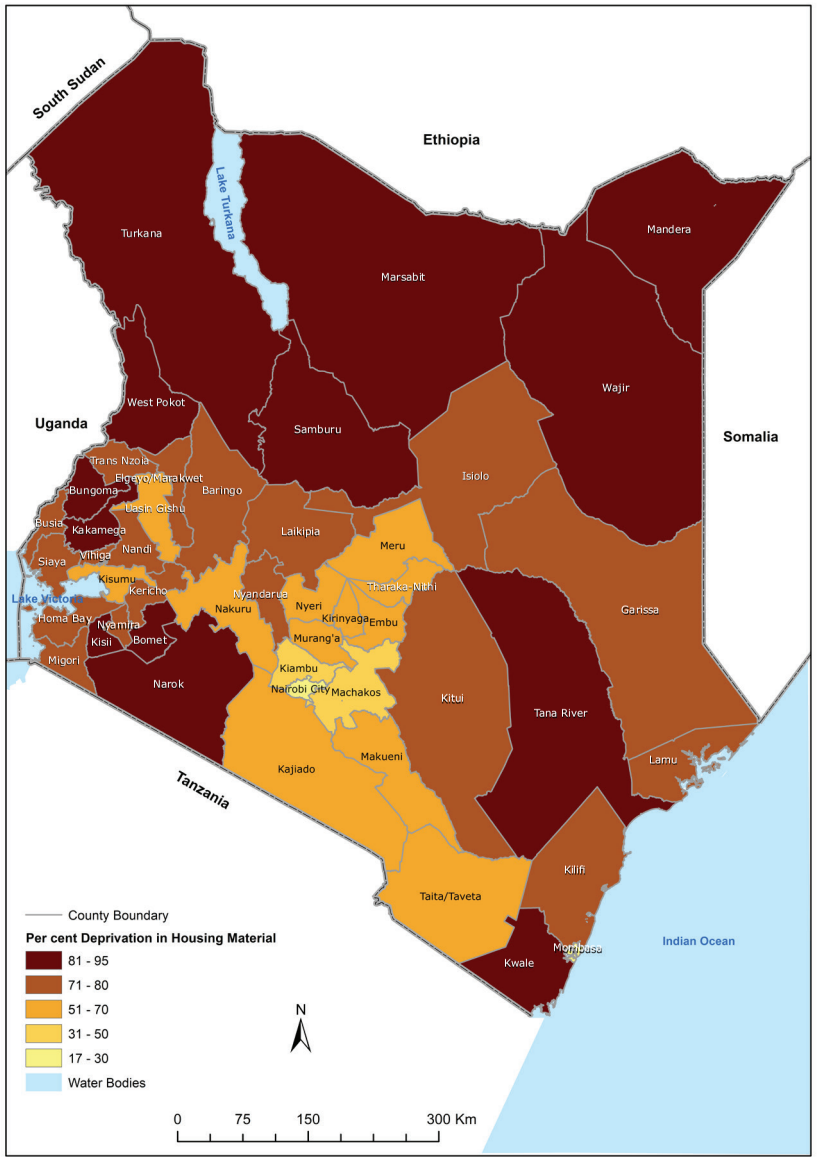
Similar patterns of inequality were observed also in mapping of deprivation incidence in adequate cooking fuel by county in Map 8.2. In 2019, deprivation incidence in cooking fuel was higher than 97.3 per cent in Turkana, Wajir, Elgeyo/Marakwet, Tana River, and West Pokot, the most deprived counties. On the other hand, in the least deprived counties - Nairobi, Kiambu, Kajiado, Mombasa and Nakuru – it ranged between 26 and 74.7 per cent. The only difference in ranking of the most and least deprived counties between 2009 and 2019 was Elgeyo/Marakwet which did not rank among the topmost deprived counties in 2009.

Figure 8.6 **Percentage (%) of the population deprived in the housing and energy dimension, by county, 2009 and 2019**

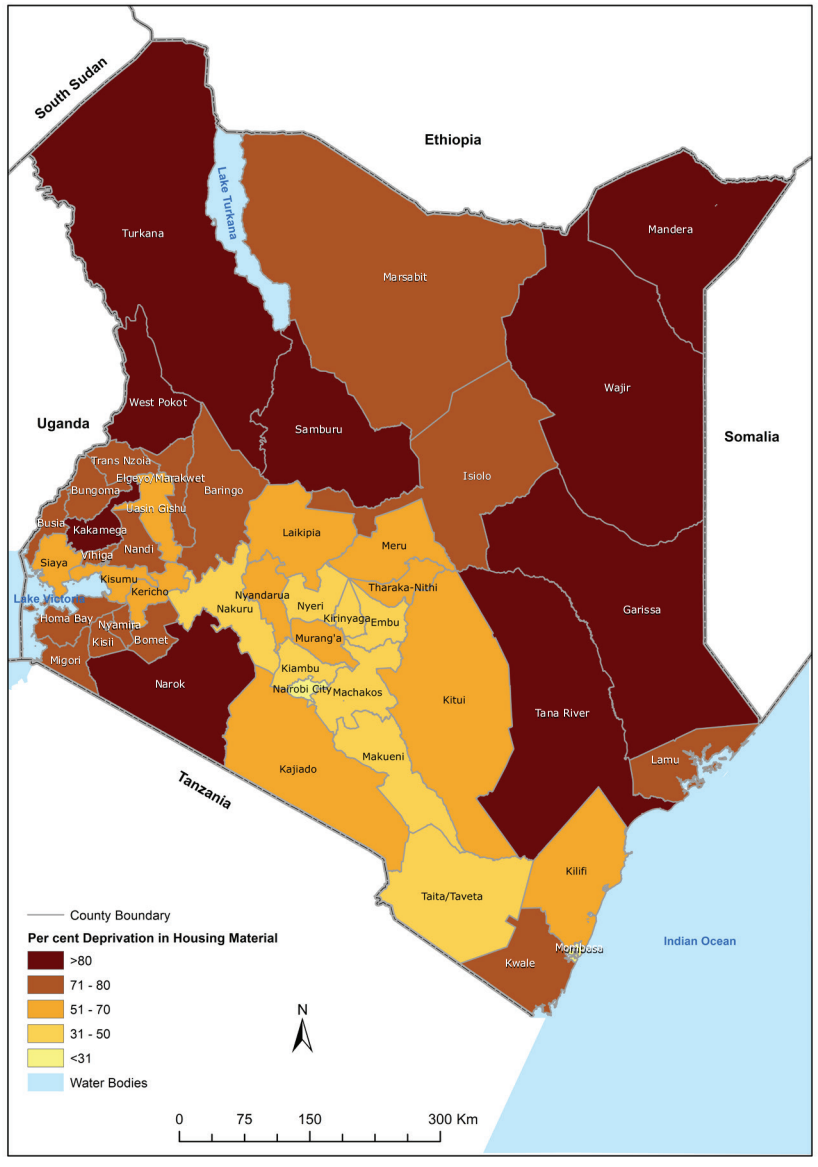


Source: KPHC 2009 and KPHC 2019

Map 8.1 **Percentage (%) of the population deprived of adequate housing, by county, 2009 (left) and 2019 (right)**

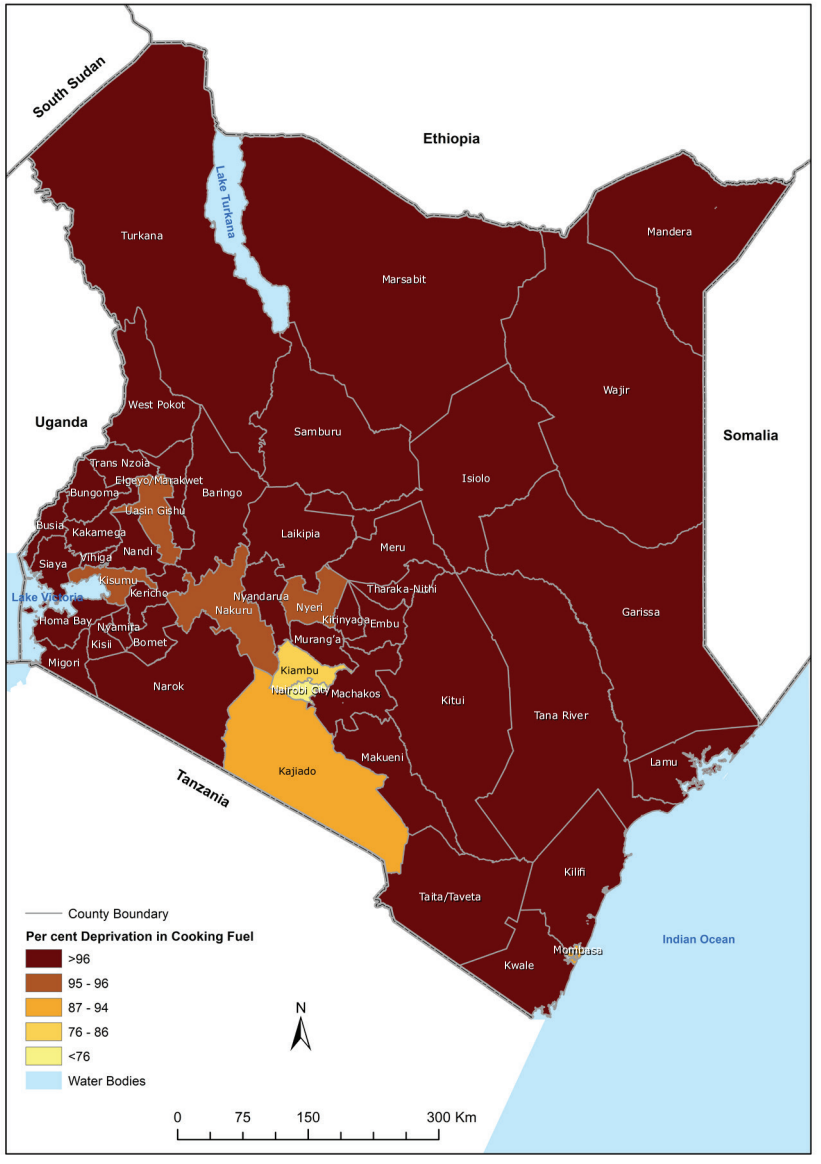


Source: KPHC 2009

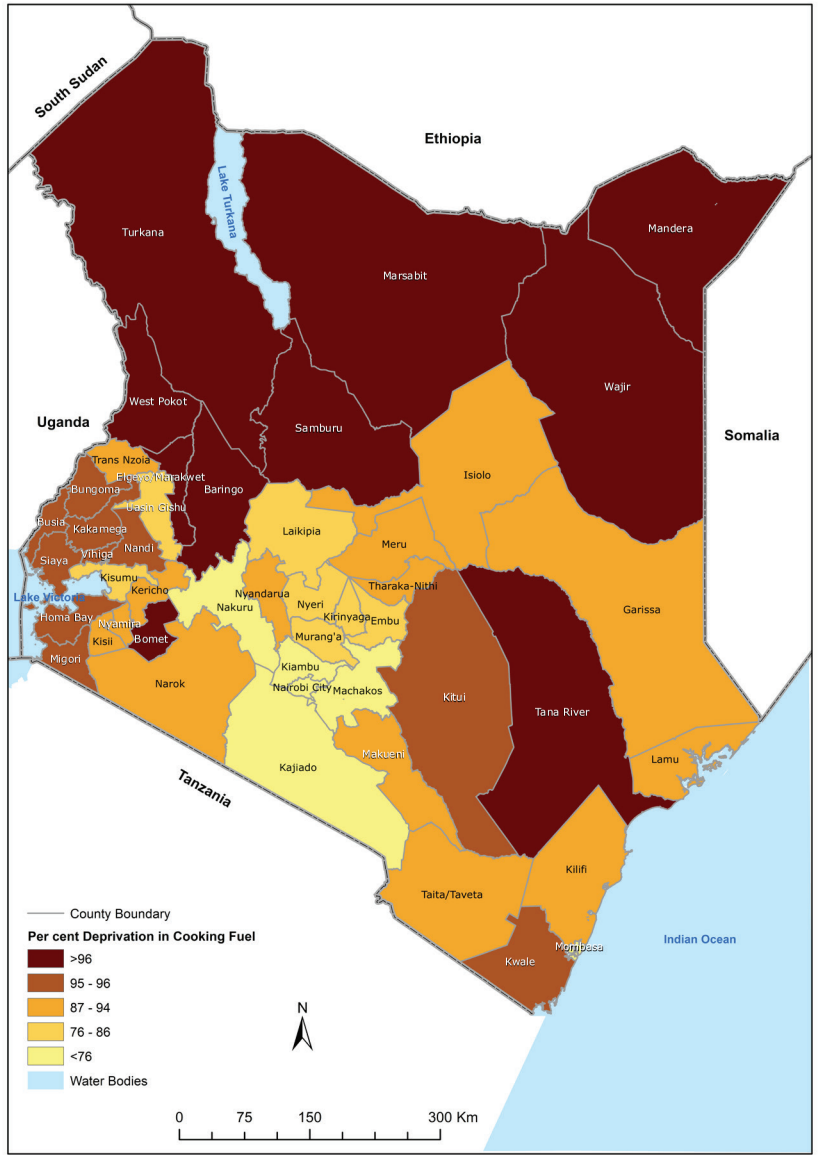


Source: KPHC 2019

Map 8.2 Percentage (%) of the population deprived of adequate cooking fuel, by county, 2009 (left) and 2019 (right)



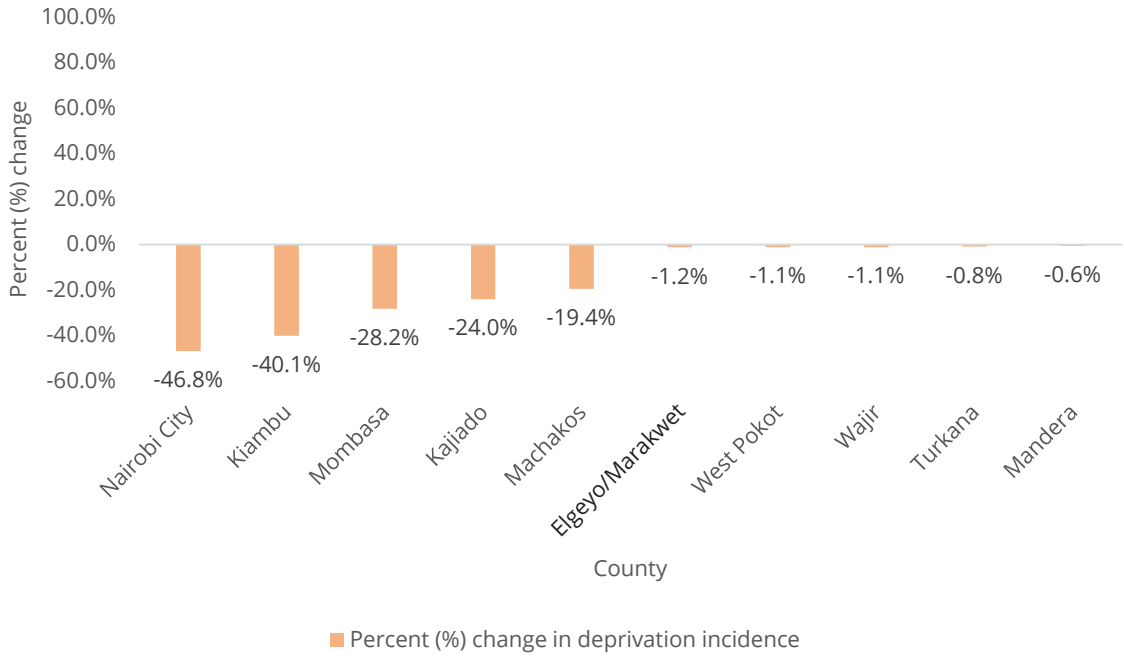
Source: KPHC 2009



Source: KPHC 2019

As shown in Figure 8.7, Kiambu and Nairobi City recorded the largest reduction in deprivation in housing and energy between 2009 and 2019, at 40.1 and 46.8 per cent respectively. Mandera registered the lowest decrease in deprivation, by 0.6 per cent. The decrease in deprivation in housing and energy between 2009 and 2019 was also high in Mombasa, Kajiado and Machakos ranging between 19.4 and 28.2 per cent. On the other hand, Turkana, West Pokot, Wajir, and Elgeyo/Marakwet indicated only a marginal drop in deprivation incidence, between 0.08 and 1.2 per cent.

Figure 8.7 **Percent (%) change in deprivation incidence in the housing and energy dimension between 2009 and 2019, five best performing counties (left) and five poorest performing counties (right)**



Source: KPHC 2009 and KPHC 2019

8.3.4 Socio-Economic Drivers of Inequality

Table 8.1 presents the deprivation rates in housing and energy for various individual characteristics. The results show that persons with disability were more likely to be deprived in the dimension compared to persons without disability; with deprivation rates of 88.4 and 83.3 per cent, respectively in 2019. The differences in deprivation by sex were marginal.

Table 8.1 **Percentage (%) of the population deprived in the housing and energy dimension, by individual characteristics, 2019**

Individual characteristics		2019
National		**83.9**
Sex of the individual	Female	83.2
	Male	84.5
Disability status	Person with disability	88.4
	Person without disability	83.3

Source: KPHC 2019

Table 8.2 shows deprivation rates in housing and energy by household characteristics in 2019. There was a slight difference in deprivation rates between male and female headed households. However, individuals living in a household headed by persons with disability were more likely to be deprived in the dimension than those by persons without disability (90.4 per cent versus 82.4 per cent respectively). In addition, the education level of the household head played an important role in determining the rate of deprivation. About 9 in 10 individuals living in household where the head had not completed secondary education were deprived in housing and energy compared to 5 in 10 of those living in a household where the head had completed secondary or higher education. Moreover, the higher the number of children in the household, the higher the deprivation rate experienced. Nearly 96 per cent of individuals living in households with five or more children were deprived in the dimension compared to 71.9 per cent of individuals living in households with no children. About 9 in 10 individuals living in labour constrained households were deprived in housing and energy compared to about 8 in 10 of individuals living in non-labour constrained households.

Table 8.2 Percentage (%) of the population deprived in the housing and energy dimension, by socio-economic characteristics, 2019

Housheold characteristics		2019
National		**83.9**
Sex of the household head	Female	84.6
	Male	83.4
Disability status of the HH head	Person with disability	90.4
	Person without disability	82.4
Education level of the HH head	HH head completed secondary/higher education	54.7
	HH head not completed secondary education	90.3
Number of children <18 years in the household	No children < 18 in HH	71.9
	1-2 children < 18 in HH	77.2
	3-4 children < 18 in HH	88.4
	5+ children < 18 in HH	95.8
HH labour constraint	HH labour constrained	89.7
	HH not labour constrained	80.3

Source: KPHC 2019

8.4 Conclusion and Recommendations

Overall, more than 8 in 10 Kenyans were deprived of adequate housing and energy sources in 2019. Large discrepancies were observed based on the county level and by area of residence, with urban areas and Nairobi City, Kiambu and Mombasa having the lowest deprivation incidence. On the other hand, Mandera, Turkana, West Pokot had the highest deprivation rates in housing and energy in both 2009 and 2019, showing little progress in reduction of the deprivation. Persons with disability, living in households with a larger number of children, in labour constrained households, or households where the head had not completed at least secondary education were more likely to be deprived in housing and energy.

Despite the benefits of fuel switching, use of clean cooking fuel was still limited particularly in rural areas of Kenya mainly due to financial constraints associated with acquisition and/or installation of improved cooking sources. In 2019, 96 per cent of individuals in rural areas did not have access to adequate cooking fuel (Annex 11). The costs, including both capital and fuel costs, of improved

cooking fuels are significantly higher than those of traditional sources, hence most households in rural areas will likely be left behind if alternative and less costly solutions are not made available and accessible.

Improving access to affordable housing and reliable energy thus is essential for the country in reducing adverse human health implications and related environmental effects brought about by the burning of traditional cooking fuels. This study therefore recommends that:

i) The country needs to fast-track the implementation of the affordable housing programme in partnership with the private sector targeting urban centers: (a) develop a policy to promote home ownership; (b) avail appropriate building technology for use by the public in house construction and improvement in every sub-county, that corresponds with the local cultural and environmental circumstances; (c) identify and designate urban centers for upgrade pursuant to provisions of the Urban Areas and Cities (amendment) Act, 2019.[119]

ii) Adopt programmes aimed at increasing household access to clean energy sources and technologies for cooking to mitigate against exposure to potential respiratory diseases. Furthermore, since most of the energy deprived areas are in Arid and Semi-Arid Lands (ASAL) – Turkana, Mandera, West Pokot, Wajir, and Tana River - which have high potential of renewable energy, the counties need to be supported to adapt use of the available green energy through provision of requisite equipment such as solar panels.

iii) Further feasibility studies are carried out in the sugar cane producing belt to explore the opportunities in adopting more sustainable and improved cooking sources using ethanol from sugar cane.

119 Parliament of Kenya, The Urban Areas and Cities (Amendment) Act, 2019, available at: http://kenyalaw.org/kl/fileadmin/pdfdownloads/AmendmentActs/2019/UrbanAreasandCities_Amendment_Act_2019.pdf

9 Multidimensional and Monetary Poverty in Kenya

9.0 Introduction

This chapter presents trends in geographical and temporal inequalities through the lens of aggregate measures of wellbeing outcomes. Multidimensional poverty headcount rate and average deprivation intensity were calculated to depict inequalities in non-monetary wellbeing outcomes, whereas monetary poverty headcount rate and poverty gap depict inequalities in financial wellbeing outcomes.

An individual was considered to be multi-dimensionally poor if she/he was deprived in 3 or more dimensions out of the 5 or 6 analysed (depending on the age group) for 2009 and 2019 (see Table 2-2 in Chapter 2). An individual was considered monetarily poor if living in a household with monthly adult equivalent consumption below the overall poverty line. In 2019, the overall poverty lines in monthly adult equivalent terms were KSh 3,252 and KSh 5,995 in rural and urban areas, respectively. In 2009, the overall poverty line in rural areas was KSh 1,562 and in urban areas KSh 2,913 monthly per adult equivalent.[120]

9.1 Background and Context

Ending poverty "in all forms and everywhere" is at the forefront of the Sustainable Development Agenda to ensure that no one is left behind. Target 1.2 *"By 2030, 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"* recognizes that poverty is not constrained only to the financial means but includes multiple aspects of wellbeing that are specific to different stages of the lifecycle. In line with the Sustainable Development Agenda, the first aspiration of the African Union Agenda 2063 envisions a prosperous Africa based on inclusive and sustainable growth through eradication of poverty and building shared prosperity through social and economic transformation of the continent.[121]

The SDGs and aspirations of the African Union Agenda are embedded in several articles of the 2010 Constitution of Kenya which recognizes the multidimensionality of wellbeing. Article 43 stipulates that every person has the following economic and social rights: (a) to the highest attainable standard of health, which includes the right to health care services, (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.[122]

Importantly, Kenya's long-term development blueprint, Vision 2030, aims at reducing the number of people living in absolute poverty to the smallest share of the total population. The related interventions in its "Big Four Agenda" – (1) food security, (2) affordable housing, (3) manufacturing, and (4) affordable healthcare also aim to reduce inequalities and inequities across different population groups by prioritizing them in the government's development agenda.[123]

120 Based on KIHBS 2005-06 and KIHBS 2015-16 consumption aggregate modules in the datasets.

121 African Union, 2015, Agenda 2063: The Africa We Want, available at: https://au.int/sites/default/files/documents/36204-doc-agenda2063_popular_version_en.pdf

122 Parliament of Kenya, 2010, The Constitution of Kenya, accessible at: http://www.kenyalaw.org:8181/exist/kenyalex/actview.xql?actid=Const2010

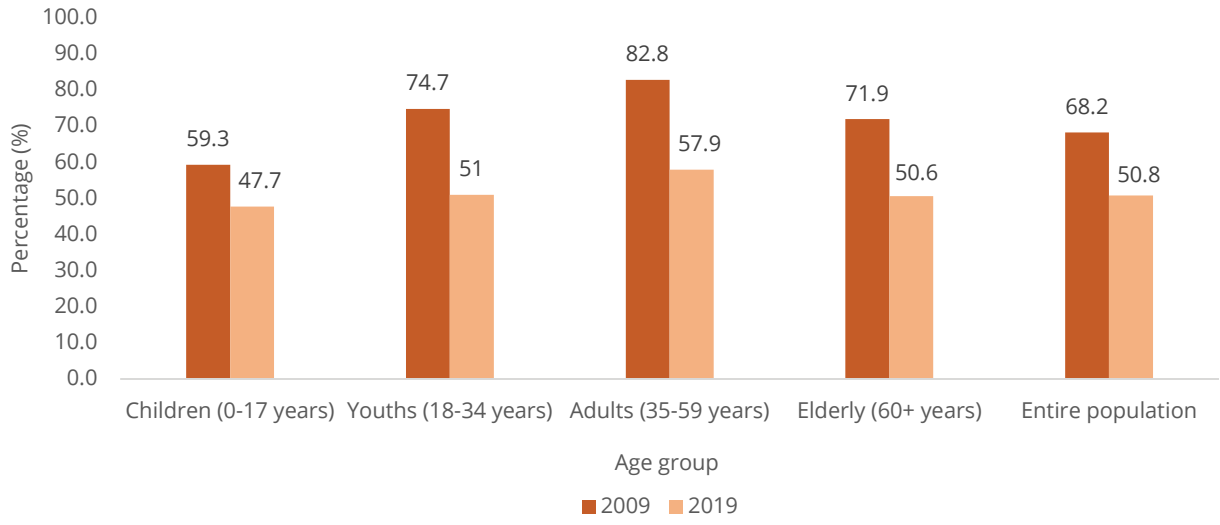
123 Government of Kenya, 2018, Kenya Vision 2030: The Medium Term Plan 2018-2020, available at: http://vision2030.go.ke/wp-content/uploads/2019/01/THIRD-MEDIUM-TERM-PLAN-2018-2022.pdf

9.2 Multidimensional (MD) Poverty Incidence

9.2.1 Multidimensional Poverty Incidence at the National level

Multidimensional poverty decreased significantly in Kenya between 2009 and 2019 as shown in Figure 9.1. In 2019, 5 in 10 Kenyans or 24.2 million were multidimensionally poor - deprived of three or more basic needs - compared to about 7 out of 10 or 26.3 million in 2009. In 2019, multidimensional poverty incidence was the highest among adults aged 35-59 years (57.9 per cent), followed by youths and the elderly, 51 and 50.8 per cent, respectively. Progress in multidimensional poverty reduction was the most significant among youths, by 31.7 per cent, followed by adults and elderly, with 30.1 and 29.6 per cent, respectively. These figures should nevertheless be interpreted with caution given the caveats in measurement of multidimensional child poverty in absence of data on health and nutrition in the census datasets (see Section 2.4 in Chapter 2).

Figure 9.1 **Percentage (%) of the multidimensionally poor population, by age group, 2009 and 2019**

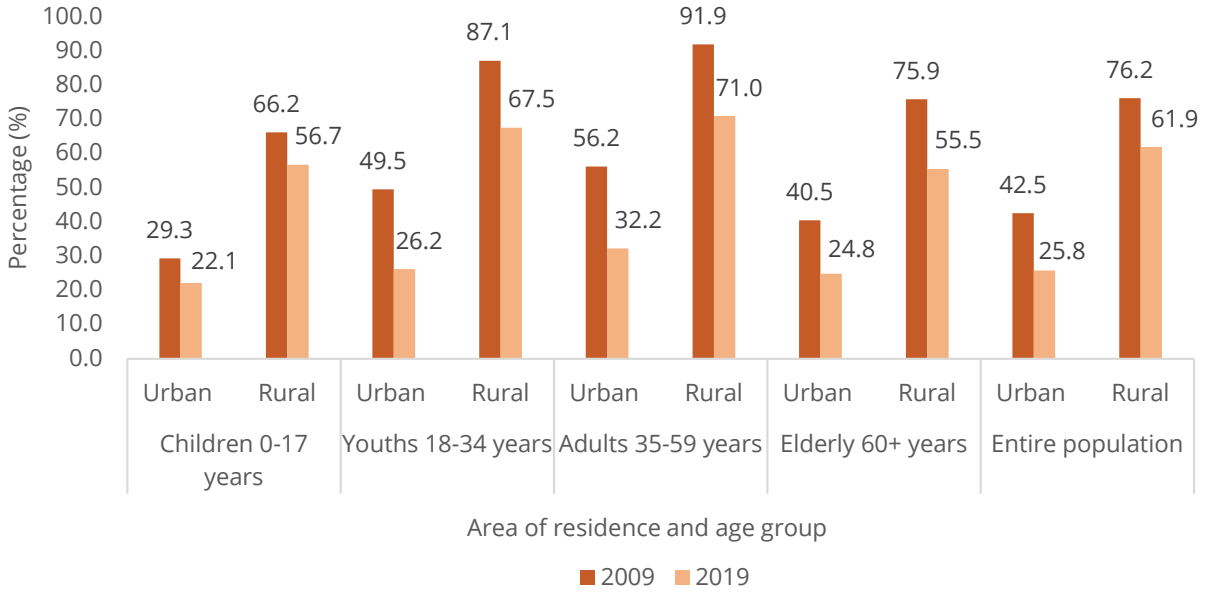


Source: KPHC 2009 and KPHC 2019

9.2.2 Multidimensional Poverty Incidence by Area of Residence

Inequalities in realization of fundamental rights and fulfilment of needs across different sectors between rural and urban areas remained widespread as presented in Figure 9.2. In 2019, Kenyans residing in rural areas were more than twice as likely to be multidimensionally poor compared to those residing in urban areas with MD incidence rates of 61 and 25.8 per cent, respectively. The inequality in realization of basic rights between urban and rural areas was the highest among children and youths, despite improvements over the decade. MD poverty incidence decreased across all age groups and areas of residence, but the largest improvements since 2009 were noted in urban areas. The MD poverty rate among youths in urban nearly halved, from 49.6 to 26.2 per cent (or by 47.1 per cent), while among adults aged 35-59 years it decreased by 42.7 per cent.

Figure 9.2 **Percentage (%) of the multidimensionally poor population, by age group and area of residence, 2009 and 2019**



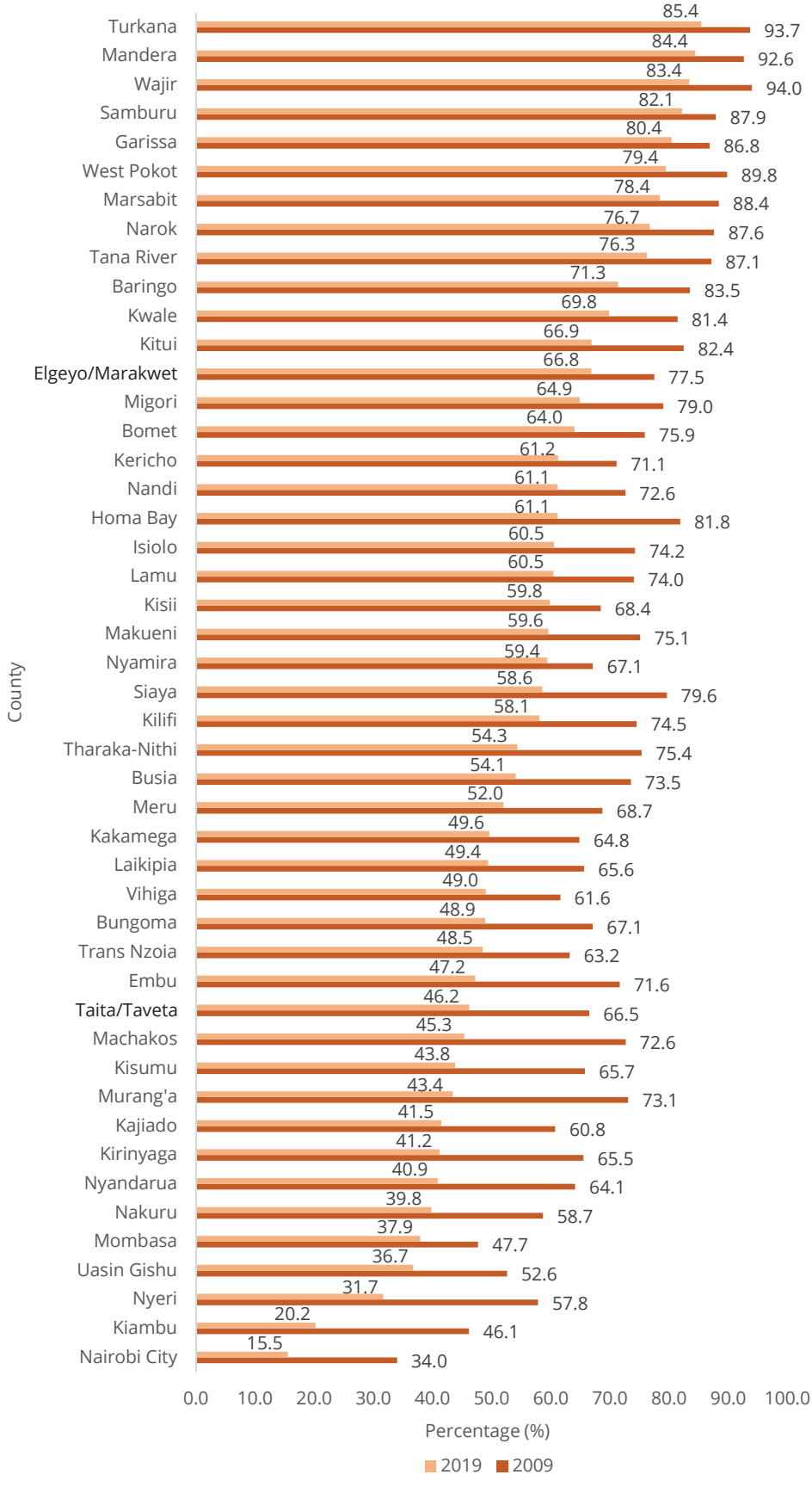
Source: KPHC 2009 and KPHC 2019

9.2.3 Multidimensional Poverty Incidence by County

Disparities in realization of rights across counties remained widespread despite significant improvements over the decade. In 2019, about 9 out of 10 persons (85.4 per cent) living in Turkana were multidimensionally poor, deprived of three or more basic goods and services, compared to 15.5 per cent of the population residing in Nairobi City as presented in Figure 9.3, Map 9.1, and Annexes 17-19. Turkana, Mandera, Wajir, Samburu and Garissa were ranked as the poorest counties in 2019 with MD poverty rates between 80.4 and 85.4 per cent. On the other hand, the MD poverty incidence rate ranged between 15.5 and 37.9 per cent among the five least poor counties of Nairobi City, Kiambu, Nyeri, Uasin Gishu, and Mombasa. These five counties ranked the least deprived also in 2009 with MD poverty incidence between 34.0 and 57.8 per cent. In 2009, Wajir, Turkana, Mandera, West Pokot, and Marsabit ranked the poorest counties, with MD poverty rates ranging between 88.4 and 94 per cent. These results suggest that these counties have been "left behind" in the overall progress in the country – all of them recorded slow progress in multidimensional poverty reduction between 2009 and 2019.

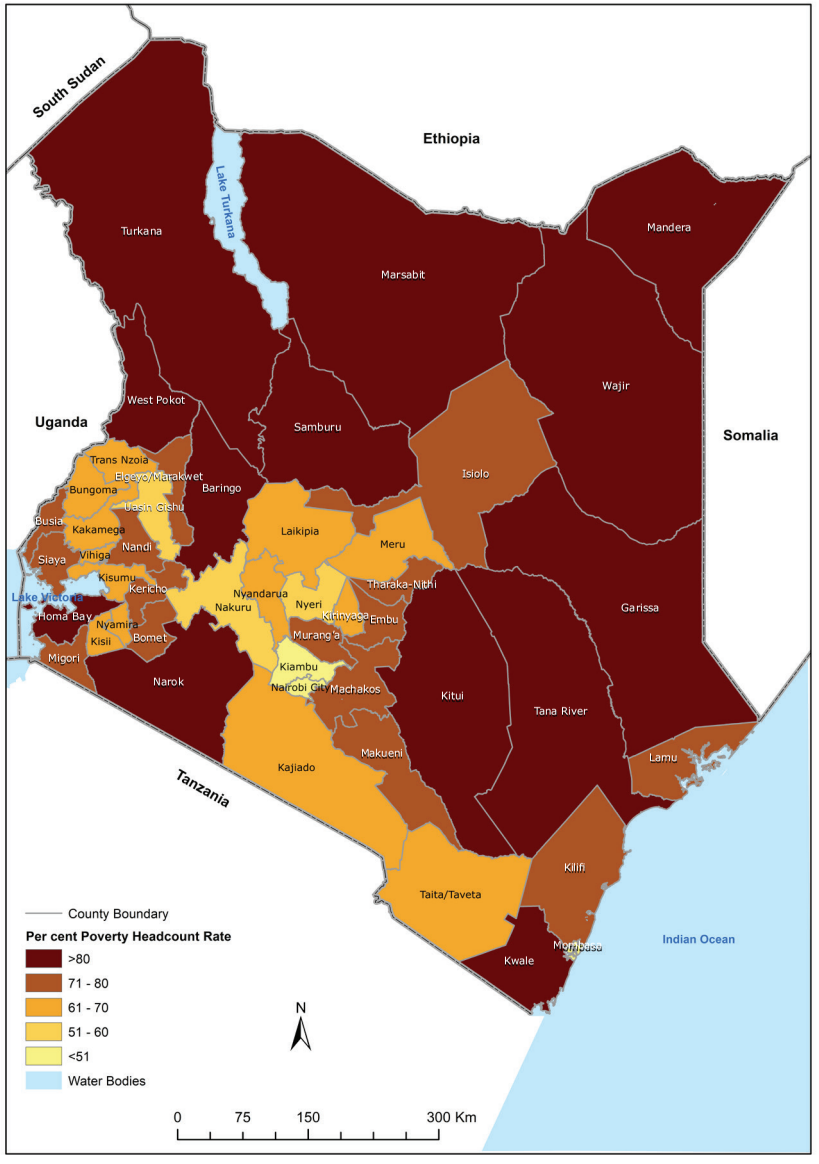
As shown in Figure 9.3 and Annexes 17-19, multidimensional poverty incidence decreased across all counties between 2009 and 2019. Nevertheless, progress was not equally substantial everywhere. Counties that ranked among the least multidimensionally poor in both 2009 and 2019 showed the most notable progress as presented in Figure 9.4. In Kiambu and Nairobi City, the MD poverty rate decreased by 54.4 and 56.2 per cent, respectively, in Nyeri by 45.2 per cent, and in Machakos by nearly 38 per cent. On the other hand, in Garissa and Samburu the decrease in MD poverty incidence was less than 10 per cent, in Turkana and Marsabit by nearly 9 per cent, and in Wajir by 11.3 per cent.

Figure 9.3 **Percentage (%) of the multidimensionally poor population, by county, 2009 and 2019**

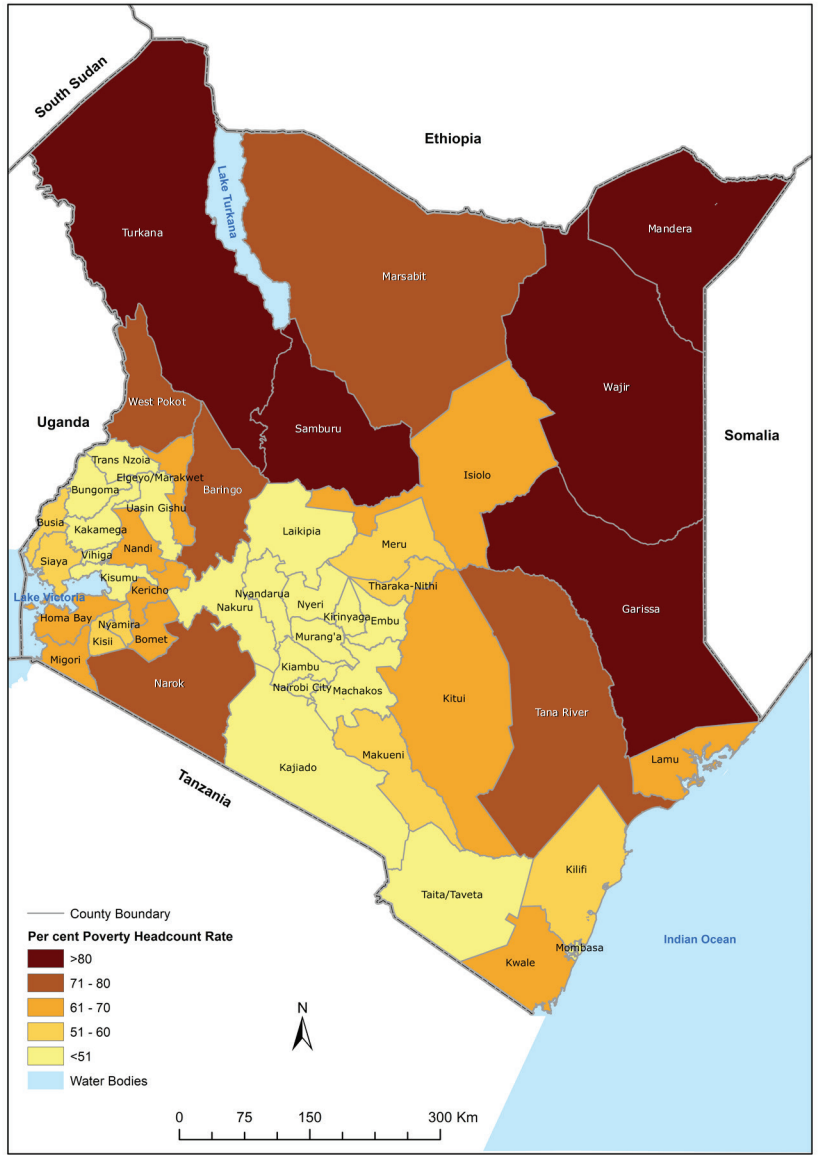


Source: KPHC 2009 and KPHC 2019

Map 9.1 Percentage (%) of the multidimensionally poor population, by county, 2009 (left) and 2019 (right)

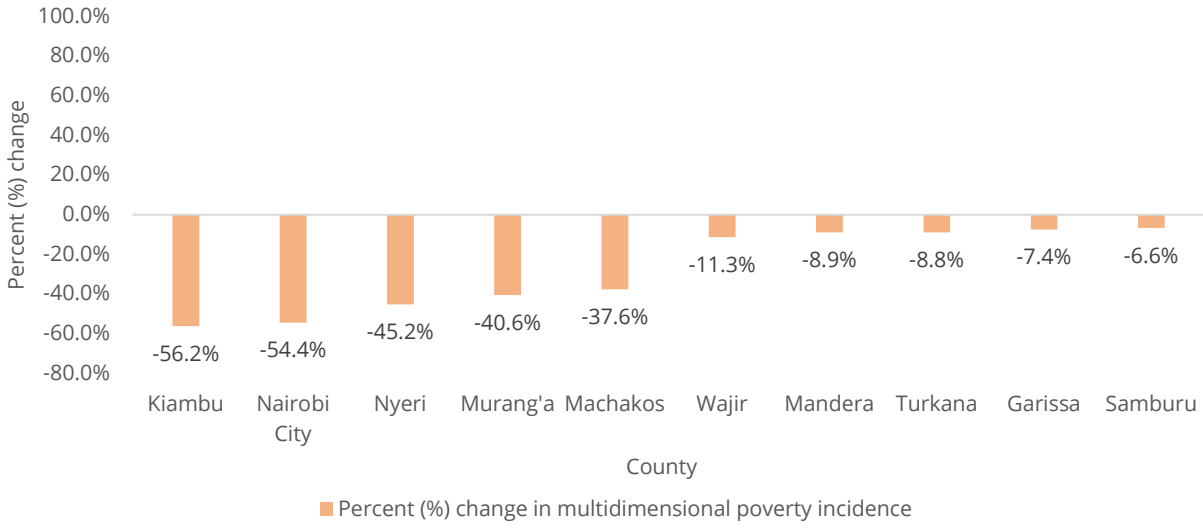


Source: KPHC 2009



Source: KPHC 2019

Figure 9.4 **Percent (%) change in multidimensional poverty incidence between 2009 and 2019, entire population, five best performing counties (left) and five poorest performing counties (right)**



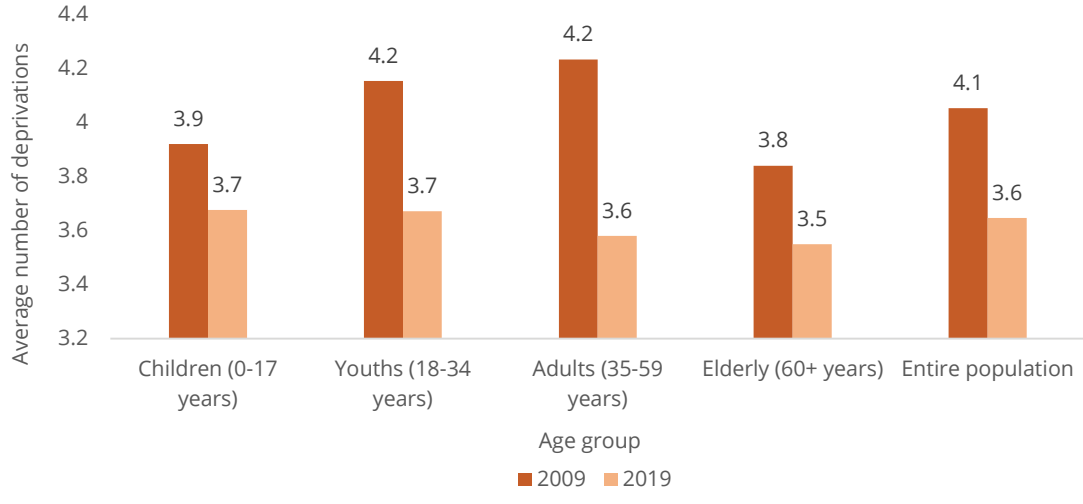
Source: KPHC 2009 and KPHC 2019

9.3 Multidimensional (MD) Poverty Intensity

9.3.1 Average Deprivation Intensity at the National level

Figure 9.5 presents the trends of change in average deprivation intensity, i.e., depth of multidimensional poverty. The figures show that the reduction in average deprivation intensity between 2009 and 2019 was substantial. In 2019, the multidimensionally poor were deprived of 3.6 basic needs and services on average compared to 4.1 on average in 2009, recording a reduction of 10 per cent. This progress indicates that there were improvements in public service delivery and realization of rights across several sectors under consideration i.e., education, child protection, information, economic activity, WATSAN, and housing and energy. The improvements were greater among adults aged 35-59 years and youths aged 18-34 years, with reduction in average deprivation intensity by 15.6 and 11.6 per cent, respectively.

Figure 9.5 **Average deprivation intensity, by age group, 2009 and 2019**

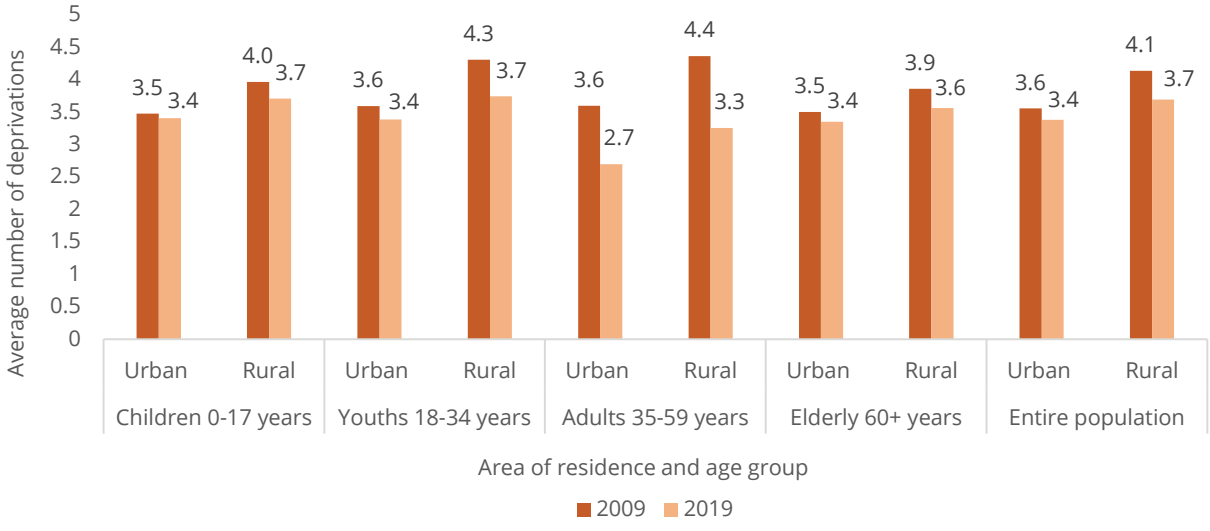


Source: KPHC 2009 and KPHC 2019

9.3.2 Average Deprivation Intensity by Area of Residence

Figure 9.6 shows the average deprivation intensity in 2009 and 2019 by area of residence and age group. The results indicate that despite improvements over the decade, inequalities in fulfilment of basic needs and realization of rights between rural and urban areas remained prevalent. In 2019, the urban-rural gap in average deprivation intensity was the widest among active working age adults, 18-59 years. In other words, persons 18-59 years residing in rural areas were more likely to be deprived of more needs and services compared to their peers in urban areas. In 2019, children and youths in rural areas experienced the highest average deprivation intensity – were deprived in 3.7 out of 6 dimensions of wellbeing. It must also be noted that in urban areas, changes in average deprivation intensity among children, youths, and elderly were the smallest across all age groups and when compared to rural areas.

Figure 9.6 **Average deprivation intensity, by age group and area of residence, 2009 and 2019**



Source: KPHC 2009 and KPHC 2019

9.3.3 Average Deprivation Intensity by County

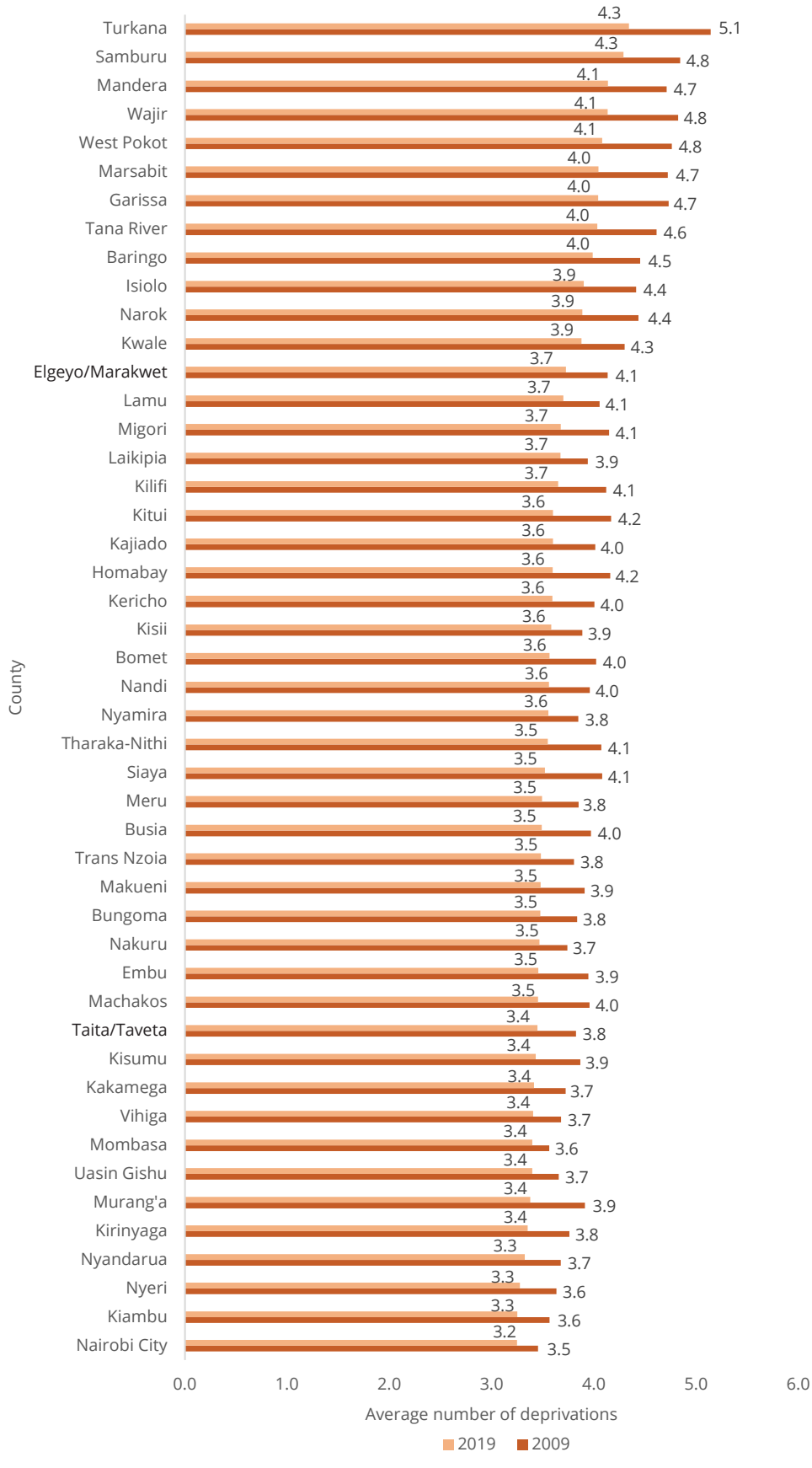
Figure 9.7 and Map 9.2 display figures on average deprivation intensity for the entire population for 2009 and 2019 by county. Disparities in average deprivation intensity across counties point to systematic issues with delivery of services, particularly in counties where there was little or no improvement over the 10-year-period (Annexes 20-22). In 2019, the average deprivation intensity in Turkana and Samburu – 4.3 – ranked the highest across all counties. Mandera, Wajir, and West Pokot ranked second with average deprivation intensity of 4.1. On the other hand, in Nairobi City, Kiambu, Nyeri, and Nyandarua the average deprivation intensity was the lowest countrywide ranging between 3.2 and 3.3.[124] The residents of Turkana, Samburu, Wajir, West Pokot, Garissa, Marsabit and Mandera experienced the highest average deprivation intensity also in 2009, while in Nairobi City, Mombasa, Kiambu, and Nyeri average deprivation intensity was the lowest, between 3.5 and 3.6.[125]

As shown in Figure 9.7 and Annexes 20-22, average deprivation intensity reduced across all counties between 2009 and 2019. Counties that had the highest deprivation intensity in 2009 and 2019 recorded the largest progress.

124 Kirinyaga, Murang'a, Uasin Gishu, Mombasa, Vihiga, Kakamega, Kisumu and Taita/Taveta rank the fifth least deprived, with average deprivation intensity of 3.4.

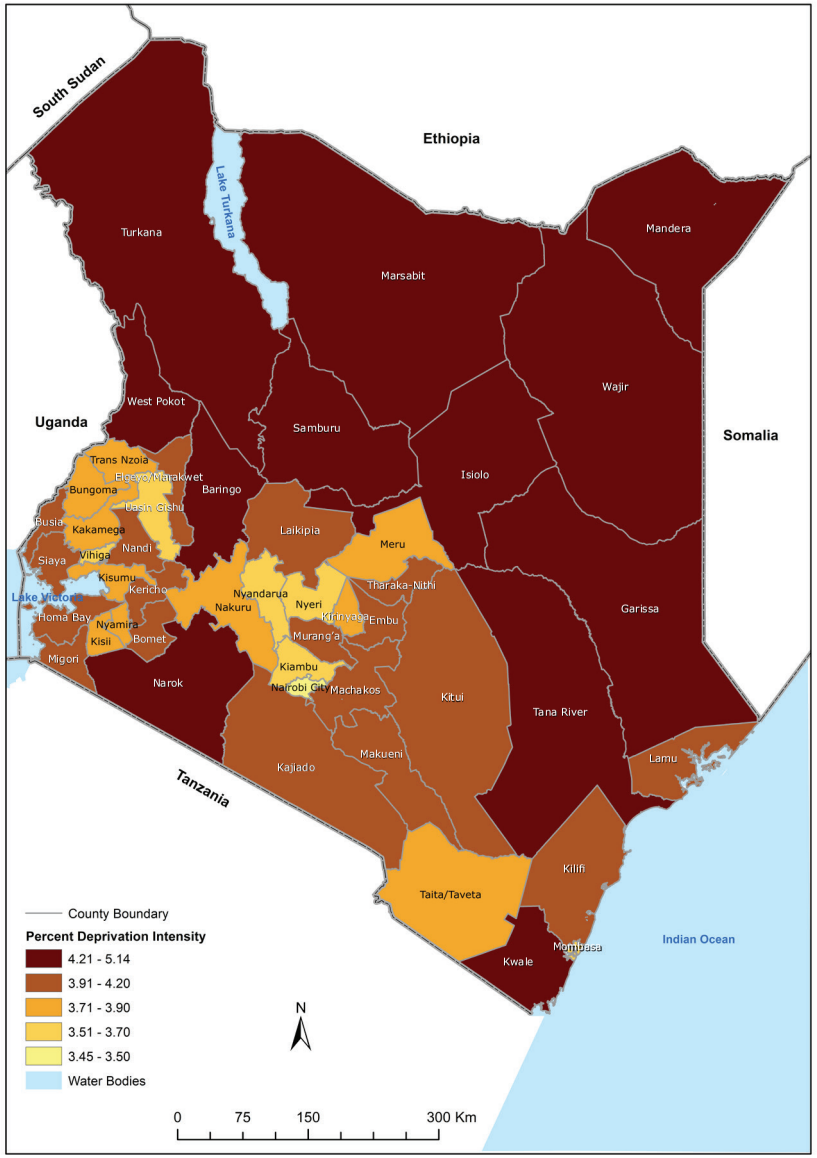
125 Uasin Gishu, Nyandarua, Vihiga, Kakamega, and Nakuru ranked the fifth least deprived, with average deprivation intensity of 3.6.

Figure 9.7 **Average deprivation intensity, by county, 2009 and 2019**

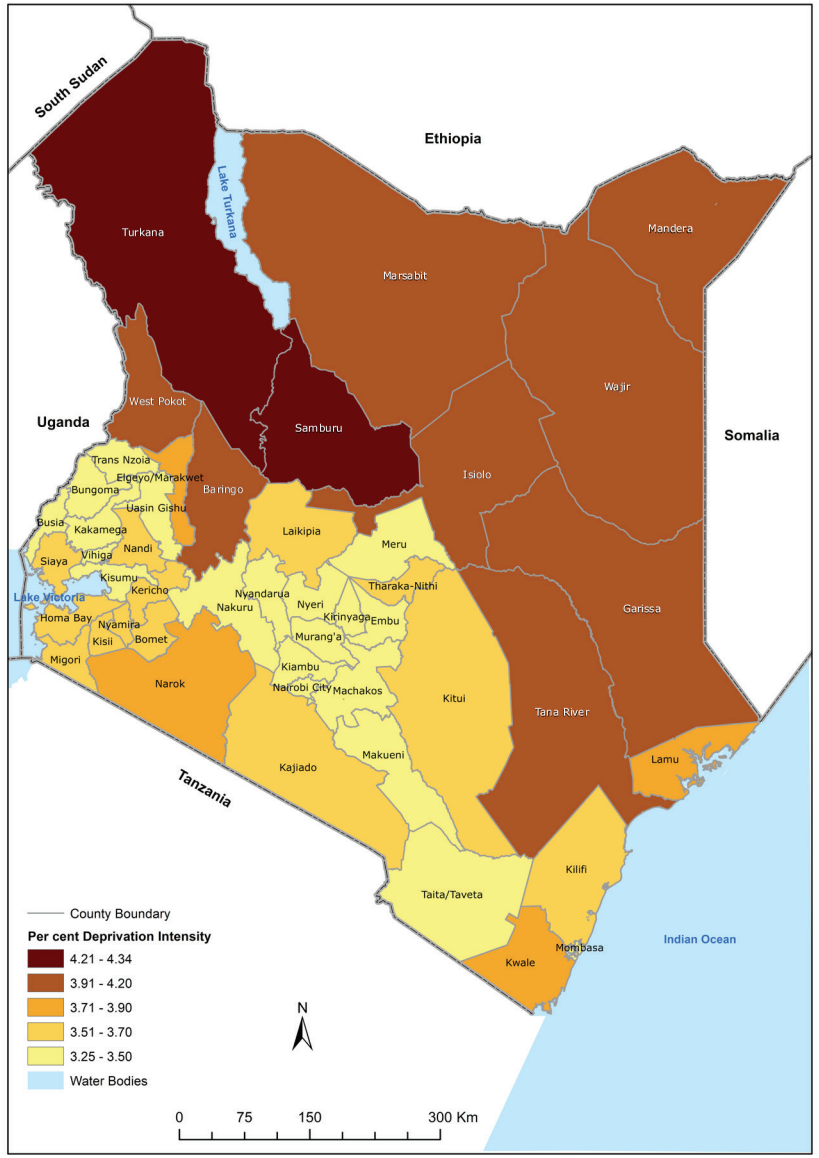


Source: KPHC 2009 and KPHC 2019

Map 9.2 Average deprivation intensity, by county, 2009 (left) and 2019 (right)



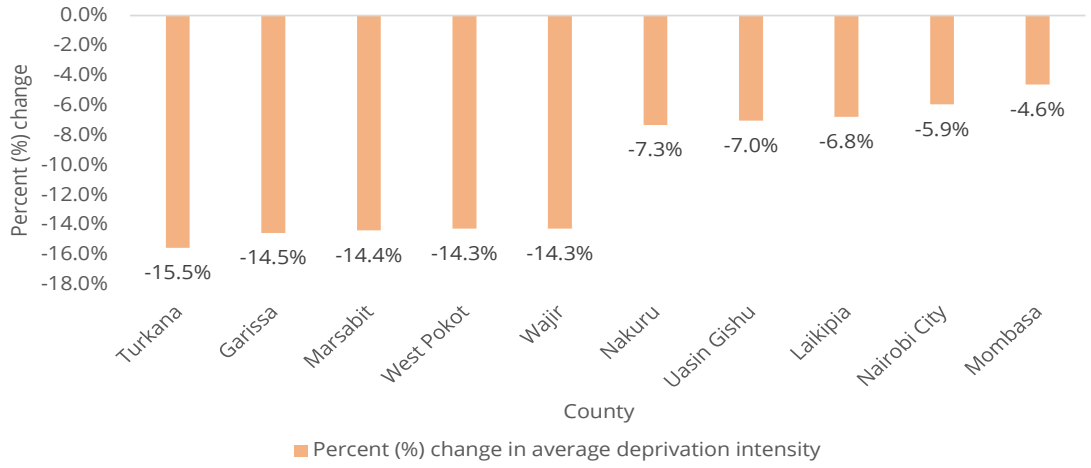
Source: KPHC 2009



Source: KPHC 2019

Figure 9.8 shows that between 2009 and 2019, the average deprivation intensity decreased by between 14 and 15.5 per cent in Turkana, Garissa, Marsabit, West Pokot, and Wajir. On the other hand, in Nairobi City where the average deprivation intensity was the lowest in the country, it decreased by 5.9 per cent, while in Mombasa by 4.6 per cent.

Figure 9.8 **Percent (%) change in average deprivation intensity between 2009 and 2019, entire population, five best performing counties (left) and five poorest performing counties (right)**



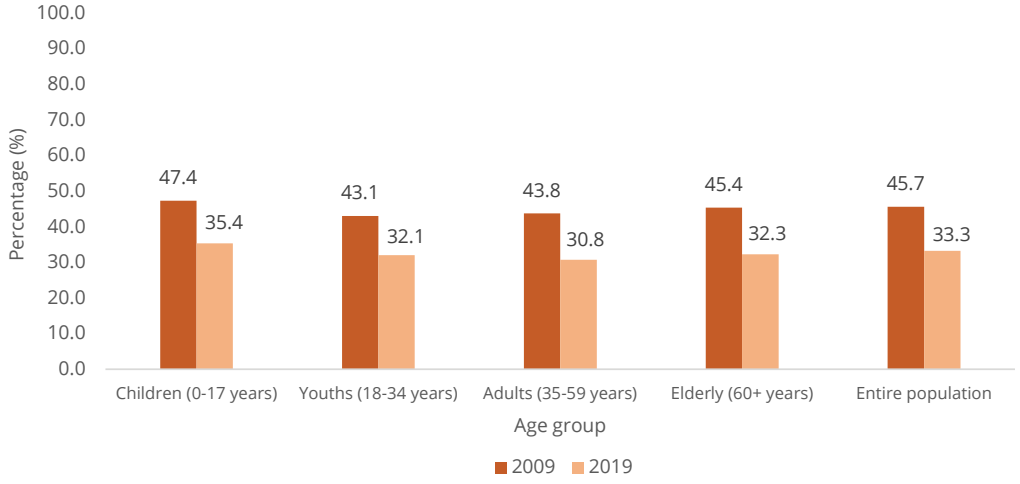
Source: KPHC 2009 and KPHC 2019

9.4 Monetary Poverty Incidence

9.4.1 Monetary Poverty Incidence at the National Level

Changes in monetary poverty between 2009 and 2019 were slightly smaller compared to multidimensional poverty as shown in Figure 9.9. In 2019, 33.3 per cent or 15.8 million Kenyans were monetarily poor, lacking the financial means to afford food and basic amenities, compared to 45.7 per cent or 17.6 million in 2009. In 2019, monetary poverty incidence was the highest among children (35.4 per cent), seconded by the elderly aged 60 years and above (32.3 per cent). Progress in monetary poverty reduction between 2009 and 2019 was the largest among adults aged 35-59 years, by 29.7 per cent, followed by the elderly, with 28.9 per cent. Monetary poverty incidence among children and youths decreased by 25.3 and 25.5 per cent, respectively.

Figure 9.9 **Percentage (%) of the monetarily poor population, by age group, 2009 and 2019**

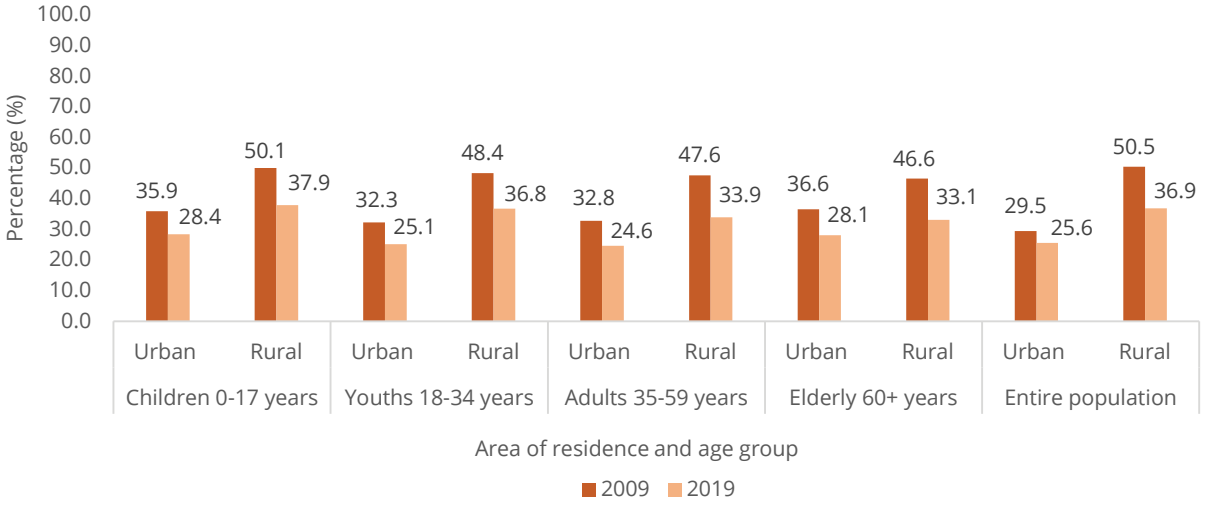


Source: KPHC 2009 and KPHC 2019

9.4.2 Monetary Poverty Incidence by Area of Residence

As shown in Figure 9.10, progress in monetary poverty reduction in urban and rural areas was less substantial compared to multidimensional poverty. In 2019, nearly 37 per cent of Kenyans residing in rural areas were monetarily poor compared to 25.6 per cent of the population in urban areas. Poverty incidence was the highest among children (37.9 per cent) and youths (36.8 per cent) in rural areas. Nonetheless, it must be emphasized that poverty reduction between 2009 and 2019 was greater in rural compared to urban areas, 26.9 per cent and 13.2 per cent, respectively, especially among the elderly. The urban-rural gap in monetary poverty was the widest among youths aged 18-34 years and adults aged 35-59 years. The monetary poverty incidence among youths in rural areas was 46.4 per cent higher than in urban areas, 36.8 per cent and 25.1 per cent, respectively.

Figure 9.10 Percentage (%) of the monetarily poor population, by age group and area of residence, 2009 and 2019

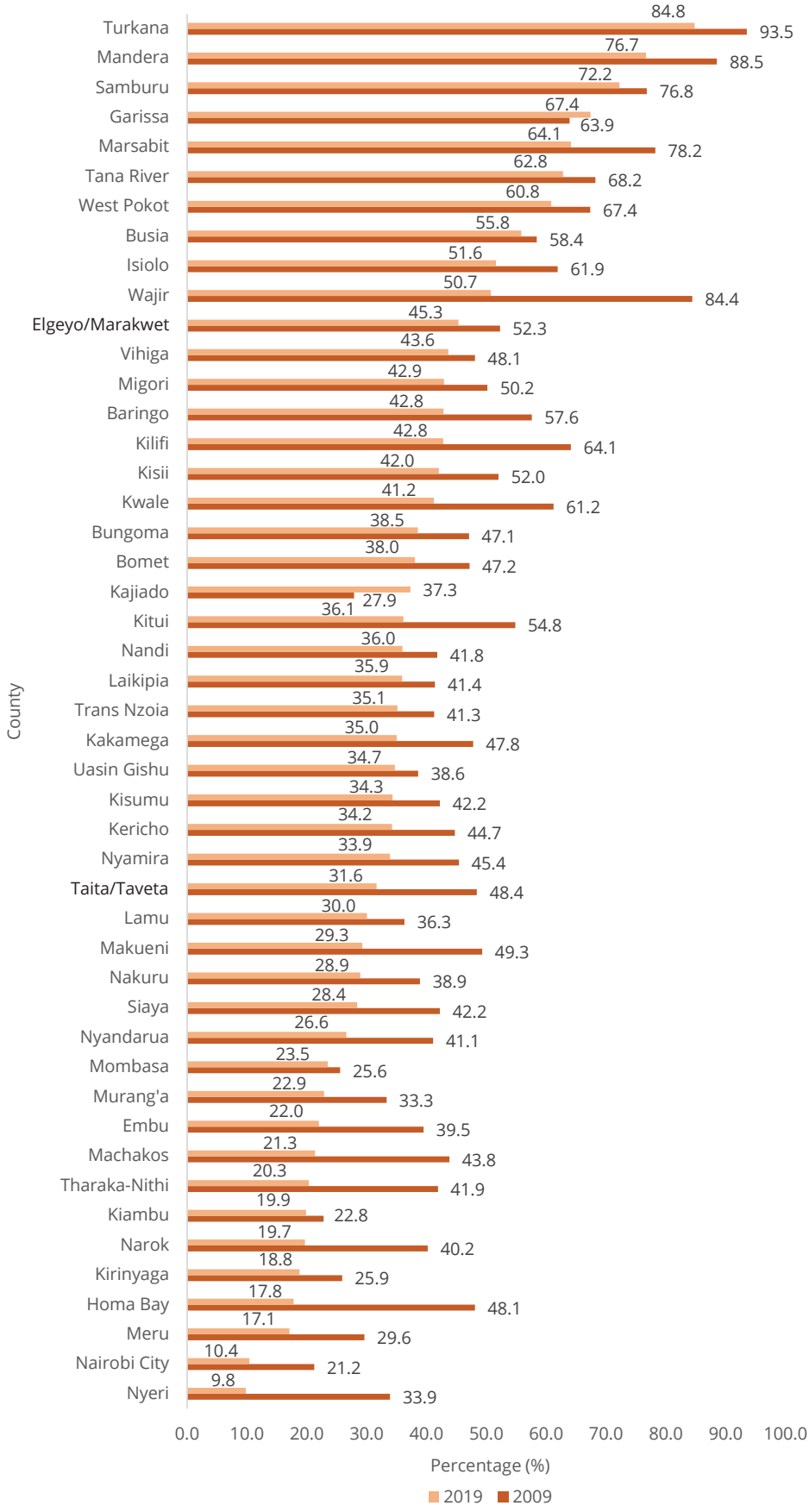


Source: KPHC 2009 and KPHC 2019

9.4.3 Monetary Poverty Incidence by County

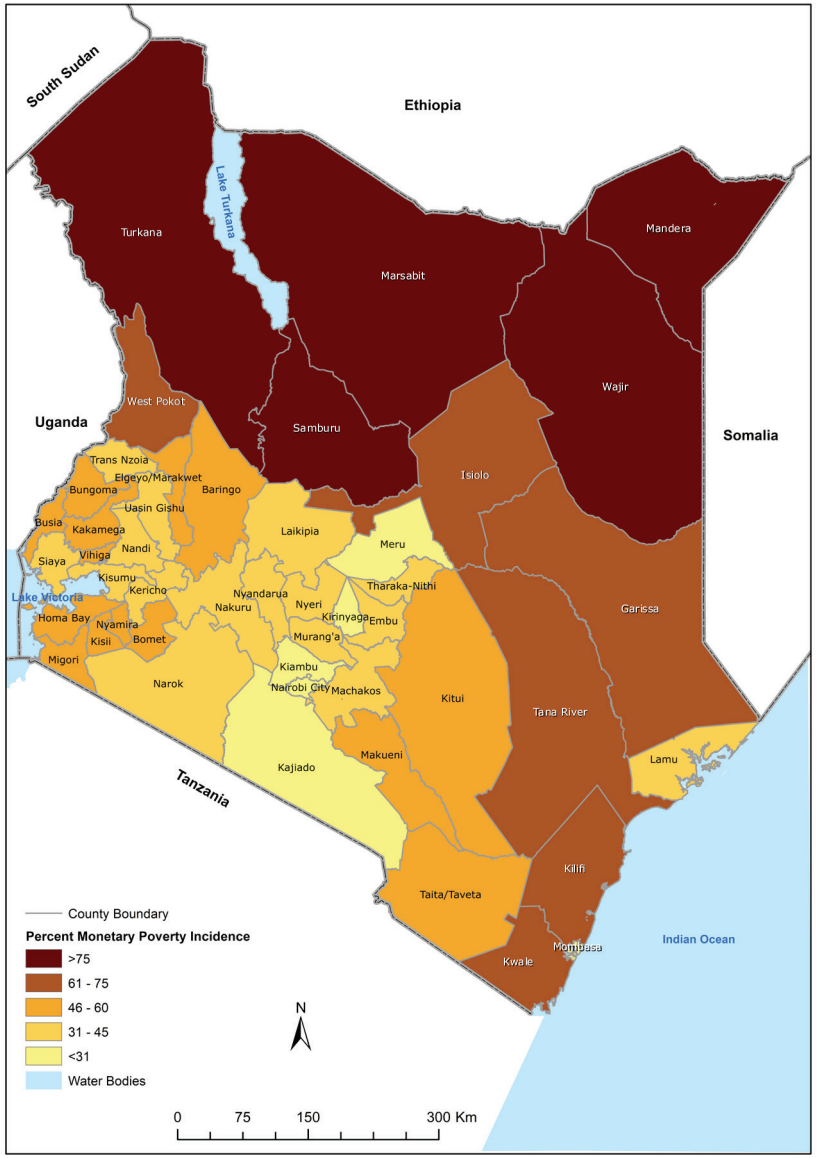
Inequalities in the financial wellbeing of households across counties were widespread over the decade. In 2019, 84.8 per cent of the population in Turkana County lacked the minimum financial resources to afford food and basic amenities compared to 9.8 per cent of the population residing in Nyeri as presented in Figure 9.11, Map 9.3, and Annex 23. As with MD poverty, other counties with highest the incidence of monetary poverty in 2019 included Mandera, Samburu, Garissa and Marsabit, with rates ranging between 64.1 and 76.7 per cent. On the other hand, monetary poverty incidence was the lowest in Nyeri, Nairobi City, Meru, Homa Bay and Kirinyaga, ranging between 9.8 and 18.8 per cent. Turkana, Mandera, Wajir, Marsabit and Samburu ranked the poorest counties in 2009, with poverty rates ranging between 76.8 and 93.5 per cent. On the other hand, Nairobi City, Kiambu, Mombasa, Kirinyaga, and Kajiado ranked the least poor, with monetary poverty incidence rates between 21.2 and 27.9 per cent.

Figure 9.11 **Percentage (%) of the monetarily poor population, by county, 2009 and 2019**

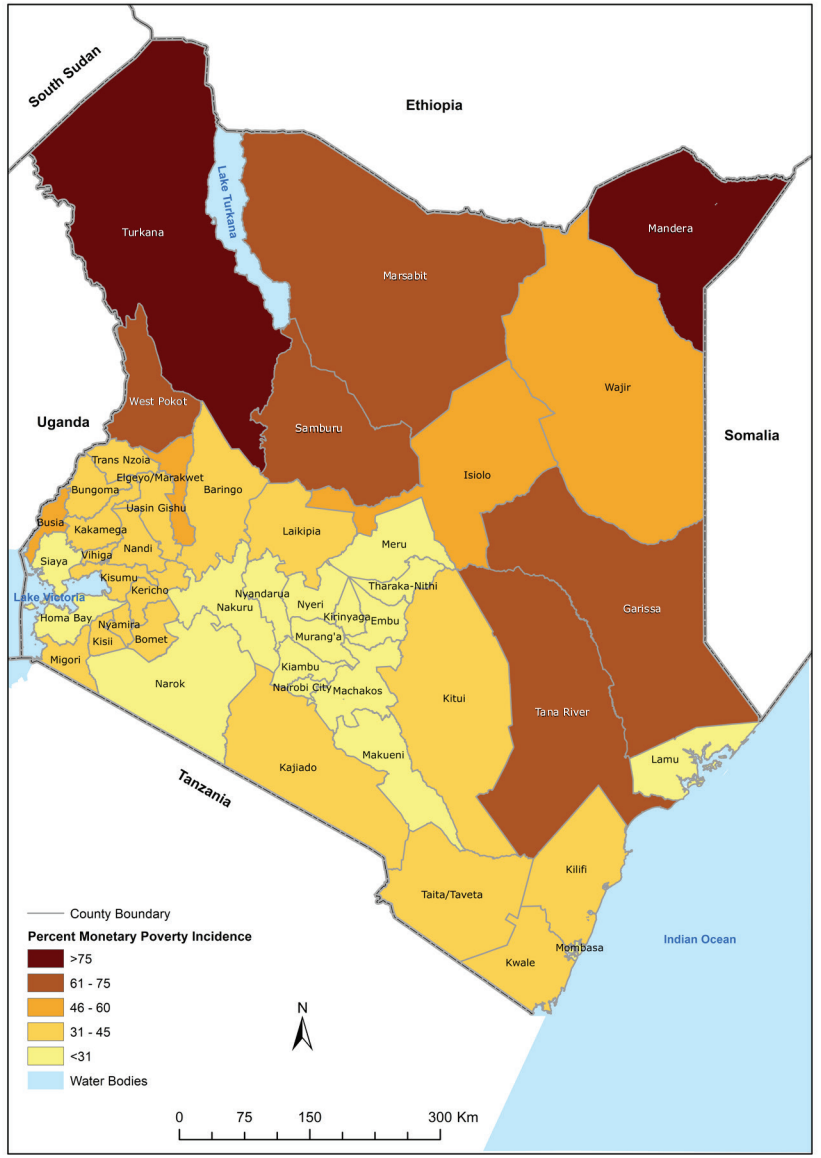


Source: KPHC 2009 and KPHC 2019

Map 9.3 Percentage (%) of the monetarily poor population, by county, 2009 (left) and 2019 (right)



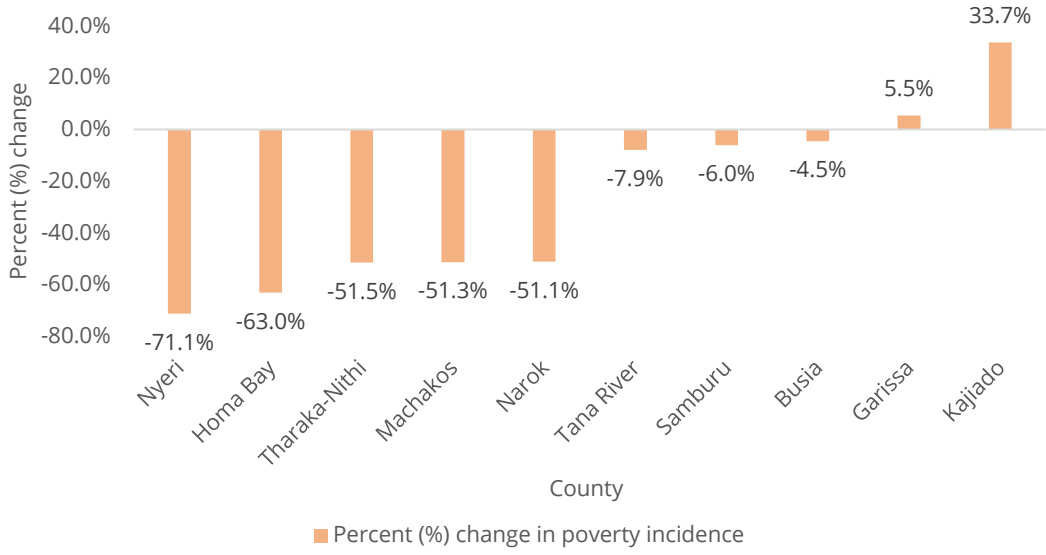
Source: KPHC 2009



Source: KPHC 2019

Figure 9.12 shows that monetary poverty incidence decreased across all counties except for Garissa and Kajiado during the decade. In Nyeri, Homa Bay, Tharaka-Nithi, Machakos, and Narok monetary poverty incidence more than halved between 2009 and 2019, recording a reduction between 51.1 and 71.1 per cent. In Tana River, Samburu, and Busia the improvements were small. On the other hand, in Garissa poverty incidence increased by 5.5 per cent and in Kajiado by 33.7 per cent.

Figure 9.12 Percent (%) change in monetary poverty incidence between 2009 and 2019, entire population, five best performing counties (left) and five poorest performing counties (right)



Source: KPHC 2009 and KPHC 2019

Box 9.1 compares the estimates on monetary poverty for 2019 using small area estimation, based on KIHBS 2015-16 data and KPHC 2019 data, and calculations based on the Kenya Continuous Household Survey (KCHS) 2019.[126] It must be noted that the differences in the poverty rates, especially at the county level, stem from several methodological differences including:

1. The SAE estimates of poverty are based on the KPHC 2019 – i.e., census data - which include records on all households in Kenya, including those at the extreme ends of the income and consumption distribution such as the homeless and the ultra-rich. These households are typically not covered in the survey data due to the sampling methodology and the low response rates.
2. The estimates of monetary poverty in KPHC 2019 were simulated using the KIHBS 2015-16 consumption model, the consumption expenditure module of which is not fully comparable to the KCHS 2019.
3. The figures from KCHS 2019 are based on a small subsample of households, therefore, subject to the sampling methodology and response rates at the county level.

To illustrate the robustness of SAE monetary poverty estimates, figures in Box 9.2 plot the SAE estimates of monetary poverty by county for KPHC 2009 and 2019 with KIHBS 2005-06 and KCHS 2019 monetary poverty figures, respectively.

126 KNBS, November 2022, Basic Report on Monetary Poverty in Kenya: Based on the 2019 Kenya Continuous Household Survey (KCHS), forthcoming.

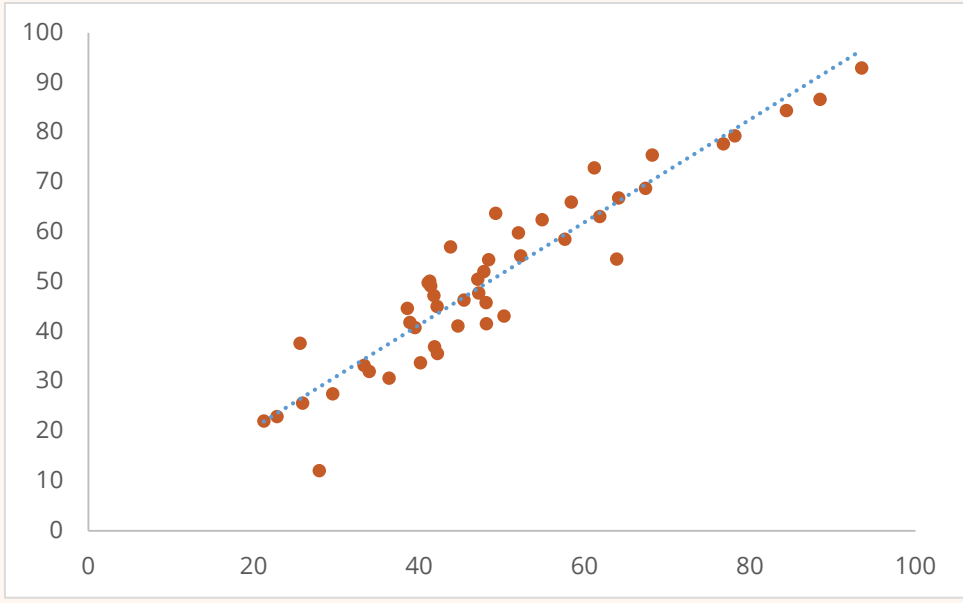
Box 9.1 **Comparison of monetary poverty incidence, SAE estimates using KIHBS 2015-16 and KPHC 2019 and KCHS 2019, in %**

Residence	SAE estimates using KIHBS 2015-16 & KPHC 2019	KCHS 2019
National	33.3	33.6
Urban	25.6	26.0
Rural	36.9	37.0
Nairobi City	10.4	10.2
Nyamira	33.9	34.5
Kisii	42.0	41.1
Migori	42.9	36.3
Homa Bay	17.8	29.6
Kisumu	34.3	34.7
Siaya	28.4	23.7
Busia	55.8	58.7
Bungoma	38.5	34.9
Vihiga	43.6	46.5
Kakamega	35.0	36.3
Bomet	38.0	42.8
Kericho	34.2	36.7
Kajiado	37.3	39.9
Narok	19.7	19.7
Nakuru	28.9	29.1
Laikipia	35.9	30.6
Baringo	42.8	37.8
Nandi	36.0	35.4
Elgeyo/Marakwet	45.3	37.5
Uasin Gishu	34.7	38.8
Trans Nzoia	35.1	34.9
Samburu	72.2	71.3
West Pokot	60.8	57.7
Turkana	84.8	81.3
Kiambu	19.9	17.8
Murang'a	22.9	19.7
Kirinyaga	18.8	15.9
Nyeri	9.8	12.8
Nyandarua	26.6	25.4
Makueni	29.3	38.1
Machakos	21.3	22.4
Kitui	36.1	44.4
Embu	22.0	21.8
Tharaka-Nithi	20.3	18.8
Meru	17.1	17.2
Isiolo	51.6	50.1
Marsabit	64.1	55.9
Mandera	76.7	69.5
Wajir	50.7	56.2
Garissa	67.4	64.7
Taita/Taveta	31.6	34.4
Lamu	30.0	31.0
Tana River	62.8	61.7
Kilifi	42.8	44.3
Kwale	41.2	41.6
Mombasa	23.5	27.6

Source: KPHC 2019 and KCHS 2019

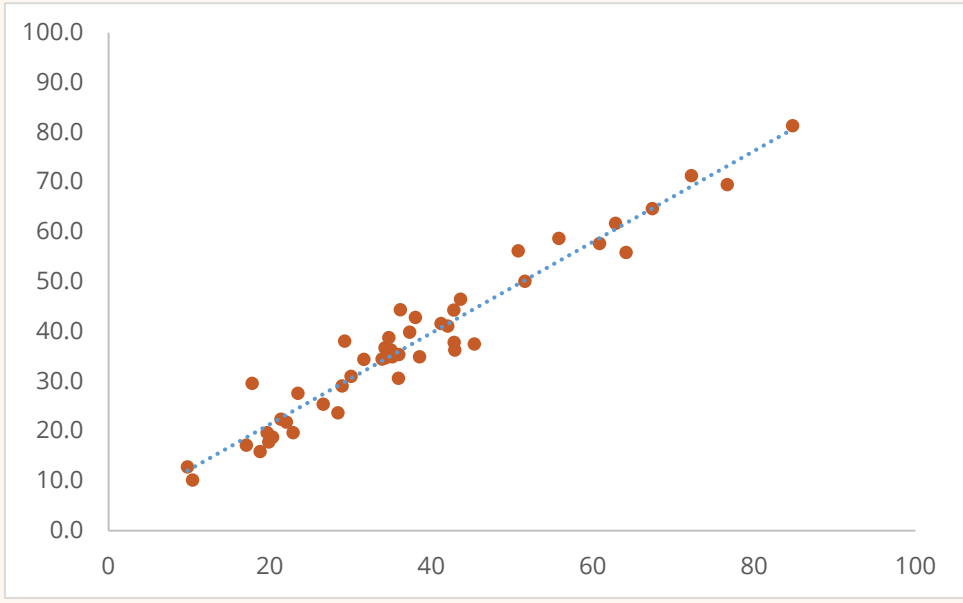
Box 9.2 **Comparison of monetary poverty figures between SAE KPHC 2009 and KPHC 2019 estimates and KIHBS 2005-06 and KCHS 2019, county-level figures**

Box Figure 9.1 *KPHC 2009 and KIHBS 2005-06 monetary poverty rates, county level*



Source: KIHBS 2005-06 and KPHC 2009

Box Figure 9.2 *KPHC 2019 and KCHS 2019 monetary poverty rates, county level*



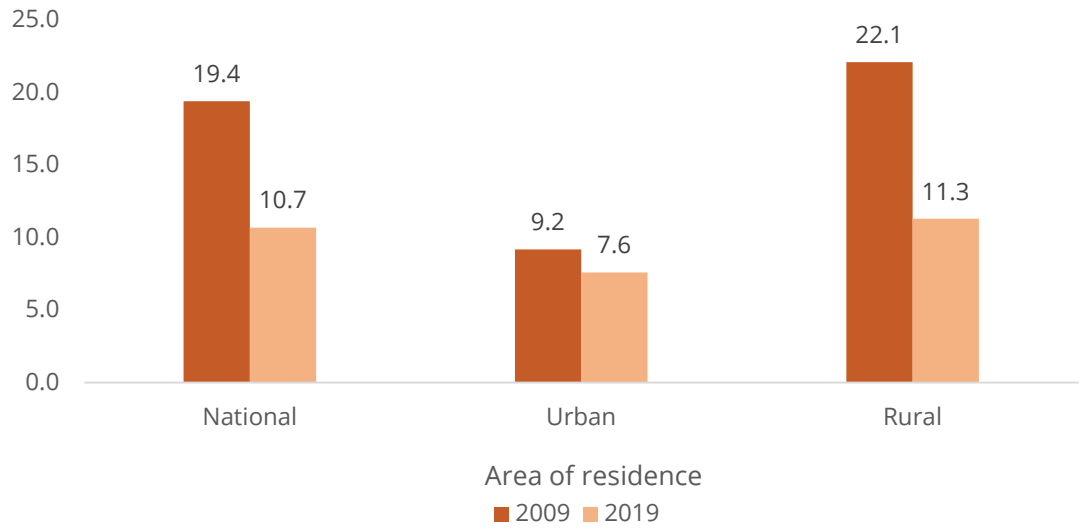
Source: KCHS 2019 and KPHC 2019

9.5 Poverty gap

9.5.1 Poverty Gap at the National Level and by Area of Residence

Figure 9.13 presents the trends of change in the poverty gap, i.e., depth of poverty between 2009 and 2019. The poverty gap nearly halved over the decade, from 19.4 to 10.7. This implies that the financial wellbeing of households improved over the decade as those who were monetarily poor in 2019 had consumption expenditure closer to the poverty line compared to poor households in 2009. The reduction in the poverty gap was significant in rural areas, by nearly 49 per cent, from 22.1 to 11.3. However, monetary-poor households residing in rural areas remained significantly poorer than households in urban areas.

Figure 9.13 Poverty gap, by age area of residence, 2009 and 2019

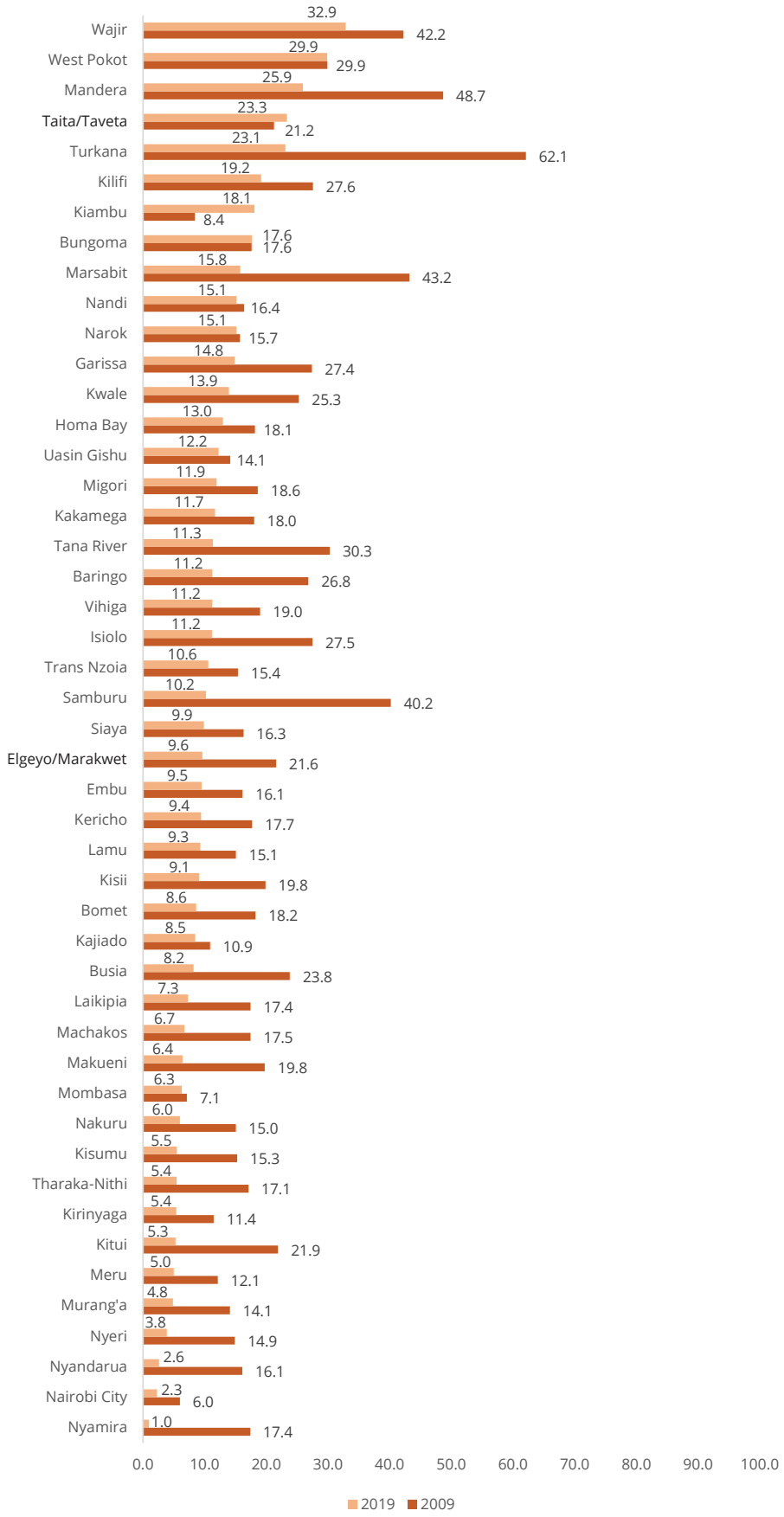


Source: KPHC 2009 and KPHC 2019

9.5.2 Poverty Gap by County

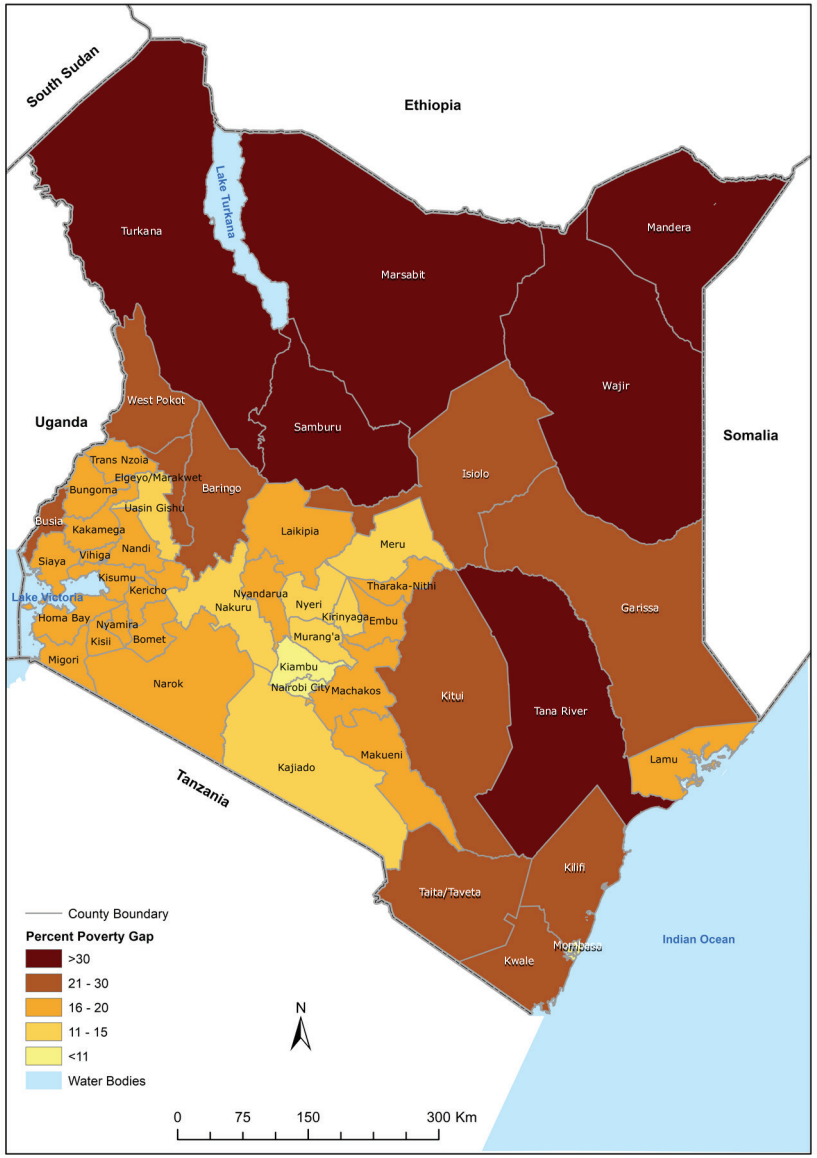
Figure 9.14, Map 9.4, and Annex 24 show that poverty depth narrowed across most counties between 2009 and 2019 except for in Bungoma, Taita/Taveta and Kiambu. Nevertheless, disparities remained widespread. In 2019, the poverty gap in Wajir, West Pokot, Mandera, Taita/Taveta, and Turkana ranged between 23.1 and 32.9. Among the counties ranking with the narrowest poverty gap – Nyamira, Nairobi City, Nyandarua, Nyeri and Murang'a – it ranged between 1.0 and 4.8. These findings suggest that the poor households in the highest-ranking counties are significantly poorer. Turkana, Mandera, Marsabit, Wajir and Samburu had the widest poverty gap in 2009, while Nairobi City, Mombasa, Kiambu, Kajiado and Kirinyaga the narrowest.

Figure 9.14 Poverty gap, entire population, by county, 2009 and 2019

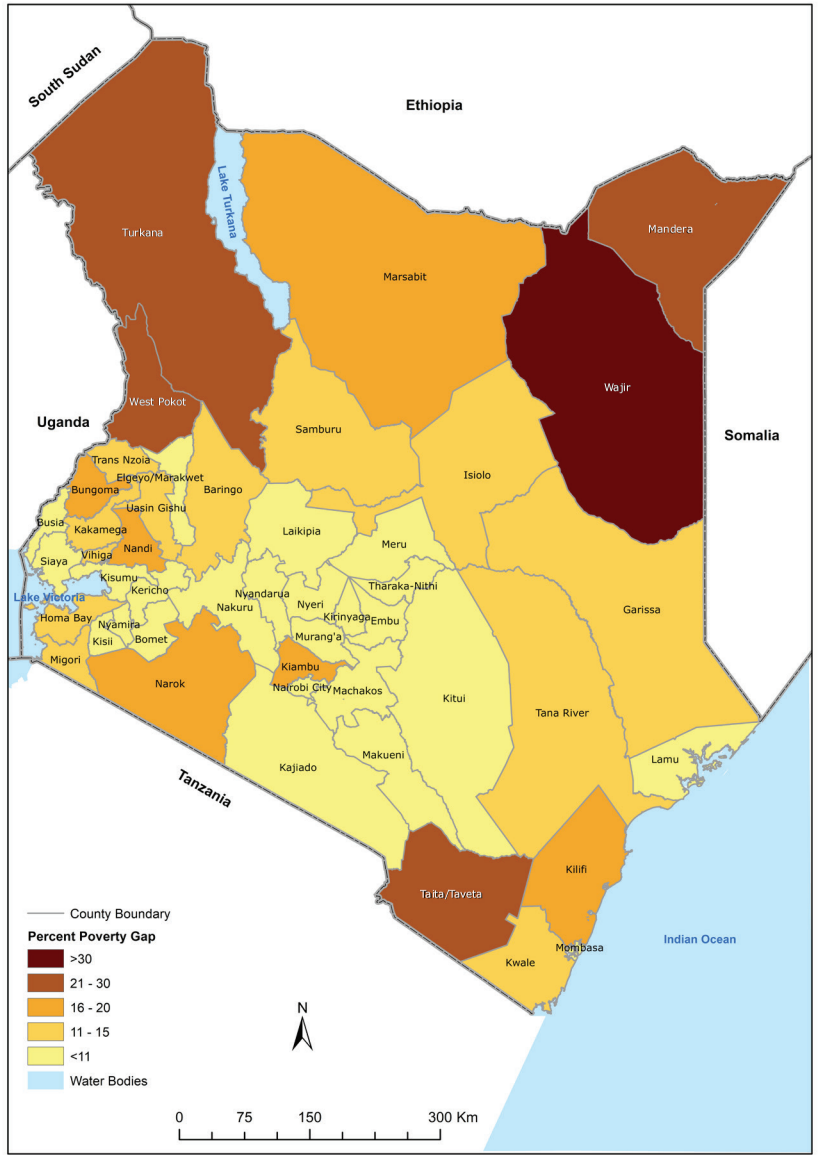


Source: KPHC 2009 and KPHC 2019

Map 9.4 Poverty gap, by county, 2009 (left) and 2019 (right)



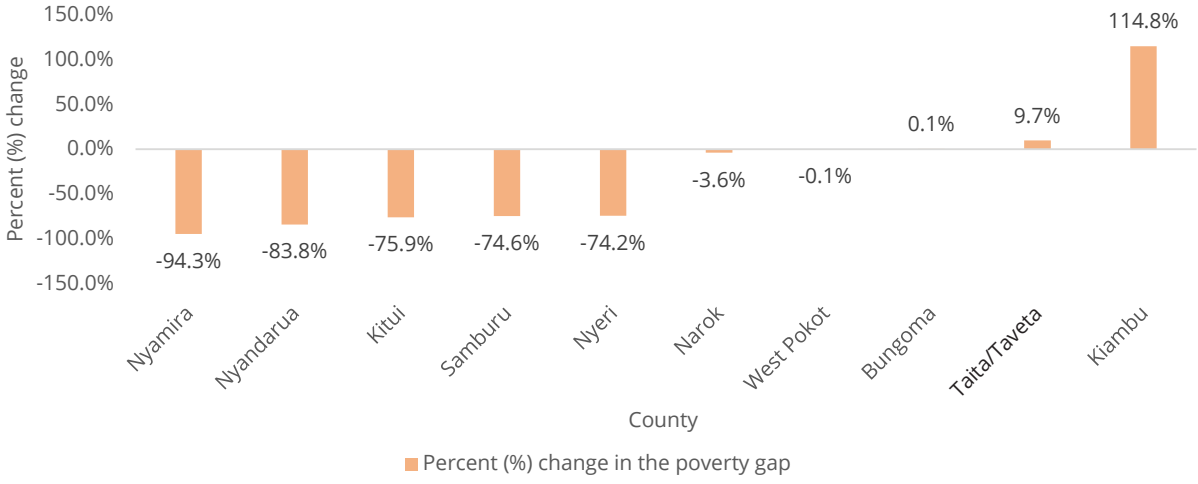
Source: KPHC 2009



Source: KPHC 2019

Figure 9.15 shows that the poverty gap narrowed substantially in several counties, while it expanded in others. The greatest reduction – by 94.3 per cent - was recorded in Nyamira where the poverty gap narrowed from 17.1 in 2009 to 1.0 in 2019. In Nyandarua, Kitui, Samburu, and Nyeri the poverty gap narrowed by between 74.2 and 82.8 per cent. On the other hand, in Kiambu the poverty gap widened by 114.8 per cent and in Taita/Taveta by 9.7 per cent.

Figure 9.15 **Percent (%) change in the poverty gap between 2009 and 2019, entire population, five best performing counties (left) and five poorest performing counties (right)**



Source: KPHC 2009 and KPHC 2019

Box 9.3 presents the estimates on the poverty gap for 2019 using small area estimation, based on KIHBS 2015-16 data and KPHC 2019 data, and calculations based on the Kenya Continuous Household Survey (KCHS) 2019.[127] It must be noted that the differences in the poverty gap, especially at the county level, stem from several methodological differences discussed in section 9.4.3.

Box 9.3 **Comparison of monetary poverty gap, SAE estimates using KIHBS 2015-16 and KPHC 2019 and KCHS 2019**

Residence	SAE estimates using KIHBS 2015-16 & KPHC 2019	KCHS 2019
National	10.7	9.9
Urban	7.6	7.7
Rural	11.3	10.9
Nairobi City	2.3	2.2
Nyamira	1.0	9.2
Kisii	9.1	11.4
Migori	11.9	8.7
Homa Bay	13.0	7.4
Kisumu	5.5	9.6
Siaya	9.9	5.5

127 KNBS, November 2022, Basic Report on Monetary Poverty in Kenya: Based on the 2019 Kenya Continuous Household Survey (KCHS), forthcoming.

Residence	SAE estimates using KIHBS 2015-16 & KPHC 2019	KCHS 2019
Busia	8.2	19.7
Bungoma	17.6	9.0
Vihiga	11.2	13.2
Kakamega	11.7	9.6
Bomet	8.6	10.6
Kericho	9.4	10.1
Kajiado	8.5	12.1
Narok	15.1	4.7
Nakuru	6.0	7.6
Laikipia	7.3	8.2
Baringo	11.2	9.2
Nandi	15.1	8.8
Elgeyo/Marakwet	9.6	10.4
Uasin Gishu	12.2	11.4
Trans Nzoia	10.6	9.1
Samburu	10.2	28.9
West Pokot	29.9	18.6
Turkana	23.1	45.4
Kiambu	18.1	4.3
Murang'a	4.8	4.8
Kirinyaga	5.4	3.6
Nyeri	3.8	2.7
Nyandarua	2.6	6.2
Makueni	6.4	10.3
Machakos	6.7	5.5
Kitui	5.3	12.1
Embu	9.5	5.1
Tharaka-Nithi	5.4	4.0
Meru	5.0	4.3
Isiolo	11.2	14.9
Marsabit	15.8	17.3
Mandera	25.9	27.6
Wajir	32.9	17.7
Garissa	14.8	24.3
Taita/Taveta	23.3	9.5
Lamu	9.3	7.8
Tana River	11.3	22.0
Kilifi	19.2	12.6
Kwale	13.9	10.8
Mombasa	6.3	7.6

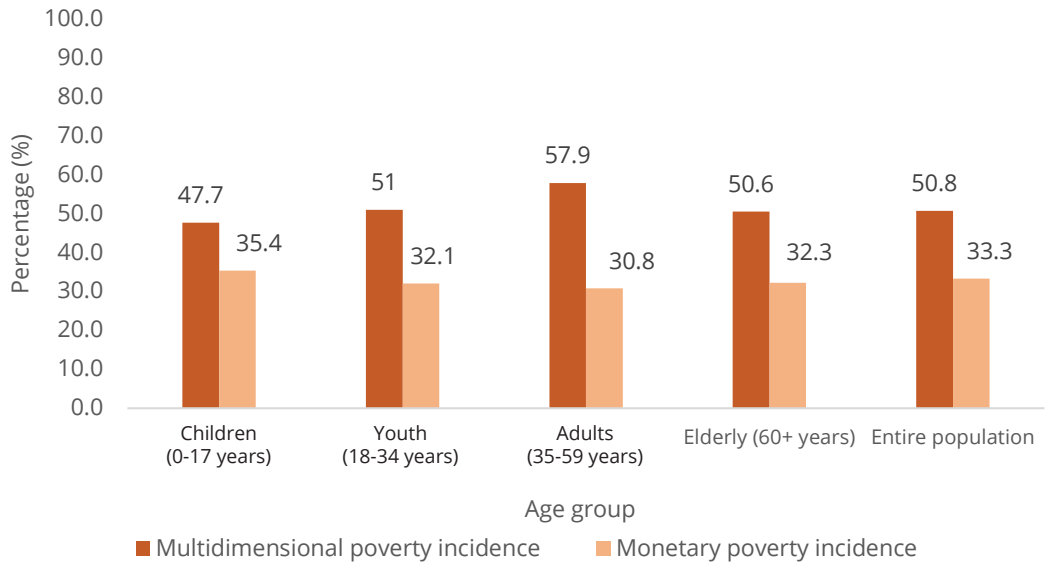
Source: KPHC 2019 and KCHS 2019

9.6 Multidimensional and monetary poverty

9.6.1 Multidimensional and Monetary Poverty Incidence

Figure 9.16 compares multidimensional and monetary poverty incidence across different age groups in 2019. The data show several important findings. Firstly, multidimensional poverty incidence was higher than monetary poverty incidence for all age groups. Secondly, while monetary poverty incidence was the highest among children (35.4 per cent) followed by the elderly (32.3 per cent), multidimensional poverty incidence was the highest among adults aged 35-59 years (57.9 per cent), followed by youths aged 18-34 years (51.0 per cent). Even though these differences stem from the dimensions used in multidimensional poverty measurement – constrained by data availability in KPHC 2019 for children – they highlight another important fact. Measurement of monetary and multidimensional poverty are conceptually different and capture different domains of wellbeing of households and individuals. As such, both parameters are paramount for informing design of policies and interventions to tackle poverty holistically and effectively.

Figure 9.16 Percentage (%) of the multidimensionally and monetarily poor population, by age group, 2019



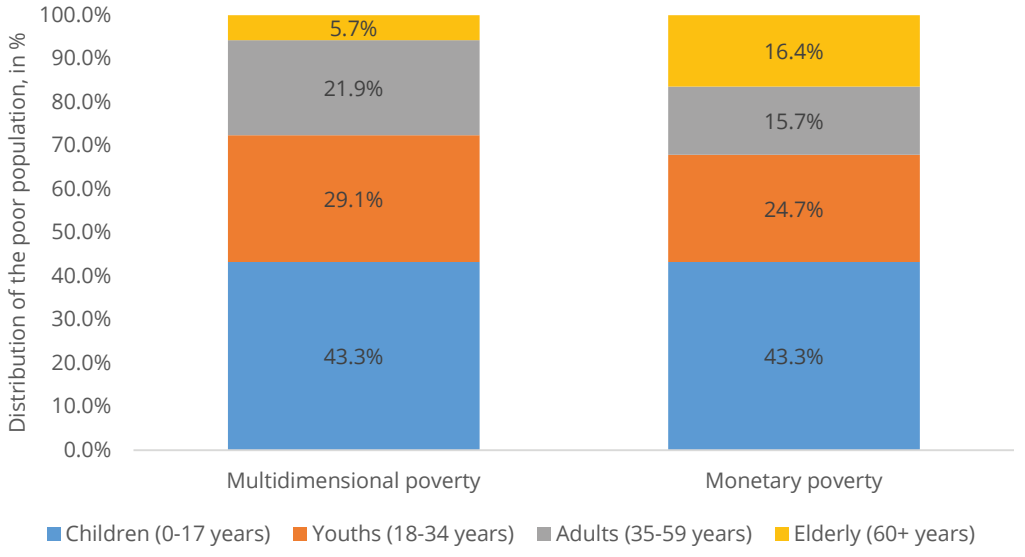
Source: KPHC 2009 and KPHC 2019

9.6.2 Multidimensional and Monetary Poverty Distribution

Analysis of monetary and multidimensional poverty incidence distribution[128] by age group in Figure 9.17 shows that children comprised the largest share of both monetarily and multidimensionally poor in Kenya, 43.3 per cent. Youths comprised the second largest share, 29.1 per cent among the multidimensionally poor and 24.7 per cent of the monetarily poor. While the elderly comprised the third largest share of the monetarily poor – 16.4 per cent – they accounted for less than 6 per cent of the multidimensionally poor. Along with prior analysis of socio-economic factors associated with deprivation across different dimensions, these results show that households with children and youths should be prioritized in social protection programmes targeting poverty reduction.

128 Figures calculated using population figures from KPHC 2019 by age and sex. KNBS, December 2019, 2019 Kenya Population and Housing Census. Volume III: Distribution of Population by Age and Sex, available at: https://www.knbs.or.ke/download/2019-kenya-population-and-housing-census-volume-iii-distribution-of-population-by-age-sex-and-administrative-units/

Figure 9.17 **Distribution of monetary and multidimensional poverty incidence (%) by age group, 2019**



Source: KPHC 2009 and KPHC 2019

9.7 Conclusion and Recommendations

Kenya made significant progress in both monetary and multidimensional poverty reduction between 2009 and 2019. The multidimensional poverty rate decreased from 68.2 per cent in 2009 to 50.8 per cent in 2019, and the average deprivation intensity reduced from 4.1 to 3.6 dimensions. Likewise, monetary poverty incidence decreased from 45.7 per cent in 2009 to 33.3 per cent in 2019, and the poverty gap nearly halved from 19.4 to 10.7. Both reductions were largely attributed to the significant improvements in rural areas.

However, inequalities in realization of basic rights and fulfilment of needs, including financial wellbeing, remained wide between both rural and urban areas, and across counties. In 2019, Kenyans residing in rural areas were more than twice as likely to be multidimensionally poor compared to the population in urban areas, with MD poverty incidence rates between 61.9 and 25.8 per cent, respectively. The monetary poverty incidence in rural areas (at 37 per cent) was also significantly higher compared to the urban ones (25.6 per cent). Across counties, Turkana, Mandera, Wajir, Samburu, Marsabit, and Garissa ranked the poorest in both monetary and multidimensional poverty in 2009 and 2019, showing meagre progress over the decade.

To tackle monetary and multidimensional poverty, reduce geographical and other disparities in realization of rights and fulfilment of basic needs, and to ensure socio-economic inclusion of all regardless of their characteristics and where they live, this study suggests that the government of Kenya should:

1). Promote economic growth and job creation by providing earning and income opportunities for the working age population. As discussed across different chapters in the report, deprivation in economic activity remained very high in 2019, and unemployment was one of the key drivers of deprivation and poverty. Prioritizing vulnerable groups – women, persons with disabilities, members of women headed households, persons with lower educational attainment, labour constrained households, and households with a larger number of children - in employment opportunities and activation programmes, and the most marginalized areas of residence such as rural areas and counties like Turkana, Mandera, Samburu, Marsabit, Wajir, West Pokot, Garissa, and Tana River, will contribute to reduction in inequalities and inequities.

a). These interventions must be complemented with simultaneous policies and programmes to enhance employability and earning potential – especially among youths – through investments in education and skills development.

2). Establish a minimum Social Protection Floor to address vulnerabilities across different stages of the lifecycle and against different contingencies. The figures presented in this chapter have shown that children comprise more than 43 per cent of the monetary and multidimensionally poor population, while the youths more than a quarter, 25 per cent. This calls for prioritization of households with a larger number of children and youths in targeted social protection programmes that provide cash or cash plus support. Additionally, a universal cash grant for children would not only improve their (and their households') financial wellbeing but also have spillover effects in improving their health, educational, nutritional and other outcomes. Expanding the universal social pension – Inua Jamii Senior Citizens' Scheme – by (gradually) lowering the age of the eligible population would benefit significantly both the elderly and households with a larger number of children.

3). Medium and long-term development plans – at the central and county level - must account for both monetary and multidimensional poverty figures in design of interventions and budgeting. This study has reaffirmed that monetary and multidimensional poverty capture different aspects of wellbeing, therefore both must be accounted for.

a). These plans must advocate for sustainable financing across all sectors of wellbeing and include multisectoral interventions given the high deprivation rates across multiple sectors such as education, economic activity, WATSAN, and housing and energy, and that many Kenyans experience multiple deprivations simultaneously.

10 Gender Inequalities

10.0 Introduction

This chapter discusses gender inequalities monetary and multidimensional poverty, and in the various dimensions and indicators included in the multiple deprivation analysis. These include education, child protection, information, economic activity, WATSAN, housing and energy. Gender disparities are discussed from two different perspectives: i) trends in deprivation/poverty incidence among girls/women and boys/men between 2009 and 2019, and ii) changes in gender gaps across different outcomes between 2009 and 2019. The change in gender gap was calculated as follows: absolute difference in deprivation/poverty incidence among women/girls and men/boys, divided by the deprivation/poverty incidence among girls/women. The gender gap was measured separately for 2009 and 2019. While the results for each age group are presented at the national and area of residence, only a select number of age groups and indicators are presented at the county level.

10.1 Background and Context

Promoting and enhancing gender equality is embedded in the 2010 Constitution of Kenya. Article 10 lists equality and equity as two of the core national values and principles of governance, Article 21 establishes addressing needs of vulnerable groups within society such as women as a duty of all State organs and public officers, and Article 27 stipulates that *"Women and men have the right to equal treatment, including the right to equal opportunities in political, economic, cultural and social spheres"*.[129] Additionally, Article 59, paragraph (2) sets *"promotion of gender equality and equity generally and coordination and facilitation of gender mainstreaming in national development"* as one of the core functions of the Kenya National Human Rights and Equality Commission. Several other articles, such as Article 60, Article 81, Article 91, Article 100, Article 172, and Article 175 stipulate promotion and enhancement of gender equality and representation of women in the political, socio-economic, and cultural spheres (Box 10.1).

Box 10.1 Related articles in the Constitution of Kenya (2010)

Article 60. Principles of land policy - (1) Land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable, and in accordance with the following principles - (f) elimination of gender discrimination in law, customs and practices related to land and property in land.

Article 81. General principles of the electoral system. The electoral system shall comply with the following principles (b) not more than two-thirds of the members of elective public bodies shall be of the same gender.

Article 91. Basic requirements for political parties. (1) Every political party shall – (f) respect and promote human rights and fundamental freedoms, and gender equality and equity

Article 100. Parliament shall enact legislation to promote the representation in Parliament of – (a) women.

129 Parliament of Kenya, 2010, Constitution of Kenya, available at: http://www.kenyalaw.org:8181/exist/kenyalex/actview.xql?actid=Const2010

Article 172. Functions of the Judicial Service Commission. (2) In the performance of its functions, the Commission shall be guided by the following – (b) promotion of gender equality

Article 175. Principles of devolved government. County governments established under the Constitution shall reflect the following principles – (c) no more than two-thirds of members of representative bodies in each county government shall be of the same gender.

In terms of government development programmes and strategies, the National Policy on Gender and Development is a key policy framework for promoting gender equality. The overall goal of the policy is *"to achieve gender equality by creating a just society where women, men, boys, and girls have equal access to opportunities in the political, economic, cultural and social spheres of life"*.[130] Additionally, MTP III (2018-2022) of Vision 2030 emphasizes promotion of gender equality through equal access, economic opportunities, prevention and response to Gender-Based Violence (GBV), and elimination of female genital mutilation (FGM), gender mainstreaming and the sanitary towels programme.[131] Other related policies and legislative acts include the Sexual Offences Act 2006, Prohibition of FGM Act 2011, Matrimonial Property Act 2013, Marriage Act 2014, Prevention Against Domestic Violence Act 2015, the National Policy on Prevention and Response to GBV 2014, Policy on Eradication of FGM 2019 and the National Policy on Gender and Development 2019.

The government of Kenya has committed to enhancing gender equality also in its regional and international commitments. As a signatory of the 2003 Maputo Protocol, Kenya has committed to guaranteeing women's comprehensive rights to participate in the social and political spheres equally with men, enhancing women's autonomy to make decisions about their reproductive health, and to ending FGM.[132] Tackling the disproportionate incidence of illiteracy, poverty, and diseases faced by women are set out in the Strategy for Gender Equality & Women's Empowerment (GEWE) 2018-2028 of the African Union Agenda 2063 to achieve Aspiration 6.[133] Lastly, gender equality and women's empowerment are also envisioned in the East African Community (EAC) Gender Policy under the EAC Vision 2050.[134]

Enhancing gender equality and ending discrimination against women are at the core of several international agreements and conventions ratified by the government of Kenya, including the 1979 UN Convention on Elimination of All Forms of Discrimination Against Women (CEDAW), the 1995 Beijing Platform for Action (BPfA), and the Sustainable Development Agenda. SDG 5 *"Achieve gender equality and women's empowerment in a comprehensive manner"* has served as the foundation for numerous policy and legal frameworks aiming to enhance gender equality in the country.

130 Government of Kenya, 2019, National Policy on Gender and Development", available at: https://repository.kippra.or.ke/bitstream/handle/123456789/554/NATIONAL-POLICY-ON-GENDER-AND-DEVELOPMENT.pdf?sequence=1&isAllowed=y

131 Government of Kenya, 2018, Kenya Vision 2030: Third Medium Term Plan 2018-2022, available at: http://vision2030.go.ke/wp-content/uploads/2019/01/THIRD-MEDIUM-TERM-PLAN-2018-2022.pdf

132 African Union, 2003, Protocol to the African Charter Human and People's Rights on the Rights on the Women's Rights in Africa, available at: https://www.ohchr.org/sites/default/files/Documents/Issues/Women/WG/ProtocolontheRightsofWomen.pdf

133 African Union, 2015, Agenda 2063: The Africa We Want, available at: https://au.int/sites/default/files/documents/36204-doc-agenda2063_popular_version_en.pdf

134 East African Community (EAC), 2018, East African Community Gender Policy, available at: http://fawe.org/girlsadvocacy/wp-content/uploads/2018/12/EAC-Gender-Policy.pdf

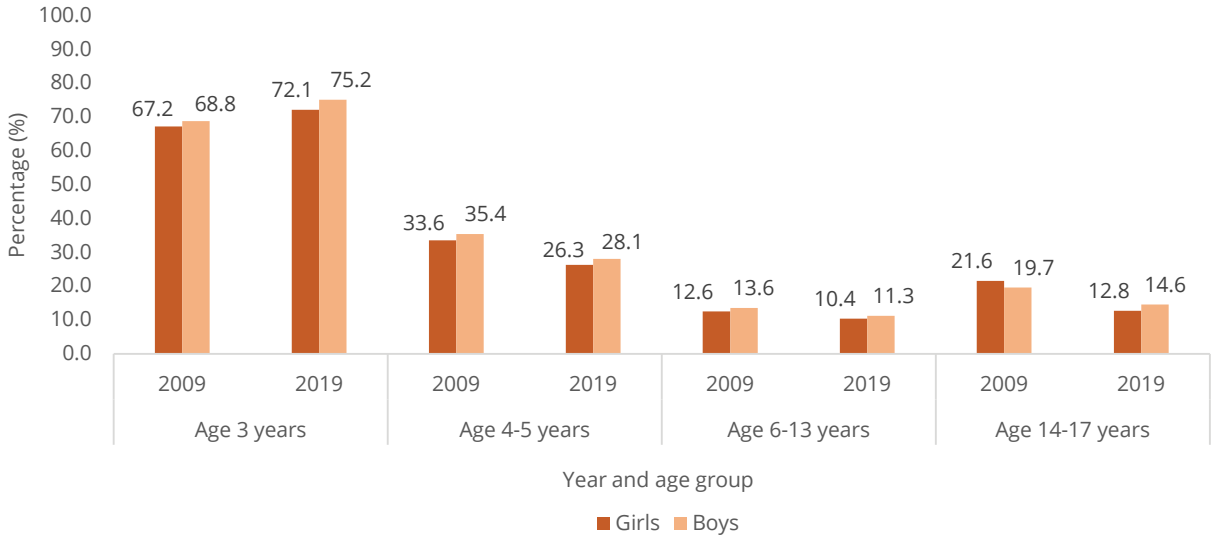
10.2 Gender Inequalities by Sector

10.2.1 Education

10.2.1.1 Children

Between 2009 and 2019 deprivation incidence in school attendance among children increased only among children aged three years due to changes introduced in the educational system. In 2017, pre-primary official age group was adjusted from 3-5 years to 4-5 years. Consequently, exclusion of children aged three years from the pre-primary age group could have contributed to increase in the level of deprivation. As shown in Figure 10.1, the changes were evident among both girls and boys. For older children, however, all deprivation rates reduced in 2019 compared to 2009 with teenagers aged 14-17 years showing the greatest improvement in educational outcome equality. This can be attributed to the enhanced enforcement of the 100 per cent primary to secondary education transition policy and implementation of the free secondary education policy. Among this age group, girls' deprivation in school attendance nearly halved (from 21.6 to 12.8 per cent), while for boys, there has been a 26 per cent decrease. For children aged 6-13 years improvements were smaller; 17 per cent decrease of deprivation for both girls and boys. Across all age groups, girls were less likely to be deprived of education compared to boys in 2019.

Figure 10.1 Percentage (%) of children deprived of pre-school and school attendance, by sex and age group, 2009 and 2019



Source: KPHC 2009 and KPHC 2019

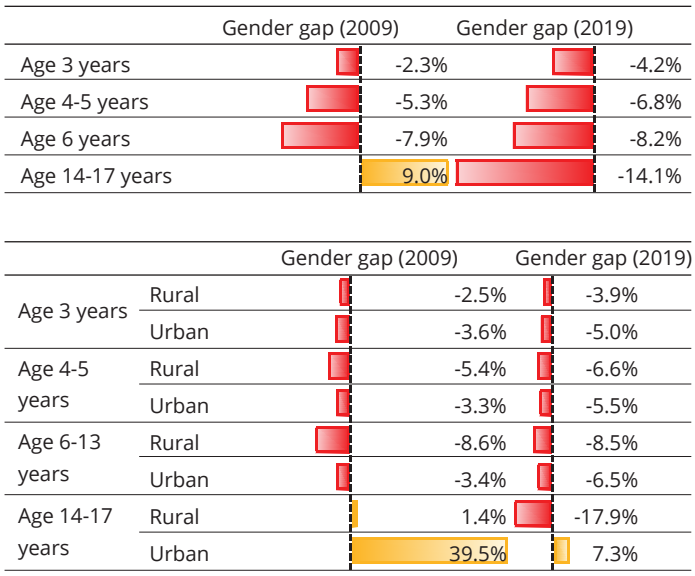
The gender gap in attendance of educational institutions (pre-school and school) among children widened for most age groups in both urban and rural areas between 2009 and 2019, with significant improvements in girls' outcomes. In 2019, except for in urban areas among children aged 14-17-years, girls were less likely to be deprived of school attendance compared to boys. As shown in Table 10.1 and Figure 10.2, the largest change in the gender gap took place among secondary school-age children. In 2009, the deprivation rate in school attendance among girls was 9 per cent higher compared to boys while in 2019, the deprivation rate in school attendance among girls was 14 per cent lower than boys'. It must also be noted that secondary school-age girls (14-17 years) in rural areas were less likely to be deprived of school attendance compared to boys, while in urban areas the opposite was the case.

Table 10.1 **Percentage (%) of girls and boys deprived in preschool and school attendance, by age group and area of residence, 2009 and 2019**

Age group	Residence	2009		2019	
		Girls	Boys	Girls	Boys
Age 3 years	Rural	68.2	69.9	76.2	79.2
	Urban	50.1	51.9	62.1	65.2
Age 4-5 years	Rural	37.3	39.3	30.1	32.1
	Urban	18.0	18.6	16.3	17.2
Age 6-13 years	Rural	14.0	15.2	11.8	12.8
	Urban	5.9	6.1	6.2	6.6
Age 14-17 years	Rural	21.1	20.8	13.4	15.8
	Urban	23.3	14.1	11.0	10.2

Source: KPHC 2009 and KPHC 2019

Figure 10.2 **Gender gap in preschool and school attendance deprivation between girls and boys, by area of residence, 2009 and 2019**



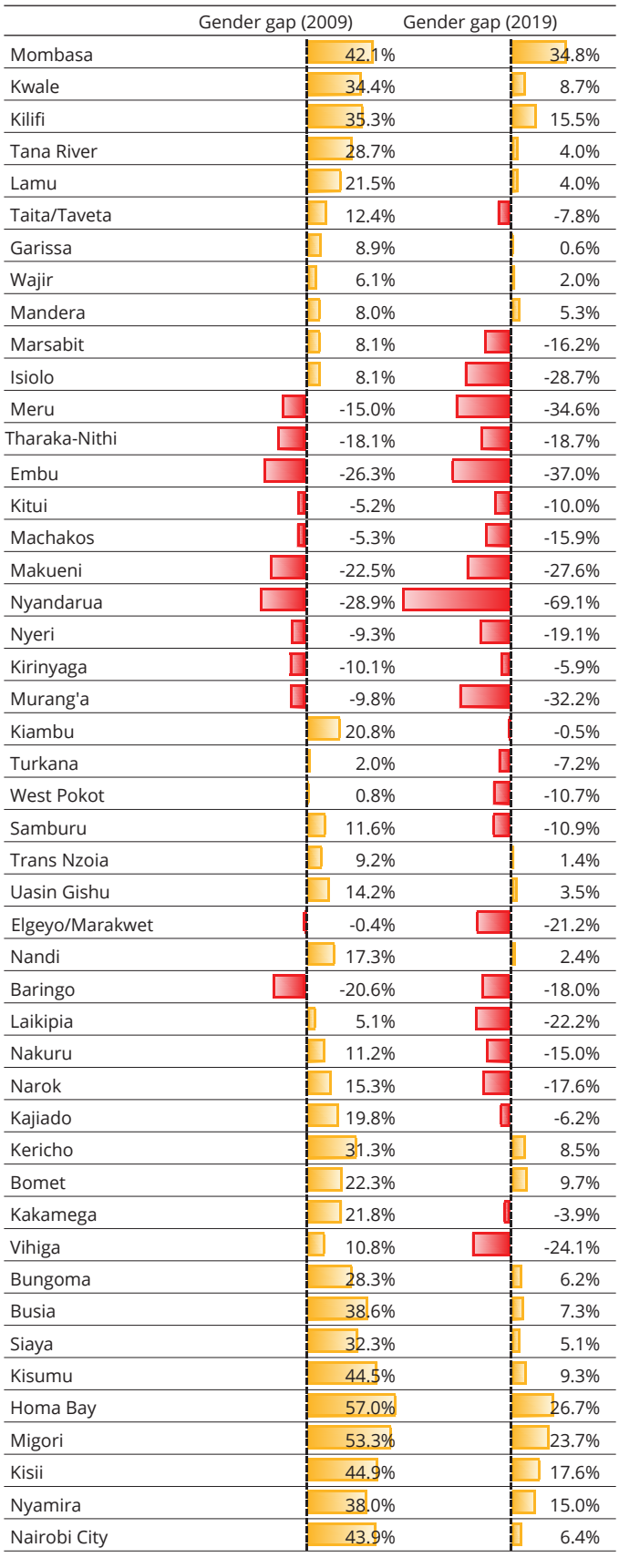
Source: KPHC 2009 and KPHC 2019

Gender gap in school attendance among 14-17-year-olds by counties in Figure 10.3 and Annex 12 unmasks the prevailing and growing gender inequalities as well progress that several counties achieved over the decade.

In 2019, teenage girls in Mombasa, Kilifi, Homa Bay, Migori, Kisii, and Nyamira, were more likely to be deprived of education compared to boys, while the opposite was the case in Nyandarua, Embu, Meru, and Isiolo where deprivation incidence was higher among teenage boys. It must be noted however that in all these counties, deprivation incidence in school attendance is among the lowest in Kenya. On the other hand, several counties where the gender gap appears to be narrower – Tana River, Garissa, Wajir, and Mandera – ranked among the most deprived counties in school attendance among teenage girls and boys.

Several counties noted significant improvements in narrowing the gender gap in access to education among secondary school-age children – Kwale, Kilifi, Homa Bay, Migori, Kisii, Nyamira and Nairobi City. Deprivation incidence in education in these counties also ranked among the lowest across the country.

Figure 10.3 **Gender inequality in school attendance deprivation between girls and boys, age 14-17 years, by county, 2009 and 2019**



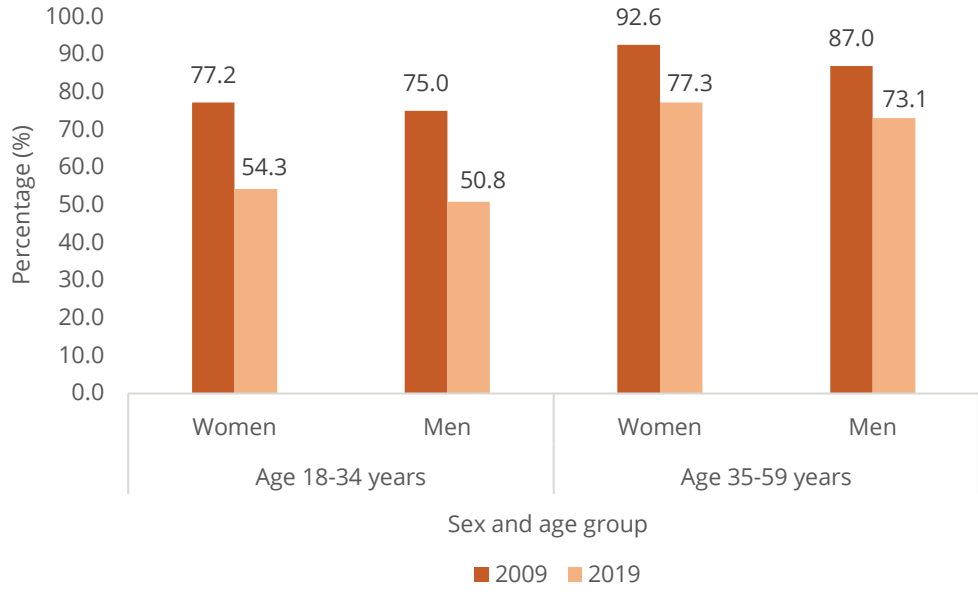
	Gender gap (2009)	Gender gap (2019)
Mombasa	42.1%	34.8%
Kwale	34.4%	8.7%
Kilifi	35.3%	15.5%
Tana River	28.7%	4.0%
Lamu	21.5%	4.0%
Taita/Taveta	12.4%	-7.8%
Garissa	8.9%	0.6%
Wajir	6.1%	2.0%
Mandera	8.0%	5.3%
Marsabit	8.1%	-16.2%
Isiolo	8.1%	-28.7%
Meru	-15.0%	-34.6%
Tharaka-Nithi	-18.1%	-18.7%
Embu	-26.3%	-37.0%
Kitui	-5.2%	-10.0%
Machakos	-5.3%	-15.9%
Makueni	-22.5%	-27.6%
Nyandarua	-28.9%	-69.1%
Nyeri	-9.3%	-19.1%
Kirinyaga	-10.1%	-5.9%
Murang'a	-9.8%	-32.2%
Kiambu	20.8%	-0.5%
Turkana	2.0%	-7.2%
West Pokot	0.8%	-10.7%
Samburu	11.6%	-10.9%
Trans Nzoia	9.2%	1.4%
Uasin Gishu	14.2%	3.5%
Elgeyo/Marakwet	-0.4%	-21.2%
Nandi	17.3%	2.4%
Baringo	-20.6%	-18.0%
Laikipia	5.1%	-22.2%
Nakuru	11.2%	-15.0%
Narok	15.3%	-17.6%
Kajiado	19.8%	-6.2%
Kericho	31.3%	8.5%
Bomet	22.3%	9.7%
Kakamega	21.8%	-3.9%
Vihiga	10.8%	-24.1%
Bungoma	28.3%	6.2%
Busia	38.6%	7.3%
Siaya	32.3%	5.1%
Kisumu	44.5%	9.3%
Homa Bay	57.0%	26.7%
Migori	53.3%	23.7%
Kisii	44.9%	17.6%
Nyamira	38.0%	15.0%
Nairobi City	43.9%	6.4%

Source: KPHC 2009 and KPHC 2019

10.2.1.2 Adults

As shown in Figure 10.4, improvements in educational attainment over the decade were evident also across other age groups. Deprivation in secondary school completion declined comparably more among youths aged 18-34 years between 2009 and 2019. Deprivation incidence decreased by nearly 30 percent among young women – from 77.3 to 54.3 per cent – and nearly 33 percent among young men – from 75.0 to 50.8 per cent. Generally, women of both age groups were more likely to be deprived in education compared to men.

Figure 10.4 Percentage (%) of adults deprived in secondary school completion, by sex and age group, 2009 and 2019



Source: KPHC 2009 and KPHC 2019

The gender gap in secondary school completion among adults aged 18-59 years widened across all age groups and areas of residence except for adults aged 35-59 years in urban areas (Table 10.2 and Figure 10.5). Women aged 18-59 years were more deprived of secondary school completion compared to men, and the gap was wider among youths aged 18-34 years residing in urban areas. Young women in urban areas were 13 per cent less likely to complete secondary education compared to men, while in rural areas, the gender disparity in 2019 was less than 5 per cent. It must be noted that deprivation incidence in secondary school completion in rural areas across all age groups was nearly twice as much as that in urban areas.

Table 10.2 Percentage (%) of women and men deprived of secondary school completion, by sex and area of residence, 2009 and 2019

Age group	Residence	2009		2019	
		Women	Men	Women	Men
Age 18-34 years	Rural	86.0	84.1	66.0	63.0
	Urban	59.4	56.8	39.1	34.0
Age 35-59 years	Rural	95.7	91.0	85.8	81.3
	Urban	81.3	77.2	61.5	59.9

Source: KPHC 2009 and KPHC 2019

Figure 10.5 **Gender gap in secondary school completion between women and men, age 18-59 years, by area of residence 2009 and 2019**

National level	Gender gap (2009)	Gender gap (2019)
Age 18-34 years	2.8%	6.3%
Age 35-59 years	6.1%	5.4%

		Gender gap (2009)	Gender gap (2019)
Age 18-34 years	Rural	2.2%	4.5%
	Urban	4.4%	13.0%
Age 35-59 years	Rural	4.9%	5.2%
	Urban	5.0%	2.6%

Source: KPHC 2009 and KPHC 2019

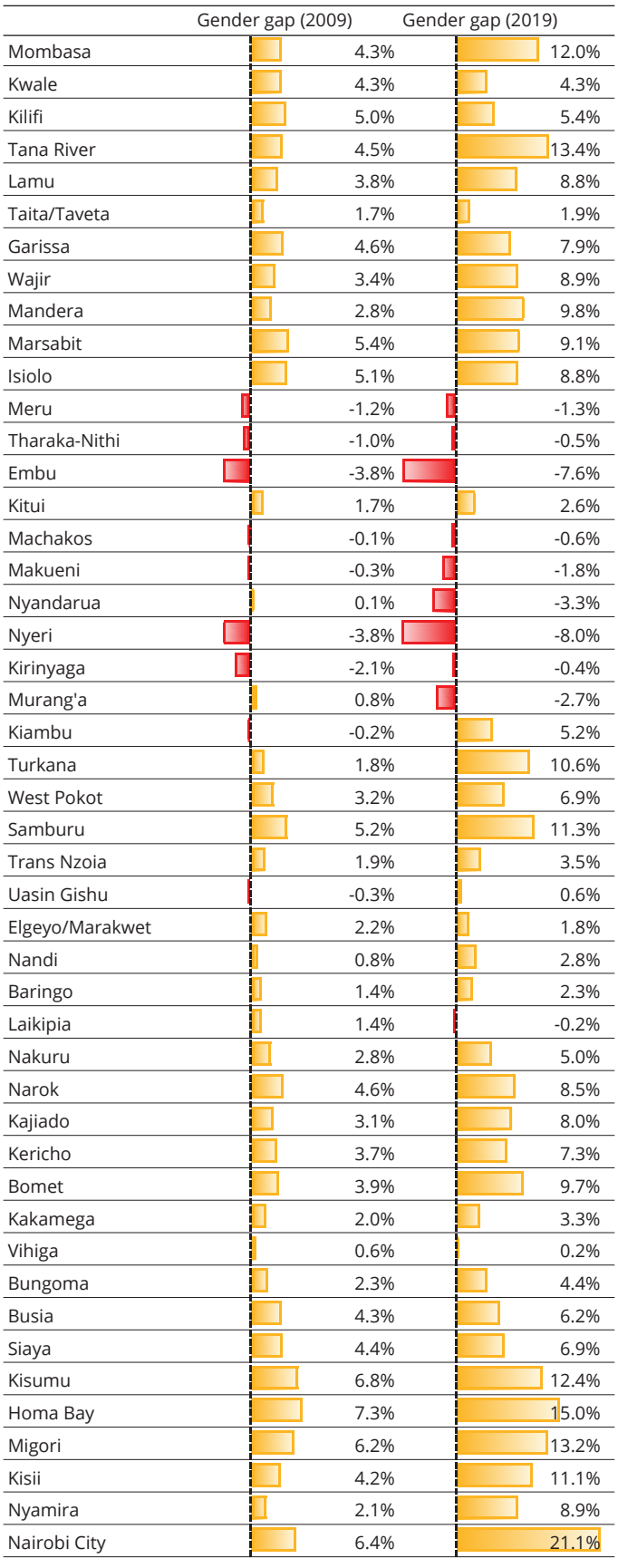
Differences in deprivation rates in secondary school completion between women and men at the county level are presented in Figure 10.6 and Annex 13. The results show gender inequalities in educational outcomes were evident in 2019, and in some counties, disparities widened compared to 2009.

In 2019, the widest gender disparities were noted in Nairobi City (21.1 per cent), Homa Bay (15.0 per cent), Tana River (13.4 per cent), Migori (13.2 per cent), Kisumu (12.4 per cent) and Mombasa (12.0 per cent), where the share of young women aged 18-34 years who were deprived of secondary school completion was higher than that of men. Nevertheless, it must be noted that Nairobi City, Homa Bay, and Migori had the lowest deprivation rates in this indicator in 2019 (Annex 13).

In Nyeri, Embu, Nyandarua, and Makueni where gender disparities in education among youth were insignificant in 2009, young women showed more improved educational outcomes than men in 2019. The share of young women who had completed secondary education in 2019 was higher than that of young men.

Albeit at a lower scale, gender disparities in educational outcomes also widened in Garissa, Mandera, Marsabit, Turkana, and West Pokot, where deprivation rates in secondary school completion ranked among the highest in Kenya in both 2009 and 2019 (Annex 13).

Figure 10.6 **Gender gap in secondary school completion between women and men, age 18-34 years, 2009 and 2019**



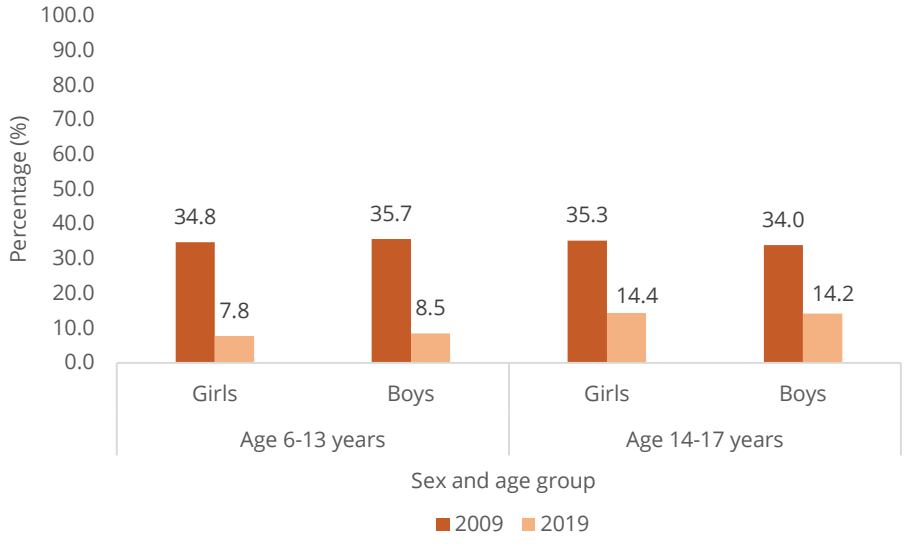
	Gender gap (2009)	Gender gap (2019)
Mombasa	4.3%	12.0%
Kwale	4.3%	4.3%
Kilifi	5.0%	5.4%
Tana River	4.5%	13.4%
Lamu	3.8%	8.8%
Taita/Taveta	1.7%	1.9%
Garissa	4.6%	7.9%
Wajir	3.4%	8.9%
Mandera	2.8%	9.8%
Marsabit	5.4%	9.1%
Isiolo	5.1%	8.8%
Meru	-1.2%	-1.3%
Tharaka-Nithi	-1.0%	-0.5%
Embu	-3.8%	-7.6%
Kitui	1.7%	2.6%
Machakos	-0.1%	-0.6%
Makueni	-0.3%	-1.8%
Nyandarua	0.1%	-3.3%
Nyeri	-3.8%	-8.0%
Kirinyaga	-2.1%	-0.4%
Murang'a	0.8%	-2.7%
Kiambu	-0.2%	5.2%
Turkana	1.8%	10.6%
West Pokot	3.2%	6.9%
Samburu	5.2%	11.3%
Trans Nzoia	1.9%	3.5%
Uasin Gishu	-0.3%	0.6%
Elgeyo/Marakwet	2.2%	1.8%
Nandi	0.8%	2.8%
Baringo	1.4%	2.3%
Laikipia	1.4%	-0.2%
Nakuru	2.8%	5.0%
Narok	4.6%	8.5%
Kajiado	3.1%	8.0%
Kericho	3.7%	7.3%
Bomet	3.9%	9.7%
Kakamega	2.0%	3.3%
Vihiga	0.6%	0.2%
Bungoma	2.3%	4.4%
Busia	4.3%	6.2%
Siaya	4.4%	6.9%
Kisumu	6.8%	12.4%
Homa Bay	7.3%	15.0%
Migori	6.2%	13.2%
Kisii	4.2%	11.1%
Nyamira	2.1%	8.9%
Nairobi City	6.4%	21.1%

Source: KPHC 2009 and KPHC 2019

10.2.2 Child Protection

Deprivation incidence in the child protection dimension – comprised of three indicators: child labour (age 5-17 years), child marriage (age 12-17 years), and teenage pregnancy (girls aged 12-17 years) – decreased significantly between 2009 and 2019, among both girls and boys (Figure 10.7). The percent change in the deprivation rates was higher among children aged 6-13 years compared to children aged 14-17 years at 76 and 78 per cent for girls and boys, respectively. Less than 8 per cent of girls aged 6-13 years were deprived in the child protection dimension in 2019 compared to nearly 35 per cent in 2009. Among boys, the deprivation rate decreased from 35.7 to 8.5 per cent. In 2019, the deprivation rate more than halved among secondary school-age children. However, the deprivation rate among girls was slightly higher compared to boys in 2019, at 14.4 and 14.2 per cent, respectively.

Figure 10.7 Percentage (%) of children deprived in the child protection dimension, by sex and age group, 2009 and 2019



Source: KPHC 2009 and KPHC 2019

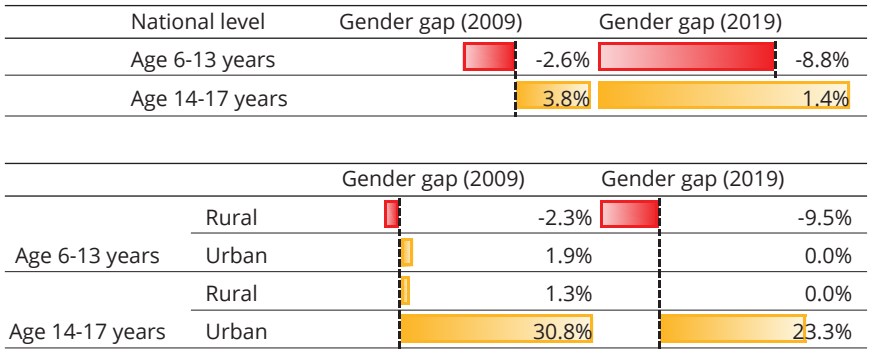
There was an improvement in child protection outcomes among both girls and boys between 2009 and 2019, which also enhanced gender equality in the dimension (see Table 10.3 and Figure 10.8). In 2019, deprivation incidence in the child protection dimension among girls and boys aged 6-13 years in urban areas and their peers aged 14-17 years in rural areas was nearly equal. In rural areas, comparatively more boys than girls aged 6-13 years were deprived in child protection, possibly due to a higher incidence rate in child labour among boys (see Chapter 4). On the other hand, among 14-17-year-olds the disparity was wider in urban areas (as in 2009) and shows an unfavourable situation for girls, possibly influenced by teenage pregnancy and child marriage incidence.

Table 10.3 Percentage (%) of girls and boys deprived in child protection, by age group and area of residence, 2009 and 2019

Age group	Residence	2009		2019	
		Girls	Boys	Girls	Boys
Age 6-13 years	Rural	39.0	39.9	9.5	10.4
	Urban	15.8	15.5	2.6	2.6
Age 14-17 years	Rural	37.8	37.3	16.3	16.3
	Urban	25.3	17.5	8.6	6.6

Source: KPHC 2009 and KPHC 2019

Figure 10.8 **Gender gap in the child protection dimension between girls and boys, by area of residence, 2009 and 2019**



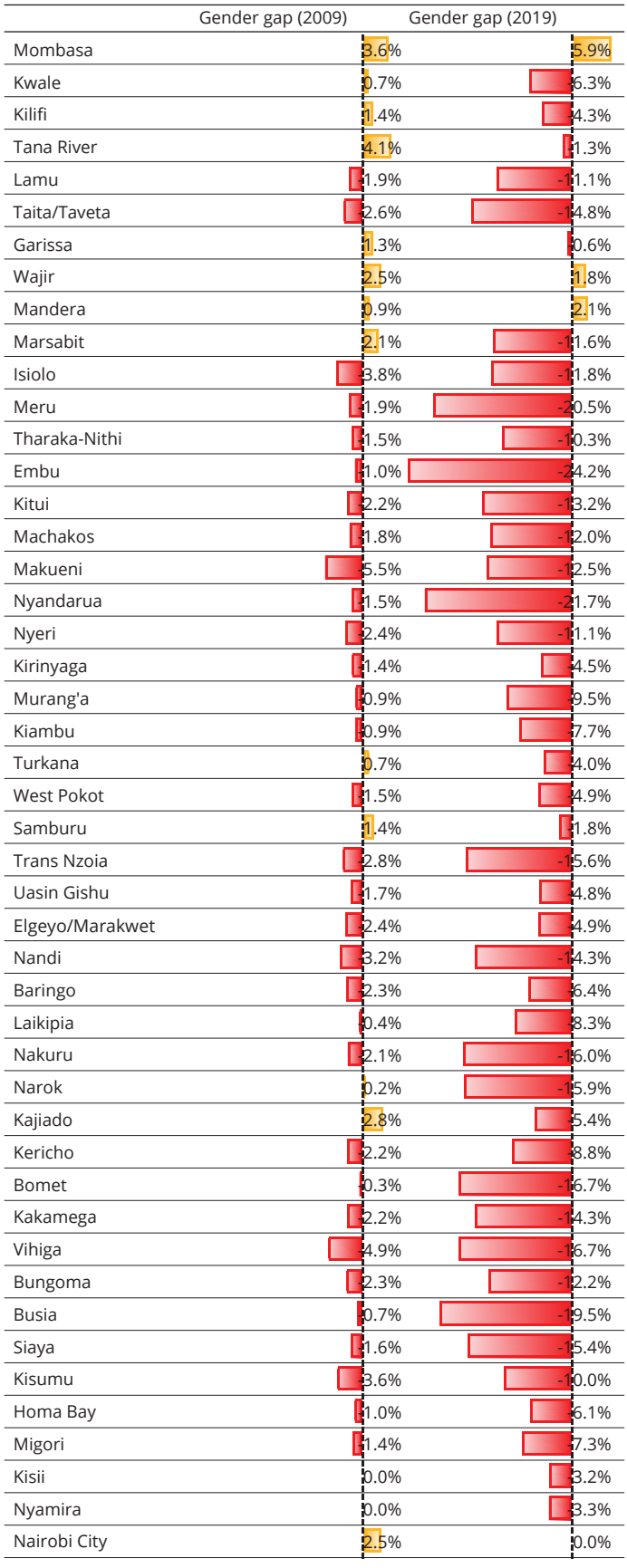
Source: KPHC 2009 and KPHC 2019

Disaggregation of differences in deprivation rates between girls and boys aged 6-13 years in Figure 10.9 and Annex 14 shows that there were major improvements across most counties in child protection outcomes among girls. However, the gender inequality in the dimension increased.

In 2019, in the counties of Embu, Nyandarua, Meru, Busia, and Bomet, the deprivation incidence in the child protection dimension among girls was significantly lower than among boys, widening the gender inequality compared to 2009. Nevertheless, it must be noted that in all of these counties with exception of Bomet deprivation incidence in child protection was below 4 per cent in 2019 (Annex 5 and Annex 14).

In Garissa, Wajir and Mandera changes in gender disparities were insignificant while deprivation incidence in the child protection dimension was among the highest in the country in county rankings in both 2009 and 2019 (Annex 14).

Figure 10.9 **Gender inequality in child protection between girls and boys, age 6-13 years, by county 2009 and 2019**

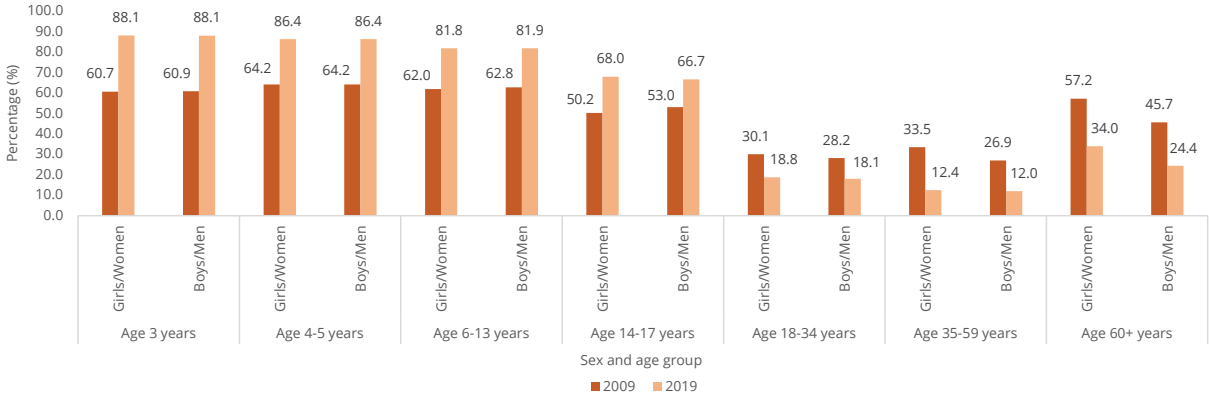


Source: KPHC 2009 and KPHC 2019

10.2.3 Information

Deprivation incidence in the dimension of information increased among children between 2009 and 2019. On the other hand, among adults aged 18 years and above, deprivation rates showed a significant decrease across all the age groups and for both women and men (Figure 10.10). Notable progress was recorded among adults aged 35-59 years and elderly aged 60+ years. In 2019, 12.4 per cent of women aged 35-59 years were deprived in the information dimension in comparison to 33.5 per cent in 2009. Among men aged 35-59 years and 60+ years the deprivation incidence decreased by 55 and 47 percent, respectively during the same period.

Figure 10.10 Percentage (%) of individuals deprived in the information dimension, by sex and age group, 2009 and 2019



Source: KPHC 2009 and KPHC 2019

With exception of the elderly in rural and urban areas, gender inequality in deprivation in information generally narrowed across most age groups between 2009 and 2019, possibly as most information devices were shared in the household (Table 10.4 and Figure 10.11). Deprivation incidence among secondary school-age children in 2019 was higher among girls compared to boys, while in 2009 the opposite was the case. It must be noted that deprivation in the information dimension increased among both girls and boys aged 3-17 years between 2009 and 2019. Among adults aged 35-59 years on the other hand, deprivation incidence was slightly higher among men compared to women in both urban and rural areas in 2019.

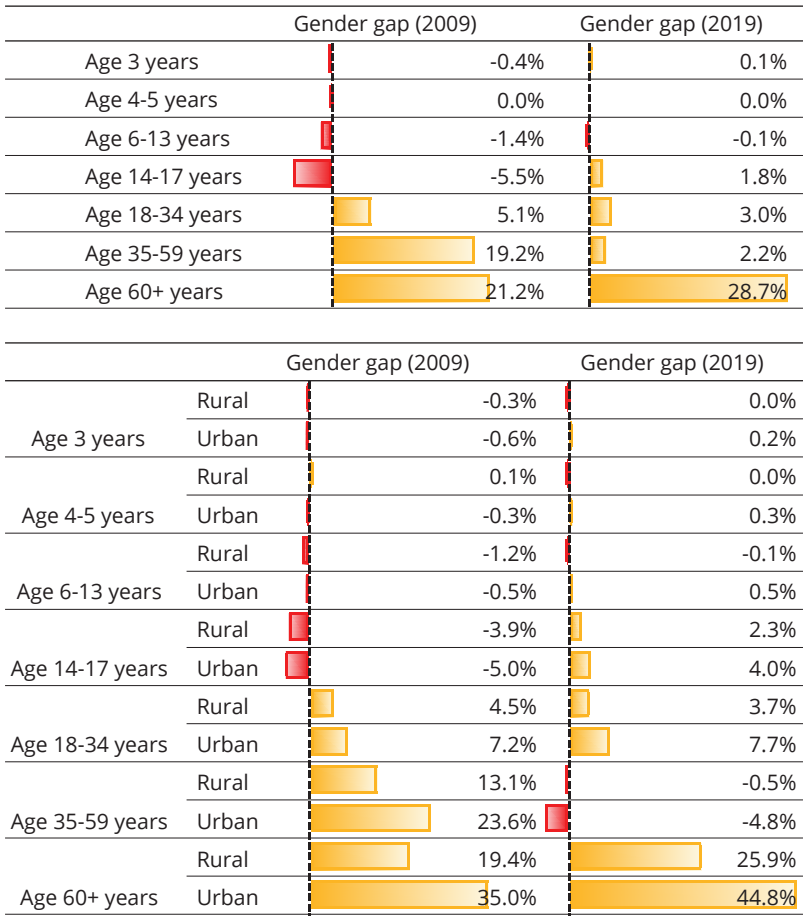
Table 10.4 Percentage (%) of girls/women and boys/men deprived in the information dimension, by age group and area of residence, 2009 and 2019

Age group	Residence	2009		2019	
		Girls/ Women	Boys/Men	Girls/ Women	Boys/Men
Age 3 years	Rural	67.4	67.6	91.6	91.6
	Urban	55.4	55.7	80.3	80.1
Age 4-5 years	Rural	70.2	70.1	90.2	90.2
	Urban	56.1	56.3	77.1	76.9
Age 6-13 years	Rural	67.8	68.7	85.9	85.9
	Urban	50.7	51.0	71.0	70.6
Age 14-17 years	Rural	57.8	60.0	73.3	71.6
	Urban	36.3	38.1	54.0	51.8

Age group	Residence	2009		2019	
		Girls/ Women	Boys/Men	Girls/ Women	Boys/Men
Age 18-34 years	Rural	42.0	40.1	27.0	26.0
	Urban	16.2	15.1	8.2	7.6
Age 35-59 years	Rural	43.2	37.5	16.8	16.9
	Urban	15.6	11.9	4.9	5.2
Age 60+ years	Rural	62.6	49.4	37.7	28.0
	Urban	43.0	27.9	21.7	12.0

Source: KPHC 2009 and KPHC 2019

Figure 10.11 Gender gap in the information dimension between girls/women and boys/men, by area of residence, 2009 and 2019



Source: KPHC 2009 and KPHC 2019

Deprivation rates by sex and county show that there were large disparities in access to information between elderly women and elderly men, with incidence higher among women in every county (Figure 10.12). In Mombasa, Nairobi City, Kiambu, Nyandarua, Kwale, and Migori, the gender gap in the information dimension was the widest, even though the overall deprivation rates in the information dimension were lower than in the other counties. On the other hand, the gender disparities in access to information were narrower in Mandera, Marsabit, Turkana, and Vihiga. Except for Vihiga, all these counties had the highest incidence of deprivation in information in 2019.

Figure 10.12 Gender inequality in information between women and men, age 60+years, by county, 2019

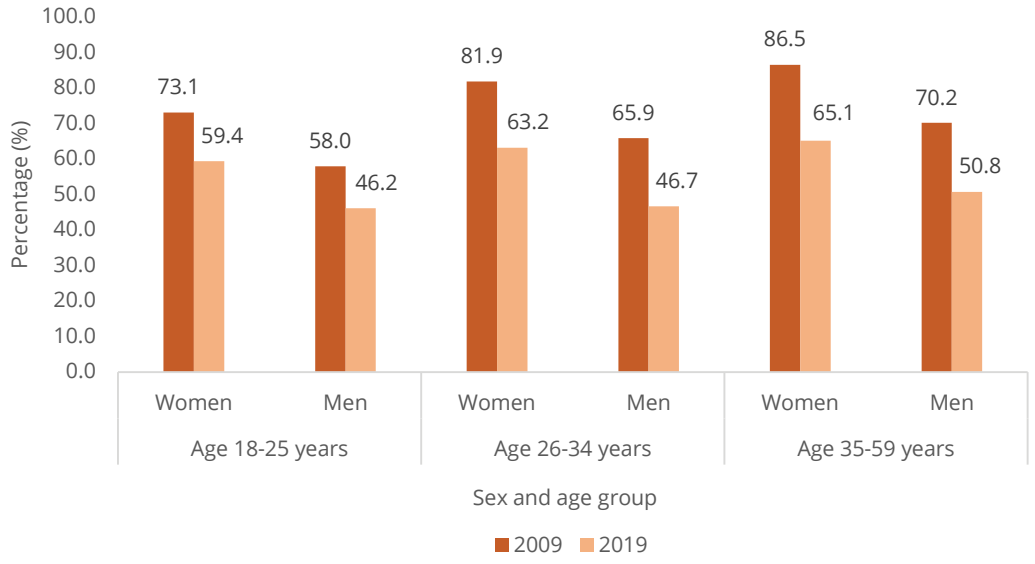
	Women	Men	Gender gap (2019)
Mombasa	26.7	11.9	55.5%
Kwale	50.1	29.2	41.8%
Kilifi	50.3	31.1	38.2%
Tana River	59.5	37.9	36.4%
Lamu	43.1	29.6	31.2%
Taita/Taveta	26.5	19.5	26.5%
Garissa	47.7	39.7	16.6%
Wajir	48.9	40.4	17.5%
Mandera	44.4	40.2	9.4%
Marsabit	59.9	52.3	12.6%
Isiolo	44.5	33.0	25.8%
Meru	45.9	31.1	32.3%
Tharaka-Nithi	40.7	30.7	24.6%
Embu	34.3	23.3	32.0%
Kitui	39.8	31.2	21.6%
Machakos	26.8	20.9	22.1%
Makueni	29.8	24.1	19.4%
Nyandarua	17.1	9.9	42.0%
Nyeri	17.7	11.5	34.6%
Kirinyaga	29.5	19.3	34.4%
Murang'a	23.0	16.3	29.1%
Kiambu	18.3	10.6	42.2%
Turkana	86.8	76.0	12.5%
West Pokot	83.3	70.7	15.1%
Samburu	70.4	59.3	15.7%
Trans Nzoia	37.2	24.9	33.1%
Uasin Gishu	34.0	22.8	33.1%
Elgeyo/Marakwet	60.0	48.9	18.4%
Nandi	43.6	32.9	24.4%
Baringo	53.4	42.5	20.4%
Laikipia	25.6	17.7	30.9%
Nakuru	22.4	14.5	35.4%
Narok	53.4	39.7	25.7%
Kajiado	31.1	23.7	23.7%
Kericho	45.7	31.3	31.5%
Bomet	40.0	26.9	32.7%
Kakamega	32.7	22.9	30.1%
Vihiga	26.1	25.5	2.4%
Bungoma	43.3	27.8	35.9%
Busia	45.7	30.9	32.4%
Siaya	28.8	22.9	20.4%
Kisumu	28.2	18.2	35.6%
Homa Bay	36.6	23.5	35.7%
Migori	45.6	27.7	39.2%
Kisii	37.3	27.3	26.8%
Nyamira	32.2	24.4	24.2%
Nairobi City	10.9	4.9	54.8%

Source: KPHC 2009 and KPHC 2019

10.2.4 Economic Activity

Deprivation incidence in the economic activity dimension between 2009 and 2019 decreased among women and men across all age groups (Figure 10.13). The largest decreases were observed among men aged 26-34 and 35-59 years. In 2019, 46.7 per cent of men aged 26-34 years were deprived in economic activity compared to 65.9 per cent in 2009. Among men aged 35-59 years, the incidence of deprivation decreased from 70.2 to 50.8 per cent in 2009 and 2019 respectively. Women remained disadvantaged in the labour market compared to men despite significant improvements, especially among the older age groups. In 2019, 65.1 per cent of women aged 35-59 years were deprived in economic activity compared to 50.8 per cent of men.

Figure 10.13 Percentage (%) of women and men deprived in economic activity, by age group, 2009 and 2019



Source: KPHC 2009 and KPHC 2019

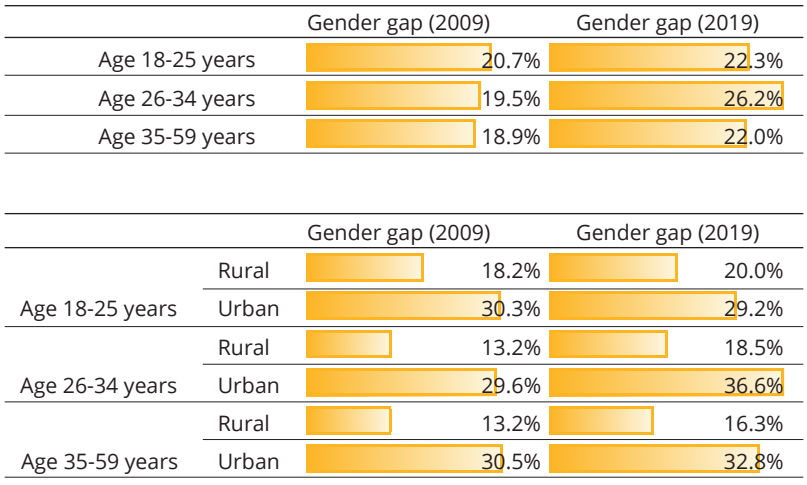
The gender gap in labour market outcomes (deprivation in economic activity) at the national level widened across all age groups despite improvements among both women and men over the decade (Table 10.5 and Figure 10.14). Results by area of residence show that gender disparity in economic activity narrowed among youth aged 18-25 years in urban areas and widened for all the other age groups in both urban and rural areas.

Table 10.5 **Percentage (%) of women and men deprived in economic activity, by age group and area of residence, 2009 and 2019**

Age group	Residence	2009		2019	
		Women	Men	Women	Men
Age 18-25 years	Rural	78.1	63.9	63.0	50.4
	Urban	62.9	43.8	54.0	38.2
Age 26-34 years	Rural	89.7	77.9	66.0	53.8
	Urban	65.9	46.4	59.4	37.7
Age 35-59 years	Rural	91.6	79.5	67.8	56.8
	Urban	68.1	47.3	59.4	39.9

Source: KPHC 2009 and KPHC 2019

Figure 10.14 **Gender gap in economic activity between women and men, by age group and area of residence, 2009 and 2019**



Source: KPHC 2009 and KPHC 2019

Gender disparity in economic activity between women and men aged 35-59 years was widespread across counties (Figure 10.15). In 2019, the gender gap in labour market outcomes was the widest in Mombasa, Nairobi City, Kiambu, Kilifi, and Kisumu. Nevertheless, these counties ranked among the least deprived in economic activity in Kenya (see Annex 15). On the other hand, the gender gap remained the narrowest in Garissa, Wajir, Mandera, Marsabit, Turkana, and West Pokot in both 2009 and 2019. However, all these counties ranked the most deprived in economic activity during the decade.

Figure 10.15 Gender inequality in economic activity between women and men, age 35-59 years, by county, 2009 and 2019

	Gender gap (2009)	Gender gap (2019)
Mombasa	43.3%	41.4%
Nairobi City	30.0%	37.7%
Kilifi	29.6%	29.9%
Kiambu	24.6%	29.7%
Kisumu	23.3%	29.7%
Machakos	22.1%	27.3%
Nakuru	23.5%	24.4%
Kajiado	21.5%	23.7%
Lamu	17.6%	23.2%
Kwale	22.1%	23.2%
Murang'a	16.2%	23.1%
Siaya	12.0%	23.0%
Homa Bay	12.1%	22.9%
Taita/Taveta	16.1%	22.7%
Busia	12.0%	21.2%
Makueni	18.9%	21.1%
Nyeri	15.4%	20.9%
Laikipia	21.2%	20.8%
Kisii	14.5%	20.1%
Trans Nzoia	16.9%	19.4%
Nyandarua	13.1%	19.2%
Kakamega	14.5%	19.2%
Nyamira	14.3%	19.0%
Kitui	13.2%	19.0%
Migori	11.8%	18.6%
Uasin Gishu	23.1%	18.5%
Vihiga	13.5%	17.9%
Bungoma	12.4%	17.2%
Bomet	18.8%	17.1%
Kericho	22.9%	17.0%
Samburu	12.1%	15.2%
Kirinyaga	9.5%	14.9%
Embu	11.8%	13.8%
Nandi	18.7%	13.7%
Tharaka-Nithi	10.3%	13.3%
Meru	10.5%	12.8%
Baringo	13.6%	12.8%
Isiolo	16.2%	11.2%
Tana River	11.4%	10.9%
Narok	10.9%	10.7%
Elgeyo/Marakwet	12.5%	8.9%
Turkana	4.6%	8.0%
Marsabit	11.0%	7.5%
West Pokot	8.1%	7.1%
Garissa	7.4%	6.5%
Mandera	6.2%	6.0%
Wajir	4.5%	3.8%

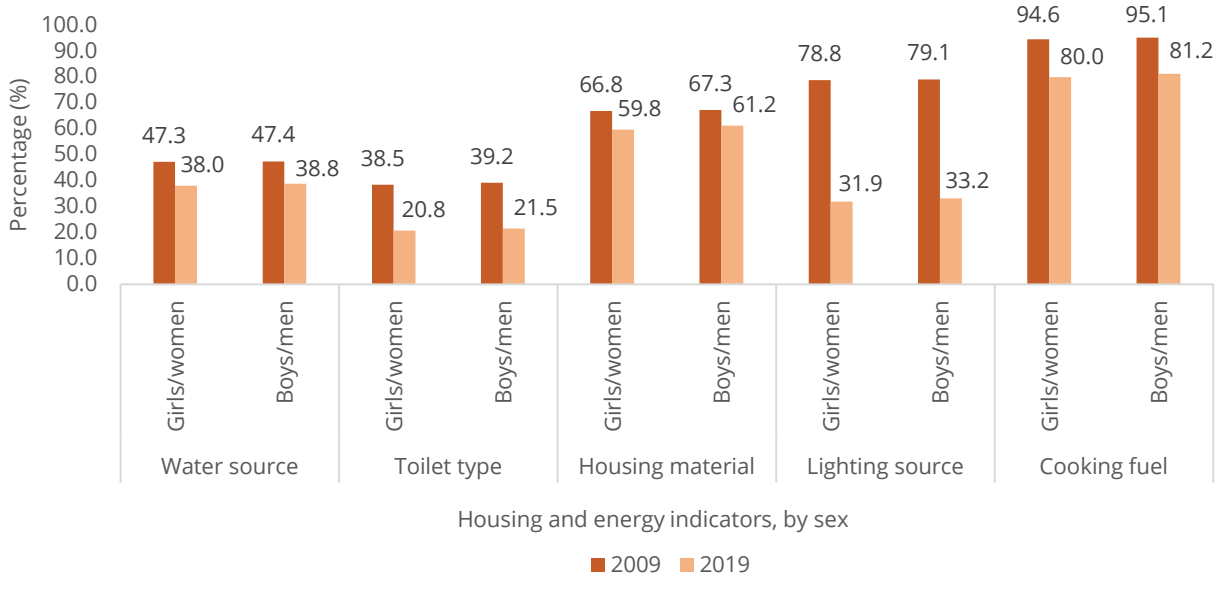
Source: KPHC 2009 and KPHC 2019

10.2.5 WATSAN, Housing and Energy

Deprivation incidence in WATSAN, housing and energy indicators decreased between 2009 and 2019 among both women/girls and men/boys, with the most notable progress recorded in access to improved sanitation and adequate lighting sources (Figure 10.16). For instance, deprivation in improved sanitation decreased by 45.1 per cent among women and girls, from 38.5 to 20.8 per cent, and by 58 per cent among men and boys, from 39.2 to 21.5 per cent. Even though gender differences in indicators of WATSAN, housing and energy at the national level were negligible since these indicators are measured at the household level in the census datasets, figures show that girls and women were slightly less likely to be deprived.

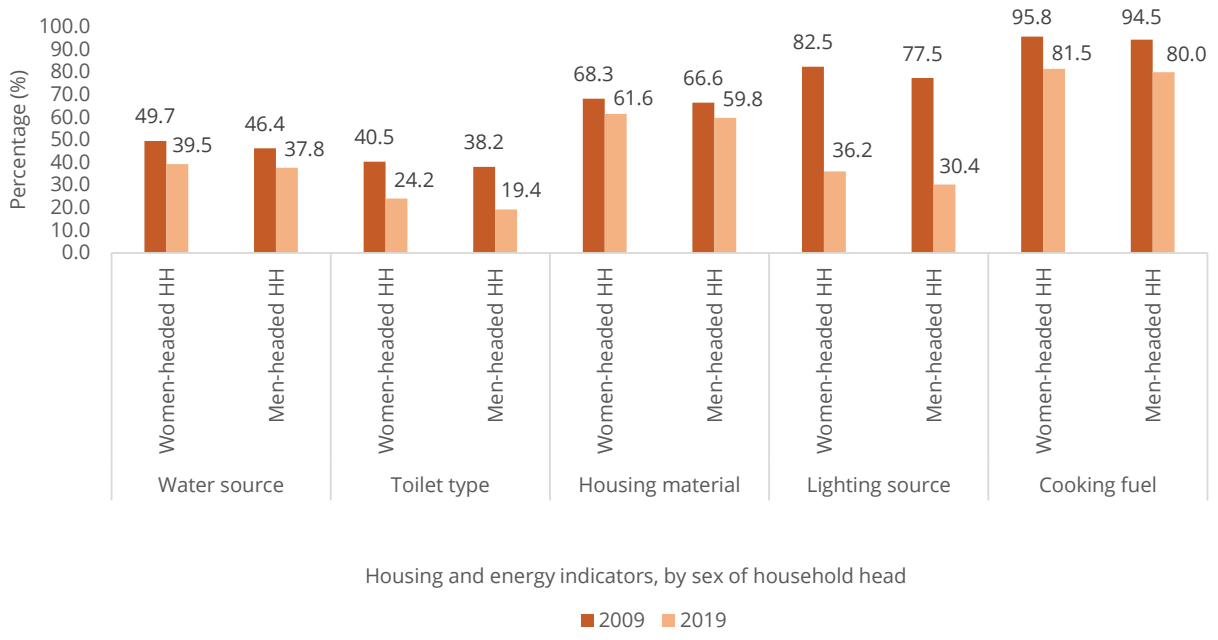
Nevertheless, deprivation rates by sex of the household head reveal wide gender disparities (Figure 10.17). Individuals living in women headed households were more likely to be deprived in all aspects of WATSAN, housing conditions and energy compared to those living in men headed households. In 2019, the inequalities were high in access to sanitation and lighting sources.

Figure 10.16 Percentage (%) of women/girls and men/boys deprived in WATSAN, housing, and energy indicators, 2009 and 2019



Source: KPHC 2009 and KPHC 2019

Figure 10.17 Percentage (%) of individuals deprived in WATSAN, housing, and energy indicators, by sex of the household head, 2009 and 2019



Source: KPHC 2009 and KPHC 2019

Deprivation incidence by area of residence and sex (Table 10.6) shows that disparities in WATSAN, housing, and energy were widespread between rural and urban areas among both girls/women and boys/men between 2009 and 2019. In 2019, girls and women were slightly less likely to be deprived in the indicators compared to boys and men. Figure 10.18 shows that gender disparities in these indicators widened between 2009 and 2019 in urban areas, where girls and women were less likely to be deprived compared to boys and men.

Table 10.6 Percentage (%) of girls/women and boys/men deprived in WATSAN, housing, and energy indicators, by area of residence, 2009 and 2019

Indicator	Residence	2009		2019	
		Girls/ Women	Boys/Men	Girls/ Women	Boys/Men
Water source	Rural	55.3	55.4	45.8	46.3
	Urban	55.3	55.4	20.8	22.1
Toilet type	Rural	45.1	45.9	26.9	27.7
	Urban	45.1	45.9	7.2	7.7
Housing materials	Rural	79.1	79.2	74.2	74.8
	Urban	79.1	79.2	27.6	30.7
Lighting source	Rural	91.7	91.5	42.6	43.8
	Urban	91.7	91.5	8.1	9.5
Cooking fuel	Rural	99.1	99.0	95.5	95.5
	Urban	99.1	99.0	45.4	49.0

Source: KPHC 2009 and KPHC 2019

Figure 10.18 **Gender gap in WATSAN, housing and energy indicators between girls/women and boys/men, by area of residence, 2009 and 2019**

	Gender gap (2009)	Gender gap (2019)
Water source	-0.2%	-2.0%
Toilet type	-1.9%	-3.7%
Housing material	-0.7%	-2.4%
Lighting source	-0.3%	-4.1%
Cooking fuel	-0.6%	-1.4%

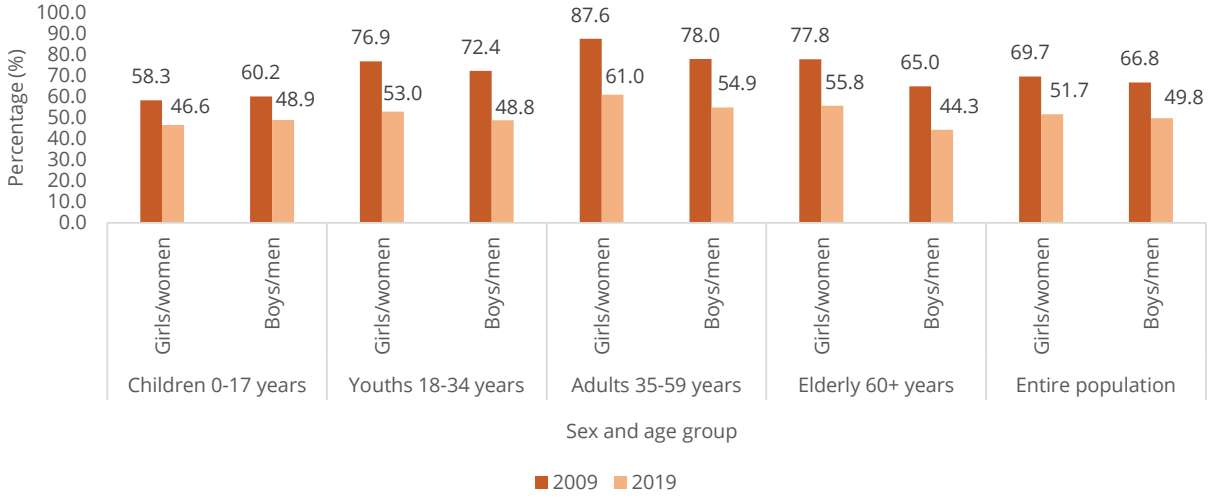
		Gender gap (2009)	Gender gap (2019)
	Rural	-0.1%	-1.1%
Water source	Urban	-0.1%	-6.2%
	Rural	-1.8%	-3.1%
Toilet type	Urban	-1.8%	-7.9%
	Rural	-0.2%	-0.8%
Housing materials	Urban	-0.2%	-11.4%
	Rural	0.3%	-2.8%
Lighting source	Urban	0.3%	-18.0%
	Rural	0.0%	0.0%
Cooking fuel	Urban	0.0%	-7.9%

Source: KPHC 2009 and KPHC 2019

10.3 Gender Inequalities in Multidimensional and Monetary Poverty

10.3.1 Multidimensional poverty

Figure 10.19 **Percentage (%) of the multidimensionally poor population, by sex and age group, 2009 and 2019**

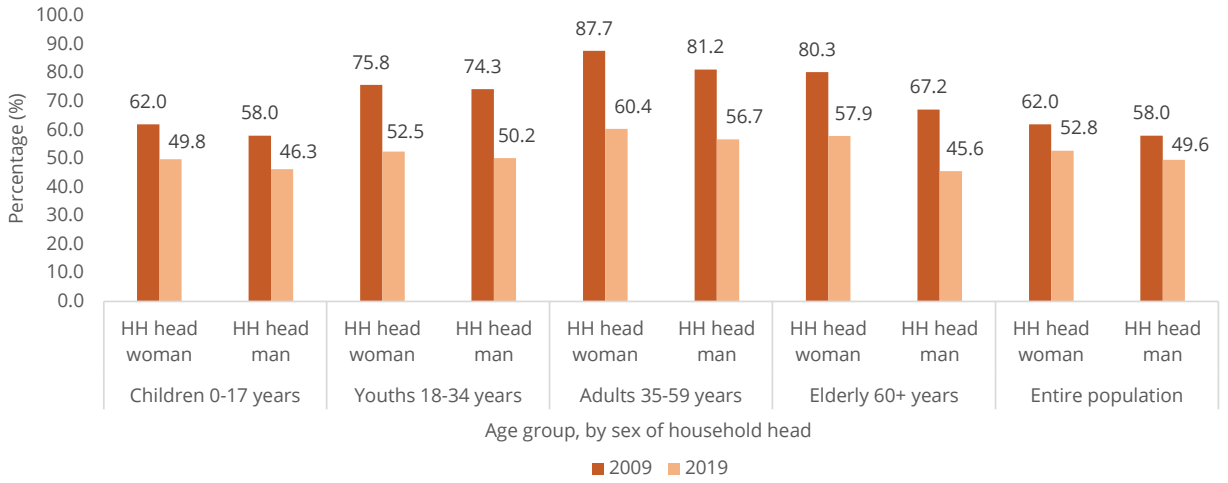


Source: KPHC 2009 and KPHC 2019

Multidimensional poverty incidence decreased among both girls/women and boys/men of all age groups between 2009 and 2019. Figures for the entire population indicate that the decrease was nearly equal for girls and women and boys and men, by 25.8 and 25.4 per cent, respectively. Across age groups, the largest decrease in multidimensional poverty incidence was recorded among young men aged 18-34 years (by 32.6 per cent), elderly men aged 60 years and above (31.8 per cent), and young women aged 18-34 years (31.1 per cent). Sex-disaggregated results in Figure 10.19 show that multidimensional poverty incidence was higher among girls/women compared to boys/men across all age groups except for children. In 2019, 46.6 per cent of girls under 18 years were multidimensionally poor compared to 48.9 per cent of boys. Among adults 18+ years, the gender gap in multidimensional poverty increases progressively for each subsequent age group. In 2019, 53 per cent of young women compared to 48.8 per cent of young men aged 18-34 years were multidimensionally poor. Among persons aged 60+ years, multidimensional poverty incidence was 55.8 per cent among women and 44.3 per cent among men.

Multidimensional poverty rates by sex of the household head reaffirm the wide gender inequalities in multidimensional poverty (Figure 10.20). Persons of all age groups living in households headed by women were more likely to be multidimensionally poor compared to members of men-headed households. For instance, in 2019 the multidimensional poverty rate among children in women-headed households was 49.8 per cent, while among children in men-headed households 46.3 per cent.

Figure 10.20 Percentage (%) of the multidimensionally poor population, by sex of the household head and age group, 2009 and 2019



Source: KPHC 2009 and KPHC 2019

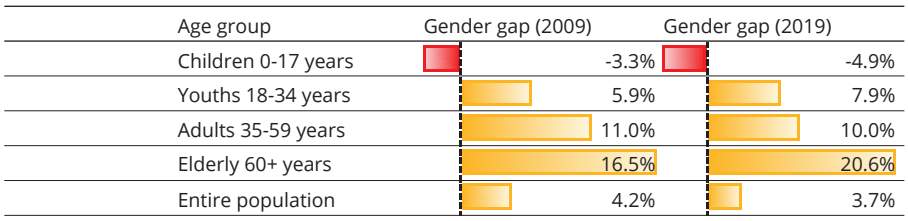
Table 10.7 and Figure 10.21 show that the gender gap in multidimensional poverty widened among most age groups between 2009 and 2019 except among persons aged 35 years and above in urban areas. The widening of the gender gap among children under 18, which shows that girls were less likely to be multidimensionally poor than boys in 2019, points to two possible underlying causes: 1) Improvements in girls' non-monetary wellbeing outcomes during the decade, and/or 2) Slower progress or exacerbation in boys' wellbeing outcomes between 2009 and 2019. Figure 10.21 also shows that despite improvements in children's wellbeing outcomes and narrowing of the gender gap among children during the decade, women aged 18+ years continued being left-behind in realization of their rights compared to their male peers. The results also show that the gender gap in multidimensional poverty among persons aged 18+ years was significantly wider in urban areas. However, this result must be interpreted with caution given the overall differences in deprivation between urban and rural areas. As discussed in Chapters 3-9, deprivation rates across all wellbeing outcomes in rural areas were significantly higher compared to urban areas, sometimes by more than two or three times.

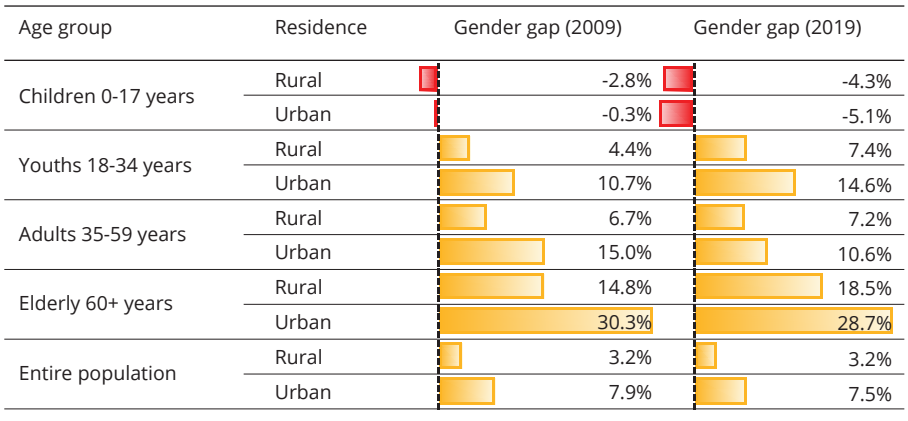
Table 10.7 **Percentage (%) of multidimensionally poor girls/women and boys/men, by age group and area of residence, 2009 and 2019**

Age group	Residence	2009		2019	
		Girls/Women	Boys/Men	Girls/Women	Boys/Men
Children 0-17 years	Rural	65.3	67.1	55.5	57.9
	Urban	29.3	29.4	21.6	22.7
Youths 18-34 years	Rural	89.0	85.1	70.0	64.8
	Urban	52.2	46.6	28.1	24.0
Adults 35-59 years	Rural	94.9	88.5	73.6	68.3
	Urban	61.5	52.3	34.1	30.5
Elderly 60+ years	Rural	81.5	69.4	60.5	49.3
	Urban	47.8	33.3	28.9	20.6
Entire population	Rural	77.4	74.9	62.9	60.9
	Urban	44.2	40.7	26.8	24.8

Source: KPHC 2009 and KPHC 2019

Figure 10.21 **Gender gap in multidimensional poverty between girls/women and boys/men, by area of residence, 2009 and 2019**

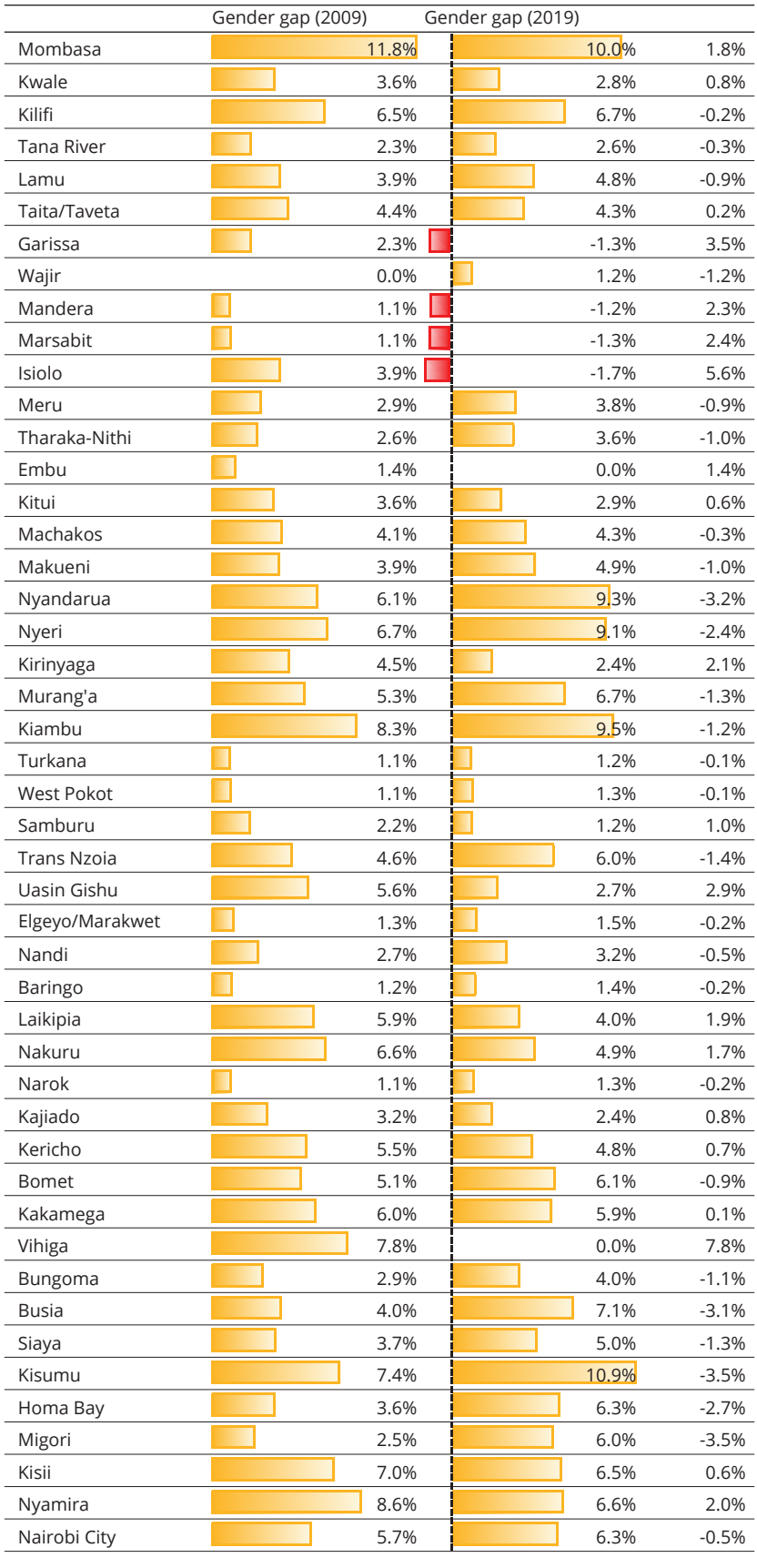




Source: KPHC 2009 and KPHC 2019

Figure 10.22 illustrates figures on the gender gap in multidimensional poverty by county for the entire population. Together with figures presented for each age group in Annexes 25-28, they unmask the prevalence of gender inequalities and show the progress that several counties achieved during the decade.

Figure 10.22 **Gender inequality in multidimensional poverty between girls/women and boys/men, entire population, by county, 2009 and 2019**



	Gender gap (2009)	Gender gap (2019)	
Mombasa	11.8%	10.0%	1.8%
Kwale	3.6%	2.8%	0.8%
Kilifi	6.5%	6.7%	-0.2%
Tana River	2.3%	2.6%	-0.3%
Lamu	3.9%	4.8%	-0.9%
Taita/Taveta	4.4%	4.3%	0.2%
Garissa	2.3%	-1.3%	3.5%
Wajir	0.0%	1.2%	-1.2%
Mandera	1.1%	-1.2%	2.3%
Marsabit	1.1%	-1.3%	2.4%
Isiolo	3.9%	-1.7%	5.6%
Meru	2.9%	3.8%	-0.9%
Tharaka-Nithi	2.6%	3.6%	-1.0%
Embu	1.4%	0.0%	1.4%
Kitui	3.6%	2.9%	0.6%
Machakos	4.1%	4.3%	-0.3%
Makueni	3.9%	4.9%	-1.0%
Nyandarua	6.1%	9.3%	-3.2%
Nyeri	6.7%	9.1%	-2.4%
Kirinyaga	4.5%	2.4%	2.1%
Murang'a	5.3%	6.7%	-1.3%
Kiambu	8.3%	9.5%	-1.2%
Turkana	1.1%	1.2%	-0.1%
West Pokot	1.1%	1.3%	-0.1%
Samburu	2.2%	1.2%	1.0%
Trans Nzoia	4.6%	6.0%	-1.4%
Uasin Gishu	5.6%	2.7%	2.9%
Elgeyo/Marakwet	1.3%	1.5%	-0.2%
Nandi	2.7%	3.2%	-0.5%
Baringo	1.2%	1.4%	-0.2%
Laikipia	5.9%	4.0%	1.9%
Nakuru	6.6%	4.9%	1.7%
Narok	1.1%	1.3%	-0.2%
Kajiado	3.2%	2.4%	0.8%
Kericho	5.5%	4.8%	0.7%
Bomet	5.1%	6.1%	-0.9%
Kakamega	6.0%	5.9%	0.1%
Vihiga	7.8%	0.0%	7.8%
Bungoma	2.9%	4.0%	-1.1%
Busia	4.0%	7.1%	-3.1%
Siaya	3.7%	5.0%	-1.3%
Kisumu	7.4%	10.9%	-3.5%
Homa Bay	3.6%	6.3%	-2.7%
Migori	2.5%	6.0%	-3.5%
Kisii	7.0%	6.5%	0.6%
Nyamira	8.6%	6.6%	2.0%
Nairobi City	5.7%	6.3%	-0.5%

Source: KPHC 2009 and KPHC 2019

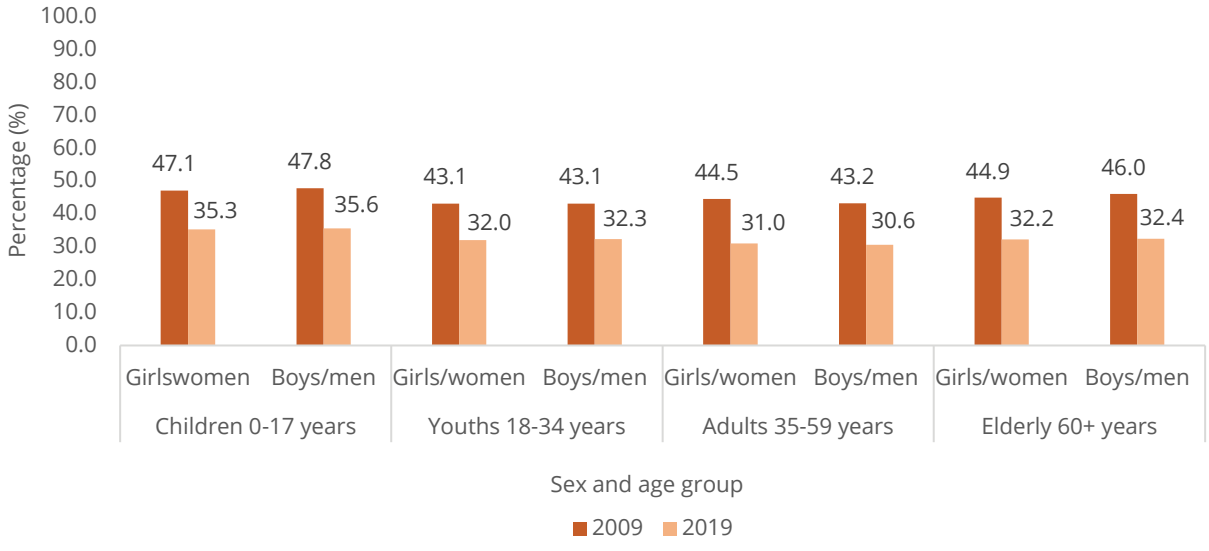
In 2019, girls and women across most counties had higher multidimensional poverty rates compared to boys and men. On the other hand, in Garissa, Mandera, Marsabit and Isiolo, girls and women were slightly less likely to be multidimensionally poor than boys and men, showing a reverse trend in the gender gap trend compared to 2009. Nonetheless, it must be emphasized that Garissa, Mandera and Marsabit ranked among the poorest counties in Kenya.

Compared to the other counties, the gender gap in multidimensional poverty narrowed by a larger amount in Uasin Gishu and Vihiga, followed by Nyamira, Laikipia, and Kirinyaga. On the other hand, Kisumu, Busia, Migori, and Nyandarua recorded widening of the gender gap in multidimensional poverty between 2009 and 2019. In other words, a larger share of girls and women than their male peers in these counties were multidimensionally poor in 2019 compared to 2009.

10.3.2 Monetary poverty

Monetary poverty incidence decreased among both girls/women and boys/men of all age groups between 2009 and 2019. Disaggregation of figures shows that the monetary poverty reduction was higher among persons aged 35 years and above, by more than 28 per cent. Among children under 18 and youths aged 18-34 years, monetary poverty incidence decreased by slightly more than 25 per cent. Sex-disaggregated results in Figure 10.23 show that except among persons aged 35-59 years, monetary poverty rates were slightly lower among girls and women compared to boys and men. In 2019, 35.3 per cent of girls compared to 35.6 per cent of boys under 18 were living in monetarily poor households.

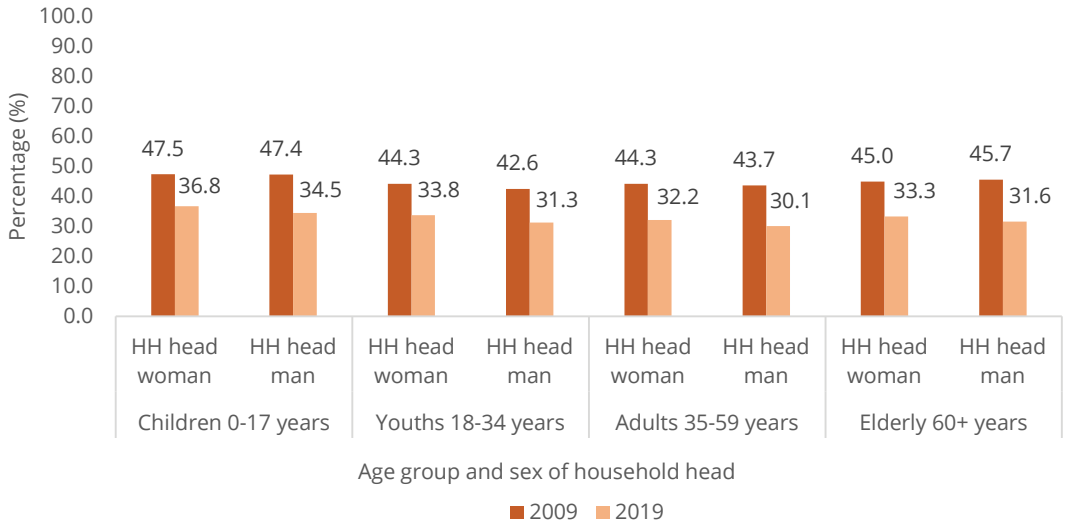
Figure 10.23 Percentage (%) of the monetarily poor population, by sex and age group, 2009 and 2019



Source: KPHC 2009 and KPHC 2019

Since monetary poverty was measured at the household level, profiling of its incidence by sex of the household head unmasks wider gender disparities. Figure 10.24 shows that members of households headed by women were more likely to be monetarily poor compared to those of men-headed households. In 2019, youth monetary poverty rates among women-headed households and men-headed households were 33.8 and 31.3 per cent, respectively. Likewise, in 2019 36.8 per cent of children under 18 living in households headed by women were monetarily poor compared to 34.5 per cent of children living in households headed by men.

Figure 10.24 **Percentage (%) of the monetarily poor population, by sex of the household head and age group, 2009 and 2019**



Source: KPHC 2009 and KPHC 2019

Table 10.8 and Figure 10.25 show that the gender gap in monetary poverty was small and narrowed between 2009 and 2019 among all age groups and areas except for youths aged 18-34 years in urban areas. The results also show that monetary poverty incidence was slightly higher among women aged 35+ years in urban areas compared to their male peers. For all the other age groups in urban and rural areas, monetary poverty incidence was lower among girls and women. These results should be interepreted with caution given 1) the small difference in figues by sex, 2) that monetary poverty is measured at the houseold level, and 3) that monetary poverty incidence in rural areas is signifincantly higer compared to urban areas.

Table 10.8 **Percentage (%) of monetarily poor girls/women and boys/men, by age group and area of residence, 2009 and 2019**

Age group	Residence	2009		2019	
		Girls/Women	Boys/Men	Girls/Women	Boys/Men
Children 0-17 years	Rural	49.9	50.4	37.8	38.0
	Urban	35.7	36.1	28.3	28.4
Youths 18-34 years	Rural	48.3	48.5	36.7	36.9
	Urban	32.4	32.3	25.1	25.2
Adults 35-59 years	Rural	47.5	47.7	33.9	34.0
	Urban	33.5	32.2	24.8	24.5
Elderly 60+ years	Rural	45.8	47.4	32.8	33.4
	Urban	37.1	36.0	28.5	27.7

Source: KPHC 2009 and KPHC 2019

Figure 10.25 Gender gap in monetary poverty incidence between girls/women and boys/men, by area of residence, 2009 and 2019

Age group	Boys/men	Gender gap (2009)	Gender gap (2019)
Children 0-17 years	47.8	-1.5%	-0.8%
Youths 18-34 years	43.1	0.0%	-0.9%
Adults 35-59 years	43.2	2.9%	1.3%
Elderly 60+ years	46.0	-2.4%	-0.6%

Gender gap in multidimensional poverty, by age group

Age group	Residence	Gender gap (2009)	Gender gap (2019)
Children 0-17 years	Rural	-1.1%	-0.7%
	Urban	-1.2%	-0.6%
Youths 18-34 years	Rural	-0.4%	-0.4%
	Urban	0.3%	-0.5%
Adults 35-59 years	Rural	-0.5%	-0.2%
	Urban	3.8%	1.3%
Elderly 60+ years	Rural	-3.4%	-1.9%
	Urban	2.9%	2.8%

Source: KPHC 2009 and KPHC 2019

10.4 Conclusion and Recommendations

Kenya has made significant progress across most sectors of wellbeing analysed in this study – education, child protection, information, economic activity, WATSAN, housing and energy, and monetary and multidimensional poverty – including in reducing gender disparities. Gender inequality analyses in this chapter across different sectors of wellbeing show improvements among certain groups while leaving others behind leading and widening of gender disparities. Progress in reducing monetary and multidimensional poverty has been significant across both girls/women and boys/men, age groups, and areas of residence.

In the education dimension, deprivation incidence decreased significantly among both primary and secondary school-age children, even though the gender disparities widened as girls were more likely to attend school than boys, especially among teenagers aged 14-17 years. This result requires further and more in-depth investigation of the reasons for boys' deprivation in education, including their engagement in economic activities (child labour). A similar investigation should also be carried out with a focus on girls aged 14-17 years in urban areas whose deprivation in education remained higher than that of boys in 2019.

While girls performed better than boys in educational outcomes during childhood in 2019, from age 18 and above, this trend was reversed; young and adult women were significantly less likely to have completed secondary education than young and adult men. Understanding the underlying causes of this reversal in trends is crucial with a special focus on youths aged 18-25 years in both urban and rural areas as the future entrants in the labour market.

In the dimension of child protection, reduction in both deprivation incidence and gender disparities was notable across most age groups, areas of residence and counties. However, girls aged 14-17 years in urban areas remained more disadvantaged than boys. An examination of whether this was influenced by engagement in economic activities, child marriage and/or teenage pregnancy needs to be carried out, along with an investigation of other associated factors. In counties like Garissa, Wajir, Mandera, and Samburu, improvements in the dimension were minimal, calling for reform in existing approaches and interventions.

In the dimension of economic activity, improvements in the inclusion of women and youth aged 18-25 years were slower and less significant, leading to the widening of gender disparities in the dimension. Women remained left behind in labour market outcomes, particularly at later stages of their lifecycle (35-59 years), despite progress over the decade. Such results call for dedicated skills advancement programmes as well as active labour market programmes targeted specifically to women.

In the dimension of WATSAN, housing and energy, girls and women appeared slightly less deprived compared to boys and men, however, these differences are insignificant given that the indicators were measured at the household level. The results by sex of the household head unmask the gender disparities in these dimensions. Individuals living in women-headed households were more likely to be deprived of basic housing conditions and access to improved water and sanitation, pointing to the need to prioritize these groups in cash transfer and other social support programmes.

Trends and patterns of gender disparities in multidimensional and monetary poverty varied. Multidimensional poverty incidence was higher among women aged 18 years and above, while girls under 18 were less likely to be multidimensionally poor than boys. The gender gap widened between 2009 and 2019, especially in urban areas. Across counties, progress in narrowing the gender gap in multidimensional poverty was larger in Uasin Gishu, Vihiga, Nyamira, Laikipia, and Kirinyaga. In Kisumu, Busia, Migori, and Nyandarua the gender gap widened. Monetary poverty incidence also decreased over the decade, with the most significant change recorded among persons aged 35 years and above. Except for women aged 35-59 years, monetary poverty incidence was slightly lower among girls and women of all age groups. Disaggregation of poverty incidence by sex of the household head shows that members of women-headed households were more likely to be both monetarily and multidimensionally poor compared to those of men-headed households.

To address gender disparities, there is a need to:

i) Enforce and implement a Social Equity law that covers lifecycle inequalities and across different population groups in the country.

ii) Tackle gender disparities in a more systematic manner by increasing spending in each sector and having dedicated funds aimed at eliminating the structural barriers in the exclusion of certain groups (girls/women and boys/men) and responding to the emerging trends of disparities. Several age groups and domains must be carefully considered in interventions including:

   a) Boys aged 14-17 years at the national level, who were more likely to be deprived in education compared to girls. Examining the underlying factors such as boys' engagement in child labour is paramount. Likewise, factors driving the deprivation incidence in education among girls aged 14-17 years in urban areas, including child labour, child marriage, and teenage pregnancy must be assessed thoroughly and comprehensively in terms of interventions in reducing gender disparities.

   b) Examine the factors impacting deprivation in educational outcomes (secondary school completion) among older age groups, with a special focus on the new labour entrants, youth aged 18-25 years, especially in the light of enhanced gender equality among children. Interventions in counties where gender inequalities in educational outcomes among youths widened over the decade – Garissa, Mandera, Marsabit, Turkana and West Pokot – must be evaluated thoroughly and reformed.

c) Assess the drivers of deprivation in child protection among 6-17-year-olds in both urban and rural areas, with a special focus on boys aged 6-13 years in rural areas and girls aged 14-17 years in urban areas where deprivation incidence was higher.

d) Carry out a comprehensive assessment of the factors associated with women's deprivation in economic activity including related policies and legislation, interventions, discriminatory practices in hiring, traditional norms, and availability of childcare. Women aged 26-34 years remained behind in realizing their right to employment over the decade, especially in Garissa, West Pokot, Wajir, Mandera, Marsabit and Turkana.

iii) Enhance collaboration between the county governments, state agencies, and other partners to strengthen the capacities of various stakeholders including, political leadership within the country, women's groups, religious leaders, and community leaders to combat cultural norms and harmful practices that perpetuate gender inequalities.

iv) Prioritize women headed households in social protection programmes as a means of improving their overall wellbeing, including in access to adequate WATSAN and housing conditions. As in most of the other wellbeing outcomes, members of women-headed households were more likely to be deprived and monetarily and multidimensionally poor.

v) Strengthen enforcement of laws related to teenage pregnancies; prioritize elimination of gender stereotypes, transform gender norms and revoke discriminatory practises for effective realization of the rights of women and girls. Additionally, implementing community training and sensitization programmes targeting teenage boys and girls to deal with increased cases of teenage pregnancies is of paramount importance.

11 Summary of Findings and Recommendations

This report presented findings on inequalities in monetary and non-monetary wellbeing outcomes in Kenya, their trends of change between 2009 and 2019, across geographical locations, and the underlying socio-economic drivers. The purpose of the analysis was to provide evidence to support prioritization of the needs of children, youths, women, and other population groups in national and county development plans and budgets to ensure inclusive growth and sustainable development, and that no one is left behind.

In addition to providing evidence on policy and budgetary planning at the national and county level, the findings of the report are readily usable for monitoring Kenya's progress in achieving SDG targets 1.1, 1.2, SDG 3-8 and SDG 10 targets. The findings also provide ample evidence for monitoring and tracking progress of the Vision 2030 and the "Big Four" Agenda, and for informing child-centered, gender-sensitive, and rights-based approaches in policies, programmes, and public finance.

11.0 Summary of Findings

11.0.1 Education

There have been major improvements in educational outcomes in Kenya between 2009 and 2019, especially among children aged 14-17 years and youths. Deprivation incidence in education dropped from 49.6 to 29 per cent among children aged 14-17 years, and from 76.2 to 52.6 per cent among youths aged 18-34 years. In terms of areas of residence, deprivation incidence decreased the most among children aged 14-17 years in urban and rural areas, by 44.5 and 39.5 per cent, respectively, and among youths aged 18-34 years in urban areas, by 36.9 per cent. Across counties, the largest reductions in deprivation incidence among youths were recorded in Kiambu, Nyeri, Marsabit, Kajiado, and Samburu. However, despite the notable progress, deprivation incidence in education remained high in 2019 among young pre-schoolers (aged 3 years), youths aged 18-34 years (more than 52 per cent), and adults aged 35 years and above, raising concerns about their employability and socio-economic participation overall.

Inequalities in education were widespread and highly associated with geographical and socio-economic factors. Across all age groups, persons residing in rural areas and in Garissa, Turkana, Wajir, Mandera and Marsabit were significantly more likely to be deprived in education compared to the other areas. In terms of gender inequalities, while girls (aged 3-17 years) were less likely to be deprived in education compared to boys, this trend was reversed for persons aged 18 years and above. In 2019, 54.3 per cent of young women aged 18-34 years were deprived of secondary school completion compared to 50.8 per cent of their male peers, and the gender gap widened progressively for adults aged 35+ years. Additionally, deprivation incidence was significantly higher among children and youths living in women-headed households compared to men-headed households. In terms of other characteristics, children with disabilities, orphaned children, children engaged in child labour, and married children were more likely to drop out of school or attend school with delay, pointing to the need for intersectoral interventions. Across all age groups, persons living in financially strained households – due to labour constraints, larger number of children in the household, and household head with lower educational attainment – were more likely to be deprived in education.

11.0.2 Child Protection

Reductions in deprivation incidence in child protection were substantial across the indicators of child labour, teenage pregnancy, and birth registration. Between 2009 and 2019, the deprivation rate in child protection declined from 35.2 to 8 per cent among 6-13-year-olds and from 34.6 to 14.3 per cent among 14-17-year-olds. This progress is primary attributed to the decline in child labour incidence and improvements in educational outcomes over the decade. In terms of indicators, child labour incidence among 5-17-year-olds decreased by 76 per cent between 2009 and 2019, from 34.6 to 8.4 per cent; the teenage pregnancy rate among girls aged 12-17 years decreased from 3.7 to 2.2 per cent, while the birth registration rate increased from 71.6 to 89 per cent.

Disparities in child protection outcomes across geographical areas remained wide and progress between 2009 and 2019 was unequal. There was a rise in child marriage incidence among 12-17-year-olds, from 3.7 to 5 per cent, mainly attributed to the 30-per cent increase in incidence in rural areas. In 2019, children in rural areas were nearly twice as likely to be married during teenage years compared to children in urban areas. Across counties, child marriage incidence increased significantly in Mandera (by threefold), Wajir, Baringo, Garissa, and Elgeyo/Marakwet. Even though child labour incidence decreased significantly in rural and urban areas, by 82 and 74 per cent, respectively, children residing in rural areas were three times more likely to engage in economic activity compared to their peers in urban areas in 2019. Over the decade, teenage pregnancy incidence among girls aged 12-17 years more than halved in urban areas, from 3.2 to 1.4 per cent, whereas teenage girls in rural areas were nearly 79 per cent more likely to have had a child compared to their peers in urban areas. Finally, the birth registration rate in rural areas was nearly 10 percentage points lower than in urban areas in 2019, 85.7 and 95.1 per cent, respectively. In 2019, Samburu, Wajir, Garissa, Turkana, Marsabit, Mandera, and West Pokot recorded the lowest birth registration rates and the highest incidence of child labour, child marriage and teenage pregnancy across all counties. On the other hand, Nairobi City, Kisumu, and Siaya recorded the greatest reduction in deprivation incidence in all three indicators between 2009 and 2019: child labour, child marriage, and teenage pregnancy.

Sex of the child and household head, living arrangements, educational attainment of adult household members, and the financial wellbeing of the household were strongly associated with children's deprivation in child protection. Boys were more likely to engage in economic activity compared to girls, while girls were more likely to get married during childhood than boys. Similarly, children living in women-headed households were more likely to engage in child labour, while children from men-headed households were more likely to be married during childhood. Further, children living only with one parent were more likely to work, while orphaned girls aged 12-17 years were more likely to have a child during teenage years compared to their peers living with both parents. Proxies of financial wellbeing of households and indicators measuring economic and income generating opportunities were also highly correlated with deprivation in child protection. Children living in households with a larger number of children <18 years, where the adults (household head and/or parents) had lower educational attainment, and where the adults were not employed, recorded the highest incidence of child labour, child marriage, and teenage pregnancy.

11.0.3 Economic Activity

Improvements in labour market outcomes between 2009 and 2019 were substantial, especially in rural areas. Deprivation incidence in economic activity decreased by 25 per cent among persons aged 26-34 years, from 74.1 to 55.4 per cent, and among 35-59-year-olds, from 78.4 to 57.8 per cent. Nevertheless, more than half of youths aged 18-25 years were not in education, employment or training in 2019, and more than 55 per cent of persons aged 26-59 years were

either not participating in the labour market, were underemployed timewise, or were in vulnerable employment. Among 26-59-year-olds, the reduction in deprivation incidence in economic activity over the decade was significantly higher in rural compared to urban areas – by 28 versus 13.8 per cent, respectively. However, rural areas remained severely disadvantaged in terms of labour market opportunities, including for the potential labour market entrants. In 2019, 56.7 per cent of youths aged 18-25 years in rural areas were not in employment, education or training compared to 46.9 per cent of their peers in urban areas. Across counties, between 2009 and 2019 deprivation incidence in economic activity among 18-25-year-olds decreased the most – by around 30 per cent – in Busia, Kirinyaga, Nandi, Siaya, and Homa Bay. While changes in Wajir and Garissa were insignificant, deprivation incidence increased in Mandera.

Area of residence and demographic and socio-economic characteristics were highly correlated with deprivation in economic activity. In 2019, nearly 2 in 3 persons aged 26-59 years in rural areas were deprived in economic activity compared to less than half – 49 per cent – of urban area residents. Deprivation incidence was even higher in Garissa, Turkana, Wajir, Mandera, and Marsabit. Around 7 out of 10 youths aged 26-34 years in these counties were deprived in economic activity compared to 4 out of 10 youths in Kiambu. Moreover, despite the progress over the decade, the gender gap in labour market outcomes remained substantial, especially among youths aged 26-34 years. Women of all age groups remained severely disadvantaged in the labour market compared to men. Additionally, youths with disabilities, youths who had not completed at least secondary education, youths living in women-headed households, youths living in households where the head had low educational attainment or was not in paid employment, and in households headed by single mothers or grandparent(s) were more likely to be deprived in the labour market, continued education, and skills development.

11.0.4 Information

Deprivation in access to information decreased substantially over the decade, particularly in households' ownership of information devices and in media exposure among adults aged 18 years and above. At the national level, deprivation in ownership of information devices – TV, radio, phone, and computer – fell from 18.0 per cent in 2009 to 6 per cent in 2019. The deprivation incidence in exposure to media also decreased considerably among persons aged 18 years and above, while among children it increased. In 2019, more than 8 in 10 children aged 4-13 years had not used a computer, internet, or mobile phone from any location in the three months preceding the census. This raises major concerns about implications for their learning and educational outcomes during the school closure and distance learning arrangements in 2020 over the COVID-19 pandemic. Likewise, deprivation incidence in exposure to media among youths aged 18-34 years (18.4 per cent) and elderly (29.7 per cent) in 2019 were also high given the importance of ICT for skills development and digitalized economy (for youths) and its relevance for overall information and participation among all population groups.

Despite the progress over the decade, inequalities in access to information between urban and rural areas and across counties remained widespread. Between 2009 and 2019, deprivation incidence in ownership of information devices decreased by 74 per cent in urban areas and by nearly 64 per cent in rural areas. However, in 2019 households in rural areas were four times more likely to be deprived in ownership of information devices than urban areas, with deprivation rates of 8 and 2 per cent, respectively. Rural-urban disparities in media exposure were even wider. While only 7.8 per cent of youths aged 18-34 years in urban areas were deprived in exposure to media, in rural areas the incidence was more than three times higher, 25.6 per cent. Additionally, residents of Turkana, Samburu, West Pokot, Marsabit, Tana River and Baringo were significantly more deprived in information compared to the population residing in Nairobi City, Nyeri, Kiambu, Kirinyaga, and Nyandarua. Turkana, Baringo, West Pokot, and Garissa also recorded the smallest progress over the decade.

The main socio-economic drivers of deprivation in media exposure among children included sex of the child, parental and household characteristics. In 2019, deprivation incidence among girls was higher than among boys, and among children who were deprived in education. Additionally, children whose parents had lower educational attainment, children living in households with a larger number of children, and children living only with their grandparents were more likely to be deprived in exposure to media.

11.0.5 Health, Water and Sanitation

There were major improvements in access to basic amenities between 2009 and 2019, especially in sanitation. In 2019, nearly 4 in 10 Kenyans did not have access to safe drinking water, while 2 in 10 were deprived of improved sanitation. Deprivation incidence in access to safe drinking decreased from 47.4 per cent in 2009 to 38.4 per cent in 2019, largely attributed to the 17-percent decrease in incidence in rural areas, from 55.3 to 46 per cent. The change in the deprivation rate in urban areas was insignificant, from 21.6 to 21.4 per cent. Deprivation incidence in access to improved sanitation at the national level nearly halved between 2009 and 2019, from 38.8 to 21.2 per cent, respectively. Progress in improving access to adequate sanitation was greater in urban areas, with reduction in deprivation from 17.3 to 7.4 per cent. At the county level, Nyeri, Kiambu, Nyandarua, and Murang'a recorded the largest progress in both access to safe drinking water and improved sanitation between 2009 and 2019.

Inequalities in access to water and sanitation remained wide across areas of residence and counties in 2019. Twice as many persons in rural areas compared to urban areas were deprived in access to safe drinking water, 46.0 versus 21.4 per cent, respectively. Likewise, nearly 3 in 10 rural area residents were deprived of adequate sanitation compared to 1 in 10 residents in urban areas. Disparities at the county level were striking. Nearly 3 in 4 of the residents in Narok – 72 per cent – were deprived of access to safe drinking water compared to 14 per cent of the residents in Kiambu. Similarly, more than three quarters of the population of Turkana, 78 per cent, were deprived in access to improved sanitation compared to 3 per cent in Nairobi City. Garissa, Mandera and Samburu recorded very little progress in enhancing access to safe drinking water between 2009 and 2019, and improvements in access to sanitation over the decade were the smallest in Samburu and Turkana.

Even though the skilled birth attendance was high in 2019, 83.2 per cent, geographical disparities were widespread. While almost all children in urban areas born during the five years preceding the census were delivered in health facilities, 94.9 per cent, in rural areas the skilled birth attendance rate was 76.9 per cent. Samburu, Wajir, West Pokot, Mandera, Turkana, Marsabit, Tana River, Garissa, and Narok had the lowest skilled birth attendance rates in 2019, ranging between 43 and 58 per cent, while Kirinyaga and Nyeri had the highest rate, at 98 per cent.

Sex of the household head and proxies of households' monetary wellbeing were closely associated with deprivation in access to water and sanitation. Deprivation rates in both access to safe drinking water and improved sanitation were the highest among women-headed households, households headed by single mothers/fathers or grandparents, labour-constrained households, households with a larger number of children, and households headed by adults who had lower educational attainment.

11.0.6 Housing and Energy

Improvements in the housing and energy dimension over the decade were less substantial compared to the other sectors, mainly driven by improvements in urban areas, and expansion of the electricity grid in the country. Deprivation incidence in housing and energy decreased from 95.4 per cent in 2009 to 83.9 per cent in 2019. This change is largely attributed to the decline in deprivation incidence of adequate lighting sources (from 79 to 32.5 per cent), and the reduction in deprivation incidence in housing and energy in urban areas, from 82.5 in 2009

to 54.8 per cent in 2019. Progress in reducing deprivation in housing conditions and adequate cooking fuels was small. Likewise, reduction in deprivation incidence across housing indicators was comparably smaller in rural areas. At the county level, deprivation incidence in housing and energy decreased the most in Nairobi City and Kiambu (by more than 40 per cent), followed by Mombasa and Kajiado (by more than 24 per cent). Almost no change was recorded in Mandera, Turkana, Wajir, West Pokot, and Elgeyo/Marakwet between 2009 and 2019.

Disparities in housing and energy between rural and urban areas and across counties remained widespread. In 2019, 96.8 per cent of the population in rural areas were deprived in housing and energy compared to 54.8 per cent in urban areas. At the county level, nearly all the residents – 99 per cent – of Mandera, Turkana, West Pokot, Wajir, and Tana River were deprived in housing and energy compared to 37.8 per cent in Nairobi City. Turkana, West Pokot, Mandera, Wajir, and Tana River also had the highest deprivation rates in the indicators of housing conditions and adequate cooking fuel, while Nairobi City, Kiambu, and Mombasa ranked the least deprived.

Among socio-economic determinants, being disabled, living in a woman-headed household, in a household with a larger number of children, in a labour-constrained household, or a household where the head had lower educational attainment were strongly associated with higher deprivation incidence in housing and energy.

11.0.7 Monetary and Multidimensional Poverty

Kenya made significant progress in monetary and particularly multidimensional (MD) poverty reduction between 2009 and 2019. The multidimensional poverty rate decreased from 68.2 per cent in 2009 to 50.8 per cent in 2019, largely attributed to the 38-per cent reduction in multidimensional poverty incidence in urban areas. Likewise, monetary poverty decreased from 45.7 per cent in 2009 to 33.3 per cent in 2019, mainly affected by the nearly 27-percent decrease in poverty incidence in rural areas. Across counties, Kiambu, Nairobi City, Nyeri, Murang'a and Machakos recorded the largest reductions in MD poverty incidence. In Samburu, Garissa, Turkana, Mandera and Wajir – which also ranked among the poorest counties in Kenya in 2009 and 2019 - the reduction in MD poverty incidence over the decade was very small, raising concerns about these counties being left behind in development since 2009. The largest reductions in monetary poverty incidence over the decade were noted in Nyeri, Homa Bay, Tharaka-Nithi, Machakos, and Narok. On the other hand, in Tana River, Samburu, and Busia, monetary poverty incidence decreased by less than 10 per cent between 2009 and 2019.

Significant improvements were also made in reducing deprivation intensity and monetary poverty depth, particularly in rural areas. The average deprivation intensity reduced from 4.1 to 3.6 dimensions between 2009 and 2019, respectively, and the monetary poverty gap nearly halved from 19.4 to 10.7. These figures suggest that compared to 2009, the multidimensionally poor population in 2019 experienced fewer dimension deprivations on average, i.e., that there have been improvements in public service delivery over the decade. In terms of monetary poverty, these figures suggest that the financial wellbeing in the country has improved overall as the poor population had higher financial resources relative to the poverty line in 2019 compared to 2009. Reductions in average deprivation intensity and poverty gap over the decade were large in rural areas, by 10.7 per cent and 48.9 per cent, respectively. At the county level, Turkana, Garissa, Marsabit, West Pokot, and Wajir recorded the largest reductions in average deprivation intensity, albeit ranked the poorest in MD terms in 2019. Between 2009 and 2019, the poverty gap narrowed by the largest amount in Nyamira, Nyandarua, Kitui, Samburu and Nyeri. The poverty gap in Narok, West Pokot, and Bungoma remained almost the same.

Inequalities in realization of basic rights and fulfilment of needs, including financial wellbeing, remained wide between both rural and urban areas, and across counties. In 2019, Kenyans residing in rural areas were more than twice as likely to be multidimensionally poor compared to the population in urban areas, with MD poverty incidence rates of 61.9 and 25.8 per

cent, respectively. The monetary poverty incidence in rural areas (37 per cent) was also significantly higher compared to the urban ones (25.6 per cent). Across counties, Turkana, Mandera, Wajir, Samburu, Marsabit, and Garissa ranked the poorest in both monetary and multidimensional poverty in 2009 and 2019, showing meagre progress over the decade.

11.1 Recommendations

Carrying out comprehensive data analysis to identify and understand the situation of the left-behind groups lays at the core of the Sustainable Development Agenda. This study used 2009 and 2019 KPHC, the largest available datasets in Kenya, to measure inequalities in non-monetary wellbeing. In absence of consumption and income modules in these datasets, it complemented the analysis with monetary poverty and inequality findings by employing the small area estimation tool. The exercise demonstrates the commitment of the government of Kenya to inform with evidence policy planning and financing processes for inclusive growth and sustainable development. In addition to sector interventions across chapters 3-9, this study recommends to:

Mainstream LNOB in national- and county-level development policies and financing. Recognizing and mainstreaming vertical, horizontal, and intersecting inequalities in both policy planning and financing at national and subnational levels is the first step towards putting the LNOB agenda to action.

This study has found that children experience higher deprivation rates in the sectors of information, access to water, and housing and energy, while among adults aged 18 years and above, the deprivation rates were the highest in education, economic activity, and housing and energy. Nevertheless, inequalities in wellbeing outcomes – monetary and non-monetary – were widespread geographically (across areas and counties of residence), temporally in terms of counties' progress between 2009 and 2019, and across different population groups and their characteristics. Deprivation and poverty incidence in all domains of wellbeing and across all population groups was significantly higher in rural areas and in Garissa, Turkana, Wajir, Mandera, Marsabit, West Pokot, Samburu, and Tana River. Baringo, Migori, Homa Bay, Elgeyo/Marakwet, Kitui, and Narok also ranked among the most deprived counties or showed the smallest progress in child protection, access to safe drinking water and/or housing energy.

The analysis highlighted several demographic and socio-economic characteristics that contribute to horizontal and intersecting inequalities including **i) Sex.** Boys (esp. teenagers aged 14-17 years) were more likely to be deprived in education compared to girl children and to engage in child labour, while girls' wellbeing was affected by teenage pregnancy and higher incidence of child marriage during the age of 12-17 years. On the other hand, women aged 18+ years were significantly more disadvantaged than men in terms of educational and employment outcomes. Both girls and women of all ages were more likely to be deprived in information than their male peers. Women aged 18 years and above were more likely to be multidimensionally poor than men, while girls under 18 were less likely to be multidimensionally poor than boys. Members of women-headed households also faced higher deprivation rates across all dimensions of wellbeing and had higher incidence in both monetary and multidimensional poverty; **ii) Orphanhood and living arrangements.** Orphaned children and children living only with one parent had higher deprivation incidence in education, child labour, and teenage pregnancy; **iii) Disability** was associated with deprivation in education among both children and adults aged 18+ years, and with deprivation in economic activity among persons aged 18-59 years; and **iv) Living in households with limited earning opportunities and strained financial resources** due to lower educational attainment among adults (inc. household head), labour-constrained households, households with a larger number of children younger than 18 years, and households composed of only grandparents and grandchildren and single mothers/fathers and children. The findings also showed that there are overlapping deprivations. For instance, children deprived of protection were deprived also in education, children deprived of education were also deprived of information, and adults deprived of education were deprived in economic activity.

Two broad, parallel approaches should guide the policies, programmes and financing to address inequalities and ensure that no one is left behind. The government of Kenya should:

1) **Ensure service provision for all** through investments aimed at improving availability, accessibility, and utilization of services across all geographical locations and all population groups. Given the topographical and development diversity across counties, sectoral investments in certain areas need to be complemented with investments in other infrastructure (e.g., roads, energy, internet connectivity, etc.), complementary programmes (e.g., government-financed school feeding for interventions in the education sector), and financing adjusted for the cost of service delivery in such areas. Existing universal programmes in Kenya, such as Free Primary, are proof of effectiveness and impact of this approach. Prioritizing sectors and sub-sectors of human capital development such as universal pre-primary education, universal health care coverage, and subsidies for technical, vocational and university education, would be highly beneficial in the long-term in breaking the intergenerational transmission of poverty.
2) **Establish a Social Protection Floor for all to address vulnerabilities across different stages of the lifecycle and protect against different contingencies.** Children and youth comprise nearly 70 per cent of the multidimensionally and monetary poor population. Introducing a child benefit grant for all children in Kenya with additional support for children that face other vulnerabilities, e.g., children with disabilities, orphaned children, etc., or live in more disadvantaged households (e.g., women-headed households, labour-constrained households) would contribute to tackling both monetary and multidimensional poverty and intersecting inequalities. Setting up such programmes could follow a progressive universalism approach. In the case of the child benefit, this would entail providing support for all children under the age of 5 years in the initial phase of programme roll-out and increasing the age limit gradually over the years.

Adjust public finance formulae to address disparities in county financing while carefully considering the needs of the left-behind population groups. Evidence from deprivation, poverty and inequality analysis is important to gain an insight on the size and characteristics of the left-behind groups at national and subnational levels. However, enhancing their socio-economic inclusion requires increasing resource allocation and amending financing mechanisms in correspondence with the special needs of these population groups. This could include for instance capitation grants that use the same average cost across all areas and counties.

Prioritizing budgetary allocations towards sectors or sub-sectors that concern the left-behind groups across counties the most could be the initial step in reforming financing as both the national and county governments identify means of expanding their fiscal space. Stronger budget execution and accountability mechanisms are also crucial in ensuring that the funds are benefitting the neediest.

Promote equity through enforcement of and effective implementation of related legislation. While many horizontal and intersecting inequalities can be addressed through improvements in service delivery, enhancing learning and earning opportunities, and through provision of financial support, interventions in the legal framework and its effective implementation are also necessary to tackle systematic and cross-cutting issues. For instance, laws pertaining to social equity and gender equality that criminalize conduct or discrimination against certain groups would be highly beneficial. Similarly, making child labour elicit in the Employment Act, and effective implementation of laws related to FGM, child marriage, and teenage pregnancy would contribute greatly to tackling child protection issues. Such initiatives should undoubtedly be coupled with allocation of resources for effective implementation and provision of complementary services, for example judicial and social services. Additionally, changing and dismantling discriminatory attitudes and ending discriminatory and harmful practices towards certain population groups requires parallel intersectoral interventions. **Public awareness, communication, and outreach campaigns in partnerships with civil society organizations, religious and community leaders and members, champions of the causes, and other stakeholders are crucial to this end.**

Continuous collection of data and usage of evidence to further the LNOB Agenda. Continuous and comprehensive data collection and analysis is pivotal for programming, financing, and monitoring. In addition to ensuring sustainability in data collection, this study recommends that future census questionnaires: 1) Collect data consistently with KPHC 2009 and KPHC 2019 to allow for trend analysis in the future, and 2) To the extent possible, address the existing gaps in non-monetary wellbeing indicators, especially in the domains of health, nutrition, and literacy. Modalities that would allow combining census (and/or survey data) with administrative records would be useful in measuring inequalities in quality of education and learning outcomes, health status/outcomes, and the like. Likewise, timely publishing and usage of administrative data across different sectors is paramount to mainstreaming the LNOB principle in national and subnational planning and budgeting.

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Technical Annex: Small Area Estimation

TA Table 1. **Means, proportions and share of missing values for variables considered in constructing the consumption models, KIHBS and KPHC datasets**

	KIHBS 2015-16		KPHC 2019		KIHBS 2005-06		KPHC 2009	
	Mean	% Missing	Mean	% Missing	Mean	% Missing	Mean	% Missing
Household size	5.44	0%	5.56	0%	6.59	0%	5.94	0%
HH has access to an improved water source	68.8%	0.18%	61.6%	0%	56.8%	1.4%	51.9%	0%
HH has access to improved sanitation	59.2%	0.21%	67.6%	0%	47.4%	1.31%	61.2%	0%
Floor of the dwelling made of adequate material	47.5%	0.20%	49.8%	0%	35.7%	1.35%	36.9%	0.23%
Walls of the dwelling made of adequate material	24.3%	0.19%	48.9%	0%	37.9%	1.35%	40.3%	0.23%
Roof of the dwelling made of adequate material	87.1%	0.19%	89.1%	0%	76.7%	1.35%	76.5%	0.23%
HH has access to an adequate lighting source	52.2%	0.24%	67.4%	0%	14.8%	1.35%	21.1%	0%
HH has access to adequate cooking fuel	10.7%	0.24%	19.4%	0%	3.3%	1.31%	5.2%	0%
HH is overcrowded (3+ HH members per room)	31.5%	0.26%	18.2%	0%	39.9%	1.27%	26.5%	0%
Household owns a radio	50.9%	0%	58.4%	0%	76.1%	0%	75.1%	0%
Household owns a phone	87.6%	0%	91.5%	0%	20.5%	18.8%	62.6%	0%
Household owns a TV	31.0 %	0%	40.3%	0%	19.4%	18.8%	27.0%	0%
Household owns a computer	5.4%	0%	8.2%	0%	1.1%	18.8%	3.3%	0%
Household owns a refrigerator	6.1%	0%	9.1%	0%	3.5%	0%	4.7%	0%
Household owns a car	2.7%	0%	7.2%	0%	2.6%	0%	4.8%	0%

	KIHBS 2015-16		KPHC 2019		KIHBS 2005-06		KPHC 2009	
	Mean	% Missing	Mean	% Missing	Mean	% Missing	Mean	% Missing
Household owns a motorcycle	4.8%	0%	11.0%	0%	0.6%	0%	2.5%	0%
Household owns a bicycle	12.7%	0%	18.0%	0%	31.9%	0%	29.5%	0%
Household rears at least one type of livestock	63.5%	0%	48.4%	0%	13.7%	0%	69.3%	0%
Household type: Single member household	4.8%	0%	5.2%	0%	1.9%	0%	3.5%	0%
Household type: HH head and spouse(s)	2.6%	0%	2.6%	0%	1.5%	0%	2.2%	0%
Household type: Single father and children	1.3%	0%	2.0%	0%	0.9%	0%	1.5%	0%
Household type: Single mother and children	12.4%	0%	11.2%	0%	8.2%	0%	11.6%	0%
Household type: Nuclear family	42.8%	0%	35.1%	0%	39.7%	0%	36.3%	0%
Household type: Grandparents and grandchildren	3.2%	0%	2.5%	0%	2.4%	0%	2.2%	0%
Household type: Nuclear family & extended family	27.9%	0%	34.3%	0%	37.3%	0%	34.1%	0%
Household type: Household type and non-relatives	4.5%	0%	6.3%	0%	7.8%	0%	7.7%	0%
Proportion of children < 5 years in the HH	16.3%	0%	15.3%	0%	17.7%	0%	18.6%	0%
Proportion of children < 18 years in the HH	48.2%	0%	46.3%	0%	49.8%	0%	49.7%	0%
Proportion of adults aged 18-64 years in the household	47.9%	0%	49.7%	0%	46.4%	0%	46.8%	0%
Disability in the household	11.6%	0%	28.4%	0.02%	6.7%	0%	14.6%	0%
Prop of adults in the household with secondary or higher education attainment	28.4%	0.07%	26.3%	0.23%	22.0%	0.07%	13.3%	0.22%

	KIHBS 2015-16		KPHC 2019		KIHBS 2005-06		KPHC 2009	
	Mean	% Missing	Mean	% Missing	Mean	% Missing	Mean	% Missing
Proportion of adults aged 18-64 years in the HH with completed secondary or higher education	29.5%	2.4%	27.5%	2.12%	22.8%	1.62%	13.8%	1.74%
Proportion of adults aged 18-64 years with completed primary education	34.4%	2.42%	35.4%	2.12%	29.3%	1.62%	40.8%	1.74%
Proportion of adults aged 24-64 years in the HH with completed primary education	31.1%	5.9%	34.7%	5.75%	26.1%	4.16%	40.7%	5.79%
Proportion of adults aged 24-64 years in the HH with completed secondary or higher education	29.2%	5.91%	25.1%	5.75%	24.5%	4.16%	12.8%	5.79%
Prop of adults in the household in paid employment	66.9%	0.01%	47.1%	0.04%	40.2%	0%	69.4%	0%
Proportion of employed adults aged 24-64 years in the HH	86.3%	5.9%	80.4%	5.75%	72.2%	4.16%	81.8%	5.79%
Prop of adults in the household employed in the non-agricultural sector	59.7%	5.9%	57.9%	5.75%	36.5%	4.16%	42.1%	5.79%
Proportion of unemployed women aged 15-64 years	27.3%	8.2%	33.9%	9.39%	34.9%	4.80%	32.9%	7.63%
Proportion of unemployed adults aged 15-64 years in the HH	25.8%	1.75%	35.4%	1.48%	33.2%	1.17%	29.5%	1.16%
Age of HH head	44.6	0.16%	44.1	0%	46.1	0%	43.6	0%
Household head is a woman	29.6%	0%	37.2%	0%	26.3%	0%	29.4%	0%

	KIHBS 2015-16		KPHC 2019		KIHBS 2005-06		KPHC 2009	
	Mean	% Missing	Mean	% Missing	Mean	% Missing	Mean	% Missing
Household head is disabled	4.1%	0.21%	17.8%	0.11%	2.0%	1.1%	5.2%	0%
Household head is married	79.7%	0%	81.3%	0%	80.6%	0.71%	84.3%	0%
Division mean: Average % of unemployed HH members aged 24-64 years	20.1%	0.09%	20.7%	0%	16.7%	0%	17.2%	0%
Division mean: average % of adults in HH in paid employment	49.6%	0.09%	49.5%	0%	72.6%	0%	72.2%	0%
Division mean: average % of households that own a motorcycle	9.4%	0.09%	9.4%	0%	2.2%	0%	2.1%	0%
Division mean: average % of households that own a bicycle	14.6%	0.09%	14.6%	0%	26.9%	0%	25.3%	0%
Division mean: average % of households that own a phone	89.2%	0.09%	88.8%	0%	60.7%	0%	59.7%	0%
Division mean: average % of households that rear camels	3.1%	0.15%	4.4%	0%	1.6%	0%	2.9%	0%
Division mean: average % of adults in the HH engaged in the agricultural sector	21.2%	0.09%	20.8%	0%	38%	0%	37.9%	0%
Division mean: average % of households engaged in livestock rearing	41.8%	0.09%	41.8%	0%	62.9%	0%	62.8%	0%
Division mean: average % of HH overcrowding	11.7%	0.09%	12.2%	0%	17.2%	0%	19.8%	0%
Division mean: average % of HH that own a refrigerator	7.3%	0.09%	7.5%	0%	3.7%	0%	3.8%	0%

	KIHBS 2015-16		KPHC 2019		KIHBS 2005-06		KPHC 2009	
	Mean	% Missing	Mean	% Missing	Mean	% Missing	Mean	% Missing
Division mean: average % of HH with access to improved toilet type	68.6%	0.09%	67.5%	0%	62.7%	0%	61.2%	00%
Division mean: average % of HH with access to adequate floor material	51.1%	0.09%	51.0%	0%	39.0%	0%	38.4%	0%
Division mean: average % of HH with access to adequate cooking fuel	20.5%	0.09%	20.9%	0%	5.0%	0%	5.3%	0%
Number of observations (N)	N=21,773 households		N=11,122,905 households		N=13,315 households		N=8,112,884 households	

Source: KIHBS 2005-06, KIHBS 2015-16, KPHC 2009 and KPHC 2019 datasets

Note: All figures weighted using population weights.

TA Table 2. Independent variables selected by Lasso regression, KIHBS 2015-16 dataset, consumption model for rural areas

LASSO regression	
Number of observations	11,512
R-squared	0.4486
alpha	1.0000
lambda	0.0010
Cross-validation MSE	0.1871
Number of folds	10
Number of lambda tested	100

Logarithm of adult equivalent consumption expenditure	Coefficient
Prop of adults 18-64 in HH with completed secondary or higher education	0.3175382
Dwelling of the HH has adequate floor material	0.1258076
Dwelling of the HH has adequate roof material	0.0911769
HH uses an adequate lighting source	0.1275359
Proportion of HH members aged 18-64 years	0.2733551
HH uses an improved toilet type	0.046353
HH owns a radio	0.1061571
HH uses adequate cooking fuel	0.1936127
Proportion of adult HH members in paid employment	0.0767992
Proportion of adult HH members employed in the non-agricultural sector	0.0527056
HH owns a refrigerator	0.3470573

Logarithm of adult equivalent consumption expenditure	Coefficient
Proportion of adults aged 18-64 in the HH with completed primary education	0 .1080227
HH owns a car	0.3479769
HH type: Mixed, nuclear family and extended family	-0.0064584
Proportion of HH members<18 years	0.3544341
Overcrowding: 3+ HH members share a habitable room	-0.0448885
HH size	0.0108438
Logarithm of HH size	-0.4221739
HH engaged in rearing livestock	0.1127692
Division mean: Average proportion of HH that use an adequate lighting source	0.0480278
Division mean: Average proportion of HH living in dwellings with adequate roof materials	0 .167342
Division mean: Average proportion of HH that own a radio	0.1917327
Division mean: Average proportion of HH living in dwellings with adequate floor materials	-0.1808305
Division mean: Average proportion of adults in the HH employed in the non-agricultural sector	-0.1939092
Division mean: Average proportion of HH using adequate cooking fuel	0.25395
Division mean: Average proportion of HH that own a computer	-0.5967688
Division mean: Average proportion of HH that own a refrigerator	0.9935764
Division mean: Average proportion of adults in the HH employed in the agricultural sector	0.0507106
Division mean: Average proportion of HH that own a bicycle	-0.1640187
Division mean: Average proportion of HH living in overcrowding (>3 persons per habitable room)	-0.0486387
Kwale	0.1986275
Kilifi	0.174998
Tana River	0.1717741
Lamu	0.3274984
Taita/Taveta	-0.0562786
Wajir	0.2622066
Mandera	-0.0841537
Marsabit	0.0689455
Isiolo	0.2080895
Meru	0.1933178
Tharaka-Nithi	0.2151194
Kitui	0.0211978
Machakos	0.0794765
Nyandarua	-0.0676505
Nyeri	0.0853885
Murang'a	-0.0569152
Kiambu	-0.1270911
Turkana	-0.3841708
West Pokot	0.0600613

Logarithm of adult equivalent consumption expenditure	Coefficient
Samburu	-0.1256731
Trans Nzoia	0.1010134
Uasin Gishu	-0.0994658
Elgeyo/Marakwet	-0.0300928
Baringo	0.0699404
Laikipia	-0.0681482
Narok	0.383911
Kajiado	-0.1003286
Bomet	-0.0598496
Vihiga	-0.1762443
Bungoma	0.0473234
Busia	-0.1675551
Siaya	0.1018532
Kisumu	-0.097465
Homa Bay	0.2413316
Migori	0.0283525
Constant	**7.945566**

Source: KIHBS 2015-16

Note: The following variables were dropped by Lasso regression: HH type – single member HH, HH type – nuclear family, HH has access to improved water sources, proportion of unemployed HH members aged 24-64 years, division mean: proportion of adult HH members aged 24-64 years who have completes primary education, division mean: average proportion of HH that own a phone, division mean: average proportion of HH that own a TV, division mean: average proportion of HH living in dwelling with adequate wall material, division mean: average proportion of HH with adequate toilet type, division mean: average proportion of employed men aged 24-64 years in the HH, division mean: average proportion of employed women aged 24-64 years in the HH, division mean: average proportion of HH that own a car, division mean: average proportion of HH that own a motorcycle, division mean: average proportion of HH that have access to improved water sources, division mean: average proportion of adults aged 18-64 years in HH who have completed primary education, division mean: average proportion of HH engaged in livestock rearing, Garissa, Embu, Makueni, Kirinyaga, Nandi, Nakuru, Kericho, Kakamega, and Nyamira.

TA Table 3. GLS model with ELL error decomposition, after sequential removal of non-significant variables, KIHBS 2015-16 dataset, consumption model for rural areas

GLS model				
Logarithm of monthly adult equivalent consumption per capita	**Coef.**	**Std. Err.**	**z**	**P>z**
HH uses adequate cooking fuel	0.194951	0.0370709	5.26	0.194951
Dwelling of the HH has adequate floor material	0.11917	0.0148231	8.04	0.000
Proportion of adult HH members in paid employment	0.06261	0.0196682	3.18	0.001
HH size	0.017468	0.0069473	2.51	0.012
Logarithm of HH size	-0.47174	0.0324534	-14.54	0.000
HH uses an adequate lighting source	0.125798	0.012772	9.85	0.000
Overcrowding: 3+ HH members share a habitable room	-0.05426	0.0155864	-3.48	0.000
HH owns a car	0.348521	0.0491203	7.1	0.000
HH owns a radio	0.10795	0.0115887	9.32	0.000

Logarithm of monthly adult equivalent consumption per capita	Coef.	Std. Err.	z	P>z
HH owns a refrigerator	0.334276	0.0482033	6.93	0.000
Proportion of adults aged 18-64 years in the HH with completed secondary or higher education	0.317398	0.0189126	16.78	0.000
Proportion of adults aged 24-64 years in HH with completed primary education	0.107926	0.0148327	7.28	0.000
Proportion of HH members aged 18-64 years	0.329263	0.0580031	5.68	0.000
Proportion of adult HH members employed in the non-agricultural sector	0.048789	0.0132632	3.68	0.000
Proportion of HH members < 18 years	0.448261	0.0555004	8.08	0.000
HH is engaged in livestock rearing	0.117251	0.0143956	8.14	0.000
Dwelling of the HH has adequate roof material	0.074826	0.0183464	4.08	0.000
HH has access to an improved toilet type	0.049349	0.0137209	3.6	0.000
Dwelling of the HH has adequate wall material	0.059276	0.0170841	3.47	0.001
Division mean: Average proportion of HH living in dwellings with adequate floor materials	-0.25222	0.0770061	-3.28	0.001
Division mean: Average proportion of HH that own a radio	0.196908	0.1050275	1.87	0.061
Division mean: Average proportion of HH that own a refrigerator	0.755329	0.4091348	1.85	0.065
Division mean: Average proportion of HH living in dwellings with adequate roof materials	0.312049	0.0672425	4.64	0.000
Baringo	0.107699	0.0528042	2.04	0.041
Busia	-0.18439	0.0547496	-3.37	0.001
Homa Bay	0.280569	0.0500822	5.6	0.000
Isiolo	0.252482	0.0720545	3.5	0.000
Kilifi	0.179257	0.0592644	3.02	0.002
Kisii	-0.1262	0	(2.39)	0.017
Kwale	0.23191	0.0700958	3.31	0.001
Lamu	0.457719	0.0714897	6.4	0.000
Marsabit	0.160535	0.0662557	2.42	0.015
Meru	0.228313	0.0464469	4.92	0.000
Narok	0.433654	0.0548382	7.91	0.000
Nyeri	0.137767	0.0500306	2.75	0.006
Tana River	0.209831	0.0884894	2.37	0.018
Tharaka-Nithi	0.225652	0.0589598	3.83	0.000
Turkana	-0.25614	0.0730326	-3.51	0.000
Vihiga	-0.19706	0.0601577	-3.28	0.001
Wajir	0.368184	0.0655449	5.62	0.000
West Pokot	0.113509	0.0553701	2.05	0.040
Constant	7.732106	0.082831	93.35	0.000
Observations				**N=11,515 households**

Source: KIHBS 2015-16.

Model settings	
Error decomposition	ELL
Beta model diagnostics	
Number of observations	11,515
Adjusted R-squared	0.44062863
R-squared	0.44262048
Root MSE	0.43163062
F-stat	222.21514
Model parameters	
Sigma ETA sq.	0.02197081
Ratio of sigma eta sq over MSE	0.11792925
Variance of epsilon	0.16433419
Sampling variance of Sigma eta sq	4.972e-06

Source: KIHBS 2015-16.

TA Table 4. GLS model with ELL error decomposition, after removal of variables with VIF>3, KIHBS 2015-16 dataset, model for rural areas

GLS model				
Logarithm of monthly adult equivalent consumption per capita	**Coef.**	**Std. Err.**	**z**	**P>z**
HH uses adequate cooking fuel	0.229465	0.0376796	6.09	0.000
Dwelling of the HH has adequate floor material	0.113542	0.0150473	7.55	0.000
Proportion of adult HH members in paid employment	0.104844	0.0197008	5.32	0.000
HH size	-0.05636	0.0032602	-17.29	0.000
HH uses an adequate lighting source	0.125233	0.0130008	9.63	0.000
Overcrowding: 3+ HH members share a habitable room	-0.04641	0.0157657	-2.94	0.003
HH owns a car	0.324289	0.0499986	6.49	0.000
HH owns a radio	0.105684	0.0117347	9.01	0.000
HH owns a refrigerator	0.303516	0.0489899	6.2	0.000
Proportion of adults aged 18-64 years in the HH with completed secondary or higher education	0.315219	0.0191932	16.42	0.000
Proportion of adults aged 24-64 years in HH with completed primary education	0.113196	0.0149427	7.58	0.000
Proportion of adult HH members employed in the non-agricultural sector	0.105091	0.0280965	3.74	0.000
Proportion of HH members aged 18-64 years	0.051223	0.0134856	3.8	0.000
HH is engaged in livestock rearing	0.086128	0.0144376	5.97	0.000
Dwelling of the HH has adequate roof material	0.106397	0.0178954	5.95	0.000

Logarithm of monthly adult equivalent consumption per capita	Coef.	Std. Err.	z	P>z
HH has access to an improved toilet type	0.048162	0.0138849	3.47	0.001
Dwelling of the HH has adequate wall material	0.055608	0.0172812	3.22	0.001
Division mean: Average proportion of HH that own a refrigerator	0.098471	0.3050746	0.32	0.747
Baringo	0.067065	0.0535922	1.25	0.211
Busia	-0.20198	0.0558561	-3.62	0.000
Homa Bay	0.285954	0.0510688	5.6	0.000
Isiolo	0.171685	0.0696141	2.47	0.014
Kilifi	0.11702	0.0557815	2.1	0.036
Kisii	-0.10329	0.0530171	-1.95	0.051
Kwale	0.1585	0.0699318	2.27	0.023
Lamu	0.314025	0.0680448	4.61	0.000
Marsabit	-0.02133	0.0600437	-0.36	0.722
Meru	0.195444	0.0460567	4.24	0.000
Narok	0.424922	0.0556091	7.64	0.000
Nyeri	0.171053	0.0500462	3.42	0.001
Tana River	0.095729	0.0875964	1.09	0.274
Tharaka-Nithi	0.224712	0.0600946	3.74	0.000
Turkana	-0.49081	0.0615796	-7.97	0.000
Vihiga	-0.16364	0.0606824	-2.7	0.007
Wajir	0.296304	0.0624405	4.75	0.000
West Pokot	-0.02695	0.0525728	-0.51	0.608
Constant	8.007597	0.0383172	208.98	0.000
Observations				**N=11,515 households**

Source: KIHBS 2015-16.

Model settings	
Error decomposition	ELL
Beta model diagnostics	
Number of observations	11,515
Adjusted R-squared	0.41852062
R-squared	0.42033869
Root MSE	0.44007763
F-stat	231.2005
Model parameters	
Sigma ETA sq.	0.0234859
Ratio of sigma eta sq over MSE	0.1212687
Variance of epsilon	0.17018241
Sampling variance of Sigma eta sq.	5.578e-06

Source: KIHBS 2015-16.

TA Table 5. Selection of the Alpha model – GLS model with ELL error decomposition, after omission of variables with high standardized residuals, high leverage, and Cook's distance, and Alpha model, KIHBS 2015-16, consumption model for rural areas

GLS model				
Logarithm of monthly adult equivalent consumption per capita	**Coef.**	**Std. Err.**	**z**	**P>z**
HH uses adequate cooking fuel	0.244027	0.036045	6.77	0.000
Dwelling of the HH has adequate floor material	0.11121	0.013698	8.12	0.000
Proportion of adult HH members in paid employment	0.097597	0.017966	5.43	0.000
HH size	-0.0553	0.002923	-18.92	0.000
HH uses an adequate lighting source	0.124178	0.011809	10.52	0.000
Overcrowding: 3+ HH members share a habitable room	-0.04388	0.014178	-3.1	0.002
HH owns a car	0.319134	0.046072	6.93	0.000
HH owns a radio	0.107027	0.010655	10.04	0.000
HH owns a refrigerator	0.283309	0.045688	6.2	0.000
Proportion of adults aged 18-64 years in the HH with completed secondary or higher education	0.315871	0.017585	17.96	0.000
Proportion of adults aged 24-64 years in HH with completed primary education	0.11227	0.013622	8.24	0.000
Proportion of adult HH members employed in the non-agricultural sector	0.050404	0.012282	4.1	0.000
Proportion of HH members aged 18-64 years	0.108322	0.02585	4.19	0.000
HH is engaged in livestock rearing	0.088731	0.013247	6.7	0.000
Dwelling of the HH has adequate roof material	0.106742	0.016206	6.59	0.000
HH has access to an improved toilet type	0.049694	0.012648	3.93	0.000
Dwelling of the HH has adequate wall material	0.055179	0.015862	3.48	0.001
Division mean: Average proportion of HH that own a refrigerator	0.112973	0.289452	0.39	0.696
Baringo	0.066239	0.050752	1.31	0.192
Busia	-0.2043	0.053263	-3.84	0.000
Homa Bay	0.289999	0.048245	6.01	0.000
Isiolo	0.146881	0.066718	2.2	0.028
Kilifi	0.11126	0.052751	2.11	0.035
Kisii	-0.09896	0.050186	-1.97	0.049
Kwale	0.15576	0.0666	2.34	0.019

Logarithm of monthly adult equivalent consumption per capita	Coef.	Std. Err.	z	P>z
Lamu	0.282049	0.065047	4.34	0.000
Marsabit	-0.00722	0.057733	-0.13	0.900
Meru	0.197365	0.043755	4.51	0.000
Narok	0.428603	0.052921	8.1	0.000
Nyeri	0.170143	0.04771	3.57	0.000
Tana River	0.029982	0.084426	0.36	0.722
Tharaka-Nithi	0.220627	0.058225	3.79	0.000
Turkana	-0.49309	0.057936	-8.51	0.000
Vihiga	-0.14907	0.058096	-2.57	0.010
Wajir	0.305969	0.058653	5.22	0.000
West Pokot	-0.02609	0.049664	-0.53	0.599
Constant	8.001139	0.03515	227.63	0.000
Observations				**N=11,413 households**

Source: KIHBS 2015-16.

Alpha model				
Residual	**Coef.**	**Std. Err.**	**z**	**P>z**
Household size	-0.0261973	0.0129589	-2.02	0.043
Constant	-6.049047	0.0729339	-82.94	0.000
Observations				**N=11,413 households**

Source: KIHBS 2015-16

Model settings	
Error decomposition	ELL
Beta model diagnostics	
Number of observations	11,413
Adjusted R-squared	0.42210532
R-squared	0.42392833
Root MSE	0.43388407
F-stat	232.54286
Alpha model diagnostics	
Number of observations	11,413
Adjusted R-squared	0.00075783
R-squared	0.00084539
Root MSE	2.2292605
F-stat	9.6548963
Model parameters	
Sigma ETA sq.	0.02238551
Ratio of sigma eta sq over MSE	0.11891031
Variance of epsilon	0.16586988
Sampling variance of Sigma eta sq.	5.211e-06

Source: KIHBS 2015-16.

TA Table 6. Independent variables selected by Lasso regression for the Alpha model, KIHBS 2015-16 dataset, consumption model for rural areas

LASSO regression	
Number of observations	11,410
R-squared	0.0159
alpha	1.0000
lambda	0.0184
Cross-validation MSE	4.9401
Number of folds	10
Number of lambda tested	100

Logarithm of adult equivalent consumption expenditure	Coefficient
HH type: Single-member household	0.3550987
HH type: Nuclear family	-0.0581165
Proportion of HH members<18 years	-0.5167536
Division mean: Average proportion of HH that own a phone	-0.8527181
Division mean: Average proportion of employed women aged 24-64 years in HH	-0.3317076
Division mean: Average proportion of HH that own a motorcycle	0.3744889
Division mean: Average proportion of adults employed in agriculture	-0.4623707
Division mean: Average proportion of HH engaged in livestock rearing	-0.1670907
Nyandarua	0.1894092
Kiambu	-0.0909364
Samburu	0.0470998
Trans Nzoia	0.1781615
Elgeyo/Marakwet	0.2441927
Nakuru	-0.2741023
Kajiado	0.0515996
Bomet	-0.2954373
Kakamega	-0.3058786
Siaya	0.1530606
Migori	-0.098737
Nyamira	0.0112791
Constant	-4.687188

Source: KIHBS 2015-16

Note: The following variables were dropped by Lasso regression: HH has access to an improves water source, HH type: nuclear and extended family, proportion of unemployed adults aged 24-64 years in the HH, logarithm of HH size, division mean: average proportion of adults aged 24-64 years with completed primary education, division mean: average proportion of HH using an adequate lighting source, division mean: average proportion of HH living in dwellings with adequate roof material, division mean: average proportion of HH that own a TV, division mean: average proportion of HH living in dwellings with adequate wall material, division mean: average proportion of HH with access to an improved toilet, division mean: average proportion of HH that own a radio, division mean: average proportion of HH living in dwellings with adequate floor material, division mean: average proportion of employed men aged 24-64 years in HH, division mean: average proportion of adult HH members employed in the non-agricultural sector, division mean: average proportion of HH that own a car, division mean: average proportion of HH that use adequate cooking fuel, division mean: average proportion of HH that own a computer, division mean: average proportion of HH that have access to an improved water source, division mean: average proportion of adults aged 18-64 years in HH who have not completed primary education, division mean: average proportion of HH that own a bicycle, division mean: average proportion of HH that live in overcrowded dwellings, Taita/Taveta, Garissa, Mandera, Embu, Kitui, Machakos, Makueni, Kirinyaga, Murang'a, Uasin Gishu, Nandi, Laikipia, Kericho, Bungoma, and Kisumu.

TA Table 7. Refinement of the Alpha model – removal of multicollinear variables with VIF>5, KIHBS 2015-16 dataset, consumption model for rural areas

Alpha model				
Residual	**Coef.**	**Std. Err.**	**z**	**P>z**
HH type: Single-member household	0.459641	0.110955	4.14	0.000
Proportion of HH members<18 years	-0.59554	0.132578	-4.49	0.000
Division mean: Average proportion of HH engaged in livestock rearing	-0.42621	0.255785	-1.67	0.096
Division mean: Average proportion of HH adults employed in agriculture	-0.72666	0.393676	-1.85	0.065
Division mean: Average proportion of HH that own a phone	-1.45369	0.325087	-4.47	0.000
Division mean: Average proportion of HH that own a motorcycle	1.765161	0.814588	2.17	0.030
Bomet	-0.39353	0.128104	-3.07	0.002
Elgeyo/Marakwet	0.42473	0.155869	2.72	0.006
Kakamega	-0.39123	0.16683	-2.35	0.019
Nakuru	-0.39905	0.203115	-1.96	0.049
Nyandarua	0.37913	0.214685	1.77	0.077
Constant	-4.35041	0.302975	-14.36	0.000
Observations				**N=11,413 households**

Source: KIHBS 2015-16

Model settings	
Error decomposition	ELL
Beta model diagnostics	
Number of observations	11,413
Adjusted R-squared	0.42210532
R-squared	0.42392833
Root MSE	0.43388407
F-stat	232.54286
Alpha model diagnostics	
Number of observations	11,413
Adjusted R-squared	0.01446508
R-squared	0.01541504
Root MSE	2.2139176
F-stat	16.227127
Model parameters	
Sigma ETA sq.	0.02238551
Ratio of sigma eta sq over MSE	0.11891031
Variance of epsilon	0.16586988
Sampling variance of Sigma eta sq.	5.211e-06

Source: KIHBS 2015-16

TA Table 8. Final consumption model for rural areas, KIHBS 2015-16, after sequential removal of non-significant covariates

GLS model				
Logarithm of monthly adult equivalent consumption per capita	**Coef.**	**Std. Err.**	**z**	**P>z**
HH uses adequate cooking fuel	0.244894	0.036992	6.62	0.000
Dwelling of the HH has adequate floor material	0.115129	0.01355	8.5	0.000
Proportion of adult HH members in paid employment	0.08925	0.017768	5.02	0.000
HH size	-0.05662	0.002957	-19.15	0.000
HH uses an adequate lighting source	0.127268	0.011582	10.99	0.000
Overcrowding: 3+ HH members share a habitable room	-0.04248	0.013892	-3.06	0.002
HH owns a car	0.311213	0.047322	6.58	0.000
HH owns a radio	0.109375	0.010505	10.41	0.000
HH owns a refrigerator	0.268961	0.047134	5.71	0.000
Proportion of adults aged 18-64 years in the HH with completed secondary or higher education	0.316895	0.017315	18.3	0.000
Proportion of adults aged 24-64 years in HH with completed primary education	0.110126	0.013282	8.29	0.000
Proportion of adult HH members employed in the non-agricultural sector	0.04676	0.01212	3.86	0.000
Proportion of HH members aged 18-64 years	0.091216	0.026963	3.38	0.001
HH is engaged in livestock rearing	0.093812	0.013282	7.06	0.000
Dwelling of the HH has adequate roof material	0.098107	0.016081	6.1	0.000
HH has access to an improved toilet type	0.048585	0.012474	3.89	0.000
Busia	-0.20721	0.053276	-3.89	0.000
Homa Bay	0.28577	0.048899	5.84	0.000
Isiolo	0.145835	0.067317	2.17	0.030
Kilifi	0.107589	0.053068	2.03	0.043
Kisii	-0.10953	0.049017	-2.23	0.025
Kwale	0.159286	0.067677	2.35	0.019
Lamu	0.280193	0.065337	4.29	0.000
Meru	0.19714	0.044099	4.47	0.000
Narok	0.420424	0.052454	8.02	0.000
Nyeri	0.164306	0.046405	3.54	0.000
Tharaka-Nithi	0.214848	0.058186	3.69	0.000
Turkana	-0.52699	0.065577	-8.04	0.000
Vihiga	-0.15128	0.057953	-2.61	0.009
Wajir	0.315231	0.060991	5.17	0.000
Constant	**8.031967**	**0.03379**	**237.7**	**0.000**
Observations				**N=11,413**

Source: KIHBS 2015-16

Alpha model				
Residual	**Coef.**	**Std. Err.**	**z**	**P>z**
HH type: Single-member HH	0.436705	0.115403	3.78	0.000
Proportion of HH members<18 years	-0.58803	0.130001	-4.52	0.000
Division mean: Average proportion of HH engaged in livestock rearing	-0.42758	0.257852	-1.66	0.097
Division mean: Average proportion of HH adults employed in the agricultural sector	-0.69039	0.387075	-1.78	0.074
Division mean: Average proportion of HH that own a phone	-1.41926	0.324519	-4.37	0.000
Division mean: Average proportion of HH that own a motorcycle	1.828965	0.784549	2.33	0.020
Bomet	-0.39163	0.12752	-3.07	0.002
Elgeyo/Marakwet	0.421481	0.155612	2.71	0.007
Kakamega	-0.39558	0.16403	-2.41	0.016
Nakuru	-0.4025	0.200598	-2.01	0.045
Nyandarua	0.389072	0.198085	1.96	0.050
Constant	**-4.39628**	**0.304797**	**-14.42**	**0.000**
Observations				**N=11,413 households**

Source: KIHBS 2015-16

Model settings	
Error decomposition	ELL
Beta model diagnostics	
Number of observations	11,413
Adjusted R-squared	0.42176929
R-squared	0.42334002
Root MSE	0.4340102
F-stat	269.51829
Alpha model diagnostics	
Number of observations	11,413
Adjusted R-squared	0.01415922
R-squared	0.01510947
Root MSE	2.2003966
F-stat	15.900532
Model parameters	
Sigma ETA sq.	0.02267541
Ratio of sigma eta sq over MSE	0.12038026
Variance of epsilon	0.16568944
Sampling variance of Sigma eta sq.	5.296e-06

Source: KIHBS 2015-16.

TA Table 9. Final consumption model for urban areas, KIHBS 2015-16

GLS model				
Logarithm of monthly adult equivalent consumption per capita	**Coef.**	**Std. Err.**	**z**	**P>z**
HH uses adequate cooking fuel	0.266847	0.02378	11.22	0.000
HH lives in a dwelling with adequate wall material	0.048844	0.018754	2.6	0.009
HH lives in a dwelling with adequate floor material	0.277635	0.021642	12.83	0.000
HH lives in an overcrowded dwelling (3+ persons per habitable room)	-0.20679	0.022612	-9.15	0.000
HH owns a car	0.389696	0.047461	8.21	0.000
HH owns a refrigerator	0.21408	0.030486	7.02	0.000
Age of HH head	-0.00543	0.0007	-7.76	0.000
HH type: Single-member HH	0.403927	0.023137	17.46	0.000
Proportion of HH members<5 years	0.274663	0.058834	4.67	0.000
Proportion of HH members aged 18-64 years	0.288532	0.043571	6.62	0.000
Proportion of HH members aged 18-64 years with completed secondary education	0.229757	0.022099	10.4	0.000
Division mean: Average proportion of HH living in overcrowded dwellings	0.453477	0.192806	2.35	0.019
Division mean: Average proportion of HH that own a refrigerator	0.412886	0.124547	3.32	0.001
Division mean: Average proportion of HH that have access to an improved toilet type	0.651684	0.124436	5.24	0.000
Baringo	0.270497	0.073876	3.66	0.000
Busia	-0.26078	0.076314	-3.42	0.001
Kajiado	-0.15781	0.065894	-2.39	0.017
Kericho	-0.13641	0.061885	-2.2	0.028
Kiambu	-0.14385	0.050093	-2.87	0.004
Kisii	-0.19862	0.061242	-3.24	0.001
Nyeri	0.18961	0.07167	2.65	0.008
Constant	**7.886581**	**0.107833**	**73.14**	**0.000**
Observations				**N=7,896 households**

Source: KIHBS 2015-16.

Alpha model				
Residual	**Coef.**	**Std. Err.**	**z**	**P>z**
Nairobi	-0.3827	0.125432	-3.05	0.002
Vihiga	-0.92815	0.287165	-3.23	0.001
Constant	**-5.88073**	**0.04772**	**-123.23**	**0.000**
Observations				**N=7,896 households**

Source: KIHBS 2015-16.

Model settings	
Error decomposition	ELL
Beta model diagnostics	
Number of observations	7,896
Adjusted R-squared	0.58155217
R-squared	0.58266521
Root MSE	0.42270356
F-stat	523.49267
Alpha model diagnostics	
Number of observations	7,896
Adjusted R-squared	0.00709806
R-squared	0.00734959
Root MSE	2.2672946
F-stat	29.219902
Model parameters	
Sigma ETA sq.	0.01088711
Ratio of sigma eta sq over MSE	0.06093132
Variance of epsilon	0.16779119
Sampling variance of Sigma eta sq.	5.698e-06

Source: KIHBS 2015-16.

TA Table 10. Final consumption model for Nairobi, KIHBS 2005-06

GLS model				
Logarithm of monthly adult equivalent consumption per capita	**Coef.**	**Std. Err.**	**z**	**P>z**
HH uses adequate cooking fuel	0.511127	0.085034	6.01	0.000
HH uses adequate lighting source	0.210662	0.090805	2.32	0.020
HH lives in an overcrowded dwelling (3+ persons per habitable room)	-0.36759	0.07338	-5.01	0.000
HH owns a car	0.500386	0.097013	5.16	0.000
HH lives in a dwelling with adequate wall material	0.426896	0.090553	4.71	0.000
HH type: Single-member HH	0.558825	0.097469	5.73	0.000
Proportion of employed adults aged 24-64 years in the HH	0.241068	0.092977	2.59	0.010
Division mean: Average proportion of HH that use adequate cooking fuel	1.143001	0.527808	2.17	0.030
Constant	**7.515656**	**0.181198**	**41.48**	**0.000**
Observations				**N=573 households**

Source: KIHBS 2005-06.

Model settings	
Error decomposition	ELL
Beta model diagnostics	
Number of observations	573
Adjusted R-squared	0.579118
R-squared	0.585005
Root MSE	0.532112
F-stat	99.38139
Model parameters	
Sigma ETA sq.	0.006987
Ratio of sigma eta sq over MSE	0.024676
Variance of epsilon	0.276156
Sampling variance of Sigma eta sq.	0.00005

Source: KIHBS 2005-06.

TA Table 11. Final consumption model for urban areas, KIHBS 2005-06

GLS model				
Logarithm of monthly adult equivalent consumption per capita	**Coef.**	**Std. Err.**	**z**	**P>z**
HH uses adequate cooking fuel	0.344807	0.050372	6.85	0.000
HH lives in a dwelling with adequate floor material	0.178803	0.037337	4.79	0.000
HH lives in a dwelling with adequate wall material	0.100287	0.035455	2.83	0.005
HH uses an adequate lighting source	0.239887	0.036489	6.57	0.000
HH lives in an overcrowded dwelling (3+ persons per habitable room)	-0.13054	0.033868	-3.85	0.000
HH owns a car	0.384967	0.072949	5.28	0.000
HH owns a radio	0.076347	0.031135	2.45	0.014
HH owns a refrigerator	0.23406	0.05686	4.12	0.000
Proportion of unemployed HH members aged 15-64 years	-0.17454	0.042366	-4.12	0.000
Proportion of HH members aged 24-64 years with completed secondary education	0.241665	0.034925	6.92	0.000
HH has access to an improved toilet type	0.113926	0.032509	3.5	0.000
At least one HH member is disabled	-0.16367	0.070082	-2.34	0.020
Logarithm of HH size	-0.23914	0.041208	-5.8	0.000
HH type: Single-member household	0.206402	0.065289	3.16	0.002
HH type: Nuclear and extended family	-0.07892	0.029807	-2.65	0.008
Division mean: Average proportion of HH living in dwellings with adequate floor material	0.246657	0.10493	2.35	0.019
Division mean: Average proportion of HH living in overcrowded dwellings (3+ persons per habitable room)	-0.48042	0.243656	-1.97	0.049
Division mean: Average proportion of adults in paid employment	-0.77054	0.255999	-3.01	0.003
Observations				**N=3,465 households**

Source: KIHBS 2005-06

Alpha model				
Residual	**Coef.**	**Std. Err.**	**z**	**P>z**
Proportion of HH members<18	-0.86413	0.347566	-2.49	0.013
Mombasa	-0.83014	0.285394	-2.91	0.004
Constant	**-4.56162**	**0.163362**	**-27.92**	**0.000**
Observations				**N=3,465 households**

Source: KIHBS 2005-06

Model settings	
Error decomposition	ELL
Beta model diagnostics	
Number of observations	3,465
Adjusted R-squared	0.568222
R-squared	0.570465
Root MSE	0.440064
F-stat	254.2574
Alpha model diagnostics	
Number of observations	3,465
Adjusted R-squared	0.026497
R-squared	0.027059
Root MSE	2.264926
F-stat	48.14206
Model parameters	
Sigma ETA sq.	0.017925
Ratio of sigma eta sq over MSE	0.092559
Variance of epsilon	0.175732
Sampling variance of Sigma eta sq.	0.00003

Source: KIHBS 2005-06

TA Table 12. Final consumption model for rural areas, KIHBS 2005-06

GLS model				
Logarithm of monthly adult equivalent consumption per capita	**Coef.**	**Std. Err.**	**z**	**P>z**
HH uses adequate cooking fuel	0.229529	0.086346	2.66	0.008
HH lives in a dwelling with adequate floor material	0.205773	0.017893	11.5	0.000
HH uses an adequate lighting source	0.215186	0.033067	6.51	0.000
HH lives in a dwelling with adequate roof material	0.132251	0.0177623	7.45	0.000
HH has access to an improved toilet type	0.043828	0.0157666	2.78	0.005
HH has access to an improved water source	0.059204	0.0150271	3.94	0.000
Logarithm of HH size	-0.41784	0.015659	-26.68	0.000
HH owns a bicycle	0.105563	0.015365	6.87	0.000
HH owns a car	0.383172	0.062161	6.16	0.000

Logarithm of monthly adult equivalent consumption per capita	Coef.	Std. Err.	z	P>z
HH owns a radio	0.104686	0.016143	6.48	0.000
HH owns a refrigerator	0.206434	0.084346	2.45	0.014
HH type: HH head and non-relatives	0.200256	0.026867	7.45	0.000
Proportion of HH members aged 18-64 years with completed primary education	0.143384	0.0208082	6.89	0.000
Proportion of HH members aged 18-64 with completed secondary education	0.390157	0.025334	15.4	0.000
Age squared of HH head	-0.00004	0.000005	-7.97	0.000
HH head employed in the non-agricultural sector	0.035182	0.0142034	2.48	0.013
Observations				**N=7,317 households**

Source: KIHBS 2005-06.

Alpha model				
Residual	**Coef.**	**Std. Err.**	**z**	**P>z**
Proportion of unemployed women aged 15-64 years in the HH	0.183532	0.089661	2.05	0.041
Division mean: Average proportion of unemployed adults aged 24-64 years in the HH	-1.311	0.357785	-3.66	0.000
Constant	**-4.67551**	**0.067171**	**-69.61**	**0.000**
Observations				**N=7,317 households**

Source: KIHBS 2005-06.

Model settings	
Error decomposition	ELL
Beta model diagnostics	
Number of observations	7,317
Adjusted R-squared	0.3931506
R-squared	0.394644
Root MSE	0.483906
F-stat	264.3172
Alpha model diagnostics	
Number of observations	7,317
Adjusted R-squared	0.002972
R-squared	0.003244
Root MSE	2.310239
F-stat	11.90329
Model parameters	
Sigma ETA sq.	0.051005
Ratio of sigma eta sq over MSE	0.217816
Variance of epsilon	0.18316
Sampling variance of Sigma eta sq.	0.00002

Source: KIHBS 2005-06

Annex of Tables

Annex 1. **Trends of change in deprivation incidence in the education dimension, age 3-17 years, by age sub-groups, 2009 and 2019**

Age group	Age 3 years			Age 4-5 years			Age 6-13 years			Age 14-17 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
National	65.3	73.7	12.9%	34.5	27.2	-21.2%	30.1	23.7	-21.3%	49.6	29.0	-41.5%
Urban	51.0	63.7	24.9%	18.3	16.7	-8.7%	15.5	13.9	-10.3%	33.3	18.5	-44.4%
Rural	69.0	77.7	12.6%	38.3	31.1	-18.8%	33.2	26.9	-19.0%	53.3	32.3	-39.4%
Nairobi City	48.5	58.9	21.4%	15.6	10.5	-32.7%	11.2	7.4	-33.9%	28.4	12.0	-57.7%
Nyamira	54.4	73.3	34.7%	21.1	14.5	-31.3%	16.7	13.3	-20.4%	31.5	14.4	-54.3%
Kisii	51.9	71.2	37.2%	22.3	14.6	-34.5%	20.2	15.4	-23.8%	36.7	17.4	-52.6%
Migori	47.8	61.4	28.5%	22.6	17.6	-22.1%	28.4	24.6	-13.4%	55.6	30.0	-46.0%
Homa Bay	43.1	58.4	35.5%	18.3	13.3	-27.3%	26.5	22.1	-16.6%	47.8	23.9	-50.0%
Kisumu	46.1	58.2	26.2%	17.5	11.2	-36.0%	22.2	16.7	-24.8%	42.4	20.3	-52.1%
Siaya	63.6	67.3	5.8%	31.3	16.9	-46.0%	24.6	19.4	-21.1%	49.0	25.2	-48.6%
Busia	74.5	77.5	4.0%	40.7	24.7	-39.3%	30.8	25.3	-17.9%	56.6	34.0	-39.9%
Bungoma	74.4	79.6	7.0%	41.0	25.8	-37.1%	28.1	20.2	-28.1%	55.3	27.5	-50.3%
Vihiga	68.1	71.1	4.4%	33.4	19.1	-42.8%	22.4	16.5	-26.3%	44.7	25.1	-43.8%
Kakamega	74.7	75.7	1.3%	40.8	22.5	-44.9%	28.5	20.4	-28.4%	52.9	29.9	-43.5%
Bomet	62.6	78.1	24.8%	28.6	17.8	-37.8%	19.9	12.6	-36.7%	46.8	21.1	-54.9%
Kericho	57.8	77.4	33.9%	24.4	15.8	-35.2%	21.3	12	-43.7%	48.9	19.1	-60.9%
Kajiado	66.9	72.3	8.1%	37.8	28.5	-24.6%	34	21.2	-37.6%	50.5	26.3	-47.9%
Narok	75.4	83.6	10.9%	50.5	42.0	-16.8%	44.6	31.3	-29.8%	69.2	38.8	-43.9%
Nakuru	59.8	73.4	22.7%	23.1	16.4	-29.0%	16.5	10.9	-33.9%	35.2	16.3	-53.7%
Laikipia	60.3	76.7	27.2%	26.5	25.8	-2.6%	22.3	18.8	-15.7%	36.1	21.1	-41.6%
Baringo	61.3	76.3	24.5%	36.5	31.2	-14.5%	39.3	30.1	-23.4%	55.2	33.9	-38.6%
Nandi	59.2	81.2	37.2%	27.0	18.9	-30.0%	28.6	18	-37.1%	55.0	25.8	-53.1%
Elgeyo-Marakwet	59.0	80.2	35.9%	25.3	18.6	-26.5%	21.9	15.7	-28.3%	46.3	23.2	-49.9%
Uasin Gishu	55.6	77.7	39.7%	22.7	15.6	-31.3%	20.2	12.6	-37.6%	42.3	18.0	-57.4%
Trans Nzoia	71.6	79.4	10.9%	37.1	25.2	-32.1%	26.2	17.9	-31.7%	51.0	25.2	-50.6%
Samburu	58.8	72.9	24.0%	47.2	52.5	11.2%	64	56.7	-11.4%	79.4	60.8	-23.4%
West Pokot	73.1	80.7	10.4%	57.1	49.3	-13.7%	61.5	43.1	-29.9%	80.8	49.0	-39.4%
Turkana	77.2	79.9	3.5%	72.3	67.8	-6.2%	80.3	71.8	-10.6%	89.5	77.9	-13.0%
Kiambu	53.9	66.9	24.1%	14.4	9.7	-32.6%	7.6	4.4	-42.1%	21.9	8.4	-61.6%
Murang'a	76.4	81.3	6.4%	29.6	15.9	-46.3%	9.3	4.9	-47.3%	26.3	10.3	-60.8%
Kirinyaga	61.7	65.4	6.0%	18.8	9.8	-47.9%	11.1	6	-45.9%	30.1	11.5	-61.8%
Nyeri	53.7	67.1	25.0%	10.3	7.9	-23.3%	7.2	3.8	-47.2%	18.9	6.0	-68.3%
Nyandarua	61.2	71.4	16.7%	20.1	12.1	-39.8%	10.5	6	-42.9%	27.5	9.9	-64.0%
Makueni	83.3	77.7	-6.7%	43.7	19.2	-56.1%	18.2	9.4	-48.4%	38.4	16.4	-57.3%
Machakos	74.7	69.5	-7.0%	34.4	15.1	-56.1%	16.3	8.4	-48.5%	36.8	16.7	-54.6%

Age group	Age 3 years			Age 4-5 years			Age 6-13 years			Age 14-17 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Kitui	82.7	75.1	-9.2%	46.6	24.0	-48.5%	30.3	17.5	-42.2%	54.9	26.6	-51.5%
Embu	81.8	82.8	1.2%	36.0	18.1	-49.7%	15.3	7.6	-50.3%	37.1	16.3	-56.1%
Tharaka-Nithi	83.4	82.3	-1.3%	37.1	17.1	-53.9%	23.2	12.7	-45.3%	47.2	21.3	-54.9%
Meru	78.4	73.5	-6.3%	38.2	16.6	-56.5%	26.5	15.3	-42.3%	51.1	25.9	-49.3%
Isiolo	69.6	77.1	10.8%	38.9	47.5	22.1%	44	46.1	4.8%	60.8	53.7	-11.7%
Marsabit	81.4	86.7	6.5%	62.5	64.0	2.4%	58.7	59.2	0.9%	73.2	66.6	-9.0%
Mandera	78.3	89.9	14.8%	64.4	80.9	25.6%	65.5	71.8	9.6%	75.3	74.1	-1.6%
Wajir	85.5	92.2	7.8%	73.3	84.2	14.9%	72.4	75.1	3.7%	81.1	76.0	-6.3%
Garissa	83.0	91.3	10.0%	70.0	83.8	19.7%	72.7	79.9	9.9%	80.6	79.6	-1.2%
Taita-Taveta	64.1	70.7	10.3%	25.2	14.2	-43.7%	18.8	9.8	-47.9%	41.9	18.2	-56.6%
Lamu	69.6	81.2	16.7%	34.9	33.1	-5.2%	34.8	30.8	-11.5%	57.4	38.3	-33.3%
Tana River	74.8	85.3	14.0%	54.7	55.7	1.8%	58.5	52.3	-10.6%	77.7	57.5	-26.0%
Kilifi	66.6	69.5	4.4%	39.9	26.8	-32.8%	46.5	36.8	-20.9%	68.2	47.3	-30.6%
Kwale	76.5	83.4	9.0%	47.3	38.4	-18.8%	45.6	40.2	-11.8%	70.4	53.2	-24.4%
Mombasa	49.0	60.0	22.4%	19.6	15.6	-20.4%	19	15.3	-19.5%	39.9	22.1	-41.5%

Source: KPHC 2009 and KPHC 2019

Note: All changes in deprivation rates between 2009 and 2019 statistically significant at confidence level 95% (p-value<0.05) except for Tharaka-Nithi (children aged 3 years) and Tana River, Lamu, Laikipia (children age 4-5 years).

Annex 2. Trends of change in deprivation incidence in the education and literacy dimensions, adults aged 18+ years, by age sub-groups, 2009 and 2019

Age group	Age 18-34 years			Age 18-25 years			Age 35-59 years			Age 60+ years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
National	76.2	52.6	-31.0%	76.1	52.8	-30.6%	90.0	75.1	-16.6%	77.3	73.9	-4.48%
Urban	58.2	36.7	-36.9%	57.3	36.0	-37.2%	79.0	60.7	-23.2%	57.4	56.4	-1.74%
Rural	85.1	64.6	-24.1%	84.6	63.8	-24.6%	94.0	83.5	-11.2%	79.9	77.2	-3.37%
Nairobi City	51.5	31.9	-38.1%	49.9	30.4	-39.0%	74.6	56.0	-24.9%	40.5	40.4	-0.23%
Nyamira	71.3	54.2	-24.0%	70.3	52.9	-24.8%	91.4	76.2	-16.6%	76.0	76.9	1.22%
Kisii	73.7	55.1	-25.2%	73.3	54.5	-25.6%	91.5	76.9	-16.0%	77.5	79.9	3.02%
Migori	86.4	67.2	-22.2%	86.5	65.6	-24.1%	93.3	83.5	-10.5%	81.6	82.1	0.58%
Homa Bay	85.3	65.1	-23.7%	84.9	62.6	-26.3%	93.2	83.3	-10.6%	79.9	78.3	-2.08%
Kisumu	75.5	55.2	-26.9%	76.1	54.0	-29.1%	87.6	73.6	-16.0%	76.0	72.1	-5.10%
Siaya	86.8	69.0	-20.5%	86.7	67.0	-22.7%	93.7	85.3	-9.0%	79.0	76.2	-3.49%
Busia	86.2	68.7	-20.3%	86.0	69.7	-19.0%	93.2	83.7	-10.2%	80.7	81.4	0.91%
Bungoma	82.8	64.2	-22.5%	83.4	64.7	-22.4%	91.2	80.3	-12.0%	71.0	75.5	6.38%
Vihiga	82.3	62.5	-24.1%	81.6	62.7	-23.1%	92.3	83.1	-10.0%	74.1	71.4	-3.60%
Kakamega	83.6	65.8	-21.3%	83.4	65.7	-21.2%	92.5	82.2	-11.1%	76.0	76.4	0.40%
Bomet	81.4	61.2	-24.8%	81.7	58.8	-28.0%	92.4	80.2	-13.2%	82.0	82.0	-0.03%

Age group	Age 18-34 years			Age 18-25 years			Age 35-59 years			Age 60+ years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Kericho	77.8	58.9	-24.3%	77.9	57.4	-26.3%	91.4	78.0	-14.7%	81.3	78.6	-3.31%
Kajiado	69.0	40.5	-41.3%	69.6	40.5	-41.8%	83.7	60.2	-28.1%	78.1	71.5	-8.43%
Narok	88.9	66.8	-24.9%	89.4	67.3	-24.7%	94.9	81.7	-13.9%	90.4	91.7	1.42%
Nakuru	71.3	50.3	-29.5%	69.9	48.6	-30.4%	89.1	76.1	-14.6%	73.3	67.5	-8.00%
Laikipia	76.1	49.6	-34.8%	74.5	49.1	-34.1%	91.1	79.1	-13.2%	74.9	67.3	-10.07%
Baringo	79.7	51.6	-35.3%	80.3	52.3	-34.9%	90.5	72.0	-20.4%	88.5	83.6	-5.48%
Nandi	82.6	62.9	-23.8%	82.6	61.7	-25.3%	92.4	82.1	-11.1%	81.7	81.5	-0.21%
Elgeyo-Marakwet	79.7	60.5	-24.1%	79.8	59.7	-25.2%	92.1	79.7	-13.5%	87.3	84.5	-3.27%
Uasin Gishu	69.6	45.8	-34.2%	68.7	44.9	-34.7%	87.9	70.7	-19.6%	78.3	76.0	-3.01%
Trans Nzoia	81.8	63.8	-22.0%	81.7	64.1	-21.6%	91.7	80.6	-12.1%	77.2	77.2	-0.03%
Samburu	92.0	56.9	-38.2%	92.8	60.6	-34.7%	95.8	66.6	-30.5%	96.4	96.4	0.06%
West Pokot	92.7	69.3	-25.2%	93.1	72.0	-22.6%	96.1	79.6	-17.2%	94.7	96.2	1.63%
Turkana	96.2	64.0	-33.5%	96.5	69.8	-27.7%	97.6	67.2	-31.1%	98.4	98.5	0.05%
Kiambu	60.1	33.4	-44.4%	56.9	30.5	-46.4%	84.0	65.9	-21.5%	62.9	55.2	-12.28%
Murang'a	78.4	53.0	-32.4%	75.6	49.3	-34.8%	92.2	83.8	-9.1%	72.0	63.7	-11.42%
Kirinyaga	77.9	50.6	-35.0%	75.0	45.8	-39.0%	91.8	82.0	-10.7%	73.2	69.0	-5.68%
Nyeri	68.6	39.6	-42.3%	65.1	35.9	-44.9%	89.4	77.4	-13.4%	66.5	56.7	-14.72%
Nyandarua	79.5	55.9	-29.7%	76.5	52.0	-32.0%	93.0	84.8	-8.8%	73.7	66.1	-10.24%
Makueni	82.7	58.8	-28.9%	81.8	57.3	-30.0%	91.7	82.5	-10.0%	78.9	72.8	-7.71%
Machakos	75.1	49.0	-34.8%	74.5	47.5	-36.2%	88.6	73.6	-16.9%	73.6	63.8	-13.40%
Kitui	87.3	65.5	-25.0%	86.8	64.4	-25.8%	92.6	84.5	-8.7%	86.6	80.7	-6.82%
Embu	77.5	55.3	-28.6%	76.0	53.1	-30.1%	89.8	80.8	-10.0%	77.7	73.6	-5.20%
Tharaka-Nithi	82.1	58.1	-29.2%	80.8	58.6	-27.5%	90.0	81.9	-9.0%	78.7	75.7	-3.83%
Meru	84.2	62.5	-25.8%	84.0	61.5	-26.8%	91.6	83.2	-9.2%	82.3	78.0	-5.29%
Isiolo	84.0	53.9	-35.8%	84.5	56.5	-33.2%	93.8	68.1	-27.4%	93.1	92.3	-0.79%
Marsabit	92.9	53.8	-42.1%	92.8	58.3	-37.2%	97.0	61.9	-36.2%	97.0	97.6	0.63%
Mandera	96.0	62.6	-34.8%	95.6	68.7	-28.2%	98.4	60.6	-38.4%	91.6	97.6	6.59%
Wajir	95.4	59.1	-38.1%	95.2	65.9	-30.8%	98.2	55.8	-43.2%	89.8	98.4	9.61%
Garissa	92.6	60.8	-34.3%	92.7	66.6	-28.2%	96.7	63.0	-34.9%	91.1	97.0	6.41%
Taita-Taveta	80.5	56.7	-29.6%	79.6	55.2	-30.6%	90.1	80.8	-10.3%	75.7	64.1	-15.40%
Lamu	88.3	68.6	-22.3%	87.8	71.2	-18.9%	94.8	85.7	-9.6%	77.0	84.6	9.79%
Tana River	92.8	70.3	-24.2%	93.2	72.3	-22.4%	96.3	82.4	-14.4%	88.7	90.6	2.16%
Kilifi	86.4	69.2	-19.9%	87.0	73.1	-16.0%	93.9	80.3	-14.5%	86.1	85.1	-1.21%
Kwale	88.7	72.2	-18.6%	89.3	75.8	-15.1%	95.0	83.1	-12.5%	87.6	86.5	-1.30%
Mombasa	65.9	46.9	-28.8%	65.4	47.0	-28.1%	84.3	67.9	-19.5%	57.4	58.9	2.64%

Source: KPHC 2009 and KPHC 2019

Note: All changes in deprivation rates between 2009 and 2019 statistically significant at confidence level 95% (p-value<0.05) except among the elderly 60+ years in the following counties: Isiolo, West Pokot, Trans Nzoia, Uasin Gishu, Baringo, Kakamega, Vihiga, Kisii and Nairobi City.

Annex 3. Trends of change in deprivation incidence in school attendance and grade-for-age/delay in schooling, age 6-17 years, 2009 and 2019

Age group	Age 6-13 years			Age 8-13 years			Age 14-17 years					
Indicator	School attendance			Delay in schooling: 2+ years			School attendance			Delay in schooling: 3+ years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
National	13.1	10.9	-16.8%	25.9	19.0	-26.7%	20.6	13.7	-33.5%	36.2	17.7	-51.1%
Urban	6.0	6.4	6.7%	13.7	10.7	-21.9%	19.1	10.6	-44.5%	17.5	8.8	-49.7%
Rural	14.6	12.3	-15.8%	28.7	21.8	-24.2%	20.9	14.7	-29.7%	40.5	20.6	-49.1%
Nairobi City	5.0	2.5	-50.0%	9.0	6.8	-24.0%	19.7	7.1	-64.0%	10.8	5.3	-50.9%
Nyamira	2.8	2.0	-28.6%	19.3	14.8	-23.3%	10.9	5.8	-46.8%	23.1	9.1	-60.6%
Kisii	3.1	2.0	-35.5%	23.8	17.8	-25.3%	10.7	6.2	-42.1%	29.0	11.9	-59.0%
Migori	4.1	3.4	-17.1%	34.2	28.8	-15.9%	14.6	8.1	-44.5%	47.9	23.9	-50.1%
Homa Bay	3.0	2.1	-30.0%	32.5	26.7	-17.9%	12.6	5.6	-55.6%	40.3	19.4	-51.9%
Kisumu	2.9	1.5	-48.3%	26.6	20.1	-24.4%	15.2	5.2	-65.8%	32.1	15.9	-50.5%
Siaya	4.0	1.7	-57.5%	28.5	23.5	-17.5%	15.5	5.6	-63.9%	39.5	20.8	-47.3%
Busia	5.2	2.9	-44.2%	36.0	30.2	-16.1%	12.6	7.6	-39.7%	50.2	28.6	-43.0%
Bungoma	4.9	3.2	-34.7%	32.9	23.0	-30.0%	9.6	6.7	-30.2%	50.6	22.3	-55.9%
Vihiga	4.0	1.7	-57.5%	25.5	19.5	-23.7%	11.7	5.0	-57.3%	37.3	21.1	-43.4%
Kakamega	5.7	2.6	-54.4%	32.4	23.9	-26.4%	13.0	6.3	-51.5%	45.8	25.3	-44.8%
Bomet	3.2	1.3	-59.4%	23.3	15.0	-35.5%	11.5	5.2	-54.8%	39.8	16.8	-57.8%
Kericho	3.2	1.7	-46.9%	25.2	13.7	-45.8%	12.2	5.6	-54.1%	41.8	14.3	-65.8%
Kajiado	14.4	8.8	-38.9%	30.9	18.4	-40.3%	22.2	12.2	-45.0%	36.3	16.1	-55.6%
Narok	18.1	10.9	-39.8%	43.5	30.7	-29.5%	24.2	13.4	-44.6%	59.3	29.4	-50.4%
Nakuru	4.1	1.7	-58.5%	17.5	12.4	-29.1%	14.2	6.3	-55.6%	24.4	10.7	-56.1%
Laikipia	9.8	9.3	-5.1%	18.5	13.9	-24.9%	15.7	11.8	-24.8%	24.0	10.5	-56.3%
Baringo	22.6	21.0	-7.1%	28.9	15.5	-46.4%	23.7	20.9	-11.8%	41.3	16.5	-60.0%
Nandi	3.8	1.7	-55.3%	34.8	21.5	-38.1%	11.1	4.3	-61.3%	49.3	22.4	-54.6%
Elgeyo-Marakwet	3.2	2.4	-25.0%	25.8	18.2	-29.5%	8.6	5.9	-31.4%	41.2	18.4	-55.3%
Uasin Gishu	3.7	1.6	-56.8%	23.3	14.8	-36.5%	12.2	4.7	-61.5%	34.2	13.9	-59.4%
Trans Nzoia	6.0	3.0	-50.0%	29.0	20.2	-30.2%	13.7	6.6	-51.8%	43.1	19.9	-53.8%
Samburu	49.4	45.5	-7.9%	40.9	28.4	-30.5%	56.1	45.7	-18.5%	52.9	27.9	-47.3%
West Pokot	37.1	25.5	-31.3%	51.5	31.7	-38.4%	37.4	22.5	-39.8%	69.4	34.2	-50.7%
Turkana	72.9	62.1	-14.8%	36.8	35.4	-3.8%	76.7	63.0	-17.9%	54.8	40.3	-26.5%
Kiambu	2.5	1.1	-56.0%	7.0	4.6	-34.6%	13.7	5.5	-59.9%	9.5	3.0	-68.4%
Murang'a	2.6	1.2	-53.8%	9.2	5.0	-45.8%	11.1	5.8	-47.7%	17.0	4.8	-71.8%
Kirinyaga	3.4	1.1	-67.6%	10.8	6.5	-40.0%	13.3	5.3	-60.2%	19.3	6.6	-65.8%
Nyeri	2.3	1.1	-52.2%	6.7	3.6	-45.6%	9.6	3.4	-64.6%	10.2	2.7	-73.5%
Nyandarua	2.4	1.1	-54.2%	11.2	6.4	-42.5%	12.2	5.2	-57.4%	17.4	4.9	-71.8%
Makueni	3.8	1.4	-63.2%	19.9	10.2	-48.6%	9.3	4.5	-51.6%	31.8	12.4	-61.0%
Machakos	3.4	1.7	-50.0%	17.7	8.8	-50.0%	11.2	6.1	-45.5%	28.6	11.2	-60.8%
Kitui	6.3	3.0	-52.4%	34.0	18.9	-44.3%	10.5	6.7	-36.2%	49.2	21.3	-56.7%
Embu	3.9	1.7	-56.4%	15.9	7.8	-50.9%	13.5	7.1	-47.4%	27.2	9.9	-63.6%
Tharaka-Nithi	4.6	2.6	-43.5%	26.2	13.5	-48.3%	12.4	6.9	-44.4%	39.5	15.5	-60.8%
Meru	7.4	3.6	-51.4%	27.5	15.8	-42.5%	19.9	12.4	-37.7%	38.9	15.5	-60.2%
Isiolo	25.9	34.8	34.4%	33.1	23.1	-30.3%	35.9	41.4	15.3%	38.4	20.8	-45.8%
Marsabit	44.1	49.9	13.2%	34.1	25.1	-26.5%	49.9	55.3	10.8%	45.6	25.2	-44.7%

Age group	Age 6-13 years			Age 8-13 years			Age 14-17 years					
Indicator	School attendance			Delay in schooling: 2+ years			School attendance			Delay in schooling: 3+ years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Mandera	56.5	65.7	16.3%	21.1	23.5	11.3%	55.3	64.5	16.6%	38.7	26.3	-32.0%
Wajir	63.7	69.8	9.6%	24.1	21.9	-9.1%	65.1	68.8	5.7%	37.9	22.7	-40.1%
Garissa	62.3	74.5	19.6%	28.7	25.8	-10.0%	63.6	70.8	11.3%	40.3	28.6	-29.0%
Taita-Taveta	5.0	2.2	-56.0%	19.4	10.2	-47.6%	15.2	9.6	-36.8%	31.1	9.5	-69.5%
Lamu	9.1	9.0	-1.1%	38.1	31.4	-17.5%	20.6	14.0	-32.0%	46.0	28.2	-38.7%
Tana River	34.8	32.5	-6.6%	48.5	39.2	-19.2%	44.6	35.9	-19.5%	58.6	33.4	-43.0%
Kilifi	9.9	4.9	-50.5%	53.8	44.1	-18.1%	14.7	7.6	-48.3%	62.6	42.9	-31.5%
Kwale	12.4	9.0	-27.4%	50.0	45.5	-9.1%	18.4	14.8	-19.6%	63.5	45.0	-29.1%
Mombasa	6.2	3.8	-38.7%	18.6	16.2	-13.0%	22.0	9.8	-55.5%	22.7	13.6	-40.1%

Source: KPHC 2009 and KPHC 2019

Note: All changes in deprivation rates between 2009 and 2019 statistically significant at confidence level 95% (p-value<0.05) except for deprivation in school attendance among children aged 6-13 years in Lamu.

Annex 4. Trends of change in child marriage, teenage pregnancy, and child labour, age 5-17 years and 12-17 years, 2009 and 2019

Indicator	Child labour			Child marriage			Teenage pregnancy		
Age group	Age 5-17 years			Age 12-17 years			Girls aged 12-17 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
National	34.6	8.4	-75.7%	3.7	4.5	21.6%	3.7	2.2	-40.5%
Urban	16.4	2.9	-82.3%	3.7	2.8	-24.3%	3.2	1.4	-56.3%
Rural	38.6	10.2	-73.6%	3.8	5.0	31.6%	3.9	2.5	-35.9%
Nairobi City	16.8	1.6	-90.5%	3.4	1.9	-44.1%	2.8	1.2	-57.1%
Nyamira	20.1	3.1	-84.6%	3.7	5.1	37.8%	5.9	2.8	-52.5%
Kisii	26.4	3.3	-87.5%	3.8	5.2	36.8%	6.2	3.1	-50.0%
Migori	37.3	4.9	-86.9%	6.2	5.1	-17.7%	8.6	4.5	-47.7%
Homa Bay	38.0	3.6	-90.5%	5.3	4.6	-13.2%	9.1	4.2	-53.8%
Kisumu	19.9	2.4	-87.9%	4.6	3.2	-30.4%	7.0	2.3	-67.1%
Siaya	37.2	3.7	-90.1%	4.3	3.0	-30.2%	6.2	2.1	-66.1%
Busia	44.9	6.0	-86.6%	4.1	3.9	-4.9%	4.8	1.9	-60.4%
Bungoma	40.7	5.7	-86.0%	4.3	5.8	34.9%	3.8	2.5	-34.2%
Vihiga	24.9	3.2	-87.1%	3.5	3.4	-2.9%	2.9	1.1	-62.1%
Kakamega	37.3	4.5	-87.9%	5.0	4.2	-16.0%	4.1	1.6	-61.0%
Bomet	30.2	3.4	-88.7%	3.6	5.8	61.1%	3.8	2.5	-34.2%
Kericho	28.8	3.8	-86.8%	3.5	5.1	45.7%	4.6	2.4	-47.8%
Kajiado	27.5	8.1	-70.5%	4.5	4.9	8.9%	4.5	3.1	-31.1%
Narok	52.2	13.4	-74.3%	5.9	6.4	8.5%	5.7	3.5	-38.6%
Nakuru	28.9	3.5	-87.9%	3.3	3.2	-3.0%	2.8	1.4	-50.0%
Laikipia	27.2	9.1	-66.5%	3.4	4.0	17.6%	2.4	1.7	-29.2%
Baringo	45.5	16.8	-63.1%	3.1	6.1	96.8%	3.4	3.0	-11.8%
Nandi	28.5	3.2	-88.8%	2.8	4.0	42.9%	4.0	2.1	-47.5%

Indicator	Child labour			Child marriage			Teenage pregnancy		
Age group	Age 5-17 years			Age 12-17 years			Girls aged 12-17 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Elgeyo-Marakwet	36.3	4.1	-88.7%	2.0	6.0	200.0%	2.6	2.1	-19.2%
Uasin Gishu	18.5	2.2	-88.1%	3.2	3.3	3.1%	3.3	1.7	-48.5%
Trans Nzoia	29.1	4.2	-85.6%	3.6	3.8	5.6%	3.9	2.4	-38.5%
Samburu	66.6	38.3	-42.5%	5.2	7.2	38.5%	4.6	4.2	-8.7%
West Pokot	58.7	22.2	-62.2%	5.0	8.3	66.0%	4.6	4.1	-10.9%
Turkana	79.8	34.3	-57.0%	4.1	5.5	34.1%	3.2	3.3	3.1%
Kiambu	11.9	1.8	-84.9%	2.9	2.4	-17.2%	1.5	0.8	-46.7%
Murang'a	23.3	2.9	-87.6%	2.8	3.3	17.9%	1.5	0.9	-40.0%
Kirinyaga	22.1	2.5	-88.7%	3.8	4.4	15.8%	3.0	1.2	-60.0%
Nyeri	17.3	2.0	-88.4%	2.8	2.9	3.6%	1.7	0.6	-64.7%
Nyandarua	21.2	3.8	-82.1%	2.8	3.0	7.1%	1.8	0.8	-55.6%
Makueni	17.7	3.0	-83.1%	2.0	3.2	60.0%	1.6	1.0	-37.5%
Machakos	27.0	3.0	-88.9%	2.2	3.8	72.7%	1.8	1.1	-38.9%
Kitui	40.2	4.8	-88.1%	2.3	4.0	73.9%	2.3	1.7	-26.1%
Embu	40.5	4.8	-88.1%	2.9	4.2	44.8%	2.1	1.2	-42.9%
Tharaka-Nithi	40.7	4.6	-88.7%	2.6	4.5	73.1%	2.1	1.4	-33.3%
Meru	37.8	5.0	-86.8%	4.1	6.6	61.0%	3.4	2.6	-23.5%
Isiolo	37.7	26.2	-30.5%	4.5	6.6	46.7%	3.6	3.3	-8.3%
Marsabit	60.5	34.2	-43.5%	4.0	7.1	77.5%	2.4	2.7	12.5%
Mandera	55.3	36.5	-34.0%	3.2	9.1	184.4%	2.1	6.3	200.0%
Wajir	62.1	37.6	-39.5%	3.6	8.1	125.0%	2.1	3.6	71.4%
Garissa	63.6	31.1	-51.1%	4.1	7.8	90.2%	2.6	3.0	15.4%
Taita-Taveta	33.1	4.3	-87.0%	2.9	2.9	0.0%	2.7	1.6	-40.7%
Lamu	42.5	9.9	-76.7%	3.8	3.7	-2.6%	3.2	1.8	-43.8%
Tana River	58.4	24.6	-57.9%	8.2	6.8	-17.1%	8.0	2.8	-65.0%
Kilifi	35.2	5.6	-84.1%	3.7	3.0	-18.9%	3.7	1.6	-56.8%
Kwale	29.6	10.4	-64.9%	4.2	3.7	-11.9%	4.2	2.3	-45.2%
Mombasa	14.8	2.0	-86.5%	3.9	2.5	-35.9%	3.0	1.3	-56.7%

Source: KPHC 2009 and KPHC 2019

Note: All changes in deprivation rates between 2009 and 2019 statistically significant at confidence level 95% (p-value<0.05) except for child marriage rates in Lamu, Taita-Taveta, Nyandarua, and Vihiga, and teenage pregnancy rates in Isiolo and Turkana.

Annex 5. Trends of change in deprivation incidence in the child protection dimension, age 5-17 years, 2009 and 2019

Age group	Age 5 years			Age 6-13 years			Age 14-17 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
National	41.9	12.8	-69.5%	35.2	8.2	-76.7%	34.6	14.3	-58.7%
Urban	20.6	3.5	-83.0%	15.7	2.6	-83.4%	21.7	7.7	-64.7%
Rural	46.8	16.1	-65.6%	39.4	10.0	-74.6%	37.5	16.3	-56.5%

Age group	Age 5 years			Age 6-13 years			Age 14-17 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Nairobi City	19.9	1.7	-91.5%	15.8	1.3	-91.8%	22.7	5.6	-75.2%
Nyamira	24.4	4.6	-81.1%	18.5	3.1	-83.2%	27.1	11.3	-58.3%
Kisii	30.2	5.1	-83.1%	25.3	3.1	-87.7%	32.0	11.7	-63.4%
Migori	39.3	8.6	-78.1%	37.0	4.3	-88.4%	42.3	13.8	-67.4%
Homa Bay	41.3	5.9	-85.7%	39.1	3.4	-91.3%	39.7	11.8	-70.3%
Kisumu	24.8	3.7	-85.1%	19.8	2.1	-89.4%	25.1	8.3	-67.1%
Siaya	44.2	7.5	-83.0%	37.6	2.8	-92.6%	38.2	9.6	-74.8%
Busia	53.2	12.0	-77.4%	44.5	4.5	-89.9%	46.0	13.3	-71.1%
Bungoma	51.4	12.9	-74.9%	40.4	5.2	-87.1%	41.2	13.9	-66.3%
Vihiga	37.1	8.3	-77.6%	24.9	2.6	-89.6%	25.4	8.4	-66.8%
Kakamega	50.1	10.2	-79.6%	37.6	3.7	-90.2%	36.7	11.1	-69.8%
Bomet	37.1	6.2	-83.3%	29.5	3.2	-89.2%	32.9	11.9	-63.8%
Kericho	33.9	5.3	-84.4%	28.2	3.6	-87.2%	32.2	11.8	-63.4%
Kajiado	39.3	15.7	-60.1%	27.7	7.6	-72.6%	27.7	13.7	-50.5%
Narok	62.8	27.3	-56.5%	52.7	12.2	-76.9%	50.2	20.1	-60.0%
Nakuru	33.6	5.5	-83.6%	29.0	2.7	-90.7%	31.2	9.6	-69.3%
Laikipia	34.1	14.0	-58.9%	27.5	8.7	-68.4%	28.3	13.5	-52.3%
Baringo	51.0	19.0	-62.7%	48.4	17.8	-63.2%	39.8	22.2	-44.2%
Nandi	36.8	6.7	-81.8%	28.5	3.0	-89.5%	29.2	9.3	-68.1%
Elgeyo-Marakwet	44.1	6.5	-85.3%	38.0	4.2	-88.9%	32.0	12.9	-59.7%
Uasin Gishu	25.2	3.8	-84.9%	18.3	2.1	-88.5%	21.7	7.6	-64.8%
Trans Nzoia	42.1	10.3	-75.5%	29.0	3.5	-87.9%	29.1	10.2	-64.9%
Samburu	65.3	41.9	-35.8%	69.0	38.9	-43.6%	64.0	41.4	-35.3%
West Pokot	67.4	34.3	-49.1%	61.2	23.0	-62.4%	51.8	26.4	-49.0%
Turkana	81.8	34.7	-57.6%	83.5	35.3	-57.7%	72.9	37.9	-48.0%
Kiambu	13.7	1.6	-88.3%	10.7	1.4	-86.9%	18.1	6.5	-64.3%
Murang'a	28.9	3.6	-87.5%	22.8	2.2	-90.4%	26.3	9.1	-65.2%
Kirinyaga	22.0	2.7	-87.7%	21.1	2.3	-89.1%	29.3	9.3	-68.4%
Nyeri	17.5	2.0	-88.6%	16.9	1.9	-88.8%	22.0	6.5	-70.4%
Nyandarua	23.7	3.7	-84.4%	20.1	2.6	-87.1%	27.2	10.3	-62.1%
Makueni	37.1	7.2	-80.6%	16.9	2.5	-85.2%	16.4	7.8	-52.5%
Machakos	38.8	4.8	-87.6%	27.7	2.6	-90.6%	24.9	9.1	-63.4%
Kitui	57.4	11.9	-79.3%	42.0	4.1	-90.2%	32.8	10.6	-67.7%
Embu	46.0	5.8	-87.4%	39.9	3.7	-90.7%	43.0	12.2	-71.6%
Tharaka-Nithi	49.6	6.6	-86.7%	41.3	4.1	-90.1%	38.9	11.6	-70.2%
Meru	47.3	5.8	-87.7%	38.0	4.3	-88.7%	37.9	15.6	-58.8%
Isiolo	40.5	29.3	-27.7%	37.6	26.0	-30.9%	40.7	31.4	-22.9%
Marsabit	68.3	37.8	-44.7%	61.6	34.6	-43.8%	57.8	39.3	-32.0%
Mandera	65.6	42.1	-35.8%	58.4	37.1	-36.5%	47.3	42.2	-10.8%
Wajir	75.2	45.5	-39.5%	66.4	38.5	-42.0%	50.5	41.3	-18.2%

Age group	Age 5 years			Age 6-13 years			Age 14-17 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Garissa	74.8	34.7	-53.6%	69.3	32.3	-53.4%	49.3	35.8	-27.4%
Taita-Taveta	38.4	5.0	-87.0%	34.5	2.9	-91.6%	31.5	11.1	-64.8%
Lamu	48.9	18.2	-62.8%	41.7	8.5	-79.6%	44.9	15.0	-66.6%
Tana River	67.9	32.6	-52.0%	60.2	24.1	-60.0%	55.6	29.8	-46.4%
Kilifi	49.3	15.0	-69.6%	36.7	4.7	-87.2%	30.0	8.9	-70.3%
Kwale	48.4	22.9	-52.7%	29.6	8.3	-72.0%	26.6	15.3	-42.5%
Mombasa	19.9	2.8	-85.9%	13.8	1.6	-88.4%	20.8	6.8	-67.4%

Source: KPHC 2009 and KPHC 2019

Note: All changes in deprivation rates between 2009 and 2019 statistically significant at confidence level 95% (p-value<0.05).

Annex 6. Trends of change in deprivation incidence in the indicator and dimension of economic activity, age 18-59 years, 2009 and 2019

Age group	18-25 years			26-34 years			18-34 years			35-59 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
National	66.0	53.1	-19.6%	74.1	55.4	-25.2%	69.6	54.2	-22.1%	78.4	57.9	-26.1%
Urban	54.4	46.9	-13.8%	55.7	48.9	-12.3%	55.1	47.9	-13.1%	56.2	49.1	-12.7%
Rural	71.2	56.7	-20.4%	84.2	60.4	-28.3%	76.7	58.3	-24.0%	85.9	62.4	-27.4%
Nairobi City	52.2	45.2	-13.4%	51.7	47.0	-9.0%	51.9	46.1	-11.2%	50.9	45.8	-10.1%
Nyamira	69.6	54.6	-21.6%	84.3	63.2	-25.1%	75.7	58.8	-22.3%	84.1	64.1	-23.8%
Kisii	68.2	53.9	-21.0%	83.1	64.0	-23.0%	74.1	58.7	-20.8%	85.6	65.8	-23.2%
Migori	73.5	55.6	-24.4%	84.7	63.4	-25.2%	78.0	59.0	-24.4%	86.8	65.6	-24.5%
Homa Bay	72.1	51.4	-28.7%	85.4	61.1	-28.5%	77.4	55.7	-28.0%	88.0	63.5	-27.8%
Kisumu	64.9	48.4	-25.5%	72.7	54.5	-25.0%	68.1	51.3	-24.7%	75.5	55.4	-26.7%
Siaya	74.8	53.3	-28.8%	85.7	60.7	-29.2%	79.2	56.7	-28.4%	88.5	64.9	-26.6%
Busia	76.1	52.9	-30.5%	86.7	65.3	-24.6%	80.4	58.2	-27.6%	88.5	69.3	-21.7%
Bungoma	71.6	51.1	-28.6%	85.7	61.9	-27.8%	77.4	55.8	-27.9%	86.6	64.1	-26.0%
Vihiga	65.9	48.6	-26.3%	82.1	53.8	-34.5%	72.8	50.9	-30.1%	84.7	56.4	-33.4%
Kakamega	70.6	50.6	-28.3%	82.9	59.1	-28.7%	75.7	54.3	-28.3%	84.8	61.4	-27.5%
Bomet	68.8	50.5	-26.6%	78.8	55.5	-29.6%	72.9	52.8	-27.6%	81.3	58.2	-28.4%
Kericho	64.9	51.8	-20.2%	71.0	56.1	-21.0%	67.5	53.8	-20.3%	74.2	58.4	-21.3%
Kajiado	62.0	51.8	-16.4%	65.3	51.2	-21.6%	63.5	51.5	-18.9%	70.0	52.3	-25.3%
Narok	79.1	62.5	-21.0%	86.3	64.5	-25.3%	82.0	63.4	-22.7%	88.6	67.6	-23.7%
Nakuru	60.4	49.3	-18.4%	65.2	51.0	-21.8%	62.6	50.1	-20.0%	70.5	55.0	-22.0%
Laikipia	64.5	52.1	-19.2%	73.8	52.1	-29.4%	68.8	52.1	-24.3%	77.1	57.6	-25.3%
Baringo	67.8	59.1	-12.8%	81.8	60.7	-25.8%	73.4	59.8	-18.5%	83.0	60.7	-26.9%
Nandi	65.1	46.1	-29.2%	75.9	51.5	-32.1%	69.7	48.6	-30.3%	78.6	53.0	-32.6%
Elgeyo-Marakwet	68.0	52.2	-23.3%	84.6	61.8	-27.0%	75.0	56.3	-24.9%	86.2	63.0	-26.9%
Uasin Gishu	57.0	44.6	-21.7%	68.8	51.4	-25.3%	62.1	47.7	-23.2%	71.9	52.0	-27.6%
Trans Nzoia	67.1	50.3	-25.0%	77.7	57.6	-25.9%	71.6	53.5	-25.3%	79.4	58.2	-26.7%

Age group	18-25 years			26-34 years			18-34 years			35-59 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Samburu	85.9	71.8	-16.4%	87.8	63.1	-28.1%	86.6	68.3	-21.1%	89.9	62.9	-30.1%
West Pokot	79.2	58.4	-26.3%	90.2	68.9	-23.6%	83.6	62.8	-24.9%	91.7	70.8	-22.8%
Turkana	89.9	75.6	-15.9%	93.7	77.5	-17.3%	91.4	76.4	-16.4%	95.6	79.7	-16.6%
Kiambu	55.0	45.0	-18.2%	61.7	44.8	-27.4%	58.3	44.9	-23.0%	66.0	49.2	-25.5%
Murang'a	64.5	51.4	-20.3%	79.3	50.3	-36.6%	71.5	50.9	-28.8%	82.7	58.1	-29.7%
Kirinyaga	71.2	50.3	-29.4%	83.9	50.6	-39.7%	77.7	50.4	-35.1%	85.1	58.0	-31.9%
Nyeri	59.4	44.1	-25.8%	75.1	49.2	-34.5%	67.1	46.6	-30.6%	79.3	58.3	-26.5%
Nyandarua	67.1	51.4	-23.4%	82.6	58.6	-29.1%	74.4	54.8	-26.3%	84.8	68.9	-18.7%
Makueni	56.0	48.4	-13.6%	78.8	48.7	-38.2%	66.0	48.5	-26.5%	80.9	50.5	-37.6%
Machakos	60.4	48.9	-19.1%	72.7	46.7	-35.8%	66.1	47.8	-27.7%	77.1	47.7	-38.2%
Kitui	65.0	49.3	-24.2%	83.6	51.7	-38.2%	73.1	50.3	-31.2%	84.2	52.8	-37.3%
Embu	70.9	54.6	-22.9%	80.7	56.0	-30.6%	75.6	55.3	-26.9%	82.3	61.1	-25.8%
Tharaka-Nithi	69.0	49.4	-28.4%	84.7	54.7	-35.4%	76.3	51.9	-32.0%	85.5	60.0	-29.8%
Meru	72.8	55.4	-23.9%	83.1	56.8	-31.6%	77.6	56.1	-27.7%	85.5	61.0	-28.6%
Isiolo	76.4	68.7	-10.1%	80.6	65.3	-19.0%	78.1	67.2	-14.0%	83.0	66.5	-19.8%
Marsabit	83.0	75.6	-8.9%	89.7	72.1	-19.6%	85.6	74.2	-13.3%	91.2	73.5	-19.4%
Mandera	73.3	77.1	5.1%	93.2	77.2	-17.1%	80.8	77.2	-4.5%	94.9	78.6	-17.1%
Wajir	80.4	79.6	-1.0%	94.3	77.4	-17.9%	85.7	78.7	-8.2%	96.0	78.9	-17.8%
Garissa	80.0	78.9	-1.3%	91.0	81.2	-10.8%	84.1	79.8	-5.1%	93.1	83.3	-10.5%
Taita-Taveta	68.6	56.9	-17.1%	78.6	52.9	-32.7%	73.3	54.9	-25.1%	80.6	57.4	-28.7%
Lamu	77.5	59.4	-23.3%	84.0	61.1	-27.3%	80.3	60.2	-25.0%	86.1	66.5	-22.7%
Tana River	85.4	72.5	-15.1%	90.0	72.1	-19.9%	87.3	72.3	-17.2%	89.8	73.0	-18.7%
Kilifi	61.9	50.1	-19.1%	71.1	54.1	-23.9%	65.9	51.9	-21.2%	76.0	56.1	-26.2%
Kwale	69.6	59.3	-14.8%	80.0	58.7	-26.6%	74.2	59.0	-20.5%	82.6	60.3	-26.9%
Mombasa	54.0	49.5	-8.4%	54.6	52.9	-3.1%	54.3	51.3	-5.5%	55.0	52.2	-5.1%

Source: KPHC 2009 and KPHC 2019

Note: All changes in deprivation rates between 2009 and 2019 statistically significant at confidence level 95% (p-value<0.05).

Annex 7. Trends of change in deprivation incidence in ownership of information devices, entire population, 2009 and 2019, entire population

Residence	2009	2019	% Change
National	18.0	5.9	-67.2%
Urban	7.0	1.8	-74.3%
Rural	21.3	7.8	-63.4%
Nairobi City	4.6	0.7	-84.8%
Nyamira	15.2	4.0	-73.7%
Kisii	17.0	4.5	-73.5%
Migori	17.7	5.6	-68.4%
Homa Bay	16.3	3.9	-76.1%
Kisumu	9.8	2.1	-78.6%

Residence	2009	2019	% Change
Siaya	15.6	3.1	-80.1%
Busia	19.7	5.4	-72.6%
Bungoma	17.2	5.6	-67.4%
Vihiga	14.9	3.8	-74.5%
Kakamega	13.6	4.0	-70.6%
Bomet	13.4	4.2	-68.7%
Kericho	12.7	4.9	-61.4%
Kajiado	16.7	4.4	-73.7%
Narok	24.5	7.5	-69.4%
Nakuru	7.8	2.4	-69.2%
Laikipia	14.4	5.3	-63.2%
Baringo	30.4	16.1	-47.0%
Nandi	14.9	4.9	-67.1%
Elgeyo-Marakwet	17.9	8.6	-52.0%
Uasin Gishu	9.4	2.6	-72.3%
Trans Nzoia	14.0	5.1	-63.6%
Samburu	64.0	24.4	-61.9%
West Pokot	57.4	30.3	-47.2%
Turkana	81.6	47.4	-41.9%
Kiambu	5.3	0.8	-84.9%
Murang'a	9.0	1.8	-80.0%
Kirinyaga	8.8	2.3	-73.9%
Nyeri	5.4	1.1	-79.6%
Nyandarua	5.9	1.2	-79.7%
Makueni	10.7	2.5	-76.6%
Machakos	9.8	1.9	-80.6%
Kitui	20.6	4.9	-76.2%
Embu	11.3	2.7	-76.1%
Tharaka-Nithi	15.9	5.3	-66.7%
Meru	16.6	5.7	-65.7%
Isiolo	42.2	10.3	-75.6%
Marsabit	61.4	19.2	-68.7%
Mandera	36.7	15.6	-57.5%
Wajir	40.0	14.2	-64.5%
Garissa	40.0	15.2	-62.0%
Taita-Taveta	11.1	2.4	-78.4%
Lamu	16.9	6.2	-63.3%
Tana River	43.3	15.4	-64.4%
Kilifi	29.6	6.6	-77.7%
Kwale	28.3	7.5	-73.5%
Mombasa	9.4	1.9	-79.8%

Source: KPHC 2009 and KPHC 2019

Note: All changes in deprivation rates between 2009 and 2019 statistically significant at confidence level 95% (p-value<0.05).

Annex 8. Trends of change in deprivation incidence in exposure to media, age 3-17 years, 2009 and 2019

Age group	Age 3 years			Age 4-5 years			Age 6-13 years			Age 14-17 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
National	60.8	88.1	44.9%	64.2	86.4	34.6%	62.4	81.9	31.3%	51.6	67.3	30.4%
Urban	53.3	80.1	50.3%	54.4	76.9	41.4%	49.3	70.7	43.4%	35.4	52.7	48.9%
Rural	62.7	91.3	45.6%	66.5	89.9	35.2%	65.2	85.5	31.1%	55.3	71.8	29.8%
Nairobi City	50.9	74.5	46.4%	51.0	70.0	37.3%	44.0	62.5	42.0%	28.4	41.9	47.5%
Nyamira	53.4	88.6	65.9%	56.8	86.9	53.0%	53.5	82.6	54.4%	42.2	70.4	66.8%
Kisii	57.0	89.4	56.8%	59.9	87.5	46.1%	56.5	83.6	48.0%	45.3	70.7	56.1%
Migori	61.2	91.7	49.8%	64.5	90.3	40.0%	61.6	85.8	39.3%	49.4	71.1	43.9%
Homa Bay	57.8	90.2	56.1%	61.1	88.7	45.2%	58.8	83.1	41.3%	46.3	67.0	44.7%
Kisumu	56.7	88.0	55.2%	58.1	85.7	47.5%	53.3	79.8	49.7%	40.3	63.4	57.3%
Siaya	59.4	90.2	51.9%	61.5	88.8	44.4%	58.2	83.3	43.1%	44.9	67.1	49.4%
Busia	66.2	91.6	38.4%	70.2	90.0	28.2%	68.9	86.6	25.7%	58.7	75.4	28.4%
Bungoma	65.0	91.8	41.2%	69.4	90.8	30.8%	69.2	87.5	26.4%	62.4	76.2	22.1%
Vihiga	60.6	92.1	52.0%	64.3	90.5	40.7%	61.6	86.4	40.3%	51.7	74.0	43.1%
Kakamega	56.4	90.9	61.2%	60.1	89.6	49.1%	58.1	86.0	48.0%	47.8	74.3	55.4%
Bomet	56.4	92.6	64.2%	61.2	91.3	49.2%	59.7	87.1	45.9%	49.3	75.6	53.3%
Kericho	63.0	92.3	46.5%	66.1	90.7	37.2%	63.5	86.5	36.2%	51.7	74.3	43.7%
Kajiado	59.4	87.3	47.0%	62.3	85.1	36.6%	60.1	79.5	32.3%	46.8	60.7	29.7%
Narok	59.4	94.5	59.1%	64.3	93.9	46.0%	65.1	91.4	40.4%	57.3	79.0	37.9%
Nakuru	58.1	86.4	48.7%	59.7	84.3	41.2%	56.0	78.9	40.9%	43.2	63.4	46.8%
Laikipia	59.6	88.2	48.0%	64.6	85.6	32.5%	62.0	79.6	28.4%	49.5	63.3	27.9%
Baringo	74.6	92.1	23.5%	77.4	90.9	17.4%	76.3	88.0	15.3%	67.9	76.6	12.8%
Nandi	61.3	92.3	50.6%	65.5	90.7	38.5%	63.4	87.1	37.4%	51.2	76.3	49.0%
Elgeyo-Marakwet	67.2	92.1	37.1%	68.9	90.9	31.9%	65.9	87.7	33.1%	56.1	77.9	38.9%
Uasin Gishu	49.3	87.8	78.1%	53.3	85.3	60.0%	50.9	80.5	58.2%	40.2	66.6	65.7%
Trans Nzoia	60.4	91.7	51.8%	63.6	90.5	42.3%	61.1	86.9	42.2%	50.2	74.5	48.4%
Samburu	77.5	95.3	23.0%	80.1	94.6	18.1%	80.9	92.9	14.8%	75.6	81.0	7.1%
West Pokot	76.3	95.7	25.4%	80.3	95.0	18.3%	81.8	93.7	14.5%	77.6	85.3	9.9%
Turkana	78.7	95.1	20.8%	82.2	94.4	14.8%	84.5	92.9	9.9%	82.7	86.4	4.5%
Kiambu	49.6	77.1	55.4%	51.1	72.4	41.7%	45.6	65.5	43.6%	31.8	47.0	47.8%
Murang'a	63.5	85.2	34.2%	68.8	81.6	18.6%	68.1	73.5	7.9%	57.8	53.8	-6.9%
Kirinyaga	54.3	81.5	50.1%	54.5	77.3	41.8%	49.3	69.6	41.2%	38.4	49.5	28.9%
Nyeri	49.7	78.7	58.4%	50.6	73.2	44.7%	45.1	64.3	42.6%	32.4	44.4	37.0%
Nyandarua	56.5	83.3	47.4%	61.0	80.0	31.1%	59.0	71.5	21.2%	47.3	54.8	15.9%
Makueni	59.1	88.8	50.3%	60.2	87.1	44.7%	55.2	83.0	50.4%	41.2	70.5	71.1%
Machakos	59.5	86.0	44.5%	62.7	83.8	33.7%	58.7	79.1	34.8%	45.4	65.0	43.2%
Kitui	68.1	89.6	31.6%	70.1	88.4	26.1%	66.0	85.0	28.8%	53.0	71.6	35.1%
Embu	55.9	85.5	53.0%	58.2	82.5	41.8%	54.5	75.6	38.7%	42.6	57.3	34.5%
Tharaka-Nithi	62.3	83.2	33.5%	66.1	80.6	21.9%	62.7	75.3	20.1%	51.0	59.1	15.9%
Meru	58.5	87.6	49.7%	62.3	85.0	36.4%	60.9	80.1	31.5%	50.6	61.2	20.9%
Isiolo	72.5	93.3	28.7%	75.4	92.9	23.2%	74.3	90.2	21.4%	62.6	75.1	20.0%

Age group	Age 3 years			Age 4-5 years			Age 6-13 years			Age 14-17 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Marsabit	75.9	95.3	25.6%	79.5	94.9	19.4%	80.4	93.3	16.0%	74.3	80.9	8.9%
Mandera	74.8	91.0	21.7%	80.5	90.5	12.4%	83.4	87.6	5.0%	80.0	75.0	-6.3%
Wajir	80.1	91.7	14.5%	85.3	90.8	6.4%	87.8	88.3	0.6%	84.7	75.1	-11.3%
Garissa	70.3	88.3	25.6%	75.7	87.7	15.9%	78.5	84.8	8.0%	73.7	71.7	-2.7%
Taita-Taveta	56.5	85.2	50.8%	59.5	82.6	38.8%	56.9	76.6	34.6%	45.1	58.0	28.6%
Lamu	56.5	93.0	64.6%	59.9	90.7	51.4%	56.2	87.3	55.3%	44.9	72.3	61.0%
Tana River	72.6	94.9	30.7%	76.4	94.4	23.6%	76.1	91.9	20.8%	68.9	79.5	15.4%
Kilifi	64.2	91.4	42.4%	67.4	90.0	33.5%	65.0	84.9	30.6%	55.3	70.4	27.3%
Kwale	67.2	92.6	37.8%	68.4	91.4	33.6%	66.0	87.0	31.8%	56.1	72.8	29.8%
Mombasa	58.3	84.2	44.4%	60.4	81.5	34.9%	55.8	75.7	35.7%	41.3	58.8	42.4%

Source: KPHC 2009 and KPHC 2019

Note: All changes in deprivation rates between 2009 and 2019 statistically significant at confidence level 95% (p-value<0.05).

Annex 9. Trends of change in deprivation incidence in exposure to media, age 18+ years, 2009 and 2019

Age group	Age 18-25 years			Age 18-34 years			Age 35-59 years			Age 60+ years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
National	32.3	24.2	-25.1%	29.2	18.4	-36.9%	30.2	12.2	-59.6%	51.9	29.7	-42.8%
Urban	16.2	10.8	-33.3%	13.5	7.6	-43.6%	11.5	4.8	-58.3%	32.9	16.5	-49.8%
Rural	39.5	32.1	-18.7%	36.9	25.6	-30.5%	36.6	16.0	-56.3%	54.3	32.2	-40.7%
Nairobi City	12.3	6.2	-49.6%	10.2	4.3	-58.2%	7.5	2.4	-68.0%	20.3	7.6	-62.8%
Nyamira	27.7	26.0	-6.1%	26.1	19.2	-26.6%	24.7	12.2	-50.6%	44.0	27.6	-37.3%
Kisii	31.0	25.7	-17.1%	28.9	19.1	-34.0%	28.7	12.9	-55.1%	50.3	31.6	-37.2%
Migori	34.0	30.1	-11.5%	31.5	23.4	-25.8%	32.8	14.7	-55.2%	55.9	36.3	-35.1%
Homa Bay	31.1	24.9	-19.9%	28.8	18.7	-35.0%	29.7	10.7	-64.0%	52.4	29.8	-43.1%
Kisumu	22.7	18.5	-18.5%	20.4	13.3	-34.9%	21.5	7.8	-63.7%	46.9	23.0	-51.0%
Siaya	28.7	22.7	-20.9%	26.9	16.8	-37.5%	29.4	10.4	-64.6%	50.5	25.2	-50.1%
Busia	40.8	33.3	-18.4%	37.6	24.8	-34.0%	39.5	14.6	-63.0%	62.7	37.8	-39.7%
Bungoma	47.2	35.2	-25.4%	43.2	26.7	-38.3%	41.3	15.6	-62.2%	62.7	35.0	-44.2%
Vihiga	35.6	29.0	-18.5%	33.5	22.3	-33.4%	33.2	14.6	-56.0%	48.7	24.8	-49.1%
Kakamega	32.8	30.7	-6.4%	30.4	22.7	-25.2%	29.8	12.3	-58.7%	50.5	27.1	-46.3%
Bomet	33.2	28.0	-15.7%	31.2	20.9	-32.9%	34.2	14.4	-57.9%	54.6	33.2	-39.2%
Kericho	32.6	26.3	-19.3%	29.9	20.1	-32.9%	32.9	15.4	-53.2%	57.6	38.0	-34.0%
Kajiado	25.0	16.1	-35.6%	21.5	11.9	-44.5%	21.8	8.3	-61.9%	47.9	26.9	-43.8%
Narok	40.4	34.1	-15.6%	37.8	26.9	-28.9%	39.9	19.5	-51.1%	62.1	45.5	-26.7%
Nakuru	22.8	17.1	-25.0%	20.1	12.5	-37.9%	19.4	7.6	-60.8%	40.9	18.2	-55.5%
Laikipia	28.1	20.9	-25.6%	24.6	15.8	-36.0%	23.5	8.8	-62.6%	46.5	21.1	-54.6%
Baringo	48.0	35.4	-26.3%	44.3	30.0	-32.3%	46.3	23.3	-49.7%	68.4	46.5	-32.0%
Nandi	32.8	29.0	-11.6%	30.5	21.9	-28.3%	33.2	15.7	-52.7%	55.3	37.5	-32.2%
Elgeyo-Marakwet	35.4	30.5	-13.8%	33.0	24.3	-26.5%	41.7	21.9	-47.5%	66.9	52.8	-21.1%
Uasin Gishu	21.9	18.0	-17.8%	19.6	13.3	-32.3%	20.8	9.3	-55.3%	44.5	28.1	-36.9%

Age group	Age 18-25 years			Age 18-34 years			Age 35-59 years			Age 60+ years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Trans Nzoia	34.1	30.5	-10.6%	31.1	23.1	-25.6%	31.3	13.8	-55.9%	53.4	30.3	-43.3%
Samburu	64.5	49.4	-23.4%	62.9	42.6	-32.3%	67.2	35.1	-47.8%	79.3	63.0	-20.6%
West Pokot	67.1	54.1	-19.4%	65.4	48.9	-25.3%	70.3	48.2	-31.4%	82.2	76.0	-7.5%
Turkana	78.5	66.7	-15.0%	77.7	62.7	-19.3%	80.6	59.5	-26.2%	83.0	79.2	-4.6%
Kiambu	14.1	7.1	-49.6%	12.5	5.2	-58.3%	12.7	4.2	-66.9%	35.7	14.6	-59.1%
Murang'a	34.4	13.4	-61.0%	31.1	10.8	-65.4%	29.7	8.4	-71.7%	54.0	19.6	-63.7%
Kirinyaga	22.7	11.3	-50.2%	20.8	9.1	-56.4%	23.1	7.7	-66.7%	51.5	24.3	-52.8%
Nyeri	15.3	8.6	-43.8%	13.7	6.5	-52.4%	14.3	4.8	-66.4%	35.9	14.6	-59.3%
Nyandarua	25.1	14.5	-42.2%	21.8	10.7	-50.8%	17.7	5.3	-70.1%	37.4	13.5	-63.9%
Makueni	24.4	23.3	-4.5%	23.0	17.1	-25.7%	23.9	9.5	-60.3%	43.5	26.5	-39.1%
Machakos	25.3	17.0	-32.8%	23.1	12.5	-45.8%	23.3	8.4	-63.9%	45.9	23.6	-48.6%
Kitui	36.6	26.9	-26.5%	35.1	20.8	-40.9%	35.9	12.3	-65.7%	56.0	34.7	-38.0%
Embu	25.1	14.8	-41.0%	23.6	11.9	-49.5%	26.7	9.8	-63.3%	51.1	28.5	-44.2%
Tharaka-Nithi	33.4	19.3	-42.2%	31.5	15.1	-52.2%	36.1	13.1	-63.7%	59.6	34.8	-41.6%
Meru	32.5	20.9	-35.7%	29.4	17.1	-41.7%	32.4	15.1	-53.4%	57.2	38.2	-33.2%
Isiolo	50.0	36.4	-27.2%	47.3	29.9	-36.9%	49.7	21.0	-57.7%	69.3	37.6	-45.7%
Marsabit	66.1	49.3	-25.4%	65.6	43.0	-34.5%	66.6	32.3	-51.5%	76.5	54.8	-28.4%
Mandera	72.8	50.9	-30.1%	72.2	45.7	-36.8%	69.1	34.9	-49.5%	70.3	40.4	-42.5%
Wajir	78.2	51.6	-34.0%	78.2	46.1	-41.1%	79.0	36.3	-54.1%	78.4	42.5	-45.8%
Garissa	61.8	50.5	-18.3%	61.0	45.2	-25.9%	61.3	34.5	-43.7%	64.8	41.4	-36.1%
Taita-Taveta	27.3	14.7	-46.2%	25.8	11.3	-56.0%	29.3	9.1	-68.9%	47.5	22.5	-52.6%
Lamu	31.3	26.5	-15.3%	29.5	21.4	-27.5%	28.9	16.1	-44.3%	45.8	35.2	-23.1%
Tana River	59.0	40.0	-32.2%	56.7	34.8	-38.7%	56.8	26.4	-53.5%	68.4	47.0	-31.3%
Kilifi	39.2	29.0	-26.0%	36.0	22.5	-37.4%	40.0	15.5	-61.3%	60.1	40.7	-32.3%
Kwale	42.4	32.4	-23.6%	39.7	25.7	-35.4%	41.6	16.5	-60.3%	59.2	39.1	-34.0%
Mombasa	21.0	13.2	-37.1%	17.7	9.5	-46.2%	14.6	5.8	-60.3%	33.9	18.9	-44.2%

Source: KPHC 2009 and KPHC 2019

Note: All changes in deprivation rates between 2009 and 2019 statistically significant at confidence level 95% (p-value<0.05).

Annex 10. Trends of change in deprivation incidence in water and sanitation, entire population, 2009 and 2019

Dimension and indicator	Water: Water source			Sanitation: Toilet type		
Residence	2009	2019	% Change	2009	2019	% Change
National	47.4	38.4	-19.0%	38.8	21.2	-45.4%
Urban	21.6	21.4	-0.9%	17.3	7.4	-57.2%
Rural	55.3	46.0	-16.8%	45.5	27.3	-40.0%
Nairobi City	16.3	14.7	-9.8%	12.1	3.2	-73.6%
Nyamira	51.7	48.9	-5.4%	33.2	24.0	-27.7%
Kisii	49.4	48.3	-2.2%	36.0	25.4	-29.4%
Migori	71.9	56.1	-22.0%	47.6	24.9	-47.7%
Homa Bay	72.2	49.1	-32.0%	58.5	25.3	-56.8%
Kisumu	46.3	28.4	-38.7%	43.0	14.5	-66.3%

Dimension and indicator	Water: Water source			Sanitation: Toilet type		
Residence	2009	2019	% Change	2009	2019	% Change
Siaya	64.2	45.7	-28.8%	51.3	17.7	-65.5%
Busia	38.9	26.4	-32.1%	38.7	17.7	-54.3%
Bungoma	28.2	20.2	-28.4%	28.2	16.7	-40.8%
Vihiga	36.7	32.0	-12.8%	13.5	9.0	-33.3%
Kakamega	38.9	27.9	-28.3%	16.0	10.6	-33.8%
Bomet	74.5	63.1	-15.3%	33.5	14.4	-57.0%
Kericho	58.7	56.8	-3.2%	36.2	16.4	-54.7%
Kajiado	33.8	33.5	-0.9%	44.6	25.5	-42.8%
Narok	79.9	72.2	-9.6%	65.0	42.0	-35.4%
Nakuru	40.4	30.3	-25.0%	24.2	11.9	-50.8%
Laikipia	49.7	39.4	-20.7%	31.3	21.5	-31.3%
Baringo	76.4	67.9	-11.1%	60.7	42.1	-30.6%
Nandi	64.0	56.0	-12.5%	27.8	13.3	-52.2%
Elgeyo-Marakwet	63.0	56.8	-9.8%	48.7	30.3	-37.8%
Uasin Gishu	25.7	20.5	-20.2%	22.2	10.0	-55.0%
Trans Nzoia	34.9	25.2	-27.8%	25.4	16.0	-37.0%
Samburu	66.3	66.3	0.0%	80.6	73.5	-8.8%
West Pokot	75.6	69.0	-8.7%	72.6	49.7	-31.5%
Turkana	61.2	54.5	-10.9%	91.7	78.2	-14.7%
Kiambu	25.0	13.9	-44.4%	20.2	3.6	-82.2%
Murang'a	58.7	34.9	-40.5%	32.1	5.7	-82.2%
Kirinyaga	47.0	31.9	-32.1%	17.1	4.1	-76.0%
Nyeri	35.7	17.9	-49.9%	25.8	5.3	-79.5%
Nyandarua	41.2	23.2	-43.7%	26.6	6.9	-74.1%
Makueni	64.3	56.7	-11.8%	44.1	15.1	-65.8%
Machakos	63.5	43.6	-31.3%	39.0	11.8	-69.7%
Kitui	73.6	63.1	-14.3%	47.6	22.2	-53.4%
Embu	51.3	34.0	-33.7%	35.3	9.6	-72.8%
Tharaka-Nithi	54.2	44.3	-18.3%	40.0	13.8	-65.5%
Meru	40.7	38.8	-4.7%	21.8	10.6	-51.4%
Isiolo	41.1	36.4	-11.4%	59.9	39.6	-33.9%
Marsabit	61.8	53.0	-14.2%	73.0	58.4	-20.0%
Mandera	62.1	62.5	0.6%	83.6	64.7	-22.6%
Wajir	54.1	51.2	-5.4%	92.8	70.6	-23.9%
Garissa	49.1	50.1	2.0%	77.7	58.8	-24.3%
Taita-Taveta	36.4	31.5	-13.5%	33.0	15.1	-54.2%
Lamu	47.4	32.2	-32.1%	43.3	35.7	-17.6%
Tana River	58.4	46.8	-19.9%	78.3	61.4	-21.6%
Kilifi	36.3	32.9	-9.4%	58.3	32.5	-44.3%
Kwale	52.8	49.3	-6.6%	70.3	47.6	-32.3%
Mombasa	24.2	43.1	78.1%	18.3	8.7	-52.5%

Source: KPHC 2009 and KPHC 2019

Note: All changes in deprivation rates between 2009 and 2019 statistically significant at confidence level 95% (p-value<0.05) except for change in deprivation in access to safe drinking water in Samburu.

Annex 11. Trends of change in deprivation incidence in housing material, lighting source, cooking fuel and the housing and energy dimension, entire population, 2009 and 2019

Indicators and dimensions	Housing material			Lighting source			Cooking fuel			Housing and Energy		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
National	67.1	60.5	-9.8%	79.0	32.5	-58.9%	94.9	80.6	-15.1%	95.4	83.9	-12.1%
Urban	27.8	29.1	4.7%	38.0	8.8	-76.8%	81.3	47.2	-41.9%	82.5	54.8	-33.5%
Rural	79.1	74.5	-5.8%	91.6	43.2	-52.8%	99.0	95.5	-3.5%	99.4	96.8	-2.7%
Nairobi City	28.5	26.3	-7.7%	23.7	2.1	-91.1%	69.4	26.0	-62.5%	71.1	37.8	-46.8%
Nyamira	78.1	74.2	-5.0%	93.1	38.8	-58.3%	99.0	92.1	-7.0%	99.4	94.5	-5.0%
Kisii	80.0	73.9	-7.6%	91.5	38.8	-57.6%	98.6	88.8	-9.9%	99.0	91.7	-7.4%
Migori	74.9	71.4	-4.7%	93.6	33.4	-64.3%	98.8	94.1	-4.8%	99.3	95.5	-3.8%
Homa Bay	79.3	76.0	-4.2%	95.3	25.7	-73.0%	99.2	94.7	-4.5%	99.6	96.5	-3.2%
Kisumu	59.6	61.2	2.7%	80.4	18.7	-76.7%	95.8	83.4	-12.9%	96.4	86.9	-9.8%
Siaya	71.3	68.5	-3.9%	94.3	24.4	-74.1%	99.2	95.0	-4.2%	99.6	96.1	-3.5%
Busia	77.7	72.4	-6.8%	94.0	33.0	-64.9%	99.3	95.2	-4.1%	99.6	96.2	-3.4%
Bungoma	81.6	78.7	-3.6%	95.2	39.8	-58.2%	99.0	94.5	-4.5%	99.4	95.9	-3.5%
Vihiga	79.7	77.3	-3.0%	91.7	36.9	-59.8%	98.9	94.4	-4.6%	99.4	95.8	-3.6%
Kakamega	82.3	80.1	-2.7%	93.6	34.9	-62.7%	98.6	94.2	-4.5%	99.0	95.8	-3.2%
Bomet	80.1	71.2	-11.1%	92.7	44.0	-52.5%	99.3	96.1	-3.2%	99.6	97.0	-2.6%
Kericho	71.5	67.8	-5.2%	87.4	33.9	-61.2%	98.6	93.4	-5.3%	98.9	94.7	-4.3%
Kajiado	63.4	54.8	-13.6%	63.8	19.0	-70.2%	86.2	56.4	-34.6%	87.8	66.7	-24.1%
Narok	89.4	85.4	-4.5%	94.3	42.4	-55.0%	99.0	93.9	-5.2%	99.4	95.9	-3.5%
Nakuru	54.5	49.0	-10.1%	66.9	21.7	-67.6%	94.8	74.7	-21.2%	95.2	77.2	-18.9%
Laikipia	71.9	64.9	-9.7%	78.3	32.2	-58.9%	96.7	83.2	-14.0%	97.1	85.8	-11.7%
Baringo	78.7	78.6	-0.1%	89.2	50.0	-43.9%	99.3	97.1	-2.2%	99.6	98.0	-1.6%
Nandi	72.2	72.7	0.7%	92.5	38.1	-58.8%	99.1	95.9	-3.2%	99.4	96.8	-2.7%
Elgeyo-Marakwet	78.4	76.5	-2.4%	91.2	46.4	-49.1%	99.5	97.6	-1.9%	99.7	98.5	-1.2%
Uasin Gishu	57.5	56.1	-2.4%	74.8	22.0	-70.6%	95.4	81.0	-15.1%	95.8	83.9	-12.4%
Trans Nzoia	75.8	73.2	-3.4%	90.8	36.3	-60.0%	98.7	93.3	-5.5%	99.2	94.6	-4.6%
Samburu	85.6	82.6	-3.5%	92.8	73.5	-20.8%	99.4	96.2	-3.2%	99.6	97.1	-2.5%
West Pokot	88.3	89.3	1.1%	96.8	71.8	-25.8%	99.6	97.8	-1.8%	99.8	98.7	-1.1%
Turkana	95.4	93.2	-2.3%	97.5	85.7	-12.1%	99.6	98.2	-1.4%	99.8	99.0	-0.8%
Kiambu	43.0	33.0	-23.3%	45.5	5.7	-87.5%	85.3	42.5	-50.2%	86.9	52.0	-40.2%
Murang'a	66.0	52.5	-20.5%	84.9	27.6	-67.5%	97.7	85.1	-12.9%	98.2	87.2	-11.2%
Kirinyaga	62.5	45.5	-27.2%	80.6	22.6	-72.0%	96.5	78.3	-18.9%	97.1	81.4	-16.2%
Nyeri	59.4	45.0	-24.2%	70.3	17.0	-75.8%	95.0	79.6	-16.2%	95.5	81.9	-14.3%
Nyandarua	73.5	63.5	-13.6%	84.4	28.2	-66.6%	98.9	90.6	-8.4%	99.3	92.2	-7.1%
Makueni	57.2	42.9	-25.0%	91.7	34.2	-62.7%	99.3	93.9	-5.4%	99.6	94.7	-4.9%
Machakos	47.7	35.6	-25.4%	82.9	25.6	-69.1%	96.3	74.9	-22.2%	96.9	78.1	-19.4%
Kitui	70.3	59.4	-15.5%	93.0	45.9	-50.6%	99.3	95.2	-4.1%	99.6	95.8	-3.8%
Embu	62.5	47.7	-23.7%	83.3	29.5	-64.6%	97.2	84.5	-13.1%	97.6	86.1	-11.8%
Tharaka-Nithi	69.4	59.6	-14.1%	85.6	48.2	-43.7%	98.7	92.6	-6.2%	99.1	93.3	-5.9%
Meru	63.4	52.7	-16.9%	82.6	40.9	-50.5%	98.1	90.2	-8.1%	98.6	91.5	-7.2%

Indicators and dimensions	Housing material			Lighting source			Cooking fuel			Housing and Energy		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Isiolo	75.1	73.9	-1.6%	80.6	51.9	-35.6%	98.1	89.6	-8.7%	98.4	91.7	-6.8%
Marsabit	82.3	77.1	-6.3%	87.6	62.6	-28.5%	99.5	96.2	-3.3%	99.7	97.2	-2.5%
Mandera	92.8	87.8	-5.4%	86.5	71.4	-17.5%	99.5	97.3	-2.2%	99.9	99.3	-0.6%
Wajir	93.2	88.2	-5.4%	86.2	71.4	-17.2%	99.4	96.1	-3.3%	99.8	98.7	-1.1%
Garissa	79.1	81.8	3.4%	72.7	60.9	-16.2%	98.8	93.6	-5.3%	99.1	97.6	-1.5%
Taita-Taveta	59.8	47.5	-20.6%	83.9	24.3	-71.0%	98.5	88.3	-10.4%	98.8	89.4	-9.6%
Lamu	76.8	72.2	-6.0%	78.0	26.7	-65.8%	98.5	93.1	-5.5%	99.1	94.8	-4.3%
Tana River	90.7	86.1	-5.1%	95.6	54.5	-43.0%	99.5	97.5	-2.0%	99.9	98.5	-1.4%
Kilifi	77.5	69.5	-10.3%	87.6	44.3	-49.4%	97.6	92.4	-5.3%	98.1	93.3	-4.9%
Kwale	81.0	73.0	-9.9%	91.5	46.9	-48.7%	98.6	94.4	-4.3%	99.0	95.2	-3.9%
Mombasa	17.0	20.3	19.4%	37.6	11.0	-70.7%	86.7	59.5	-31.4%	87.2	62.6	-28.2%

Source: KPHC 2009 and KPHC 2019

Note: All changes in deprivation rates between 2009 and 2019 statistically significant at confidence level 95% (p-value<0.05) except for the change in housing material deprivation in Baringo.

Annex 12. Trends of change in deprivation incidence in school attendance, age 14-17 years, by sex and county of residence, 2009 and 2019

County	KPHC 2009				KPHC 2019			
	Girls	Boys	Change between 2009 and 2019	P-value	Girls	Boys	Change between 2009 and 2019	P-value
Mombasa	27.5	15.9	42.2%	0.000	11.7	7.7	34.2%	0.000
Kwale	22.4	14.7	34.4%	0.000	15.5	14.1	9.0%	0.000
Kilifi	17.9	11.6	35.2%	0.000	8.3	7.0	15.7%	0.000
Tana River	52.4	37.3	28.8%	0.000	36.7	35.2	4.1%	0.010
Lamu	23.2	18.2	21.6%	0.000	14.3	13.7	4.2%	0.353
Taita-Taveta	16.2	14.2	12.3%	0.000	9.2	10.0	-8.7%	0.035
Garissa	67.1	61.1	8.9%	0.000	71.1	70.7	0.6%	0.160
Wajir	67.6	63.5	6.1%	0.000	69.6	68.2	2.0%	0.000
Mandera	58.1	53.5	7.9%	0.000	66.5	63.0	5.3%	0.000
Marsabit	52.2	47.9	8.2%	0.000	50.7	58.9	-16.2%	0.000
Isiolo	37.5	34.4	8.3%	0.000	35.8	46.0	-28.5%	0.000
Meru	18.5	21.3	-15.1%	0.000	10.6	14.2	-34.0%	0.000
Tharaka-Nithi	11.4	13.5	-18.4%	0.000	6.3	7.5	-19.0%	0.000
Embu	11.9	15.0	-26.1%	0.000	6.0	8.2	-36.7%	0.000
Kitui	10.3	10.8	-4.9%	0.005	6.4	7.0	-9.4%	0.000
Machakos	10.9	11.5	-5.5%	0.004	5.7	6.6	-15.8%	0.000
Makueni	8.4	10.2	-21.4%	0.000	4.0	5.1	-27.5%	0.000
Nyandarua	10.6	13.7	-29.2%	0.000	3.9	6.5	-66.7%	0.000
Nyeri	9.2	10.0	-8.7%	0.001	3.1	3.7	-19.4%	0.000
Kirinyaga	12.7	13.9	-9.4%	0.000	5.1	5.4	-5.9%	0.133
Murang'a	10.6	11.6	-9.4%	0.000	4.9	6.5	-32.7%	0.000
Kiambu	15.2	12.1	20.4%	0.000	5.5	5.5	0.0%	0.787

County	KPHC 2009				KPHC 2019			
	Girls	Boys	Change between 2009 and 2019	P-value	Girls	Boys	Change between 2009 and 2019	P-value
Turkana	77.5	76.0	1.9%	0.000	60.6	64.9	-7.1%	0.000
West Pokot	37.6	37.3	0.8%	0.521	21.3	23.6	-10.8%	0.000
Samburu	59.9	52.9	11.7%	0.000	43.1	47.8	-10.9%	0.000
Trans Nzoia	14.4	13.1	9.0%	0.000	6.6	6.6	0.0%	0.534
Uasin Gishu	13.2	11.3	14.4%	0.000	4.8	4.7	2.1%	0.188
Elgeyo-Marakwet	8.5	8.6	-1.2%	0.906	5.4	6.5	-20.4%	0.000
Nandi	12.2	10.1	17.2%	0.000	4.4	4.2	4.5%	0.424
Baringo	21.4	25.8	-20.6%	0.000	19.1	22.5	-17.8%	0.000
Laikipia	16.2	15.3	5.6%	0.039	10.6	13.0	-22.6%	0.000
Nakuru	15.0	13.3	11.3%	0.000	5.8	6.7	-15.5%	0.000
Narok	26.3	22.3	15.2%	0.000	12.3	14.4	-17.1%	0.000
Kajiado	24.7	19.8	19.8%	0.000	11.8	12.6	-6.8%	0.001
Kericho	14.5	10.0	31.0%	0.000	5.9	5.4	8.5%	0.001
Bomet	13.0	10.1	22.3%	0.000	5.4	4.9	9.3%	0.000
Kakamega	14.6	11.4	21.9%	0.000	6.1	6.4	-4.9%	0.023
Vihiga	12.4	11.0	11.3%	0.000	4.5	5.6	-24.4%	0.000
Bungoma	11.2	8.0	28.6%	0.000	6.9	6.5	5.8%	0.000
Busia	15.7	9.6	38.9%	0.000	7.9	7.3	7.6%	0.001
Siaya	18.6	12.6	32.3%	0.000	5.7	5.4	5.3%	0.039
Kisumu	19.5	10.8	44.6%	0.000	5.5	5.0	9.1%	0.000
Homa Bay	17.9	7.7	57.0%	0.000	6.5	4.7	27.7%	0.000
Migori	20.0	9.4	53.0%	0.000	9.1	7.0	23.1%	0.000
Kisii	13.8	7.6	44.9%	0.000	6.8	5.6	17.6%	0.000
Nyamira	13.5	8.4	37.8%	0.000	6.3	5.4	14.3%	0.000
Nairobi City	24.5	13.7	44.1%	0.000	5.7	8.3	-45.6%	0.000

Source: KPHC 2009 and KPHC 2019

Annex 13. Trends of change in deprivation incidence in secondary school completion, age 18-34 years, by sex and county of residence, 2009 and 2019

County	KPHC 2009				KPHC 2019			
	Women	Men	Difference between women and men	P-value	Women	Men	Difference between women and men	P-value
Mombasa	67.3	64.4	4.3%	0.000	49.7	43.8	11.9%	0.000
Kwale	90.5	86.5	4.4%	0.000	73.7	70.6	4.2%	0.000
Kilifi	88.3	84.0	4.9%	0.000	71.1	67.2	5.5%	0.000
Tana River	94.7	90.5	4.4%	0.000	75.6	65.5	13.4%	0.000
Lamu	90.1	86.7	3.8%	0.000	71.9	65.6	8.8%	0.000
Taita-Taveta	81.2	79.8	1.7%	0.000	57.3	56.2	1.9%	0.002
Garissa	94.8	90.4	4.6%	0.000	63.9	58.8	8.0%	0.000
Wajir	97.1	93.8	3.4%	0.000	62.6	57.1	8.8%	0.000

County	KPHC 2009				KPHC 2019			
	Women	Men	Difference between women and men	P-value	Women	Men	Difference between women and men	P-value
Mandera	97.4	94.7	2.8%	0.000	66.6	60.1	9.8%	0.000
Marsabit	95.5	90.4	5.3%	0.000	56.8	51.6	9.2%	0.000
Isiolo	86.1	81.7	5.1%	0.000	56.5	51.5	8.8%	0.000
Meru	83.7	84.7	-1.2%	0.000	62.1	62.9	-1.3%	0.000
Tharaka-Nithi	81.7	82.5	-1.0%	0.002	58.0	58.2	-0.3%	0.366
Embu	76.0	79.0	-3.9%	0.000	53.3	57.4	-7.7%	0.000
Kitui	87.9	86.4	1.7%	0.000	66.3	64.6	2.6%	0.000
Machakos	75.0	75.1	-0.1%	0.682	48.8	49.1	-0.6%	0.081
Makueni	82.6	82.8	-0.2%	0.162	58.2	59.3	-1.9%	0.000
Nyandarua	79.5	79.4	0.1%	0.599	55.0	56.8	-3.3%	0.000
Nyeri	67.3	69.9	-3.9%	0.000	38.1	41.2	-8.1%	0.000
Kirinyaga	77.0	78.7	-2.2%	0.000	50.5	50.7	-0.4%	0.429
Murang'a	78.7	78.1	0.8%	0.000	52.3	53.7	-2.7%	0.000
Kiambu	60.0	60.1	-0.2%	0.290	34.2	32.4	5.3%	0.000
Turkana	97.1	95.3	1.9%	0.000	68.2	61.0	10.6%	0.000
West Pokot	94.1	91.1	3.2%	0.000	71.8	66.8	7.0%	0.000
Samburu	94.3	89.4	5.2%	0.000	60.7	53.9	11.2%	0.000
Trans Nzoia	82.6	81.0	1.9%	0.000	64.9	62.6	3.5%	0.000
Uasin Gishu	69.5	69.7	-0.3%	0.264	45.9	45.6	0.7%	0.087
Elgeyo-Marakwet	80.6	78.8	2.2%	0.000	61.0	60.0	1.6%	0.000
Nandi	83.0	82.3	0.8%	0.000	63.8	62.0	2.8%	0.000
Baringo	80.3	79.1	1.5%	0.000	52.2	51.0	2.3%	0.000
Laikipia	76.6	75.6	1.3%	0.000	49.5	49.6	-0.2%	0.695
Nakuru	72.3	70.2	2.9%	0.000	51.5	48.9	5.0%	0.000
Narok	90.9	86.8	4.5%	0.000	69.8	63.8	8.6%	0.000
Kajiado	70.1	67.9	3.1%	0.000	42.1	38.7	8.1%	0.000
Kericho	79.2	76.3	3.7%	0.000	61.1	56.6	7.4%	0.000
Bomet	83.0	79.8	3.9%	0.000	64.1	57.9	9.7%	0.000
Kakamega	84.4	82.7	2.0%	0.000	66.8	64.6	3.3%	0.000
Vihiga	82.6	82.0	0.7%	0.016	62.6	62.5	0.2%	0.703
Bungoma	83.7	81.8	2.3%	0.000	65.5	62.7	4.3%	0.000
Busia	87.9	84.2	4.2%	0.000	70.7	66.3	6.2%	0.000
Siaya	88.7	84.7	4.5%	0.000	71.3	66.3	7.0%	0.000
Kisumu	78.0	72.8	6.7%	0.000	58.5	51.3	12.3%	0.000
Homa Bay	88.3	81.8	7.4%	0.000	69.7	59.3	14.9%	0.000
Migori	89.0	83.4	6.3%	0.000	71.5	62.0	13.3%	0.000
Kisii	75.1	71.9	4.3%	0.000	57.9	51.5	11.1%	0.000
Nyamira	72.0	70.5	2.1%	0.000	56.4	51.4	8.9%	0.000
Nairobi City	53.1	49.7	6.4%	0.000	35.4	27.9	21.2%	0.000

Source: KPHC 2009 and KPHC 2019

Note: In 2009, differences in deprivation rates between women and men insignificant in Machakos, Makueni, Nyandarua, Kiambu, and Uasin Gishu. In 2019, differences insignificant in the following counties: Tharaka-Nithi, Machakos, Kirinyaga, Uasin Gishu, Laikipia, and Vihiga.

Annex 14. Trends of change in deprivation incidence in the child protection dimension, age 6-13 years, by sex and county of residence, 2009 and 2019

County	KPHC 2009				KPHC 2019			
	Girls	Boys	Difference between girls and boys	P-value	Girls	Boys	Difference between girls and boys	P-value
Mombasa	14.0	13.5	3.6%	0.002	1.7	1.6	5.9%	0.452
Kwale	29.7	29.5	0.7%	0.283	8.0	8.5	-6.3%	0.000
Kilifi	36.9	36.4	1.4%	0.014	4.6	4.8	-4.3%	0.000
Tana River	61.5	59.0	4.1%	0.000	23.9	24.2	-1.3%	0.389
Lamu	41.3	42.1	-1.9%	0.284	8.1	9.0	-11.1%	0.003
Taita-Taveta	34.1	35.0	-2.6%	0.033	2.7	3.1	-14.8%	0.002
Garissa	69.8	68.9	1.3%	0.001	32.2	32.4	-0.6%	0.220
Wajir	67.3	65.6	2.5%	0.000	38.9	38.2	1.8%	0.001
Mandera	58.6	58.1	0.9%	0.003	37.5	36.7	2.1%	0.000
Marsabit	62.3	61.0	2.1%	0.000	32.7	36.5	-11.6%	0.000
Isiolo	36.9	38.3	-3.8%	0.011	24.5	27.4	-11.8%	0.000
Meru	37.7	38.4	-1.9%	0.000	3.9	4.7	-20.5%	0.000
Tharaka-Nithi	41.0	41.6	-1.5%	0.072	3.9	4.3	-10.3%	0.006
Embu	39.7	40.1	-1.0%	0.128	3.3	4.1	-24.2%	0.000
Kitui	41.5	42.4	-2.2%	0.000	3.8	4.3	-13.2%	0.000
Machakos	27.4	27.9	-1.8%	0.013	2.5	2.8	-12.0%	0.000
Makueni	16.5	17.4	-5.5%	0.000	2.4	2.7	-12.5%	0.000
Nyandarua	19.9	20.2	-1.5%	0.180	2.3	2.8	-21.7%	0.000
Nyeri	16.7	17.1	-2.4%	0.146	1.8	2.0	-11.1%	0.009
Kirinyaga	21.0	21.3	-1.4%	0.306	2.2	2.3	-4.5%	0.217
Murang'a	22.7	22.9	-0.9%	0.420	2.1	2.3	-9.5%	0.009
Kiambu	10.7	10.8	-0.9%	0.104	1.3	1.4	-7.7%	0.494
Turkana	83.8	83.2	0.7%	0.000	34.6	36.0	-4.0%	0.000
West Pokot	60.8	61.7	-1.5%	0.001	22.5	23.6	-4.9%	0.000
Samburu	69.5	68.5	1.4%	0.012	38.5	39.2	-1.8%	0.053
Trans Nzoia	28.6	29.4	-2.8%	0.000	3.2	3.7	-15.6%	0.000
Uasin Gishu	18.1	18.4	-1.7%	0.062	2.1	2.2	-4.8%	0.070
Elgeyo-Marakwet	37.5	38.4	-2.4%	0.005	4.1	4.3	-4.9%	0.085
Nandi	28.1	29.0	-3.2%	0.000	2.8	3.2	-14.3%	0.000
Baringo	47.9	49.0	-2.3%	0.000	17.3	18.4	-6.4%	0.000
Laikipia	27.5	27.6	-0.4%	0.787	8.4	9.1	-8.3%	0.000
Nakuru	28.7	29.3	-2.1%	0.000	2.5	2.9	-16.0%	0.000
Narok	52.8	52.7	0.2%	0.836	11.3	13.1	-15.9%	0.000
Kajiado	28.1	27.3	2.8%	0.001	7.4	7.8	-5.4%	0.000
Kericho	27.9	28.5	-2.2%	0.017	3.4	3.7	-8.8%	0.000
Bomet	29.4	29.5	-0.3%	0.766	3.0	3.5	-16.7%	0.000
Kakamega	37.2	38.0	-2.2%	0.000	3.5	4.0	-14.3%	0.000
Vihiga	24.3	25.5	-4.9%	0.000	2.4	2.8	-16.7%	0.000

County	KPHC 2009				KPHC 2019			
	Girls	Boys	Difference between girls and boys	P-value	Girls	Boys	Difference between girls and boys	P-value
Bungoma	39.9	40.8	-2.3%	0.000	4.9	5.5	-12.2%	0.000
Busia	44.4	44.7	-0.7%	0.122	4.1	4.9	-19.5%	0.000
Siaya	37.3	37.9	-1.6%	0.005	2.6	3.0	-15.4%	0.000
Kisumu	19.5	20.2	-3.6%	0.000	2.0	2.2	-10.0%	0.000
Homa Bay	38.9	39.3	-1.0%	0.039	3.3	3.5	-6.1%	0.003
Migori	36.7	37.2	-1.4%	0.008	4.1	4.4	-7.3%	0.000
Kisii	25.3	25.3	0.0%	0.944	3.1	3.2	-3.2%	0.005
Nyamira	18.5	18.5	0.0%	0.850	3.0	3.1	-3.3%	0.478
Nairobi City	16.0	15.6	2.5%	0.000	1.3	1.3	0.0%	0.006

Source: KPHC 2009 and KPHC 2019

Note: In 2009, differences in deprivation rates between girls and boys insignificant in Kwale, Lamu, Tharaka-Nithi, Embu, Nyandarua, Nyeri, Kirinyaga, Murang'a, Kiambu, Uasin Gishu, Laikipia, Narok, Bomet, Busia, Kisii, and Nyamira. In 2019, differences between girls and boys insignificant in Mombasa, Tana River, Garissa, Kirinyaga, Kiambu, Samburu, Uasin Gishu, Elgeyo-Marakwet, and Nyamira.

Annex 15. Trends of change in deprivation incidence in economic activity, age 18-59 years, by sex and county of residence, 2009 and 2019

County	KPHC 2009				KPHC 2019			
	Women	Men	Difference between women and men	P-value	Women	Men	Difference between women and men	P-value
Mombasa	74.3	42.2	43.2%	0.000	67.8	39.7	41.4%	0.000
Kwale	92.7	72.3	22.0%	0.000	68.3	52.5	23.1%	0.000
Kilifi	88.3	62.2	29.6%	0.000	65.5	45.9	29.9%	0.000
Tana River	95.2	84.4	11.3%	0.000	77.2	68.8	10.9%	0.000
Lamu	95.0	78.3	17.6%	0.000	75.9	58.3	23.2%	0.000
Taita-Taveta	87.7	73.6	16.1%	0.000	65.1	50.3	22.7%	0.000
Garissa	97.0	89.9	7.3%	0.000	86.3	80.7	6.5%	0.000
Wajir	98.4	94.0	4.5%	0.000	80.6	77.6	3.7%	0.000
Mandera	98.1	92.1	6.1%	0.000	81.2	76.3	6.0%	0.000
Marsabit	96.6	86.0	11.0%	0.000	76.6	70.8	7.6%	0.000
Isiolo	90.6	75.9	16.2%	0.000	70.7	62.8	11.2%	0.000
Meru	90.3	80.8	10.5%	0.000	65.3	56.9	12.9%	0.000
Tharaka-Nithi	90.1	80.8	10.3%	0.000	64.3	55.7	13.4%	0.000
Embu	87.3	77.0	11.8%	0.000	65.6	56.6	13.7%	0.000
Kitui	89.3	77.5	13.2%	0.000	57.8	46.9	18.9%	0.000
Machakos	86.2	67.2	22.0%	0.000	55.4	40.2	27.4%	0.000
Makueni	88.4	71.7	18.9%	0.000	56.2	44.3	21.2%	0.000
Nyandarua	90.3	78.5	13.1%	0.000	75.9	61.3	19.2%	0.000
Nyeri	85.5	72.3	15.4%	0.000	64.9	51.4	20.8%	0.000
Kirinyaga	89.4	80.9	9.5%	0.000	62.7	53.3	15.0%	0.000

County	KPHC 2009				KPHC 2019			
	Women	Men	Difference between women and men	P-value	Women	Men	Difference between women and men	P-value
Murang'a	89.3	74.9	16.1%	0.000	65.6	50.5	23.0%	0.000
Kiambu	75.7	57.0	24.7%	0.000	57.9	40.7	29.7%	0.000
Turkana	97.8	93.2	4.7%	0.000	83.0	76.4	8.0%	0.000
West Pokot	95.4	87.7	8.1%	0.000	73.4	68.2	7.1%	0.000
Samburu	95.3	83.8	12.1%	0.000	67.9	57.6	15.2%	0.000
Trans Nzoia	86.6	71.9	17.0%	0.000	64.3	51.8	19.4%	0.000
Uasin Gishu	81.8	62.9	23.1%	0.000	57.5	46.9	18.4%	0.000
Elgeyo-Marakwet	91.9	80.5	12.4%	0.000	66.0	60.1	8.9%	0.000
Nandi	86.8	70.6	18.7%	0.000	56.9	49.1	13.7%	0.000
Baringo	89.0	76.9	13.6%	0.000	64.8	56.6	12.7%	0.000
Laikipia	86.0	67.7	21.3%	0.000	64.2	50.9	20.7%	0.000
Nakuru	80.1	61.3	23.5%	0.000	62.7	47.4	24.4%	0.000
Narok	93.8	83.5	11.0%	0.000	71.5	63.9	10.6%	0.000
Kajiado	79.1	62.1	21.5%	0.000	59.8	45.6	23.7%	0.000
Kericho	84.3	65.0	22.9%	0.000	64.1	53.2	17.0%	0.000
Bomet	89.8	72.9	18.8%	0.000	63.8	52.9	17.1%	0.000
Kakamega	91.0	77.7	14.6%	0.000	67.5	54.6	19.1%	0.000
Vihiga	90.0	77.9	13.4%	0.000	61.6	50.6	17.9%	0.000
Bungoma	92.1	80.6	12.5%	0.000	69.9	57.9	17.2%	0.000
Busia	93.5	82.3	12.0%	0.000	76.8	60.6	21.1%	0.000
Siaya	93.1	81.9	12.0%	0.000	72.7	56.0	23.0%	0.000
Kisumu	84.9	65.2	23.2%	0.000	65.2	45.8	29.8%	0.000
Homa Bay	92.9	81.7	12.1%	0.000	71.2	54.9	22.9%	0.000
Migori	91.7	80.9	11.8%	0.000	72.0	58.6	18.6%	0.000
Kisii	91.7	78.4	14.5%	0.000	72.8	58.2	20.1%	0.000
Nyamira	90.3	77.3	14.4%	0.000	70.7	57.2	19.1%	0.000
Nairobi City	62.0	43.4	30.0%	0.000	57.7	35.9	37.8%	0.000

Source: KPHC 2009 and KPHC 2019

Note: Differences in deprivation rates between women and men statistically significant for all counties at 95% confidence interval (p-value<0.05).

Annex 16. Regression analysis

Annex 16.1. Factors associated with deprivation in education, children aged 6-17 years, 2019

Factors	Coefficient (Standard error)
Age	-0.405***
	(0.00183)
Age (squared)	0.0139***
	(-0.0000631)
Girl	-0.0669***
	(0.000323)
Nr of children<18 in HH	0.0139***
	(8.74e-05)
Disability	0.0486***
	(0.000734)
Orphan	0.0353***
	(0.000511)
Child labour	0.581***
	-0.00091
Child marriage	0.0495***
	(0.000887)
HH head is a woman	-0.0118***
	(0.000348)
HH head completed secondary or higher education	-0.101***
	(0.000381)
HH is labour constrained	0.0102***
	(0.000347)
Urban	-0.0579***
	(0.000484)
Kwale	0.144***
	(0.00231)
Kilifi	0.142***
	(0.00198)
Tana River	0.107***
	(0.00366)
Lamu	0.0255***
	(0.00402)
Taita-Taveta	-0.135***
	(0.00225)
Garissa	0.238***
	(0.00495)
Wajir	0.213***
	(0.00587)
Mandera	0.208***
	(0.00522)

Factors	Coefficient (Standard error)
Marsabit	0.0865***
	(0.00462)
Isiolo	0.0300***
	(0.00433)
Meru	-0.0881***
	(0.00181)
Tharaka-Nithi	-0.102***
	(0.00224)
Embu	-0.154***
	(0.00192)
Kitui	-0.0516***
	(0.00184)
Machakos	-0.118***
	(0.00177)
Makueni	-0.125***
	(0.00179)
Nyandarua	-0.200***
	(0.00175)
Nyeri	-0.215***
	(0.00176)
Kirinyaga	-0.167***
	(0.00194)
Murang'a	-0.191***
	(0.00172)
Kiambu	-0.174***
	(0.00165)
Turkana	0.190***
	(0.00334)
West Pokot	0.0251***
	(0.00264)
Samburu	0.0221***
	(0.00443)
Trans Nzoia	-0.0518***
	(0.00186)
Uasin Gishu	-0.0791***
	(0.00183)
Elgeyo-Marakwet	-0.0752***
	(0.00215)
Nandi	-0.0325***
	(0.00193)

Factors	Coefficient (Standard error)
Baringo	-0.0982***
	(0.00204)
Laikipia	-0.155***
	(0.00203)
Nakuru	-0.120***
	(0.00167)
Narok	-0.00403*
	(0.00207)
Kajiado	-0.0714***
	(0.00210)
Kericho	-0.110***
	(0.00183)
Bomet	-0.0926***
	(0.00186)
Kakamega	-0.0136***
	(0.00176)
Vihiga	-0.0408***
	(0.00204)
Bungoma	-0.0446***
	(0.00175)
Busia	0.0164***
	(0.00197)
Siaya	-0.0416***
	(0.00188)
Kisumu	-0.0494***
	(0.00183)
Homa Bay	-0.0438***
	(0.00183)
Migori	-0.0144***
	(0.00187)
Kisii	-0.103***
	(0.00177)
Nyamira	-0.130***
	(0.00192)
Nairobi City	-0.104***
	(0.00162)
Observations	5,252,848
*** p<0.01, ** p<0.05, * p<0.1	

Source: KPHC 2019

Annex 16.2. Factors associated with child labour, children aged 5-17 years, 2019

Factors	Coefficient (Standard error)
Age	-0.0375***
	(0.000110)
Age (squared)	0.00177***
	(-0.00000496)
Girl	-0.00501***
	(0.000127)
Orphan	0.00661***
	(0.000206)
HH head is a woman	0.00223***
	(0.000132)
Disability in the HH	0.00578***
	(0.000152)
HH is labour constrained	0.00478***
	-0.000132
Urban	-0.0724***
	(0.000142)
Kwale	0.0246***
	(0.000971)
Kilifi	-0.0135***
	(0.000895)
Tana River	0.173***
	-0.00145
Lamu	0.0301***
	(0.00160)
Taita-Taveta	-0.0248***
	(0.00106)
Garissa	0.240***
	(0.00113)
Wajir	0.302***
	(0.00116)
Mandera	0.313***
	-0.00113
Marsabit	0.266***
	(0.00134)
Isiolo	0.238***
	(0.00169)

Factors	Coefficient (Standard error)
Meru	-0.0251***
	(0.000884)
Tharaka-Nithi	-0.0293***
	(0.000986)
Embu	-0.0270***
	(0.000952)
Kitui	-0.0283***
	-0.000885
Machakos	-0.0384***
	(0.000879)
Makueni	-0.0429***
	(0.000877)
Nyandarua	-0.0354***
	(0.000914)
Nyeri	-0.0496***
	(0.000888)
Kirinyaga	-0.0438***
	(0.000922)
Murang'a	-0.0424***
	(0.000882)
Kiambu	-0.0388***
	(0.000878)
Turkana	0.244***
	(0.00112)
West Pokot	0.123***
	(0.00111)
Samburu	0.281***
	(0.00152)
Trans Nzoia	-0.0296***
	(0.000892)
Uasin Gishu	-0.0425***
	(0.000882)
Elgeyo-Marakwet	-0.0332***
	(0.000937)
Nandi	-0.0406***
	(0.000883)
Baringo	0.0805***
	(0.00107)
Laikipia	0.0190***
	(0.00107)
Nakuru	-0.0261***
	(0.000876)
Narok	0.0489***
	(0.000952)
Kajiado	0.0334***
	-0.00101
Kericho	-0.0345***
	(0.000892)
Bomet	-0.0398***
	(0.000882)
Kakamega	-0.0290***
	(0.000867)
Vihiga	-0.0405***
	(0.000902)
Bungoma	-0.0181***
	(0.000877)
Busia	-0.0159***
	(0.000913)
Siaya	-0.0369***
	(0.000881)
Kisumu	-0.0426***
	(0.000877)
Homa Bay	-0.0372***
	(0.000875)
Migori	-0.0236***
	(0.000891)
Kisii	-0.0395***
	(0.000871)
Nyamira	-0.0416***
	(0.000898)
Nairobi City	-0.0131***
	(0.000907)
Observations	15,857,570
*** p<0.01, ** p<0.05, * p<0.1	

Source: KPHC 2019

Annex 16.3. Factors associated with child marriage, children aged 12-17 years, 2019

Factor	Coefficient (Standard error)
Age	-0.0721***
	(0.00145)
Age (squared)	0.00268***
	(-0.0000498)
Orphan	-0.00531***
	(0.000378)
HH head is a woman	-0.0272***
	(0.000249)
HH head completed secondary or higher education	-0.00602***
	(0.000314)
HH is labour constrained	0.0146***
	(0.000286)
Urban	-0.0140***
	(0.000352)
Kwale	-0.00318**
	(0.00141)
Kilifi	-0.00619***
	(0.00124)
Tana River	0.0299***
	(0.00273)
Lamu	0.000774
	(0.00264)
Taita-Taveta	-0.00713***
	(0.00166)
Garissa	0.0559***
	(0.00440)
Wajir	0.0860***
	(0.00571)
Mandera	0.118***
	(0.00539)
Marsabit	0.0478***
	(0.00395)
Isiolo	0.0285***
	(0.00353)
Meru	0.0227***
	(0.00134)
Tharaka-Nithi	0.00250
	(0.00164)
Embu	-0.000239
	(0.00144)
Kitui	0.000419
	(0.00127)
Machakos	-2.01e-05
	(0.00125)

Factors	Coefficient (Standard error)
Makueni	-0.00944***
	(0.00124)
Nyandarua	-0.0132***
	(0.00128)
Nyeri	-0.0120***
	(0.00131)
Kirinyaga	0.00270*
	(0.00149)
Murang'a	-0.00636***
	(0.00127)
Kiambu	-0.0111***
	(0.00114)
Turkana	0.0352***
	(0.00265)
West Pokot	0.0313***
	(0.00205)
Samburu	0.0453***
	(0.00392)
Trans Nzoia	-0.000836
	(0.00128)
Uasin Gishu	-0.00443***
	(0.00125)
Elgeyo-Marakwet	0.0142***
	(0.00164)
Nandi	-0.00264**
	(0.00129)
Baringo	0.0163***
	(0.00159)
Laikipia	-0.00454***
	(0.00153)
Nakuru	-0.00414***
	(0.00116)
Narok	0.0224***
	(0.00153)
Kajiado	0.00483***
	(0.00151)
Kericho	0.00923***
	(0.00135)
Bomet	0.0164***
	(0.00139)
Kakamega	0.00214*
	(0.00119)
Vihiga	-0.00541***
	(0.00137)

Factors	Coefficient (Standard error)
Bungoma	0.0172***
	(0.00124)
Busia	-0.00144
	(0.00129)
Siaya	-0.00786***
	(0.00125)
Kisumu	-0.00436***
	(0.00124)
Homa Bay	0.00878***
	(0.00130)
Migori	0.0148***
	(0.00133)
Kisii	0.0127***
	(0.00129)
Nyamira	0.00943***
	(0.00147)
Nairobi City	-0.00996***
	(0.00110)
Observations	2,629,301
*** p<0.01, ** p<0.05, * p<0.1	

Source: KPHC 2019

Annex 16.4. Factors associated with deprivation in economic activity, 2019, youths aged 18-34 years

Factor	Marginal effect (Standard error)
Age	0.0765***
	-0.000912
Age (squared)	-0.00132***
	0.0000
Woman	0.131***
	-0.000715
Married	0.0577***
	-0.000828
Disability	0.0311***
	-0.00152
Deprivation in education	0.0284***
	-0.000759
HH head completed secondary+ education	-0.0215***
	-0.0012
HH head is in paid employment	-0.136***
	-0.000965
Urban	-0.00470***
	-0.000981
HH is labour constrained	0.627***
	-0.000742
Kwale	-0.000981
	-0.00557
Kilifi	-0.00358
	-0.0221***
Tana River	-0.00287
	0.00288
Lamu	-0.0067
	-0.00692
Taita-Taveta	-0.00735
	-0.0258***
Garissa	-0.00465
	-0.0600***
Wajir	-0.00607
	-0.0833***
Mandera	-0.00719
	-0.0609***
Marsabit	-0.00643
	-0.0134**
Isiolo	-0.00669
	0.00434
Meru	-0.00684
	-0.0486***
Tharaka-Nithi	-0.00288
	-0.0502***
Embu	-0.00442
	-0.0416***
Kitui	-0.00368
	-0.0600***
Machakos	-0.00315
	-0.0497***
Makueni	-0.00273
	-0.0542***
Nyandarua	-0.0032
	-0.0491***
Nyeri	-0.00379
	-0.0676***

Factor	Marginal effect (Standard error)
Kirinyaga	-0.00344
	-0.0824***
Murang'a	-0.00358
	-0.0545***
Kiambu	-0.00318
	-0.0471***
Turkana	-0.00233
	-0.0278***
West Pokot	-0.00497
	-0.0486***
Samburu	-0.00449
	-0.0639***
Trans Nzoia	-0.00707
	-0.0344***
Uasin Gishu	-0.00323
	-0.0419***
Elgeyo-Marakwet	-0.00282
	-0.0198***
Nandi	-0.00429
	-0.0542***
Baringo	-0.00322
	-0.0355***
Laikipia	-0.00396
	-0.0565***
Nakuru	-0.00405
	-0.0496***
Narok	-0.00249
	-0.0460***
Kajiado	-0.0034
	-0.0416***
Kericho	-0.00287
	-0.0335***
Bomet	-0.0032
	-0.0446***
Kakamega	-0.00327
	-0.0401***
Vihiga	-0.0028
	-0.0384***
Bungoma	-0.00397
	-0.0281***
Busia	-0.0029
	-0.00932***
Siaya	-0.00348
	-0.0411***
Kisumu	-0.00329
	-0.0321***
Homa Bay	-0.0029
	-0.0420***
Migori	-0.00315
	-0.0225***
Kisii	-0.00318
	-0.0167***
Nyamira	-0.00306
	-0.0281***
Nairobi City	-0.00391
	-0.0234***
Observations	1,180,550
*** p<0.01, ** p<0.05, * p<0.1	

Source: KPHC 2019

Annex 16.5. Factors associated with deprivation in exposure to media, children aged 3-17 years, 2019

Factors	Coefficient (Standard error)
Age	0.00903***
	-0.000143
Age (squared)	-0.00138***
	(-0.00000681)
Girl	0.00925***
	-0.000218
Deprived in education	0.0602***
	-0.000283
Nr children<18 in the HH	0.0164***
	(-0.0000695)
HH head completed secondary or higher education	-0.113***
	-0.000292
Household is labour constrained	0.0192***
	-0.000231
Urban	-0.0730***
	-0.000343
Kwale	-0.0101***
	-0.00119
Kilifi	-0.0106***
	-0.000982

Factors	Coefficient (Standard error)
Tana River	0.0271***
	-0.00188
Lamu	0.00903***
	-0.00231
Taita-Taveta	-0.0641***
	-0.00152
Garissa	0.00236
	-0.00237
Wajir	0.0237***
	-0.00267
Mandera	0.0300***
	-0.00231
Marsabit	0.0861***
	-0.00193
Isiolo	0.0765***
	-0.00183
Meru	-0.0626***
	-0.000985
Tharaka-Nithi	-0.0935***
	-0.00149
Embu	-0.0701***
	-0.00125
Kitui	0.00135
	-0.000982
Machakos	-0.00745***
	-0.000914
Makueni	0.00459***
	-0.000998
Nyandarua	-0.114***
	-0.0012
Nyeri	-0.155***
	-0.00121
Kirinyaga	-0.106***
	-0.00128
Murang'a	-0.0917***
	-0.00106
Kiambu	-0.0845***
	-0.000836
Turkana	0.103***
	-0.00141
West Pokot	0.0754***
	-0.00132
Samburu	0.0526***
	-0.00213
Trans Nzoia	0.0348***
	-0.000952

Factors	Coefficient (Standard error)
Uasin Gishu	0.00646***
	-0.00092
Elgeyo-Marakwet	0.0421***
	-0.00122
Nandi	0.0428***
	-0.000988
Baringo	0.0345***
	-0.00113
Laikipia	-0.0541***
	-0.00133
Nakuru	-0.0145***
	-0.000823
Narok	0.0558***
	-0.00102
Kajiado	-0.0308***
	-0.00104
Kericho	0.0388***
	-0.000977
Bomet	0.0400***
	-0.000987
Kakamega	0.0174***
	-0.000863
Vihiga	0.0316***
	-0.0011
Bungoma	0.0374***
	-0.000858
Busia	0.0213***
	-0.00101
Siaya	-0.0177***
	-0.00101
Kisumu	-0.0149***
	-0.00093
Homa Bay	-0.0198***
	-0.000962
Migori	0.00553***
	-0.000958
Kisii	0.00928***
	-0.000922
Nyamira	0.00478***
	-0.00112
Nairobi City	-0.0809***
	-0.000766
Observations	13,457,963
*** p<0.01, ** p<0.05, * p<0.1	

Source: KPHC 2019

Annex 17. Trends of change in multidimensional poverty headcount rate, children 0-17 years, 2009 and 2019

Age group	Age 0-5 years			Age 6-13 years			Age 14-17 years			Age 0-17 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
National	47.0	38.3	-18.5%	66.3	52.7	-20.5%	67.4	51.2	-24.0%	59.3	47.7	-19.6%
Urban	21.3	16.9	-20.7%	33.8	25.1	-25.7%	37.2	25.0	-32.8%	29.3	22.1	-24.6%
Rural	53.6	47.4	-11.6%	73.2	61.6	-15.8%	74.2	59.3	-20.1%	66.2	56.7	-14.4%
Nairobi City	15.8	8.4	-46.8%	24.1	10.6	-56.0%	26.7	10.6	-60.3%	21.0	9.8	-53.3%
Nyamira	42.3	41.9	-0.9%	57.6	57.5	-0.2%	58.6	54.1	-7.7%	51.9	52.4	1.0%
Kisii	42.4	41.6	-1.9%	61.9	59.0	-4.7%	63.3	55.9	-11.7%	54.7	53.4	-2.4%
Migori	59.2	46.4	-21.6%	78.4	66.7	-14.9%	79.7	63.1	-20.8%	70.8	59.4	-16.1%
Homa Bay	63.5	42.7	-32.8%	81.3	61.7	-24.1%	80.1	56.5	-29.5%	74.1	54.6	-26.3%
Kisumu	42.4	26.9	-36.6%	60.0	41.6	-30.7%	61.6	39.4	-36.0%	53.4	36.6	-31.5%
Siaya	57.8	38.7	-33.0%	77.3	56.2	-27.3%	77.5	53.0	-31.6%	69.9	50.3	-28.0%
Busia	45.6	34.0	-25.4%	71.6	48.6	-32.1%	75.1	51.9	-30.9%	62.3	45.1	-27.6%
Bungoma	38.9	33.5	-13.9%	62.0	41.8	-32.6%	68.4	45.1	-34.1%	54.0	40.2	-25.6%
Vihiga	31.7	30.9	-2.5%	50.5	43.1	-14.7%	55.4	45.2	-18.4%	44.6	40.2	-9.9%
Kakamega	34.5	31.6	-8.4%	58.3	43.2	-25.9%	62.6	47.0	-24.9%	49.8	40.8	-18.1%
Bomet	52.6	45.4	-13.7%	73.4	65.3	-11.0%	75.8	63.7	-16.0%	66.0	58.9	-10.8%
Kericho	49.5	43.6	-11.9%	67.8	62.2	-8.3%	70.9	60.3	-15.0%	61.4	56.0	-8.8%
Kajiado	43.8	35.5	-18.9%	62.3	48.6	-22.0%	60.7	44.5	-26.7%	54.5	43.0	-21.1%
Narok	73.9	65.1	-11.9%	89.3	81.5	-8.7%	89.8	78.8	-12.2%	83.0	75.4	-9.2%
Nakuru	35.1	27.9	-20.5%	53.3	37.5	-29.6%	54.0	36.7	-32.0%	46.4	34.2	-26.3%
Laikipia	45.6	41.5	-9.0%	60.8	49.5	-18.6%	59.5	45.9	-22.9%	55.0	46.1	-16.2%
Baringo	70.5	61.9	-12.2%	85.2	75.6	-11.3%	83.4	71.1	-14.7%	79.6	70.2	-11.8%
Nandi	46.9	41.9	-10.7%	69.7	62.2	-10.8%	71.9	60.6	-15.7%	61.3	55.7	-9.1%
Elgeyo-Marakwet	56.4	51.7	-8.3%	75.2	67.1	-10.8%	75.3	65.1	-13.5%	68.2	61.7	-9.5%
Uasin Gishu	27.4	25.1	-8.4%	42.6	32.7	-23.2%	48.3	33.8	-30.0%	37.8	30.5	-19.3%
Trans Nzoia	37.8	34.3	-9.3%	55.5	43.0	-22.5%	59.9	44.3	-26.0%	49.4	40.6	-17.8%
Samburu	75.7	74.9	-1.1%	90.3	87.5	-3.1%	89.7	83.8	-6.6%	84.4	82.3	-2.5%
West Pokot	75.4	66.2	-12.2%	92.4	83.4	-9.7%	92.2	81.0	-12.1%	85.8	76.6	-10.7%
Turkana	77.7	72.4	-6.8%	95.9	89.2	-7.0%	95.8	88.4	-7.7%	90.6	83.5	-7.8%
Kiambu	22.3	11.4	-48.9%	31.8	13.1	-58.8%	34.5	14.5	-58.0%	28.7	12.8	-55.4%
Murang'a	49.0	27.1	-44.7%	66.2	33.4	-49.5%	65.9	32.2	-51.1%	60.4	31.2	-48.3%
Kirinyaga	31.5	20.9	-33.7%	46.1	29.1	-36.9%	50.4	28.2	-44.0%	41.7	26.3	-36.9%
Nyeri	28.1	17.2	-38.8%	41.0	19.1	-53.4%	41.5	18.2	-56.1%	36.7	18.4	-49.9%
Nyandarua	35.7	22.9	-35.9%	51.6	26.0	-49.6%	54.4	27.1	-50.2%	46.6	25.5	-45.3%
Makueni	55.4	40.6	-26.7%	68.1	58.6	-14.0%	67.6	56.3	-16.7%	63.7	53.1	-16.6%
Machakos	52.8	29.1	-44.9%	69.2	43.6	-37.0%	67.9	44.9	-33.9%	63.2	39.4	-37.7%
Kitui	63.9	47.5	-25.7%	82.5	69.4	-15.9%	80.4	66.3	-17.5%	75.4	62.5	-17.1%
Embu	48.2	29.3	-39.2%	64.9	38.7	-40.4%	66.1	39.8	-39.8%	59.2	36.1	-39.0%
Tharaka-Nithi	52.1	36.1	-30.7%	70.3	50.3	-28.4%	69.9	49.2	-29.6%	63.5	45.8	-27.9%
Meru	38.8	32.3	-16.8%	61.0	47.1	-22.8%	63.7	47.4	-25.6%	53.3	42.6	-20.1%

Age group	Age 0-5 years			Age 6-13 years			Age 14-17 years			Age 0-17 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Isiolo	56	49.9	-10.9%	71.0	66.2	-6.8%	70.7	65.1	-7.9%	65.2	60.4	-7.4%
Marsabit	70.4	64.5	-8.4%	89.2	85.8	-3.8%	89.0	83.9	-5.7%	82.6	78.3	-5.2%
Mandera	76.9	71.1	-7.5%	94.4	91.0	-3.6%	93.9	89.8	-4.4%	89.5	84.1	-6.0%
Wajir	76.9	71.8	-6.6%	97.0	90.9	-6.3%	96.0	88.4	-7.9%	91.1	84.6	-7.1%
Garissa	68.6	68.2	-0.6%	90.6	89.6	-1.1%	87.3	86.6	-0.8%	83.3	82.8	-0.6%
Taita-Taveta	36.4	28.3	-22.3%	58.2	38.6	-33.7%	60.3	38.6	-36.0%	50.7	35.3	-30.4%
Lamu	49.8	45.9	-7.8%	68.9	60.5	-12.2%	70.9	58.9	-16.9%	61.9	55.2	-10.8%
Tana River	71.0	63.4	-10.7%	89.8	81.2	-9.6%	90.0	78.6	-12.7%	81.9	74.2	-9.4%
Kilifi	52.7	42.3	-19.7%	76.2	62.5	-18.0%	76.9	62.3	-19.0%	67.2	55.6	-17.3%
Kwale	66.7	58.2	-12.7%	81.2	75.4	-7.1%	82.0	73.4	-10.5%	75.6	68.9	-8.9%
Mombasa	22.4	23.0	2.7%	37.2	36.5	-1.9%	42.2	35.1	-16.8%	31.9	31.0	-2.8%

Source: KPHC 2009 and KPHC 2019

Annex 18. Trends of change in multidimensional poverty headcount rate, adults age 18+ years, 2009 and 2019

Age group	Age 18-25 years			Age 18-34 years			Age 35-59 years			Age 60+ years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
National	75.0	53.7	-28.4%	74.7	51.0	-31.7%	82.8	57.9	-30.1%	71.9	50.6	-29.7%
Urban	49.9	27.6	-44.7%	49.5	26.2	-47.1%	56.2	32.2	-42.7%	40.5	24.8	-38.8%
Rural	86.3	69.1	-19.9%	87.1	67.5	-22.5%	91.9	71.0	-22.7%	75.9	55.5	-26.8%
Nairobi City	40.4	17.8	-55.9%	40.2	17.4	-56.7%	45.2	21.9	-51.5%	20.6	8.5	-58.8%
Nyamira	79.5	64.0	-19.5%	81.2	63.9	-21.3%	89.6	70.8	-21.0%	68.6	57.8	-15.8%
Kisii	80.5	63.4	-21.2%	81.5	62.9	-22.8%	90.1	71.6	-20.5%	72.6	62.0	-14.6%
Migori	89.1	70.8	-20.5%	89.2	70.2	-21.3%	92.5	74.5	-19.5%	83.8	68.2	-18.6%
Homa Bay	91.1	67.1	-26.3%	91.4	67.4	-26.3%	94.5	73.7	-22.0%	84.6	59.8	-29.3%
Kisumu	77.2	48.9	-36.7%	77.1	48.3	-37.4%	83.1	55.5	-33.2%	73.7	44.6	-39.5%
Siaya	90.4	66.3	-26.7%	90.7	66.3	-26.9%	94.5	73.4	-22.3%	80.7	53.5	-33.7%
Busia	86.7	65.4	-24.6%	87.2	63.2	-27.5%	91.7	67.6	-26.3%	77.4	53.9	-30.3%
Bungoma	82.6	60.4	-26.9%	83.1	58.3	-29.8%	88.7	63.3	-28.6%	67.2	46.2	-31.2%
Vihiga	77.6	58.9	-24.1%	80.0	56.9	-28.9%	89.2	64.9	-27.2%	60.2	42.4	-29.6%
Kakamega	80.3	61.1	-23.9%	81.7	59.0	-27.8%	88.9	63.3	-28.8%	65.5	44.9	-31.4%
Bomet	87.6	67.9	-22.5%	86.6	67.2	-22.4%	89.4	73.2	-18.1%	82.7	67.0	-18.9%
Kericho	80.3	64.5	-19.7%	79.3	63.3	-20.2%	84.8	70.1	-17.3%	78.4	65.1	-17.0%
Kajiado	64.7	41.5	-35.9%	63.8	38.7	-39.3%	71.4	41.8	-41.5%	67.8	46.8	-30.9%
Narok	93.6	79.9	-14.6%	93.2	77.6	-16.7%	95.1	78.9	-17.0%	91.6	81.8	-10.7%
Nakuru	66.9	42.3	-36.8%	67.2	40.9	-39.1%	77.6	51.7	-33.4%	61.0	35.8	-41.3%
Laikipia	72.1	50.5	-30.0%	73.0	48.4	-33.7%	82.7	59.8	-27.7%	66.4	42.3	-36.3%
Baringo	87.6	72.6	-17.1%	87.2	71.0	-18.6%	90.8	74.5	-18.0%	88.7	74.8	-15.7%
Nandi	83.6	65.3	-21.9%	83.7	63.8	-23.8%	88.5	69.9	-21.0%	78.1	64.6	-17.3%
Elgeyo-Marakwet	85.8	69.9	-18.5%	86.4	69.1	-20.0%	91.9	75.4	-18.0%	86.7	75.1	-13.3%
Uasin Gishu	61.3	38.6	-37.0%	62.9	37.4	-40.5%	75.5	48.6	-35.6%	60.4	42.6	-29.5%

Age group	Age 18-25 years			Age 18-34 years			Age 35-59 years			Age 60+ years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Trans Nzoia	77.4	58.6	-24.3%	78.3	56.3	-28.1%	85.2	60.3	-29.2%	65.0	45.5	-30.0%
Samburu	92.3	84.1	-8.9%	91.4	81.4	-10.9%	94.2	79.3	-15.8%	95.2	91.9	-3.5%
West Pokot	95.0	83.5	-12.1%	94.9	82.2	-13.4%	96.7	83.6	-13.5%	95.7	90.8	-5.1%
Turkana	96.9	88.3	-8.9%	96.8	86.9	-10.2%	98.1	87.2	-11.1%	97.8	94.4	-3.4%
Kiambu	50.7	19.5	-61.5%	53.0	19.0	-64.2%	67.5	33.3	-50.7%	49.9	19.2	-61.6%
Murang'a	80.0	45.3	-43.4%	81.7	45.1	-44.8%	89.2	63.2	-29.1%	72.2	36.5	-49.5%
Kirinyaga	75.3	40.0	-46.9%	78.3	40.7	-48.0%	87.4	59.5	-31.9%	65.5	39.2	-40.1%
Nyeri	64.4	27.3	-57.6%	68.1	28.9	-57.6%	82.5	53.9	-34.7%	55.9	23.8	-57.5%
Nyandarua	77.2	44.5	-42.4%	80.5	46.1	-42.7%	89.5	67.4	-24.7%	60.1	27.8	-53.7%
Makueni	84.6	64.3	-24.0%	86.2	62.1	-28.0%	91.8	70.5	-23.2%	79.1	57.4	-27.4%
Machakos	77.8	47.1	-39.5%	78.2	45.0	-42.5%	86.2	55.5	-35.6%	75.9	46.0	-39.4%
Kitui	89.5	70.9	-20.8%	90.4	69.2	-23.5%	93.6	74.2	-20.7%	86.3	68.5	-20.6%
Embu	78.2	48.6	-37.9%	79.5	48.4	-39.1%	86.5	62.6	-27.6%	73.6	46.7	-36.6%
Tharaka-Nithi	82.7	57.4	-30.6%	84.3	55.9	-33.7%	89.6	67.3	-24.9%	76.2	53.6	-29.6%
Meru	79.8	57.0	-28.6%	80.9	55.5	-31.4%	87.9	64.2	-27.0%	69.8	54.0	-22.7%
Isiolo	82.5	65.5	-20.6%	82.0	61.7	-24.8%	87.5	58.3	-33.4%	83.6	62.0	-25.9%
Marsabit	94.5	81.7	-13.5%	94.6	78.8	-16.7%	96.7	74.8	-22.6%	95.2	86.8	-8.9%
Mandera	96.9	88.0	-9.2%	97.4	85.8	-11.9%	99.0	82.4	-16.8%	94.5	86.3	-8.7%
Wajir	97.9	85.3	-12.9%	98.0	82.6	-15.7%	99.2	78.8	-20.6%	96.2	85.4	-11.3%
Garissa	89.7	81.1	-9.6%	90.4	78.8	-12.8%	95.1	75.1	-21.0%	83.3	77.1	-7.5%
Taita-Taveta	76.7	52.4	-31.7%	78.2	50.5	-35.4%	85.7	62.0	-27.7%	66.7	42.0	-37.0%
Lamu	85.9	67.5	-21.4%	86.1	64.4	-25.2%	89.5	68.0	-24.0%	70.0	58.9	-15.8%
Tana River	94.2	80.9	-14.1%	94.0	78.7	-16.3%	95.5	78.9	-17.4%	89.4	79.2	-11.4%
Kilifi	82.0	65.6	-20.0%	81.2	60.6	-25.4%	86.7	58.8	-32.2%	80.4	64.8	-19.4%
Kwale	87.7	75.0	-14.5%	87.2	70.9	-18.7%	90.9	70.2	-22.8%	85.9	72.7	-15.3%
Mombasa	57.6	42.2	-26.7%	57.0	41.0	-28.1%	61.6	45.5	-26.1%	38.1	30.8	-19.3%

Source: KPHC 2009 and KPHC 2019

Annex 19. Trends of change in multidimensional poverty headcount rate, entire population, 2009 and 2019

Entire population			
Residence	**2009**	**2019**	**% Change**
Residence	2009	2019	% Change
National	68.2	50.8	-25.6%
Urban	42.5	25.8	-39.3%
Rural	76.2	61.9	-18.8%
Nairobi City	34.0	15.5	-54.4%
Nyamira	67.1	59.4	-11.4%
Kisii	68.4	59.8	-12.6%
Migori	79.0	64.9	-17.8%
Homa Bay	81.8	61.1	-25.3%
Kisumu	65.7	43.8	-33.4%

Entire population			
Residence	**2009**	**2019**	**% Change**
Siaya	79.6	58.6	-26.4%
Busia	73.5	54.1	-26.4%
Bungoma	67.1	48.9	-27.1%
Vihiga	61.6	49.0	-20.5%
Kakamega	64.8	49.6	-23.5%
Bomet	75.9	64.0	-15.7%
Kericho	71.1	61.2	-14.0%
Kajiado	60.8	41.5	-31.7%
Narok	87.6	76.7	-12.4%
Nakuru	58.7	39.8	-32.1%
Laikipia	65.6	49.4	-24.7%
Baringo	83.5	71.3	-14.6%
Nandi	72.6	61.1	-15.8%
Elgeyo-Marakwet	77.5	66.8	-13.8%
Uasin Gishu	52.6	36.7	-30.2%
Trans Nzoia	63.2	48.5	-23.2%
Samburu	87.9	82.1	-6.6%
West Pokot	89.8	79.4	-11.6%
Turkana	93.7	85.4	-8.8%
Kiambu	46.1	20.2	-56.2%
Murang'a	73.1	43.4	-40.6%
Kirinyaga	65.5	41.2	-37.1%
Nyeri	57.8	31.7	-45.2%
Nyandarua	64.1	40.9	-36.2%
Makueni	75.1	59.6	-20.6%
Machakos	72.6	45.3	-37.6%
Kitui	82.4	66.9	-18.9%
Embu	71.6	47.2	-34.1%
Tharaka-Nithi	75.4	54.3	-27.9%
Meru	68.7	52.0	-24.3%
Isiolo	74.2	60.5	-18.5%
Marsabit	88.4	78.4	-11.3%
Mandera	92.6	84.4	-8.9%
Wajir	94.0	83.4	-11.3%
Garissa	86.8	80.4	-7.4%
Taita-Taveta	66.5	46.2	-30.5%
Lamu	74.0	60.5	-18.3%
Tana River	87.1	76.3	-12.4%
Kilifi	74.5	58.1	-22.0%
Kwale	81.4	69.8	-14.3%
Mombasa	47.7	37.9	-20.6%

Source: KPHC 2009 and KPHC 2019

Note: All changes in the multidimensional poverty headcount rate significant at 95% confidence level (p-value<0.05).

Annex 20. Trends of change in average deprivation intensity, children aged 0-17 years, 2009 and 2019

Age group	Age 0-5 years			Age 6-13 years			Age 14-17 years			Age 0-17 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
National	3.6	3.6	0.0%	3.3	3.7	12.1%	4.1	3.7	-9.8%	3.9	3.7	-5.1%
Urban	3.4	3.4	0.0%	2.3	3.4	47.8%	3.6	3.5	-2.8%	3.5	3.4	-2.9%
Rural	3.7	3.6	-2.7%	3.5	3.7	5.7%	4.1	3.8	-7.3%	4.0	3.7	-7.5%
Nairobi City	3.3	3.2	-3.0%	2.0	3.1	55.0%	3.4	3.2	-5.9%	3.4	3.2	-5.9%
Nyamira	3.4	3.4	0.0%	2.8	3.4	21.4%	3.7	3.5	-5.4%	3.6	3.4	-5.6%
Kisii	3.4	3.4	0.0%	2.9	3.4	17.2%	3.8	3.5	-7.9%	3.6	3.4	-5.6%
Migori	3.5	3.5	0.0%	3.5	3.5	0.0%	4.2	3.7	-11.9%	3.9	3.6	-7.7%
Homa Bay	3.5	3.4	-2.9%	3.6	3.5	-2.8%	4.1	3.5	-14.6%	3.9	3.5	-10.3%
Kisumu	3.4	3.3	-2.9%	2.9	3.3	13.8%	3.8	3.4	-10.5%	3.6	3.4	-5.6%
Siaya	3.5	3.4	-2.9%	3.4	3.4	0.0%	4.0	3.5	-12.5%	3.8	3.4	-10.5%
Busia	3.6	3.4	-5.6%	3.3	3.4	3.0%	4.0	3.5	-12.5%	3.8	3.4	-10.5%
Bungoma	3.5	3.4	-2.9%	3.0	3.4	13.3%	3.8	3.5	-7.9%	3.7	3.4	-8.1%
Vihiga	3.5	3.3	-5.7%	2.6	3.3	26.9%	3.6	3.4	-5.6%	3.5	3.3	-5.7%
Kakamega	3.5	3.4	-2.9%	2.8	3.3	17.9%	3.7	3.4	-8.1%	3.6	3.4	-5.6%
Bomet	3.5	3.5	0.0%	3.2	3.3	3.1%	3.9	3.5	-10.3%	3.7	3.4	-8.1%
Kericho	3.5	3.4	-2.9%	3.1	3.4	9.7%	4.0	3.5	-12.5%	3.8	3.4	-10.5%
Kajiado	3.7	3.6	-2.7%	3.2	3.7	15.6%	4.1	3.7	-9.8%	3.9	3.7	-5.1%
Narok	3.7	3.8	2.7%	4.1	3.9	-4.9%	4.5	3.9	-13.3%	4.2	3.9	-7.1%
Nakuru	3.5	3.4	-2.9%	2.7	3.4	25.9%	3.7	3.5	-5.4%	3.6	3.4	-5.6%
Laikipia	3.6	3.7	2.8%	3.0	3.8	26.7%	3.9	3.8	-2.6%	3.8	3.8	0.0%
Baringo	3.7	3.7	0.0%	4.1	4.1	0.0%	4.5	4.1	-8.9%	4.2	4.0	-4.8%
Nandi	3.5	3.4	-2.9%	3.2	3.4	6.2%	3.9	3.5	-10.3%	3.7	3.4	-8.1%
Elgeyo-Marakwet	3.6	3.5	-2.8%	3.4	3.5	2.9%	4.0	3.6	-10.0%	3.8	3.6	-5.3%
Uasin Gishu	3.4	3.3	-2.9%	2.4	3.3	37.5%	3.6	3.4	-5.6%	3.5	3.3	-5.7%
Trans Nzoia	3.5	3.4	-2.9%	2.8	3.4	21.4%	3.8	3.5	-7.9%	3.7	3.4	-8.1%
Samburu	3.9	3.9	0.0%	4.7	4.7	0.0%	5.1	4.7	-7.8%	4.6	4.4	-4.3%
West Pokot	3.9	3.8	-2.6%	4.6	4.2	-8.7%	4.8	4.2	-12.5%	4.5	4.1	-8.9%
Turkana	4.1	4.0	-2.4%	5.1	4.6	-9.8%	5.2	4.7	-9.6%	5.0	4.5	-10.0%
Kiambu	3.4	3.2	-5.9%	2.2	3.2	45.5%	3.5	3.2	-8.6%	3.4	3.2	-5.9%
Murang'a	3.5	3.3	-5.7%	3.0	3.2	6.7%	3.7	3.3	-10.8%	3.6	3.2	-11.1%
Kirinyaga	3.4	3.3	-2.9%	2.5	3.2	28.0%	3.6	3.3	-8.3%	3.5	3.2	-8.6%
Nyeri	3.3	3.2	-3.0%	2.4	3.2	33.3%	3.5	3.2	-8.6%	3.4	3.2	-5.9%
Nyandarua	3.4	3.3	-2.9%	2.6	3.2	23.1%	3.6	3.3	-8.3%	3.5	3.3	-5.7%
Makueni	3.6	3.4	-5.6%	3.0	3.3	10.0%	3.7	3.4	-8.1%	3.6	3.3	-8.3%
Machakos	3.6	3.4	-5.6%	3.2	3.3	3.1%	3.8	3.4	-10.5%	3.7	3.3	-10.8%
Kitui	3.8	3.5	-7.9%	3.7	3.5	-5.4%	4.1	3.6	-12.2%	4.0	3.5	-12.5%
Embu	3.6	3.4	-5.6%	3.0	3.3	10.0%	3.9	3.4	-12.8%	3.7	3.3	-10.8%
Tharaka-Nithi	3.7	3.5	-5.4%	3.3	3.4	3.0%	4.1	3.6	-12.2%	3.9	3.5	-10.3%
Meru	3.6	3.4	-5.6%	2.9	3.4	17.2%	3.8	3.6	-5.3%	3.7	3.4	-8.1%
Isiolo	3.8	3.8	0.0%	3.6	4.2	16.7%	4.5	4.2	-6.7%	4.2	4.1	-2.4%

Age group	Age 0-5 years			Age 6-13 years			Age 14-17 years			Age 0-17 years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Marsabit	4.0	3.9	-2.5%	4.4	4.3	-2.3%	4.8	4.3	-10.4%	4.5	4.2	-6.7%
Mandera	3.9	3.9	0.0%	4.6	4.4	-4.3%	4.7	4.4	-6.4%	4.5	4.3	-4.4%
Wajir	4.0	3.9	-2.5%	4.8	4.5	-6.3%	4.8	4.4	-8.3%	4.6	4.3	-6.5%
Garissa	4.0	3.9	-2.5%	4.6	4.3	-6.5%	4.7	4.3	-8.5%	4.6	4.2	-8.7%
Taita-Taveta	3.5	3.4	-2.9%	2.8	3.3	17.9%	3.7	3.4	-8.1%	3.6	3.4	-5.6%
Lamu	3.6	3.6	0.0%	3.3	3.8	15.2%	4.1	3.8	-7.3%	3.9	3.7	-5.1%
Tana River	3.8	3.9	2.6%	4.4	4.3	-2.3%	4.7	4.3	-8.5%	4.4	4.1	-6.8%
Kilifi	3.7	3.6	-2.7%	3.5	3.7	5.7%	4.1	3.7	-9.8%	4.0	3.7	-7.5%
Kwale	3.7	3.7	0.0%	3.8	3.9	2.6%	4.3	4.0	-7.0%	4.1	3.9	-4.9%
Mombasa	3.4	3.3	-2.9%	2.3	3.3	43.5%	3.6	3.4	-5.6%	3.4	3.3	-2.9%

Source: KPHC 2009 and KPHC 2019

Note: All changes in average deprivation intensity significant at 95% confidence level (p-value<0.05) except or among children < 5 years for the following counties: Lamu, Isiolo, and Nyamira.

Annex 21. Trends of change in average deprivation intensity, age 18+ years, 2009 and 2019

Age group	Age 18-25 years			Age 18-34 years			Age 35-59 years			Age 60+ years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
National	4.2	3.7	-11.9%	4.2	3.7	-11.9%	4.2	3.6	-14.3%	3.8	3.5	-7.9%
Urban	3.6	3.4	-5.6%	3.6	3.4	-5.6%	3.6	3.3	-8.3%	3.5	3.4	-2.9%
Rural	4.3	3.8	-11.6%	4.3	3.7	-14.0%	4.4	3.6	-18.2%	3.9	3.6	-7.7%
Nairobi City	3.5	3.3	-5.7%	3.5	3.3	-5.7%	3.5	3.3	-5.7%	3.3	3.2	-3.0%
Nyamira	4.0	3.7	-7.5%	4.0	3.7	-7.5%	4.1	3.7	-9.8%	3.7	3.5	-5.4%
Kisii	4.0	3.7	-7.5%	4.1	3.7	-9.8%	4.2	3.7	-11.9%	3.7	3.5	-5.4%
Migori	4.4	3.8	-13.6%	4.4	3.8	-13.6%	4.6	3.8	-17.4%	4.1	3.7	-9.8%
Homa Bay	4.4	3.7	-15.9%	4.5	3.7	-17.8%	4.6	3.7	-19.6%	4.1	3.6	-12.2%
Kisumu	4.0	3.5	-12.5%	4.0	3.5	-12.5%	4.2	3.5	-16.7%	3.8	3.4	-10.5%
Siaya	4.3	3.6	-16.3%	4.3	3.6	-16.3%	4.5	3.6	-20.0%	3.9	3.4	-12.8%
Busia	4.1	3.6	-12.2%	4.1	3.6	-12.2%	4.2	3.5	-16.7%	3.7	3.4	-8.1%
Bungoma	4.0	3.6	-10.0%	4.0	3.5	-12.5%	4.0	3.5	-12.5%	3.6	3.4	-5.6%
Vihiga	3.8	3.5	-7.9%	3.8	3.5	-7.9%	3.9	3.5	-10.3%	3.5	3.3	-5.7%
Kakamega	3.8	3.5	-7.9%	3.8	3.5	-7.9%	3.9	3.5	-10.3%	3.5	3.3	-5.7%
Bomet	4.2	3.8	-9.5%	4.3	3.7	-14.0%	4.4	3.7	-15.9%	3.9	3.5	-10.3%
Kericho	4.2	3.8	-9.5%	4.2	3.7	-11.9%	4.3	3.8	-11.6%	3.9	3.6	-7.7%
Kajiado	4.1	3.6	-12.2%	4.1	3.5	-14.6%	4.1	3.5	-14.6%	3.9	3.6	-7.7%
Narok	4.7	4.0	-14.9%	4.7	4.0	-14.9%	4.8	3.8	-20.8%	4.3	3.9	-9.3%
Nakuru	3.8	3.6	-5.3%	3.8	3.6	-5.3%	3.9	3.5	-10.3%	3.6	3.4	-5.6%
Laikipia	4.1	3.8	-7.3%	4.1	3.7	-9.8%	4.1	3.5	-14.6%	3.8	3.6	-5.3%
Baringo	4.7	4.1	-12.8%	4.7	4.0	-14.9%	4.8	4.0	-16.7%	4.3	3.9	-9.3%
Nandi	4.1	3.7	-9.8%	4.1	3.7	-9.8%	4.3	3.7	-14.0%	3.8	3.5	-7.9%
Elgeyo-Marakwet	4.3	3.8	-11.6%	4.3	3.8	-11.6%	4.6	3.9	-15.2%	4.1	3.9	-4.9%
Uasin Gishu	3.7	3.4	-8.1%	3.7	3.4	-8.1%	3.8	3.4	-10.5%	3.6	3.4	-5.6%

Age group	Age 18-25 years			Age 18-34 years			Age 35-59 years			Age 60+ years		
Residence	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change	2009	2019	% Change
Trans Nzoia	3.9	3.6	-7.7%	3.9	3.6	-7.7%	4.0	3.5	-12.5%	3.6	3.4	-5.6%
Samburu	5.2	4.2	-19.2%	5.2	4.1	-21.2%	5.3	3.9	-26.4%	4.5	4.3	-4.4%
West Pokot	5.1	4.2	-17.6%	5.1	4.1	-19.6%	5.2	4.0	-23.1%	4.5	4.2	-6.7%
Turkana	5.4	4.3	-20.4%	5.4	4.2	-22.2%	5.5	4.2	-23.6%	4.5	4.3	-4.4%
Kiambu	3.6	3.3	-8.3%	3.6	3.3	-8.3%	3.7	3.3	-10.8%	3.5	3.2	-8.6%
Murang'a	4.1	3.5	-14.6%	4.1	3.5	-14.6%	4.2	3.5	-16.7%	3.8	3.3	-13.2%
Kirinyaga	3.9	3.4	-12.8%	3.9	3.4	-12.8%	3.9	3.4	-12.8%	3.6	3.3	-8.3%
Nyeri	3.7	3.3	-10.8%	3.7	3.3	-10.8%	3.8	3.3	-13.2%	3.5	3.2	-8.6%
Nyandarua	3.8	3.4	-10.5%	3.8	3.4	-10.5%	3.8	3.4	-10.5%	3.5	3.2	-8.6%
Makueni	4.0	3.6	-10.0%	4.1	3.6	-12.2%	4.3	3.6	-16.3%	3.8	3.4	-10.5%
Machakos	4.0	3.6	-10.0%	4.1	3.5	-14.6%	4.2	3.5	-16.7%	3.8	3.4	-10.5%
Kitui	4.3	3.7	-14.0%	4.4	3.7	-15.9%	4.5	3.7	-17.8%	4.0	3.6	-10.0%
Embu	4.0	3.6	-10.0%	4.1	3.5	-14.6%	4.2	3.5	-16.7%	3.8	3.4	-10.5%
Tharaka-Nithi	4.2	3.7	-11.9%	4.2	3.6	-14.3%	4.3	3.6	-16.3%	3.9	3.5	-10.3%
Meru	4.0	3.6	-10.0%	3.9	3.6	-7.7%	4.0	3.5	-12.5%	3.6	3.5	-2.8%
Isiolo	4.6	3.8	-17.4%	4.6	3.7	-19.6%	4.6	3.6	-21.7%	4.1	3.7	-9.8%
Marsabit	5.0	3.9	-22.0%	5.0	3.9	-22.0%	5.1	3.7	-27.5%	4.3	3.9	-9.3%
Mandera	4.9	4.0	-18.4%	5.0	3.9	-22.0%	5.1	3.8	-25.5%	4.2	3.9	-7.1%
Wajir	5.0	4.0	-20.0%	5.1	3.9	-23.5%	5.2	3.8	-26.9%	4.2	3.9	-7.1%
Garissa	4.9	3.9	-20.4%	4.9	3.9	-20.4%	5.0	3.8	-24.0%	4.2	3.8	-9.5%
Taita-Taveta	3.9	3.5	-10.3%	3.9	3.5	-10.3%	4.0	3.5	-12.5%	3.6	3.3	-8.3%
Lamu	4.2	3.8	-9.5%	4.2	3.7	-11.9%	4.2	3.7	-11.9%	3.8	3.5	-7.9%
Tana River	4.9	4.0	-18.4%	4.9	3.9	-20.4%	5.0	3.8	-24.0%	4.2	3.9	-7.1%
Kilifi	4.2	3.7	-11.9%	4.2	3.7	-11.9%	4.4	3.6	-18.2%	4.0	3.6	-10.0%
Kwale	4.5	4.0	-11.1%	4.6	3.9	-15.2%	4.7	3.7	-21.3%	4.1	3.8	-7.3%
Mombasa	3.6	3.5	-2.8%	3.6	3.5	-2.8%	3.6	3.4	-5.6%	3.4	3.3	-2.9%

Source: KPHC 2009 and KPHC 2019

Note: All changes in average deprivation intensity significant at 95% confidence level (p-value<0.05).

Annex 22. Trends of change in average deprivation intensity, entire population, 2009 and 2019

Entire population			
Residence	**2009**	**2019**	**% Change**
National	4.1	3.6	-12.2%
Urban	3.6	3.4	-5.6%
Rural	4.1	3.7	-9.8%
Nairobi City	3.5	3.2	-8.6%
Nyamira	3.9	3.6	-7.7%
Kisii	3.9	3.6	-7.7%
Migori	4.2	3.7	-11.9%
Homa Bay	4.2	3.6	-14.3%
Kisumu	3.9	3.4	-12.8%

Entire population			
Residence	**2009**	**2019**	**% Change**
Siaya	4.1	3.5	-14.6%
Busia	4.0	3.5	-12.5%
Bungoma	3.8	3.5	-7.9%
Vihiga	3.7	3.4	-8.1%
Kakamega	3.7	3.4	-8.1%
Bomet	4.0	3.6	-10.0%
Kericho	4.0	3.6	-10.0%
Kajiado	4.0	3.6	-10.0%
Narok	4.4	3.9	-11.4%
Nakuru	3.7	3.5	-5.4%
Laikipia	3.9	3.7	-5.1%
Baringo	4.5	4.0	-11.1%
Nandi	4.0	3.6	-10.0%
Elgeyo-Marakwet	4.1	3.7	-9.8%
Uasin Gishu	3.7	3.4	-8.1%
Trans Nzoia	3.8	3.5	-7.9%
Samburu	4.8	4.3	-10.4%
West Pokot	4.8	4.1	-14.6%
Turkana	5.1	4.3	-15.7%
Kiambu	3.6	3.3	-8.3%
Murang'a	3.9	3.4	-12.8%
Kirinyaga	3.8	3.4	-10.5%
Nyeri	3.6	3.3	-8.3%
Nyandarua	3.7	3.3	-10.8%
Makueni	3.9	3.5	-10.3%
Machakos	4.0	3.5	-12.5%
Kitui	4.2	3.6	-14.3%
Embu	4.0	3.5	-12.5%
Tharaka-Nithi	4.1	3.5	-14.6%
Meru	3.9	3.5	-10.3%
Isiolo	4.4	3.9	-11.4%
Marsabit	4.7	4.0	-14.9%
Mandera	4.7	4.1	-12.8%
Wajir	4.8	4.1	-14.6%
Garissa	4.7	4.0	-14.9%
Taita-Taveta	3.8	3.4	-10.5%
Lamu	4.1	3.7	-9.8%
Tana River	4.6	4.0	-13.0%
Kilifi	4.1	3.7	-9.8%
Kwale	4.3	3.9	-9.3%
Mombasa	3.6	3.4	-5.6%

Source: KPHC 2009 and KPHC 2019

Note: All changes in average deprivation intensity significant at 95% confidence level (p-value<0.05).

Annex 23. Monetary poverty incidence, national level, by area of residence, and county, 2009 and 2019

Entire population					
Residence	2009		2019		% Change between 2009 and 2019
	Poverty rate	Standard error	Poverty rate	Standard error	
National	45.7	2.1	33.3	1.7	-27.1%
Urban	29.5	1.9	25.6	1.4	-13.2%
Rural	50.5	2.1	36.9	1.8	-26.9%
Nairobi City	21.2	1.2	10.4	0.8	-51.0%
Nyamira	45.4	2.7	33.9	1.8	-25.4%
Kisii	52.0	2.0	42.0	2.0	-19.2%
Migori	50.2	2.1	42.9	2.7	-14.5%
Homa Bay	48.1	1.8	17.8	3.0	-63.0%
Kisumu	42.2	2.2	34.3	1.9	-18.7%
Siaya	42.2	2.2	28.4	1.7	-32.7%
Busia	58.4	2.4	55.8	2.2	-4.5%
Bungoma	47.1	2.2	38.5	1.7	-18.2%
Vihiga	48.1	2.9	43.6	2.4	-9.3%
Kakamega	47.8	1.8	35.0	1.7	-26.7%
Bomet	47.2	2.4	38.0	1.7	-19.4%
Kericho	44.7	2.4	34.2	1.9	-23.4%
Kajiado	27.9	2.9	37.3	2.1	33.7%
Narok	40.2	2.3	19.7	1.4	-51.1%
Nakuru	38.9	1.8	28.9	1.6	-25.6%
Laikipia	41.4	2.9	35.9	1.5	-13.2%
Baringo	57.6	2.0	42.8	1.6	-25.7%
Nandi	41.8	2.5	36.0	1.8	-13.9%
Elgeyo-Marakwet	52.3	2.1	45.3	1.8	-13.3%
Uasin Gishu	38.6	2.7	34.7	1.6	-10.0%
Trans Nzoia	41.3	2.7	35.1	1.9	-14.8%
Samburu	76.8	2.5	72.2	1.9	-6.0%
West Pokot	67.4	2.3	60.8	1.7	-9.7%
Turkana	93.5	1.7	84.8	1.5	-9.3%
Kiambu	22.8	1.7	19.9	1.3	-12.8%
Murang'a	33.3	1.7	22.9	1.4	-31.3%
Kirinyaga	25.9	2.3	18.8	1.5	-27.5%
Nyeri	33.9	2.0	9.8	1.1	-71.1%
Nyandarua	41.1	2.5	26.6	1.8	-35.3%
Makueni	49.3	2.1	29.3	1.5	-40.6%
Machakos	43.8	2.2	21.3	1.6	-51.3%
Kitui	54.8	1.9	36.1	1.6	-34.1%
Embu	39.5	2.0	22.0	1.4	-44.3%
Tharaka-Nithi	41.9	1.8	20.3	1.8	-51.5%
Meru	29.6	1.8	17.1	1.4	-42.3%

Entire population					
Residence	2009		2019		% Change between 2009 and 2019
	Poverty rate	Standard error	Poverty rate	Standard error	
Isiolo	61.9	2.9	51.6	2.2	-16.7%
Marsabit	78.2	1.8	64.1	2.0	-18.0%
Mandera	88.5	1.8	76.7	1.8	-13.4%
Wajir	84.4	2.1	50.7	2.5	-39.9%
Garissa	63.9	2.8	67.4	2.2	5.5%
Taita-Taveta	48.4	2.9	31.6	2.0	-34.7%
Lamu	36.3	2.6	30.0	2.2	-17.2%
Tana River	68.2	2.5	62.8	2.0	-7.9%
Kilifi	64.1	2.0	42.8	2.1	-33.3%
Kwale	61.2	3.3	41.2	1.9	-32.7%
Mombasa	25.6	1.8	23.5	1.1	-8.2%

Source: KPHC 2009 and KPHC 2019

Annex 24. Poverty gap, national level, by area of residence, and county, 2009 and 2019

Entire population					
Residence	2009	Standard error	2019	Standard error	% Change between 2009 and 2019
National	19.1	1.1	10.7	0.7	-44.0%
Urban	9.2	0.9	7.6	0.6	-17.4%
Rural	22.1	1.2	11.3	0.8	-48.8%
Nairobi City	6.0	0.5	2.3	0.3	-62.4%
Nyamira	17.4	1.2	1.0	0.1	-94.3%
Kisii	19.8	1.0	9.1	0.7	-54.0%
Migori	18.6	1.1	11.9	0.8	-35.9%
Homa Bay	18.1	0.9	13.0	1.1	-28.5%
Kisumu	15.3	1.0	5.5	0.8	-64.2%
Siaya	16.3	1.1	9.9	0.7	-39.4%
Busia	23.8	1.3	8.2	0.7	-65.5%
Bungoma	17.6	1.1	17.6	1.1	0.1%
Vihiga	19.0	1.3	11.2	0.7	-41.0%
Kakamega	18.0	0.9	11.7	1.0	-35.1%
Bomet	18.2	1.2	8.6	0.7	-52.8%
Kericho	17.7	1.2	9.4	0.7	-46.7%
Kajiado	10.9	1.4	8.5	0.8	-22.1%
Narok	15.7	1.3	15.1	1.0	-3.6%
Nakuru	15.0	0.8	6.0	0.4	-60.1%
Laikipia	17.4	1.3	7.3	0.8	-58.2%
Baringo	26.8	1.4	11.2	0.6	-58.2%
Nandi	16.4	1.2	15.1	0.8	-7.5%

Entire population					
Residence	**2009**	**Standard error**	**2019**	**Standard error**	**% Change between 2009 and 2019**
Elgeyo-Marakwet	21.6	1.1	9.6	0.7	-55.4%
Uasin Gishu	14.1	1.2	12.2	0.8	-13.4%
Trans Nzoia	15.4	1.3	10.6	0.7	-31.3%
Samburu	40.2	1.9	10.2	0.9	-74.6%
West Pokot	29.9	1.6	29.9	1.0	-0.1%
Turkana	62.1	2.0	23.1	1.0	-62.8%
Kiambu	8.4	0.6	18.1	0.8	114.8%
Murang'a	14.1	0.7	4.8	0.4	-65.7%
Kirinyaga	11.4	0.9	5.4	0.5	-52.7%
Nyeri	14.9	0.8	3.8	0.4	-74.2%
Nyandarua	16.1	1.1	2.6	0.3	-83.8%
Makueni	19.8	1.0	6.4	0.7	-67.6%
Machakos	17.5	1.0	6.7	0.5	-61.7%
Kitui	21.9	1.0	5.3	0.6	-75.9%
Embu	16.1	0.9	9.5	0.6	-41.2%
Tharaka-Nithi	17.1	0.8	5.4	0.5	-68.2%
Meru	12.1	0.8	5.0	0.6	-58.9%
Isiolo	27.5	1.8	11.2	0.8	-59.3%
Marsabit	43.2	1.4	15.8	1.2	-63.5%
Mandera	48.7	2.4	25.9	1.4	-46.7%
Wajir	42.2	2.4	32.9	1.3	-22.2%
Garissa	27.4	2.4	14.8	1.1	-45.8%
Taita-Taveta	21.2	1.3	23.3	1.2	9.7%
Lamu	15.1	1.3	9.3	0.8	-38.4%
Tana River	30.3	1.7	11.3	0.9	-62.6%
Kilifi	27.6	1.3	19.2	1.0	-30.5%
Kwale	25.3	2.1	13.9	1.1	-44.9%
Mombasa	7.1	0.9	6.3	0.4	-11.9%

Source: KPHC 2009 and KPHC 2019

Annex 25. Trends of change in multidimensional poverty incidence (%), children aged 0-17 years, by sex and county of residence, 2009 and 2019

County	KPHC 2009				KPHC 2019			
	Girls	**Boys**	**Change between 2009 and 2019**	**P-value**	**Girls**	**Boys**	**Change between 2009 and 2019**	**P-value**
Mombasa	32.3	31.6	2.2%	0.000	31.0	31.0	0.0%	0.009
Kwale	75.2	75.9	-1.0%	0.000	68.0	70.0	-2.9%	0.000
Kilifi	67.0	67.5	-0.8%	0.000	55.0	57.0	-3.6%	0.000

County	KPHC 2009				KPHC 2019			
	Girls	Boys	Change between 2009 and 2019	P-value	Girls	Boys	Change between 2009 and 2019	P-value
Tana River	81.9	81.9	0.0%	0.964	74.0	75.0	-1.4%	0.000
Lamu	61.3	62.5	-2.0%	0.005	54.0	56.0	-3.7%	0.000
Taita/Taveta	50.0	51.5	-3.1%	0.000	34.0	36.0	-5.9%	0.000
Garissa	82.8	83.7	-1.1%	0.000	82.0	83.0	-1.2%	0.000
Wajir	90.7	91.5	-0.8%	0.000	85.0	85.0	0.0%	0.089
Mandera	89.2	89.7	-0.7%	0.000	83.0	85.0	-2.4%	0.000
Marsabit	82.5	82.7	-0.2%	0.388	77.0	79.0	-2.6%	0.000
Isiolo	64.8	65.6	-1.3%	0.020	59.0	62.0	-5.1%	0.000
Meru	52.4	54.0	-3.1%	0.000	41.0	44.0	-7.3%	0.000
Tharaka-Nithi	62.8	64.3	-2.5%	0.000	45.0	46.0	-2.2%	0.000
Embu	58.1	60.2	-3.6%	0.000	35.0	37.0	-5.7%	0.000
Kitui	74.9	76.0	-1.5%	0.000	62.0	63.0	-1.6%	0.000
Machakos	62.3	64.0	-2.8%	0.000	38.0	40.0	-5.3%	0.000
Makueni	62.7	64.6	-3.0%	0.000	52.0	54.0	-3.8%	0.000
Nyandarua	45.9	47.3	-2.9%	0.000	24.0	26.0	-8.3%	0.000
Nyeri	35.8	37.5	-4.7%	0.000	18.0	19.0	-5.6%	0.000
Kirinyaga	40.8	42.6	-4.4%	0.000	26.0	27.0	-3.8%	0.000
Murang'a	59.7	61.0	-2.0%	0.000	31.0	32.0	-3.2%	0.000
Kiambu	28.1	29.2	-4.0%	0.000	12.0	13.0	-8.3%	0.000
Turkana	90.3	90.9	-0.7%	0.000	83.0	84.0	-1.2%	0.000
West Pokot	85.5	86.2	-0.8%	0.000	76.0	77.0	-1.3%	0.000
Samburu	84.0	84.8	-1.0%	0.000	82.0	83.0	-1.2%	0.000
Trans Nzoia	48.4	50.4	-4.0%	0.000	39.0	42.0	-7.7%	0.000
Uasin Gishu	36.7	38.8	-5.7%	0.000	29.0	32.0	-10.3%	0.000
Elgeyo/Marakwet	67.6	68.8	-1.8%	0.000	61.0	63.0	-3.3%	0.000
Nandi	60.3	62.2	-3.2%	0.000	55.0	57.0	-3.6%	0.000
Baringo	78.7	80.5	-2.3%	0.000	69.0	71.0	-2.9%	0.000
Laikipia	54.2	55.7	-2.7%	0.000	45.0	47.0	-4.4%	0.000
Nakuru	45.6	47.3	-3.7%	0.000	33.0	35.0	-6.1%	0.000
Narok	82.6	83.4	-0.9%	0.000	75.0	76.0	-1.3%	0.000
Kajiado	53.7	55.3	-2.9%	0.000	42.0	44.0	-4.8%	0.000
Kericho	60.6	62.1	-2.4%	0.000	55.0	57.0	-3.6%	0.000
Bomet	65.6	66.4	-1.3%	0.000	58.0	60.0	-3.4%	0.000
Kakamega	48.6	51.0	-5.0%	0.000	39.0	43.0	-10.3%	0.000
Vihiga	43.4	45.9	-5.7%	0.000	38.0	42.0	-10.5%	0.000
Bungoma	52.9	55.2	-4.3%	0.000	38.0	42.0	-10.5%	0.000
Busia	61.7	62.9	-1.9%	0.000	43.0	47.0	-9.3%	0.000
Siaya	69.3	70.4	-1.7%	0.000	49.0	52.0	-6.1%	0.000
Kisumu	53.0	53.9	-1.7%	0.000	35.0	38.0	-8.6%	0.000

County	KPHC 2009				KPHC 2019			
	Girls	Boys	Change between 2009 and 2019	P-value	Girls	Boys	Change between 2009 and 2019	P-value
Homa Bay	73.7	74.5	-1.1%	0.000	54.0	55.0	-1.9%	0.000
Migori	70.4	71.2	-1.2%	0.000	58.0	60.0	-3.4%	0.000
Kisii	54.4	55.0	-1.1%	0.000	53.0	54.0	-1.9%	0.000
Nyamira	51.7	52.2	-1.0%	0.005	52.0	53.0	-1.9%	0.000
Nairobi City	21.3	20.7	2.6%	0.000	10.0	10.0	0.0%	0.000

Source: KPHC 2009 and KPHC 2019

Note: In 2009, differences in multidimensional poverty rates between girls and boys insignificant in Tana River and Marsabit. In 2019, differences insignificant in Wajir.

Annex 26. Trends of change in multidimensional poverty incidence (%), youths aged 18-34 years, by sex and county of residence, 2009 and 2019

County	KPHC 2009				KPHC 2019			
	Women	Men	Change between 2009 and 2019	P-value	Women	Men	Change between 2009 and 2019	P-value
Mombasa	52.1	61.8	-18.5%	0.000	44.0	37.0	15.9%	0.000
Kwale	83.3	90.3	-8.4%	0.000	74.0	67.0	9.5%	0.000
Kilifi	76.1	85.4	-12.2%	0.000	64.0	56.0	12.5%	0.000
Tana River	91.9	95.8	-4.2%	0.000	82.0	75.0	8.5%	0.000
Lamu	83.1	89.4	-7.6%	0.000	69.0	60.0	13.0%	0.000
Taita/Taveta	75.8	80.7	-6.6%	0.000	52.0	49.0	5.8%	0.000
Garissa	88.1	92.9	-5.4%	0.000	78.0	80.0	-2.6%	0.000
Wajir	97.4	98.8	-1.4%	0.000	83.0	82.0	1.2%	0.050
Mandera	96.6	98.3	-1.8%	0.000	86.0	85.0	1.2%	0.000
Marsabit	92.7	96.6	-4.2%	0.000	80.0	78.0	2.5%	0.000
Isiolo	78.8	85.1	-8.0%	0.000	62.0	61.0	1.6%	0.080
Meru	79.6	82.1	-3.1%	0.000	57.0	54.0	5.3%	0.000
Tharaka-Nithi	83.3	85.2	-2.3%	0.000	58.0	54.0	6.9%	0.000
Embu	79.7	79.3	0.5%	0.082	47.0	50.0	-6.4%	0.000
Kitui	89.1	91.3	-2.5%	0.000	71.0	67.0	5.6%	0.000
Machakos	76.5	79.9	-4.5%	0.000	45.0	45.0	0.0%	0.000
Makueni	84.3	88.0	-4.3%	0.000	63.0	61.0	3.2%	0.000
Nyandarua	78.5	82.3	-4.8%	0.000	48.0	44.0	8.3%	0.000
Nyeri	67.4	68.8	-2.0%	0.000	29.0	28.0	3.4%	0.000
Kirinyaga	78.3	78.4	-0.1%	0.631	41.0	41.0	0.0%	0.830
Murang'a	80.2	83.1	-3.6%	0.000	46.0	44.0	4.3%	0.000
Kiambu	51.2	54.6	-6.7%	0.000	19.0	18.0	5.3%	0.000
Turkana	96.2	97.5	-1.4%	0.000	88.0	86.0	2.3%	0.000
West Pokot	93.9	95.8	-2.1%	0.000	84.0	80.0	4.8%	0.000
Samburu	89.1	93.5	-4.9%	0.000	83.0	80.0	3.6%	0.000

County	KPHC 2009				KPHC 2019			
	Women	Men	Change between 2009 and 2019	P-value	Women	Men	Change between 2009 and 2019	P-value
Trans Nzoia	75.1	81.4	-8.5%	0.000	60.0	53.0	11.7%	0.000
Uasin Gishu	59.9	65.7	-9.6%	0.000	39.0	36.0	7.7%	0.000
Elgeyo/Marakwet	85.0	87.7	-3.2%	0.000	70.0	68.0	2.9%	0.000
Nandi	81.6	85.7	-4.9%	0.000	66.0	62.0	6.1%	0.000
Baringo	86.4	87.9	-1.7%	0.000	72.0	70.0	2.8%	0.000
Laikipia	70.6	75.2	-6.6%	0.000	50.0	47.0	6.0%	0.000
Nakuru	64.0	70.2	-9.7%	0.000	43.0	39.0	9.3%	0.000
Narok	91.6	94.7	-3.4%	0.000	80.0	75.0	6.3%	0.000
Kajiado	61.8	65.6	-6.2%	0.000	40.0	37.0	7.5%	0.000
Kericho	76.2	82.4	-8.0%	0.000	66.0	60.0	9.1%	0.000
Bomet	83.9	89.1	-6.3%	0.000	70.0	64.0	8.6%	0.000
Kakamega	78.4	84.5	-7.9%	0.000	62.0	55.0	11.3%	0.000
Vihiga	77.1	82.4	-6.9%	0.000	59.0	54.0	8.5%	0.000
Bungoma	80.7	85.3	-5.7%	0.000	62.0	54.0	12.9%	0.000
Busia	84.5	89.4	-5.8%	0.000	67.0	58.0	13.4%	0.000
Siaya	89.0	92.2	-3.5%	0.000	70.0	62.0	11.4%	0.000
Kisumu	73.4	80.5	-9.6%	0.000	53.0	43.0	18.9%	0.000
Homa Bay	89.3	93.1	-4.2%	0.000	72.0	62.0	13.9%	0.000
Migori	87.0	91.1	-4.7%	0.000	74.0	66.0	10.8%	0.000
Kisii	78.0	84.2	-7.9%	0.000	66.0	58.0	12.1%	0.000
Nyamira	77.8	83.9	-7.9%	0.000	67.0	60.0	10.4%	0.000
Nairobi City	38.1	42.2	-10.9%	0.000	19.0	15.0	21.1%	0.000

Source: KPHC 2009 and KPHC 2019

Note: In 2009, differences in multidimensional poverty rates between women and men insignificant in Embu and Kirinyaga. In 2019, differences insignificant in Isiolo and Kirinyaga.

Annex 27. Trends of change in multidimensional poverty incidence (%), adults aged 35-59 years, by sex and county of residence, 2009 and 2019

County	KPHC 2009				KPHC 2019			
	Women	Men	Change between 2009 and 2019	P-value	Women	Men	Change between 2009 and 2019	P-value
Mombasa	69.7	56.2	19.3%	0.000	48.0	43.0	10.4%	0.000
Kwale	95.4	86.2	9.6%	0.000	73.0	67.0	8.2%	0.000
Kilifi	92.8	79.9	13.9%	0.000	62.0	56.0	9.7%	0.000
Tana River	97.6	93.4	4.4%	0.000	81.0	77.0	4.9%	0.000
Lamu	94.8	84.8	10.5%	0.000	71.0	65.0	8.5%	0.000
Taita/Taveta	90.6	81.0	10.6%	0.000	65.0	59.0	9.2%	0.000
Garissa	97.3	93.3	4.1%	0.000	75.0	75.0	0.0%	0.001
Wajir	99.7	98.7	1.0%	0.000	79.0	78.0	1.3%	0.004
Mandera	99.6	98.4	1.3%	0.000	83.0	82.0	1.2%	0.002

County	KPHC 2009				KPHC 2019			
	Women	Men	Change between 2009 and 2019	P-value	Women	Men	Change between 2009 and 2019	P-value
Marsabit	98.7	94.9	3.8%	0.000	76.0	74.0	2.6%	0.000
Isiolo	92.3	83.0	10.1%	0.000	58.0	58.0	0.0%	0.550
Meru	91.3	84.4	7.5%	0.000	66.0	62.0	6.1%	0.000
Tharaka-Nithi	92.3	86.9	5.9%	0.000	69.0	65.0	5.8%	0.000
Embu	89.1	83.7	6.1%	0.000	64.0	62.0	3.1%	0.000
Kitui	95.8	90.7	5.3%	0.000	76.0	72.0	5.3%	0.000
Machakos	90.6	81.3	10.3%	0.000	59.0	53.0	10.2%	0.000
Makueni	94.8	88.1	7.1%	0.000	73.0	68.0	6.8%	0.000
Nyandarua	93.1	85.5	8.2%	0.000	72.0	63.0	12.5%	0.000
Nyeri	86.3	78.4	9.1%	0.000	57.0	50.0	12.3%	0.000
Kirinyaga	90.3	84.6	6.3%	0.000	60.0	59.0	1.7%	0.000
Murang'a	92.4	85.4	7.6%	0.000	66.0	60.0	9.1%	0.000
Kiambu	73.5	62.0	15.6%	0.000	36.0	31.0	13.9%	0.000
Turkana	99.1	97.0	2.1%	0.000	89.0	85.0	4.5%	0.000
West Pokot	98.1	95.2	2.9%	0.000	85.0	82.0	3.5%	0.000
Samburu	97.3	90.8	6.6%	0.000	82.0	76.0	7.3%	0.000
Trans Nzoia	90.2	80.0	11.4%	0.000	64.0	56.0	12.5%	0.000
Uasin Gishu	82.1	69.5	15.4%	0.000	51.0	46.0	9.8%	0.000
Elgeyo/Marakwet	94.7	89.1	5.9%	0.000	77.0	74.0	3.9%	0.000
Nandi	92.5	84.6	8.5%	0.000	72.0	68.0	5.6%	0.000
Baringo	93.3	88.2	5.5%	0.000	77.0	72.0	6.5%	0.000
Laikipia	88.0	77.1	12.3%	0.000	63.0	57.0	9.5%	0.000
Nakuru	83.3	72.1	13.4%	0.000	55.0	49.0	10.9%	0.000
Narok	97.4	92.8	4.7%	0.000	81.0	77.0	4.9%	0.000
Kajiado	76.2	67.3	11.7%	0.000	43.0	40.0	7.0%	0.000
Kericho	90.6	79.5	12.3%	0.000	74.0	67.0	9.5%	0.000
Bomet	94.3	84.6	10.3%	0.000	77.0	70.0	9.1%	0.000
Kakamega	92.8	84.3	9.2%	0.000	66.0	60.0	9.1%	0.000
Vihiga	92.8	84.7	8.7%	0.000	66.0	63.0	4.5%	0.000
Bungoma	92.9	84.1	9.5%	0.000	68.0	59.0	13.2%	0.000
Busia	95.1	87.4	8.1%	0.000	71.0	63.0	11.3%	0.000
Siaya	96.9	91.1	5.9%	0.000	77.0	69.0	10.4%	0.000
Kisumu	88.5	77.1	12.9%	0.000	61.0	50.0	18.0%	0.000
Homa Bay	96.8	91.5	5.5%	0.000	78.0	69.0	11.5%	0.000
Migori	95.6	88.8	7.1%	0.000	78.0	70.0	10.3%	0.000
Kisii	94.2	85.3	9.5%	0.000	75.0	68.0	9.3%	0.000
Nyamira	93.9	84.9	9.6%	0.000	74.0	67.0	9.5%	0.000
Nairobi City	46.8	44.1	5.7%	0.000	23.0	21.0	8.7%	0.000

Source: KPHC 2009 and KPHC 2019

Note: In 2019, differences in multidimensional poverty rates between women and men insignificant in Isiolo.

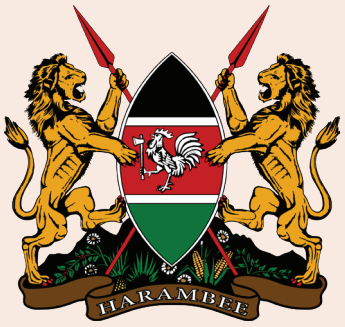
Annex 28. Trends of change in multidimensional poverty incidence (%), elderly aged 60+ years, by sex and county of residence, 2009 and 2019

County	KPHC 2009				KPHC 2019			
	Women	Men	Change between 2009 and 2019	P-value	Women	Men	Change between 2009 and 2019	P-value
Mombasa	44.3	32.2	27.4%	0.000	36.0	25.0	30.6%	0.000
Kwale	89.2	82.4	7.7%	0.000	79.0	65.0	17.7%	0.000
Kilifi	84.3	75.6	10.3%	0.000	72.0	55.0	23.6%	0.000
Tana River	91.1	87.9	3.4%	0.000	83.0	75.0	9.6%	0.000
Lamu	73.4	66.9	8.8%	0.000	63.0	55.0	12.7%	0.000
Taita/Taveta	71.7	60.7	15.4%	0.000	47.0	36.0	23.4%	0.000
Garissa	81.8	84.4	-3.2%	0.000	77.0	77.0	0.0%	0.682
Wajir	96.9	95.7	1.3%	0.000	86.0	85.0	1.2%	0.021
Mandera	95.0	94.2	0.8%	0.006	87.0	86.0	1.1%	0.118
Marsabit	95.9	94.7	1.3%	0.000	88.0	85.0	3.4%	0.000
Isiolo	85.3	82.0	3.9%	0.000	64.0	60.0	6.3%	0.000
Meru	76.0	62.8	17.4%	0.000	60.0	47.0	21.7%	0.000
Tharaka-Nithi	81.2	70.4	13.3%	0.000	58.0	48.0	17.2%	0.000
Embu	80.2	65.3	18.6%	0.000	53.0	39.0	26.4%	0.000
Kitui	90.2	81.4	9.8%	0.000	75.0	60.0	20.0%	0.000
Machakos	82.0	68.1	16.9%	0.000	52.0	38.0	26.9%	0.000
Makueni	84.5	72.2	14.6%	0.000	63.0	50.0	20.6%	0.000
Nyandarua	68.4	49.8	27.1%	0.000	33.0	22.0	33.3%	0.000
Nyeri	64.6	44.8	30.7%	0.000	28.0	18.0	35.7%	0.000
Kirinyaga	74.0	54.3	26.6%	0.000	45.0	31.0	31.1%	0.000
Murang'a	79.7	62.6	21.5%	0.000	42.0	29.0	31.0%	0.000
Kiambu	58.8	38.8	33.9%	0.000	23.0	14.0	39.1%	0.000
Turkana	98.1	97.5	0.6%	0.001	96.0	93.0	3.1%	0.000
West Pokot	96.6	94.7	1.9%	0.000	93.0	88.0	5.4%	0.000
Samburu	96.2	94.2	2.0%	0.000	94.0	90.0	4.3%	0.000
Trans Nzoia	71.9	57.7	19.8%	0.000	51.0	39.0	23.5%	0.000
Uasin Gishu	65.7	54.7	16.7%	0.000	48.0	36.0	25.0%	0.000
Elgeyo/Marakwet	89.5	83.3	7.0%	0.000	79.0	70.0	11.4%	0.000
Nandi	82.6	73.2	11.4%	0.000	69.0	59.0	14.5%	0.000
Baringo	91.7	85.3	7.0%	0.000	79.0	70.0	11.4%	0.000
Laikipia	73.4	58.8	20.0%	0.000	47.0	37.0	21.3%	0.000
Nakuru	68.4	52.7	22.9%	0.000	40.0	31.0	22.5%	0.000
Narok	93.7	89.3	4.7%	0.000	85.0	78.0	8.2%	0.000
Kajiado	72.7	62.5	14.0%	0.000	50.0	43.0	14.0%	0.000
Kericho	84.7	71.5	15.5%	0.000	72.0	57.0	20.8%	0.000
Bomet	87.7	76.6	12.7%	0.000	74.0	59.0	20.3%	0.000
Kakamega	73.7	55.8	24.3%	0.000	50.0	38.0	24.0%	0.000
Vihiga	66.9	52.4	21.7%	0.000	46.0	38.0	17.4%	0.000

County	KPHC 2009				KPHC 2019			
	Women	Men	Change between 2009 and 2019	P-value	Women	Men	Change between 2009 and 2019	P-value
Bungoma	76.1	56.6	25.7%	0.000	53.0	38.0	28.3%	0.000
Busia	84.4	68.5	18.8%	0.000	61.0	45.0	26.2%	0.000
Siaya	86.9	71.6	17.6%	0.000	59.0	45.0	23.7%	0.000
Kisumu	82.2	62.9	23.4%	0.000	51.0	36.0	29.4%	0.000
Homa Bay	90.6	76.6	15.4%	0.000	66.0	51.0	22.7%	0.000
Migori	89.7	76.3	14.9%	0.000	74.0	59.0	20.3%	0.000
Kisii	81.1	62.2	23.3%	0.000	69.0	54.0	21.7%	0.000
Nyamira	77.3	58.8	23.9%	0.000	64.0	50.0	21.9%	0.000
Nairobi City	24.8	17.1	31.1%	0.000	9.0	8.0	11.1%	0.000

Source: KPHC 2009 and KPHC 2019

Note: In 2019, differences in multidimensional poverty rates between women and men insignificant in Garissa and Mandera.



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KENYA NATIONAL BUREAU OF STATISTICS
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REPUBLIC OF KENYA

Kenya National Bureau of Statistics
Real Towers, Upper Hill
P.O. Box 30266 - 00100 Nairobi, Kenya

Tel: +254-20-3317583, +254-20-2911000/1, +254-20-3317612/22/23/51

Email: info@knbs.or.ke / directorgeneral@knbs.or.ke/ library@knbs.or.ke

Facebook: Kenya Stats

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