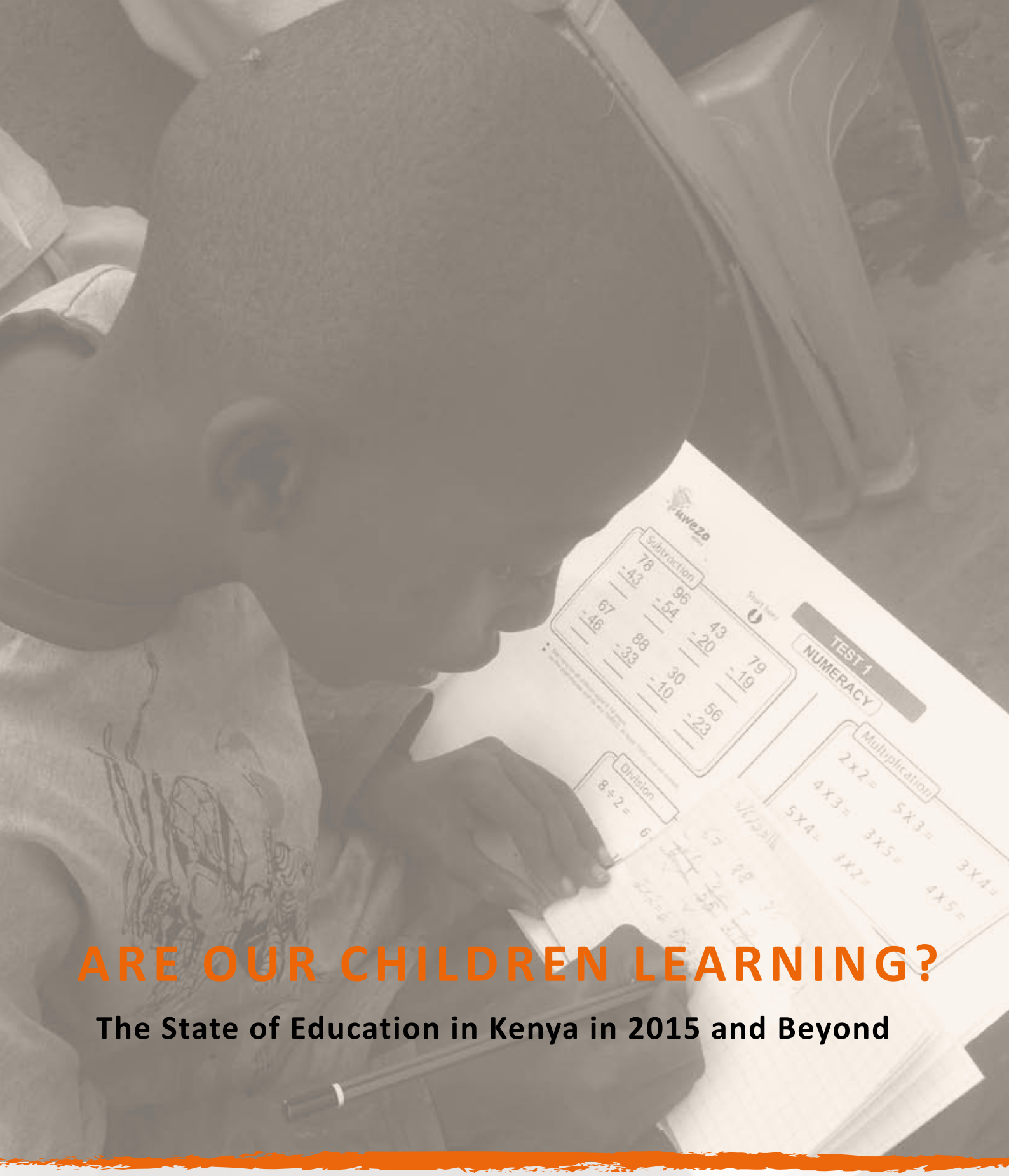

ARE OUR CHILDREN LEARNING?

The State of Education in Kenya in 2015 and Beyond

Uwezo KENYA

Twaweza ni sisi

The Fifth Uwezo Annual Learning Assessment Report



THE UWEZO INITIATIVE WAS SUPPORTED IN 2014 BY:

THE WILLIAM AND FLORA HEWLETT FOUNDATION, HIVOS, SIDA, AND THE CHILDREN'S INVESTMENT FUND FOUNDATION (CIFF).

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Abbreviations

ASAL	Arid and semi-arid lands
EFA	Education for All
SDGs	Sustainable Development Goals
UPE	Universal Primary Education
UNESCO	United Nations Educational, Scientific and Cultural Organisation


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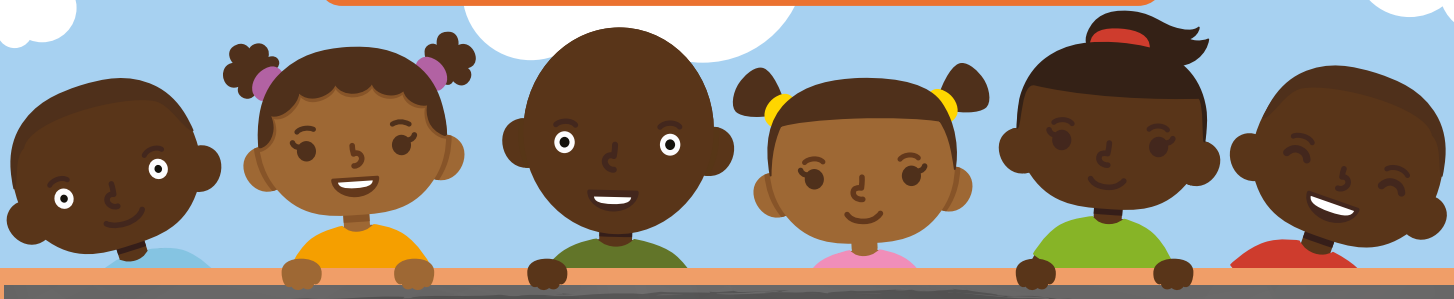
- Production was overseen by Risha Chande with editorial services from Chris Daly and design by Wond Ltd.

It takes a massive, dedicated team to pull off the Uwezo survey. We are not able to mention each individual who contributed to this success by name. Please accept our heartfelt gratitude and know that we quite literally could not have done it without you. We continue to be inspired by all who are working to secure a promising future for our children. Asante.

FIVE FACTS ON THE STATE OF EDUCATION IN KENYA



FACT 1

SCHOOL READINESS AMONG CHILDREN AGED UNDER 7 YEARS ENROLLED IN SCHOOL IS LOW AND DISPARATE



Based on regional scores calculated using a composite index of school readiness, children in the North Eastern region are much less ready to attend school than their counterparts in the Central and Nairobi regions.



For example, 16% of children aged 7 years and under in Standard 1 in the North Eastern region were unable to read letters compared with less than 2% of their peers in Nairobi.

FACT 2

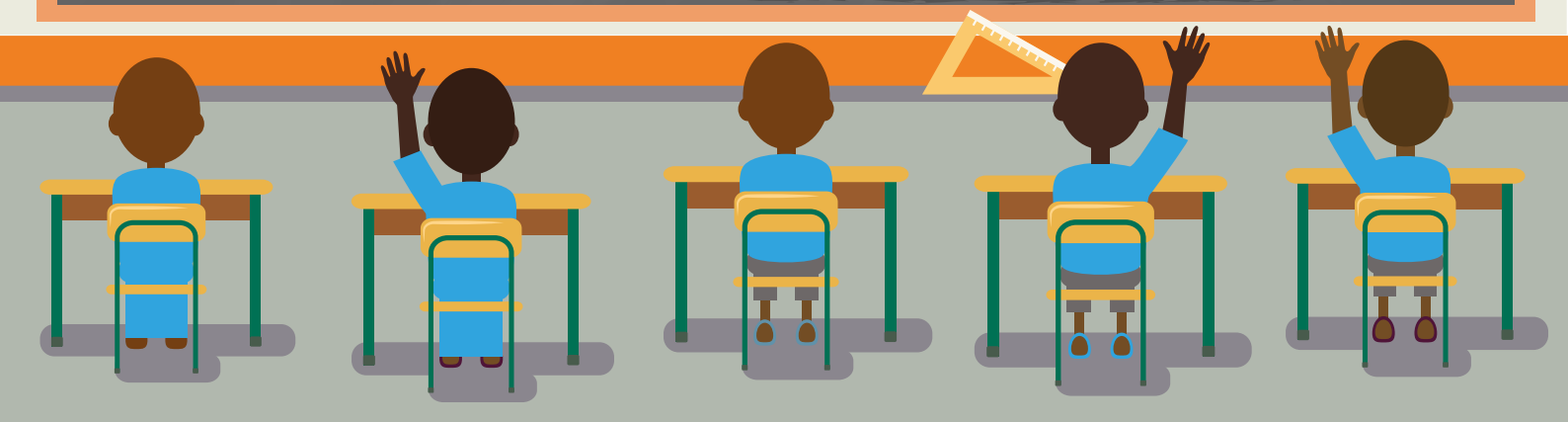
ACCESS TO PRIMARY SCHOOL IS HIGH, BUT PROGRESSION THROUGH SCHOOL IS LOW



Nationally, the vast majority (90%) of school-aged children in Kenya are attending school. However, progression through the primary cycle is slow. On average, among children aged 6-13 years, the grade gap—that is,

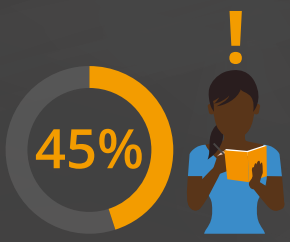


the difference between the expected grade for their age and the grade in which the child is enrolled—is 2 years. For example, the average 13-year-old attends Standard 6 rather than Standard 8.



FACT 3

ADULT LITERACY LEVEL IN ENGLISH IS LOW AND DISPARATE ACROSS THE COUNTRY AND BY GENDER



Based on data from the 2013 Uwezo assessment, 45% of mothers could not read a Standard 2 level story in English. Marked regional disparities in illiteracy among mothers were recorded.



For example, over 90% of mothers in the North Eastern region (i.e., twice the national average) could not read a Standard 2 level story compared with less than 30% of mothers in Central region.

FACT 4

GENDER-BASED INEQUALITIES IN LEARNING ARE ALMOST ELIMINATED, BUT EDUCATIONAL INEQUALITIES OF OPPORTUNITY PERSIST



Across the country, more girls are enrolled in school than boys with the exception of the North Eastern region where more boys are enrolled than girls. Girls also progress faster through school than boys.



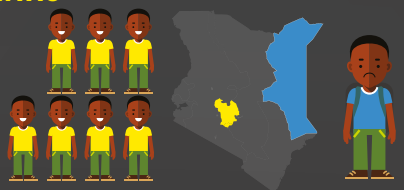
Children from less privileged households are less likely to attend school and to progress in school compared with children from well-to-do households. Children from arid and semi-arid lands (ASAL) areas are less likely to attend and progress in school than their counterparts in non-arid areas.

FACT 5

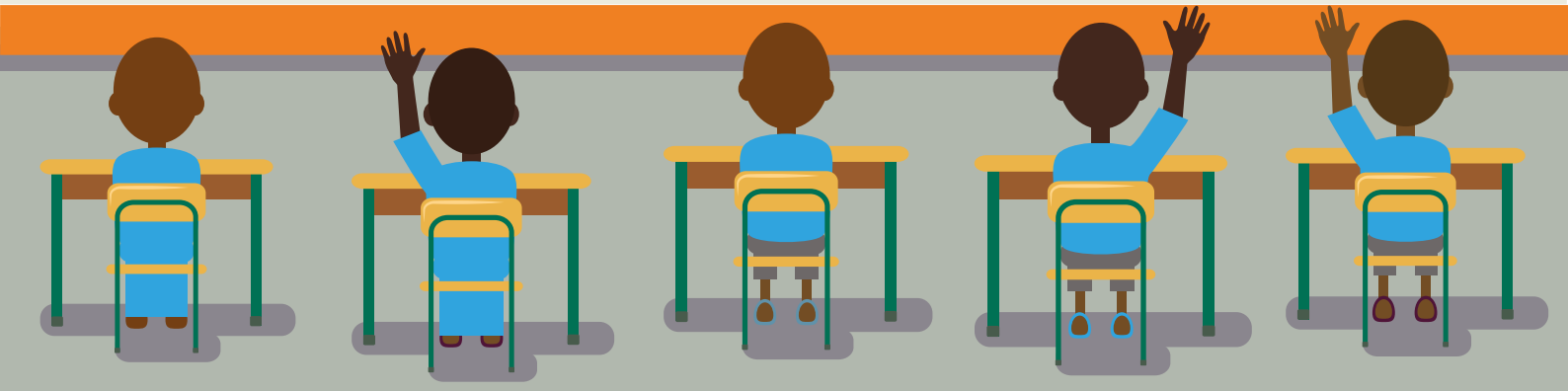
LEARNING OUTCOMES ARE LOW AND STATIC



Uwezo data show no evidence of progress over time in the proportions of children who complete the Standard 2 level numeracy and literacy tests. In the 2014 Uwezo assessment, 39% of children aged 7-13 years passed the tests. Similar pass rates were recorded in the three previous rounds: 40% in 2011, 37% in 2012 and 41% in 2013.



Regional disparities in learning outcomes also persist. For example, a child in the Central region is over seven times more likely to have attained a Standard 2 level of literacy and numeracy than a child in the North Eastern region.





Foreword

CONNECTING PAST ACHIEVEMENTS (EFA GOALS FOR 2015) WITH FUTURE ASPIRATIONS (SDGs FOR 2030).

JOHN MUGO AND AIDAN EYAKUZE

Five and a half decades ago, the wave of African independence from colonial rule brought new hope to East Africa. Here at last was the chance for the free movement of people, liberty to choose our leaders, the opportunity to chart our future direction and a chance to ensure equitable education. The first decades of post-independence social policy focused on expanding access to education at all levels. By the mid-1980s however, the steep enrolment curve had flattened. The long-anticipated fruits of independence seemed to have turned sour. Even the World Education Conference held in Thailand in 1990 did little to rekindle hope for East Africa's educational ambitions.

A second, more ambitious wave to provide universal primary education (UPE) arrived in Uganda in 1997, preceding the World Education Forum in Dakar in 2000. This new push for universal primary education was taken up by Tanzania in 2002, followed by Kenya in 2003. Though mainly driven by political directives, these national initiatives to expand access to education brought renewed optimism and momentum. Primary school enrolments in all three countries rose dramatically. However, five years after UPE had started in each country, research began to indicate worrying trends, including stagnating enrolment ratios and declining quality of education.

Since 2009, the Uwezo Annual Learning Assessments have provided evidence on the quality of education in three countries in East Africa: Kenya, Tanzania and Uganda. These assessments are by far the largest surveys of learning outcomes ever carried out in Africa. The fifth round of the assessment was conducted in Kenya in September and October 2014.

The fifth report in the Uwezo series arrives at a critical juncture, not only for examining the extent to which Kenya has met the six Education for All (EFA) goals set in 2000 for achievement by 2015, but also for informing the development of specific targets and indicators for Sustainable Development Goal 4 (SDG 4) to ensure inclusive and equitable quality education and lifelong learning for all by 2030. The targets and indicators for SDG 4 will be finalised this year.

This year's report also expands Uwezo's analysis conceptually. Within the context of learning outcomes, the report interrogates the extent to which access to primary school, access to early childhood education, gender equality, and adult and lifelong learning were achieved by 2015. The aim is to engage with a broader range of analytical audiences, especially national and county-level decision makers in education, as well as academia and civil society organizations involved in education. It invites readers to look beyond the narrative of learning outcomes, to critically examine the baseline from which the SDGs will start, and use this to monitor progress through to 2030. All the while, the report will remain true to the fundamental question that has motivated Uwezo from its inception, one that remains as deeply relevant today: **Are our children learning?**



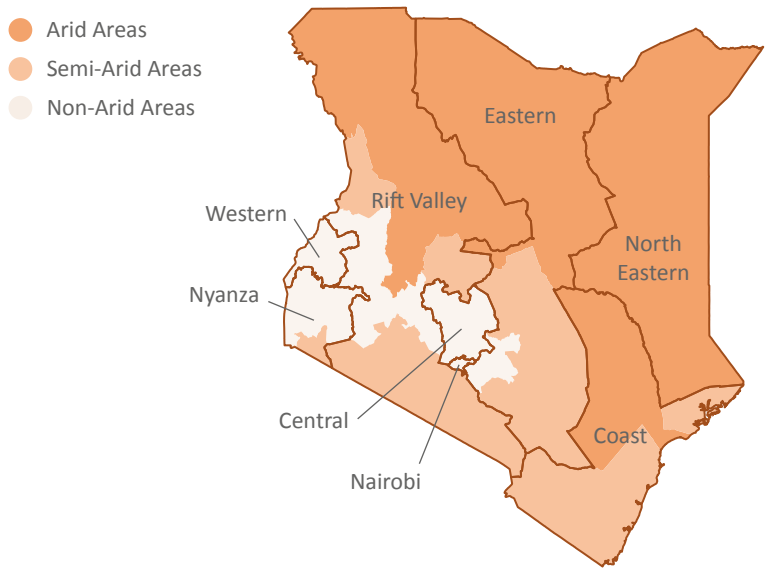
1. Introduction

If there is one thing in Kenya on which politicians and voters of all political persuasions tend to agree, it is the importance of education. Since the World Conference on Education for All in 1990, developing countries have committed to expand and ensure access to quality basic education. In 2000, a set of core education goals were agreed upon, known as Education For All (EFA).[1] These six goals were due to be met by 2015. Consequently, this is an appropriate juncture at which to reflect on the progress made against these goals and consider future challenges and priorities to improve learning.

Since 2009, five rounds of the Uwezo Annual Learning Assessment have been completed. This fifth report in the series departs from the content and format of earlier Uwezo reports. It aims to provide a baseline analysis for assessing progress towards the fourth Sustainable Development Goal (SDG), which concerns education. SDG 4 is inspired by previous global commitments around education, particularly the Education For All (EFA) initiative.[2] Therefore, data from the most recent Uwezo survey conducted in 2014 and from previous survey datasets are used to evaluate progress against the EFA goals as a point of departure for thinking about the SDGs.

Section 2 of the report provides a justification for the continued pursuit of improvements in access to and quality of education as fundamental public policy priorities. Section 3 briefly describes the methodology of the Uwezo Annual Learning Assessments and the data collected by the surveys. Section 4 provides a situation report of education in Kenya against the six EFA goals. Section 5 concludes the report.

Figure 1: Kenya's eight main regions (former provinces).



[1] In summary, the six Education for All goals are: Goal 1: Expand early childhood care and education; Goal 2: Provide free and compulsory primary education for all; Goal 3: Promote learning and life skills for young people and adults; Goal 4: Increase adult literacy; Goal 5: Achieve gender parity; and Goal 6: Improve the quality of education. See Appendix 1 for the full text of each goal.

[2] At the United Nations Sustainable Development Summit on 25 September 2015, world leaders adopted the 2030 Agenda for Sustainable Development, which includes a set of 17 Sustainable Development Goals (SDGs) to end poverty, fight inequality and injustice, and tackle climate change by 2030. Kenya had earlier committed to undertake steps towards promoting educational opportunities for all by 2030 at the World Education Forum which took place in Incheon in the Republic of Korea from 18-22 May 2015.



2. Why Does Education Matter?

Four general arguments can be advanced to justify an emphasis on education. The first refers to the role of education as a determinant of economic development. Academic studies have identified not only an association between higher levels of education and higher average incomes, but also a positive causal link running from a higher quality of education to economic growth (see Hanushek et al., 2008), that is, investment in education is expected to provide a growth pay-off. This is increasingly relevant in today's global economy, where capital investment is often skills-biased. Quality education provides at least basic skills, which lay the foundation for acquisition of high-level skills that are sought out by investors (see Mayer, 2000). The flipside is that workers without basic skills potentially face large barriers in entering the formal workforce where the quality of jobs is higher. At the same time, with the economic success of China and other populous Asian countries, the global supply of labour with basic education has expanded significantly over the last two decades. Thus, Kenya must strive to build a deep and wide skills base in order to compete and attract investment.

The second rationale for focusing on education is that it provides a crucial means to address social, economic and political inequalities. This has been recognised for generations. For instance, the nineteenth century social reformer Horace Mann proclaimed:

Education, then, beyond all other devices of human origin, is the great equalizer of the conditions of men—the balance-wheel of the social machinery. ... It does better than to disarm the poor of their hostility towards the rich: it prevents [them from] being poor (Mann, 1868, p. 669).

In keeping with this view, economic scholarship has shown how differential investments by parents in the human capital of their offspring can translate into large and persistent wealth disparities across generations (Galor & Moav, 2004). Similarly, wealth disparities can persist where states provide differential educational opportunities to children of different backgrounds. These issues continue to be relevant to Kenya today (Manyasa, 2015).

A third rationale highlights the role of education in consolidating social and national development. As many scholars note, this function of education was central in the post-independence period. Education was stressed as a means to develop a more cohesive cultural and national identity as distinct from that of the colonial period. Alongside the economic contribution of education, this view has been stated in various education commissions since independence—including the Ominde Report of 1964, which sought to reform colonial education, the Gachathi Report of 1976, and the Kamunge Report of 1988, which focused on education financing, quality and relevance—and has provided a consistent moral justification for provision of universal, cheap access to schooling.

A fourth rationale concerns the intrinsic value of education (see, for example, Sen, 1999). Education sets people free from the encumbrances of ignorance, enhances peoples' general functioning, and enables them to become active and engaged citizens. Education, thus, has a value beyond specific objectives such as promoting skills development or income growth. This overarching view is that education has worth to the person. Hence, education, like any other freedom, is a fundamental right of every human being.

In addition to these general arguments, specific reasons for the continued focus on education in Kenya can be cited. For example, the country exhibits what may be termed a strong 'revealed preference' for education. According to latest estimates, around 30% of the national budget is spent on education services (Lakin & Kinuthia, 2015). This equates to around USD 200 per citizen aged 5-19 years. Indeed, education has been and continues to be the largest expenditure line in the government budget. It is reasonable to consider that this broadly reflects the preferences of society as a whole and that achievement of public policy targets in the education sector should be a major criterion for political success.

Even so, two observations suggest a rather paradoxical situation. First, despite the very substantial volumes of public expenditure on education, enrolments in private schools and private tuition are large and increasing. According to Uwezo data for 2014, around 18% of children aged 6-16 years who are enrolled in school attend a private school, and this proportion has been growing steadily over the last five years. Second, there is widespread recognition that the quality of learning in public schools is generally low (see Jones et al., 2014). So, while public provision of education is important and widely supported (in principle), the public education system may not be functioning effectively. This situation motivates the current report's analysis of the status of education in Kenya against the EFA goals.



3. Methodology

The analysis presented in this report relies on data collected by the five rounds of the Uwezo Annual Learning Assessment, which were conducted in 2009, 2011, 2012, 2013 and 2014. A detailed description of the Uwezo surveys is provided in Jones et al. (2014). However, a few points merit emphasis. First, each survey round has been administered to a nationally-representative random sample of children aged 6-16 years. Moreover, since the third round (2012), the sample has covered all Kenyan districts, with the exception of one or two districts which were left out of each round due to security concerns.

Second, unless otherwise stated, data from all five completed rounds are used for the analysis. This maximizes the number of observations, thereby enhancing the accuracy of the results. In total, 610,544 children are included in this pooled dataset. This means that the analysis draws upon at least 3,000 observations per county and more than 20,000 observations from the larger, more populous counties. In addition, all the data have been cleaned on a consistent basis and missing observations on test scores have been imputed (based on a multiple regression method) to reduce systematic bias. For this reason, the results presented in this report may be slightly different to results reported in previous regional and national reports.

Third, the test scores reported are results for basic literacy (in English and in Kiswahili) and numeracy tests administered individually to each child as part of the data collection process. All three tests are set according to the Standard 2 level curriculum in Kenya, which is the level to be attained after two years of primary education. Uwezo pegs the literacy and numeracy levels to Standard 2 because educational curricula in most countries in the world specify that all children should have developed basic literacy and numeracy by the end of their second year in primary school.

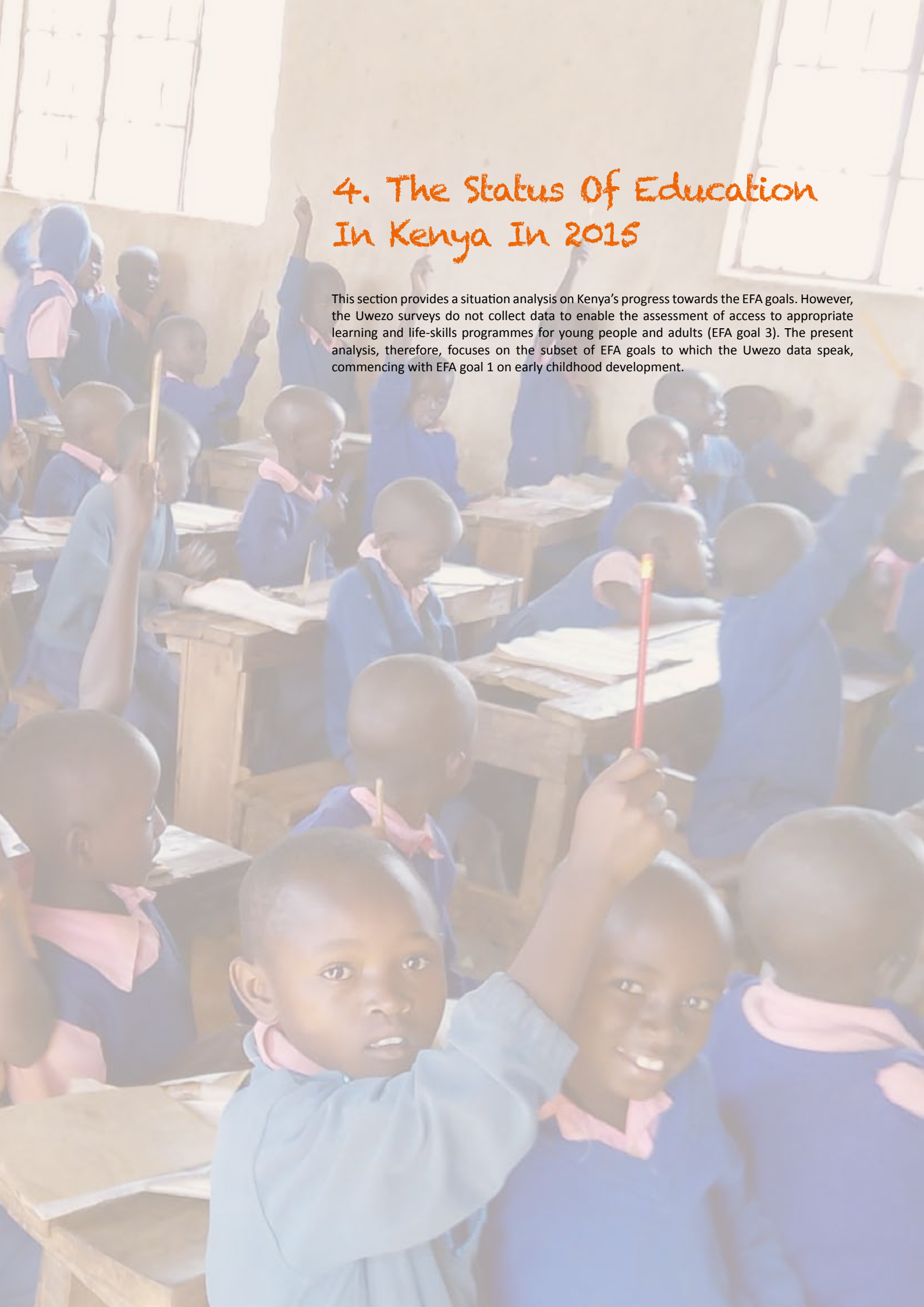
All children regardless of age or grade are given the same Standard 2 level tests. So, assuming education quality standards are maintained, one should expect that most pupils at Standard 3 or above can correctly answer all the test questions. This is termed a 'pass' in the presentation of the results.

In both literacy tests, children are asked to read a letter (or letter sounds) from the alphabet, read a word, read a paragraph, and read a short story. In the numeracy tests, children are asked to recognize numbers, discriminate quantities, identify place value and perform basic operations of addition, subtraction, multiplication and division. The child is then rated based on the highest level that s/he achieves in literacy as well as in numeracy.

As per the global standards for citizen-led assessments, the Uwezo assessments are conducted one-on-one at the household level, and by citizens coming from the sampled areas.[3]

[3] See the People's Action for Learning (PAL) Network: http://palnetwork.org/our-principles/





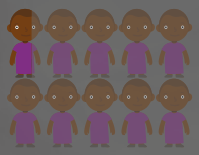
4. The Status Of Education In Kenya In 2015

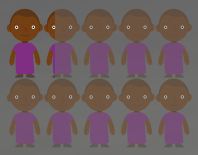
This section provides a situation analysis on Kenya's progress towards the EFA goals. However, the Uwezo surveys do not collect data to enable the assessment of access to appropriate learning and life-skills programmes for young people and adults (EFA goal 3). The present analysis, therefore, focuses on the subset of EFA goals to which the Uwezo data speak, commencing with EFA goal 1 on early childhood development.

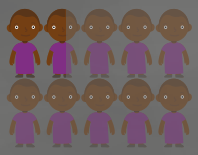
FACT ONE: SCHOOL READINESS

Child, family and community readiness.

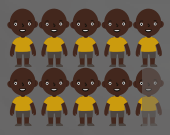
Child readiness
National averages: children aged 6 to 7, enrolled in Class 1

9 in 100

children cannot identify letter

11 in 100

children cannot identify figures

16 in 100

children did not attend pre-school

Community readiness
Nationally, among children ages 6-7 enrolled in Class 1

93 in 100

6-16 year olds are enrolled in school school

34 in 100

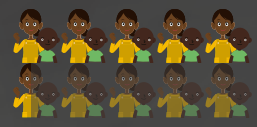
live in poor communities (where the majority of households are poor)

8 in 100

live in communities where the majority of mothers have no education

Family readiness
Nationally, among children ages 6-7 enrolled in Class 1


11 in 100
children have mothers who have no education


63 in 100
children have mothers who have primary education or below


34 in 100
children are born to teenage mothers.



Regression analysis shows that the most important variables are mother's education and poverty of household.

Child readiness

Can't identify letters:
16/100 in Western — 9 — 2/100 in Nairobi

Can't identify numbers:
18/100 in Western — 11 — 3/100 in Nairobi

Attended pre-school:
87/100 in Coast Region
84
57/100 in North-Eastern

Family readiness

Mothers with no education:
77/100 in North-Eastern — 11 — 2/100 in Central

Mothers with primary or less:
86/100 in North-Eastern — 63 — 63/100 in Nyanza

Teenage mothers (at birth of child):
24/100 in North-Eastern
34
41/100 in Nyanza

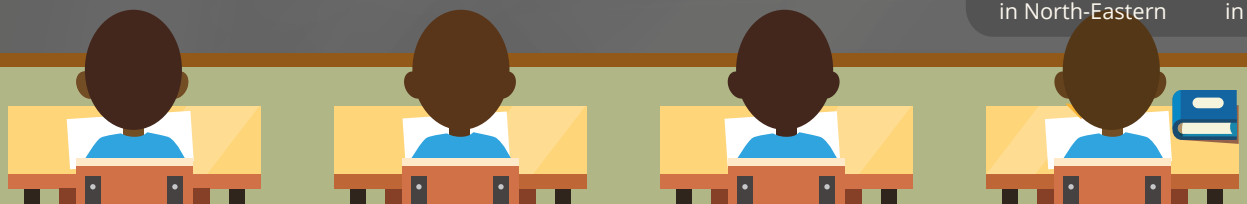
KEY ····· National Average

Community readiness

Enrollment: (aged 6-16)
96/100 in Central
93
83/100 in North-Eastern

Children in communities with majority of mothers not educated
82/100 in North-Eastern — 8 — 0/100 in Central

Children in communities with majority poor households
77/100 in North-Eastern — 34 — 5/100 in Nairobi



4.1 Are Children In Kenya Ready For School?

BACKGROUND

The first EFA goal stresses the importance of early childhood development. This recognises that children's pre-school experiences provide a foundation for life-long learning, and influence the extent and speed with which academic learning (e.g., literacy and numeracy) can progress when children begin formal schooling. Children who have not received adequate nutrition, mental stimulation or psycho-emotional support during their early years of life are often not ready to learn when they enter school (see Currie, 2012). In turn, poor schooling outcomes may well reflect a lack of school readiness, rather than failure of the primary schooling system per se.

School readiness is a broad concept (see Britto, 2012). The current analysis applies the framework of the National School Readiness Indicators Initiative from the United States, which focuses on three interconnected dimensions to assess whether children are ready for school:

i. Child readiness

ii. Family readiness

iii. Community readiness.

For each dimension, three different quantitative indicators or metrics of readiness are examined based on evidence from the 2013 and 2014 Uwezo assessments. Overall "school readiness" is then assessed by means of a statistical index that combines data for the first indicator under each dimension to generate a "school readiness" score. Data for each dimension of readiness and for the overall school readiness index are presented for Kenya's eight main regions (former provinces - see Figure 1). County-level results are provided in Table D1 of Appendix D.

EVIDENCE

A. Child readiness

Table 1 presents data on the following three indicators of child readiness for school:

i. The proportion of children unable to recognise letters of the alphabet

ii. The proportion of children unable to recognise numbers

iii. The proportion of children reported to have attended at least some pre-school.

For each indicator, the data analysed are for children enrolled in the first year of primary school (Standard 1) who are aged 6 or 7 years.

Table 1: Indicators of child readiness for school

REGION	CANNOT IDENTIFY LETTERS	CANNOT IDENTIFY NUMBERS	ATTENDED PRE-SCHOOL
CENTRAL	3.8	7.8	82.8
COAST	7.5	9.9	86.9
EASTERN	7.5	11.1	86.2
NAIROBI	1.7	3.3	85.9
NORTH EASTERN	15.8	17.0	57.0
NYANZA	10.9	11.9	86.1
RIFT VALLEY	11.7	11.8	83.8
WESTERN	15.8	18.3	86.6
NATIONAL AVERAGE	**9.1**	**11.0**	**84.3**

Source: Authors' calculations using data from Uwezo surveys 4-5.

Notes: Based on children aged 7 years or under who were enrolled in Standard 1. All data refer to the percentage of children with the specified characteristic.

Table 2: Indicators of family readiness for school

REGION	MOTHERS WITH NO FORMAL EDUCATION	MOTHERS WITH PRIMARY EDUCATION OR LESS	MOTHERS WHO HAD GIVEN BIRTH TO AT LEAST ONE CHILD WHEN A TEENAGER
CENTRAL	1.6	53.1	27.7
COAST	20.6	73.4	36.6
EASTERN	8.5	71.2	29.8
NAIROBI	2.8	41.7	31.9
NORTH EASTERN	77.1	85.9	24.4
NYANZA	5.5	63.1	41.3
RIFT VALLEY	15.8	67.1	34.5
WESTERN	8.0	68.0	33.8
NATIONAL AVERAGE	**11.3**	**63.2**	**33.5**

Source: Authors' calculations using data from Uwezo surveys 4-5

Notes: Based on children aged 7 years or under who were enrolled in Standard 1. All data refer to the percentage of children whose mothers had the specified characteristic.

Nationally, 9% of children were unable to identify letters, 11% were unable to identify figures and 16% did not attend pre-school. Significant disparities persist by region. For example, 16% of children in the Western and North Eastern regions were unable to identify letters compared with less than 2% of children in the Nairobi region. Even more starkly, 43% of children in the North Eastern region had not attended pre-school compared with 13% of children in the Coast region.

B. Family readiness

The analysis of family readiness focuses on the characteristics of the children's mothers. Table 2 presents Uwezo data on three indicators:

i. The proportion of children with mothers who had no formal education

ii. The proportion of children with mothers with primary education or less

iii. The proportion of children with mothers who were teenagers (aged 13-19) at the birth of one or more of their children.

Nationally, 11% of children assessed had mothers with no schooling, 63% of children had mothers with a primary level education or less, and 34% of children had mothers who had given birth to at least one of their children during adolescence. Again, stark regional differences were recorded particularly with respect to mothers' education. For example, in the North



Eastern region over three-quarters (77%) of children had mothers with no formal education compared with less than 3% of children in the Central and Nairobi regions. Rates of adolescent motherhood were high in all regions, ranging from 24% in the North Eastern region to 41% in Nyanza region.

C. Community readiness

Data for three indicators were analysed to assess community readiness for children's schooling[4]:

i. Overall rates of school enrolment for 6-16 year olds

ii. Whether a majority of mothers in the community had no education

iii. Whether the majority of households in the community were poor.

For these indicators, the community is the unit of analysis.[5] Results are summarised in Table 3.

Nationally, 9 in 10 children aged 6-16 years are enrolled in school, while 34% of the surveyed children live in poor communities. Regionally, in North Eastern, 83% of children aged 6-16 years are enrolled in school, compared with 96% in the former Central province. Similarly, in the North Eastern region, 77% of children live in poor communities compared with Nairobi where 5% of children surveyed live in impoverished communities. In the North Eastern region, 82% of children aged 7 or under enrolled in Standard 1 lived in communities in which the majority of the children's mothers had no education.

D. Overall school readiness

The data in Tables 1 to 3 all point to large and systematic differences in various aspects of school readiness between regions. Perhaps the most striking results are the disparities in mothers' education and household poverty rates recorded in Table 3. For instance, in many counties in the North Eastern region, for example, Mandera County, the Uwezo assessment recorded that around 87% of children assessed lived in communities where the majority of mothers had no education. Similarly, 83% of children lived in communities where the majority of households were poor. In contrast, about less than 1 in 10 children in Nairobi region experienced the same conditions. The results clearly show that children are born and raised in communities with widely disparate socio-economic circumstances. The data exhibit substantial spatial clustering of differences in children's initial opportunities.

Pulling these aspects of school readiness together, we create an overall score defined as the first principal component of the measures reported in Tables 1 to 3.

Regional rankings based on this score are presented in the final column of Table 3 and illustrated in Figure 2.

The school readiness index scores were generated to have a mean of zero and a standard deviation of 100. The lower the score for a region, the less ready the children of that region are for school. Ranks based on this score are reported in Table 3 and plotted in Figure 2. See Table D1 of Appendix D for school readiness rankings by county. As expected, the results for overall school readiness confirm the large regional differences in children's school readiness, especially between the North Eastern and the Central and Nairobi regions.

How important are individual child, family and community characteristics of school readiness on children's subsequent learning? To answer this question, linear regression models of the children's test outcomes were estimated against selected variables, including age and gender of the child, attendance at pre-school, mother's level of education, wealth and size of the household, and community characteristics. For this analysis, only children in Standard 1 who were aged six or seven were included. Results are reported in Table C1 of Appendix C. Data were controlled for all systematic differences between districts. Hence, the results reflect the variation in test scores

Table 3: Indicators of community readiness for school

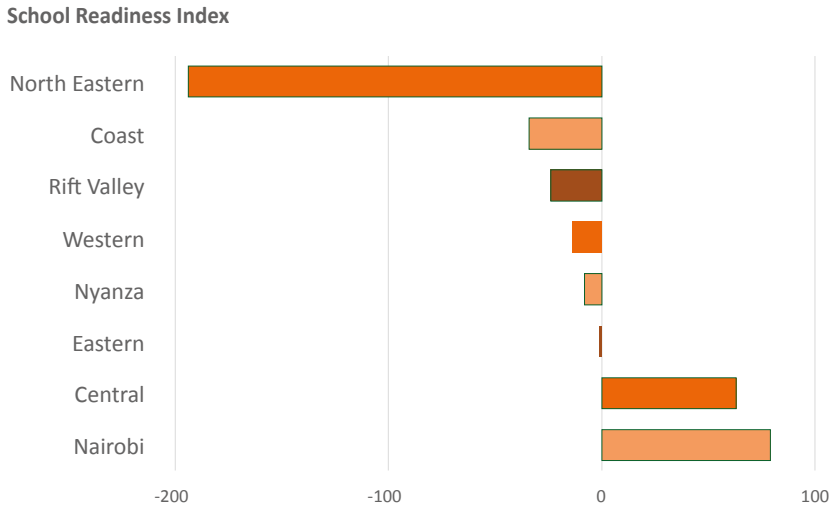
REGION	ENROLMENT RATE	MOTHERS' EDUCATION	HOUSEHOLD POVERTY	RANK
CENTRAL	96.3	0.1	12.3	2
COAST	89.6	16.0	45.4	7
EASTERN	94.1	5.8	42.6	3
NAIROBI	93.5	0.5	4.5	1
NORTH EASTERN	83.2	81.6	76.9	8
NYANZA	91.7	0.9	43.6	4
RIFT VALLEY	92.1	14.6	43.4	6
WESTERN	93.5	0.8	30.1	5
NATIONAL AVERAGE	**92.7**	**8.4**	**34.1**	-

Source: Authors' calculations using data from Uwezo surveys 4-5

Notes: Based on children aged 7 years or under, who were enrolled in Standard 1. The three indicators are calculated at the child level and are the enrolment rate, whether the majority of mothers had no education, and whether the majority of households in the community were poor, defined according to a simple asset index (see note 6). The enrolment rate refers to the percent of all other children in the community (aged 6-16) that are enrolled and which therefore is approximately equal to the overall enrolment rate in the community.



Figure 2: School readiness index scores, by region



Source: Authors' calculations using data from Uwezo surveys 4-5.

within each district.

The analysis revealed that primarily household-level factors, such as mothers' education and household poverty, determine early learning achievement. Indeed, after including these factors as control variables, the analysis found that attendance at pre-school made no systematic difference to learning in school. While the analysis cannot conclusively say that pre-school makes no contribution to learning—numerous studies have found the opposite—we simply note that pre-school attendance is fairly high on average and that the probability of attendance is closely correlated with household characteristics. So, aside from the child's age and gender, household-level factors make the largest systematic contribution to the observed variation in learning outcomes between children. Indeed, the contribution of these factors is likely to be reflected not only in the demand for pre-school, but also the quality of such services, i.e., children from better-off families are more likely to send their children to higher quality pre-schools. But further investigation is required into the exact links between pre-school attendance and later learning outcomes.

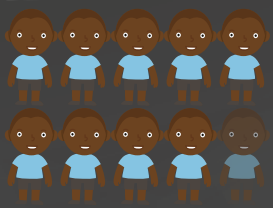
[4] Uwezo assessment is conducted in all the districts. In each district, 30 enumeration areas (EAs) are sampled. In each EA 20 households are sampled. In each household, all children aged 6 -16 years are assessed and the household head is interviewed on the socio-economic characteristics of the household. The primary school, which could be in the sampled EA or a neighbouring one, to which a majority of the children from the sampled EA go is sampled.

[5] Community refers to Uwezo's primary sampling units, enumeration areas

FACT TWO: ACCESS TO PRIMARY SCHOOL

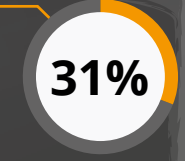
Enrollment and progression





Grade Gap

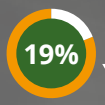
Nationally, 90 in 100 children aged 6-13 years are enrolled in school, but on average, they are 31% behind the level they should be at.





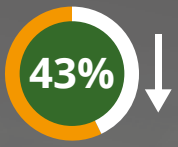


In Central, the enrolled children are on average



behind the expected level

In Coast, the enrolled children are on average



behind the expected level

Large disparities exist between regions in enrolment

In North Eastern, 80/100 children aged 6-13 years are in school



Compared to Central where 96/100 children of school age are in school





Again household characteristics and mother's age and education are important contributors to likelihood of enrollment.



In this case pre-school also has an effect on whether children enroll at the right age and progress as they should (one year per grade).



Also girls are more likely to enroll at the right age and progress one grade per year in school than boys.



4.2 Access To Primary School: Why Are Many Kenyan Children Not In The Expected Grade For Their Age?

BACKGROUND

The second EFA goal focuses on universal access to basic education (see Appendix A). Two quantitative measures are examined to assess the country's progress with respect to this goal:

i. The enrolment ratio, i.e., the share of children of official primary school age (formally 6-13 years) who are actually enrolled in school.

ii. The gap between each child's actual grade of enrolment and the class they should be in if they had entered school at the correct starting age and progressed by one grade per year. This gap, which ideally is zero, is relevant because Uwezo evidence suggests both significant late entry and some class repetition.

EVIDENCE

Table 4 summarizes data from all five rounds of the Uwezo assessment on grade, grade gap, which is stated in percentage terms, and enrolment rates.

Two findings stand out. First, the net enrolment rate for the country overall is 89.6%, which indicates that the vast majority of school-aged children in Kenya are attending school. However, progress through the school system is slow. On average, among children aged 6-13 years, the grade gap—that is, the difference between the expected grade for their age and the grade in which the child is presently enrolled—is 30% (2 years). Thus, the average 13-year-old attends Standard 6 rather than Standard 8. Second, large disparities exist between regions, with the North Eastern and Coast regions performing much worse than others (mean grade gaps of over 40%). In addition, over 10% of children aged 6-13 years in Coast, North Eastern and Rift Valley regions had never enrolled in school. These results imply that Kenya has generally achieved widespread access to school but primary progression rates remain lower than desired. Moreover, the Uwezo data reveal a considerable number of communities where both access and progression rates appear to be very low.

As performed for school readiness, linear regressions were completed to assess the impact of selected child, family and community characteristics on children's access to school. This time the analysis focused on the cohort of children aged 6-13 years. Results are reported in Table C2 of Appendix C. The results again underscore the critical role of household characteristics on access to school. For example, children from ultra-poor[6] households were more than 3 percentage points less likely to be enrolled. Higher levels of education among mothers and lower rates of adolescent motherhood also contributed very positively to access-related outcomes. Results also suggest that attending pre-school makes a positive and independent contribution to school attendance and class progression,[7] and that girls are more likely to attend school and progress faster through school than boys.[8] As discussed in Jones et al. (2014), this largely reflects the tendency of boys to begin school slightly later than girls.

Table 4: Indicators of access to primary school

REGION	GRADE	GRADE GAP	% OF CHILDREN ENROLLED	% OF CHILDREN NEVER ENROLLED
CENTRAL	3.9	-18.6	96.0	3.7
COAST	2.8	-42.8	83.0	16.1
EASTERN	3.4	-27.5	93.0	6.5
NAIROBI	3.3	-25.8	91.5	8.1
NORTH EASTERN	2.6	-41.7	79.8	19.2
NYANZA	3.3	-32.9	90.1	9.6
RIFT VALLEY	3.1	-33.5	87.8	11.7
WESTERN	3.2	-33.4	91.0	8.6
NATIONAL AVERAGE	**3.2**	**-31.4**	**89.6**	**9.9**

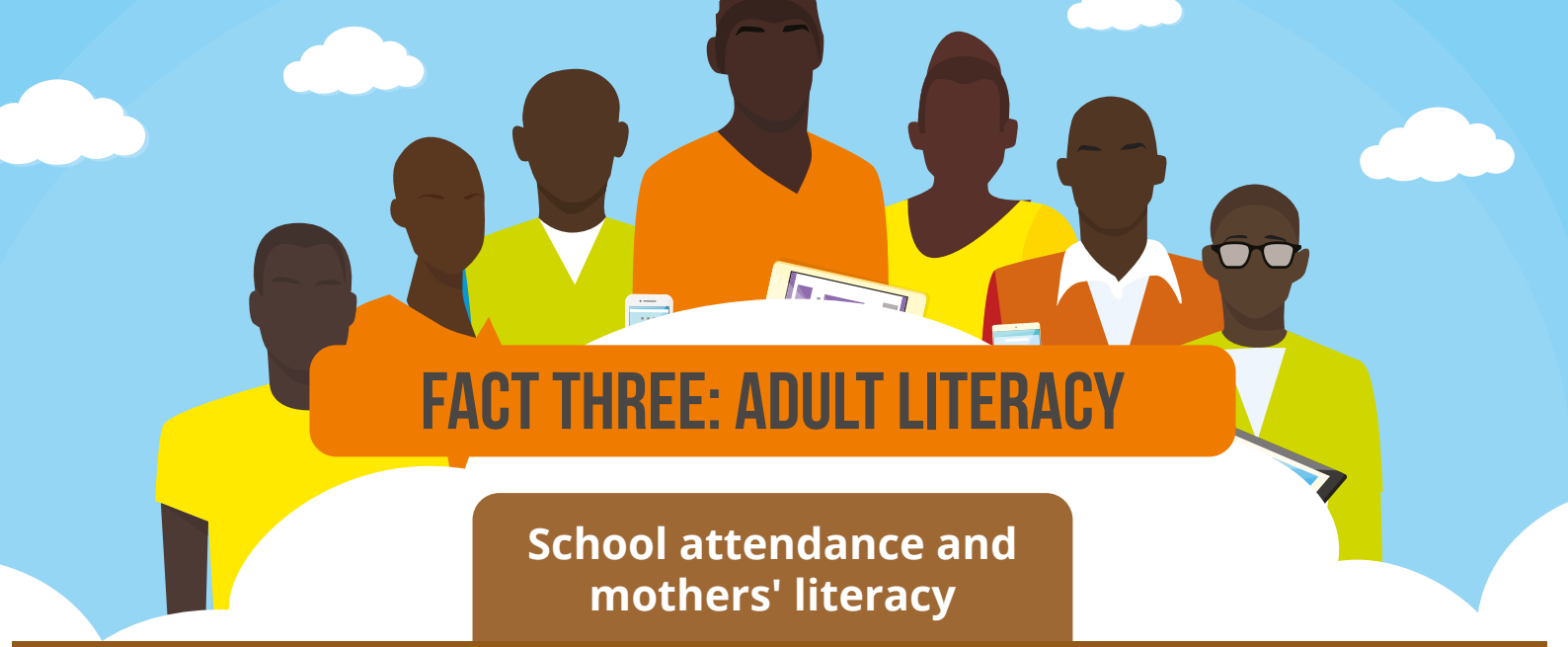
Source: Authors' calculations using data from Uwezo surveys 1-5.

Notes: Based on children aged 6-13. Data refer to surveyed children.

[6] Uwezo classifies household wealth based on their ownership/access to the following assets: clean water in the home, electricity in the home, mobile phone, radio, TV and a form of transport (car, motorbike or bicycle). A poor household has two or less of these assets and an ultra-poor household has none.

[7] We recognise that this result is unlikely to be causal and may be capturing other factors at the household or community level that are not included in the model.

[8] This result is conditional on other covariates.



FACT THREE: ADULT LITERACY

School attendance and mothers' literacy

Nationally, **8 in 100** adults did not attend school

45 out of 100 mothers cannot read a class 2 English story

Regionally, in North Eastern, **82 in 100 adults** did not attend school

and only **5 in 100 mothers** can read a class 2 English story. In Central

only **1 in 1,000 adults** did not attend school

and **71 in 100 mothers** can read a class 2 story.



4.3 The Continuing Struggle For Adult Literacy

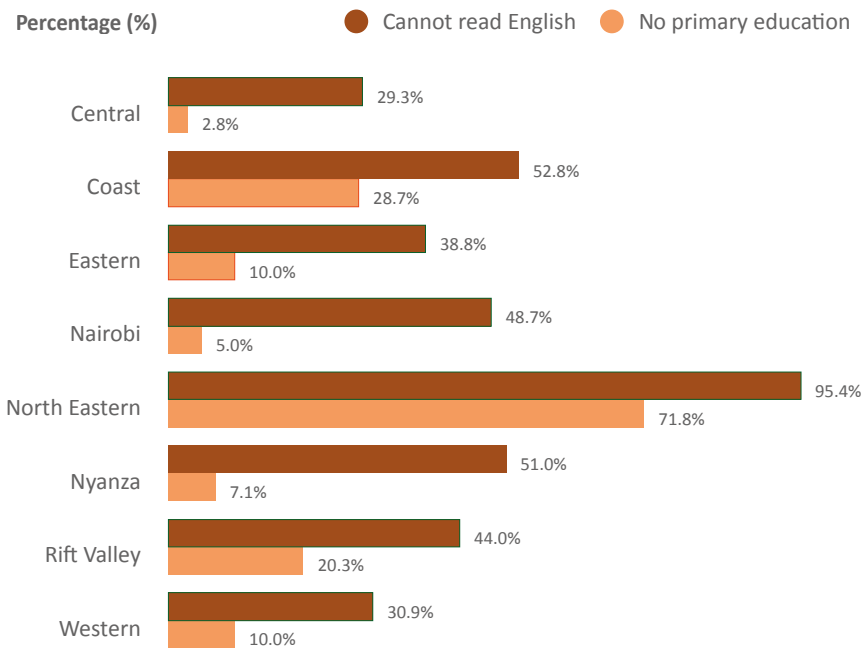
BACKGROUND

The fourth goal of the EFA agenda relates to adult literacy and equitable access to basic and continuing adult education, especially among women (see Appendix A). Data from the Uwezo assessments provide a snapshot of the formal educational qualifications of mothers (and fathers). Specifically, the Uwezo questionnaire includes questions about the highest level of education achieved by the mothers of assessed children. Some survey rounds also captured data on fathers. The information on mothers' educational attainment was used in the analysis of school readiness. For instance, Table 2 shows large regional differences with respect to mothers' level of schooling. Moreover, regression analyses indicated that household characteristics, such as mothers' level of education, were the most significant drivers of differences in children's access to school (see Section 4.2) and children's learning outcomes (see Section 4.1).

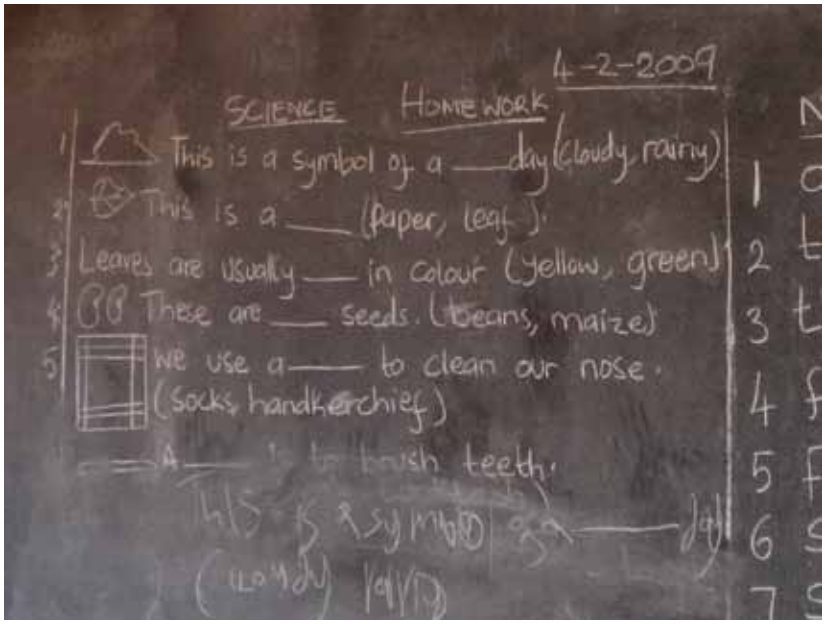
EVIDENCE

In the fourth round of the Uwezo assessment conducted in 2013, a test was specifically administered to the mothers of surveyed children to ascertain if they were able to read the English story included in the Uwezo test booklet. Figure 3 plots the proportions of mothers unable to read the story by region (i.e., illiterate in English) versus the proportions who reported not going to school. Overall, 45% of mothers could not read a Standard 2 level English story, ranging from over 90% of mothers in the North Eastern region to less than 30% of mothers in Central region. As expected, rates of literacy among mothers are positively correlated with school attendance. Even so, the correlation is uneven. For example, in Nairobi, almost half (49%) of the mothers assessed were unable to read an English story, despite the fact that 95% of them had attended some schooling. This specific result may well reflect higher literacy rates in other languages (e.g., Kiswahili). Indeed, the 2007 Kenyan National Adult Literacy Survey found the highest rates of adult literacy were in Nairobi (87% of adults) and the lowest in the North Eastern region (9%).

Figure 3: Indicators of educational attainment among mothers



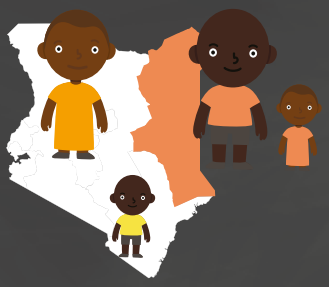
Source: Authors' calculations using data from Uwezo round 4.
Notes: Bars indicate percentages of children whose mothers' have the indicated characteristic.



FACT FOUR: INEQUALITIES

GENDER, GEOGRAPHY AND WEALTH

Across the country girls enroll more and progress faster through school than boys, except in **North Eastern** region where more boys are enrolled than girls.



Nationally, the gender-based household level index of discrimination against girls is **6.7.** Regionally, North Eastern has a discrimination index of **-10.1** compared to Western's **14.6.**



Nationally

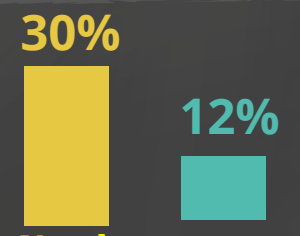




Children from less **privileged households** are less likely to attend school and to progress in school compared to children from well to do **households.**

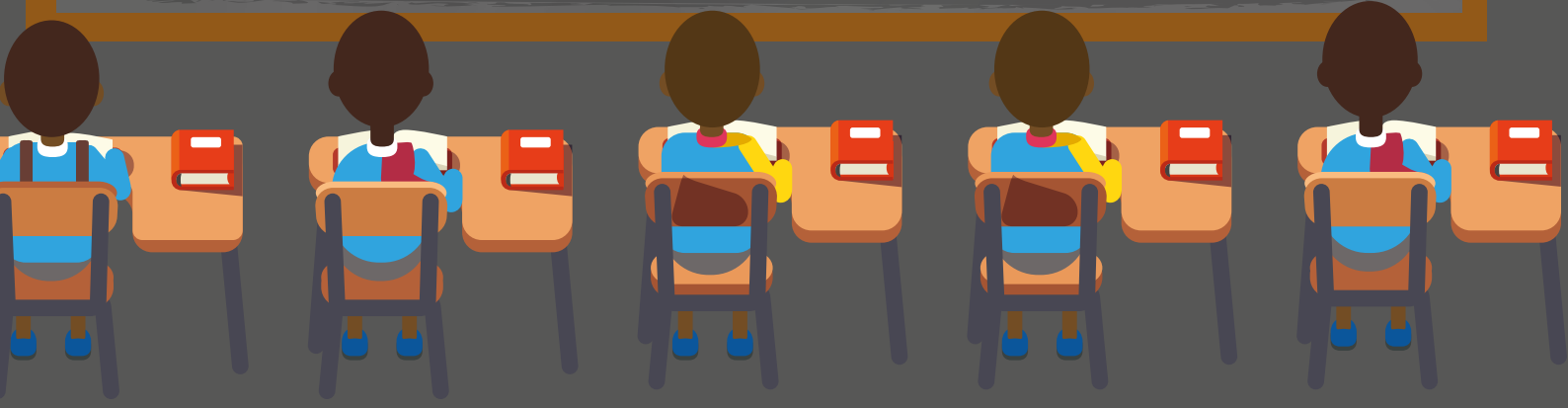


Children from **arid** and **semi arid** areas are less likely to attend and progress in school than their counterparts in **non-arid areas.**



The neighbourhood correlation is as high as **30%** in the **North Eastern** region – meaning that more than one third of the variance in test scores (standardized by age) is explained simply by the location of residence. In **Western** region, however, the same neighbourhood correlation is just **12%,** suggesting a smaller contribution of such shared local characteristics.





4.4 Beyond Gender: Recognising The Many Facets Of Inequality In Education In Kenya

BACKGROUND

The fifth goal of EFA refers to educational inequalities, with a special focus on girls (see Appendix A). Earlier analysis in this report indicates that Kenya is performing well with respect to ensuring equal access, class progression and educational attainment for girls. Indeed, looking at the national average, girls outperform boys in these respects.[9] However, a deeper and more comprehensive aspect of inequality is the extent to which given household characteristics explain the educational outcomes of children. This is often referred to as educational inequality of opportunity, the logic being that in places where the explanatory power of household characteristics is high, children from less advantaged families are less able to use education as an opportunity to improve their conditions. In turn, social mobility is negatively affected. Put differently, in areas where educational inequality is high, education behaves like a heritable characteristic and plays a much weaker role in breaking intergenerational transmission of inequality (Manyasa, 2015).

EVIDENCE

Uwezo data provide a unique basis from which to estimate the magnitude of educational inequalities of opportunity across different regions. Specifically, since multiple children from the same household are assessed by Uwezo, a 'sibling correlation' can be calculated which provides a comprehensive assessment of the extent to which children from the same family perform similarly on the same test (e.g., Björklund & Salvanes, 2012). It is understood, however, that sibling correlation captures not only household-level influences but also characteristics of the children's local neighbourhood (e.g., school).

Therefore, an alternative metric of inequality of opportunity is the 'neighbourhood correlation', which captures the extent to which any two children from the same location perform similarly on the same test. Table 5 summarises the results from this exercise. The first two columns, respectively, show the neighbourhood and sibling correlation coefficients calculated by region, expressed as percentages of the variance explained (R2). The column 'Ratio C/H' is the ratio of the neighbourhood to sibling correlations. This ratio can be interpreted as a metric of the clustering or similarity between households, i.e., if the test performances of children from different households in a given community are indistinguishable from one another, this correlation would tend towards 100%.

Again, the results of this exercise reveal stark regional disparities and underline the relevance of taking a spatial perspective on educational opportunities. Whilst metrics of this sort are not perfectly comparable across countries, in part due to differences in the underlying tests, the magnitude of the sibling correlations in Kenya are not excessive in general. Nonetheless, the size of the neighbourhood correlations appear to be an order of magnitude larger than found in developed countries, pointing to very significant clustering of outcomes. For instance, the neighbourhood correlation is as high as 30% in the North Eastern region, which means that more than one-third of the variance in test scores (standardized by age) is explained simply by the location of a child's residence. In contrast, in the Western

Table 5: Indicators of inequality in children's learning outcomes, by region

REGION	COMMUNITY CORRELATION IN CHILDREN'S TEST SCORES (C)	HOUSEHOLD CORRELATION IN CHILDREN'S TEST SCORES (H)	RATIO (C/H)
CENTRAL	15.8	32.0	49.2
COAST	22.3	40.4	55.2
EASTERN	22.2	37.9	58.7
NAIROBI	12.2	28.3	43.2
NORTH EASTERN	31.1	41.8	74.4
NYANZA	15.6	33.7	46.4
RIFT VALLEY	28.8	43.9	65.5
WESTERN	12.5	34.1	36.8
NATIONAL AVERAGE	**25.3**	**41.1**	**61.6**

Source: Authors' calculations using data from Uwezo surveys 1-5.

Notes: Based on Uwezo test results for all children. Community (neighbourhood) and household (sibling) correlations are expressed as percentages of the variance explained (R2)

Table 6: Indicators of inequality in children's access to education, by region

REGION	COMMUNITY CORRELATION IN ENROLMENT (C)	HOUSEHOLD CORRELATION IN ENROLMENT (H)	RATIO (C/H)
CENTRAL	8.3	16.2	51.5
COAST	10.6	17.3	61.5
EASTERN	17.1	22.5	76.0
NAIROBI	32.7	46.7	70.0
NORTH EASTERN	29.4	40.9	71.9
NYANZA	6.2	9.4	65.6
RIFT VALLEY	26.2	34.4	76.1
WESTERN	7.7	13.5	57.6
NATIONAL AVERAGE	**19.8**	**26.9**	**73.4**

Source: Authors' calculations using data from Uwezo surveys 1-5.

Notes: Based on variations in school enrolment for all children. Community (neighbourhood) and household (sibling) correlations are expressed as percentages of the variance explained (R2).

[9] As noted below, this trend is not found in all regions.



region, the neighbourhood correlation is just 12%, suggesting a smaller contribution of local characteristics.

It is important to note that the above results are unlikely to be driven by the fact that the same Uwezo tests are applied to all children in the household, regardless of their age or class. This is because the test score used to compute the correlations has been standardized separately for each age. Thus, a high positive correlation between siblings (of different ages) suggests they are located at similar points on the distribution of test scores for their individual ages.

An analysis of inequality was also performed that focused on access to school (in this case, school enrolment - see Table 6) instead of learning outcomes. This is of interest because a somewhat different pattern of results is noted. In particular, the neighbourhood correlation is much larger for all regions and as high as 33% in Nairobi. In other regions, the correlation ranges from 6% (Nyanza) to 29% (North Eastern). This is likely to be picking up supply-side constraints in some specific, congested urban locations, for example, pockets of low enrolment, such as in slum areas of major cities,that are due to poor public service provision.

The analysis also found that children from less-privileged households are less likely to attend school and to progress in school compared with children from well-to-do households. Children from arid and semi-arid lands (ASALs) are less likely to attend and progress in school than their counterparts in non-arid areas.

In addition, differences in learning outcomes and access to school between girls and boys were assessed (findings presented in Table 7). Uwezo data for all children tested in all five rounds of the survey were used to develop a gender-based household-level index to measure whether girls experience discrimination with respect to educational opportunities. The index measures the test score difference between girls and boys in the same family after controlling for all individual household characteristics. Hence, the index scores capture the magnitude of discrimination with respect to education faced by girls within households. The scale of the index refers to the scale of the standardized test score, which has a standard deviation of 100. A positive value means that girls outperform boys.

Analysis of the data indicate that across the country more girls are enrolled in school than boys and girls also progress faster through school than boys, with the exception of the North Eastern region where more boys are enrolled than girls. The gender index scores with respect to both learning outcomes and school enrolment are positive in general (as expected) but large and negative in the North Eastern region. This points to large regional differences in attitudes to and opportunities for sustained female education. Nationally, with respect to learning outcomes, the index score is 6.7 meaning that girls outperformed boys in the tests. Regionally, the index scores ranged from -10.1 in the North Eastern to 14.6 in the Western region. Tables D2 and D3 in Appendix D provide corresponding county-level results for the analysis of educational inequalities.

Table 7: Indicators of inequality in children's learning outcomes and access to education, by gender

REGION	INDEX SCORES FOR GENDER DIFFERENCES IN UWEZO TEST SCORES (LEARNING OUTCOMES)	INDEX SCORES FOR GENDER DIFFERENCES IN SCHOOL ENROLMENT (ACCESS)
CENTRAL	9.0	0.3
COAST	3.1	0.5
EASTERN	9.4	0.9
NAIROBI	6.0	-0.9
NORTH EASTERN	-10.1	-4.7
NYANZA	7.7	0.9
RIFT VALLEY	6.1	0.3
WESTERN	14.6	1.5
NATIONAL AVERAGE	**6.7**	**0.2**

Source: Authors' calculations using data from Uwezo surveys 1-5.

Notes: Based on Uwezo test results for all children i.e. all children who were surveyed aged 6 – 16 years.

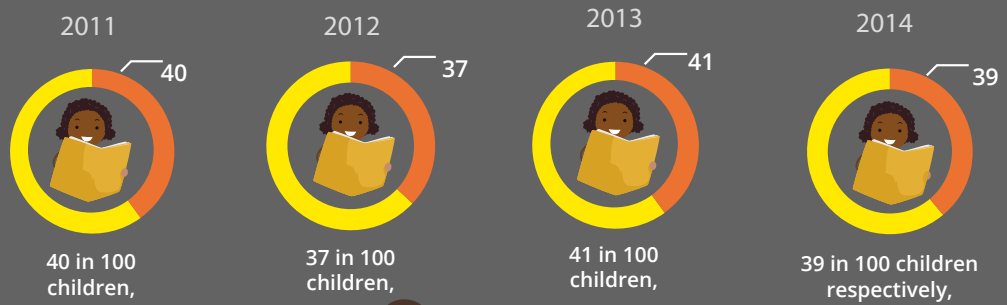


FACT FIVE: LEARNING OUTCOMES

Literacy and numeracy skills at Class 2 level, low and static

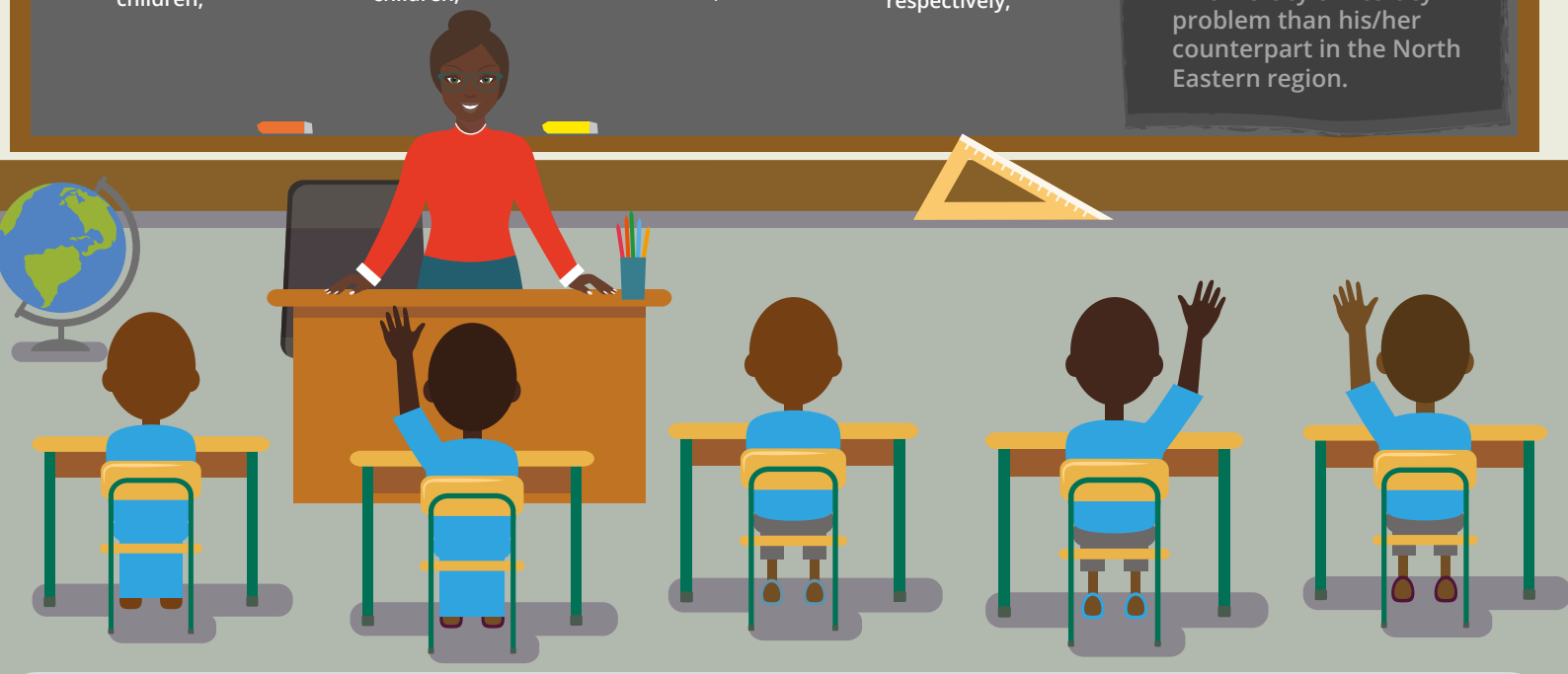
7-13 years who could solve Class two numeracy and literacy problems

2011 - 2014

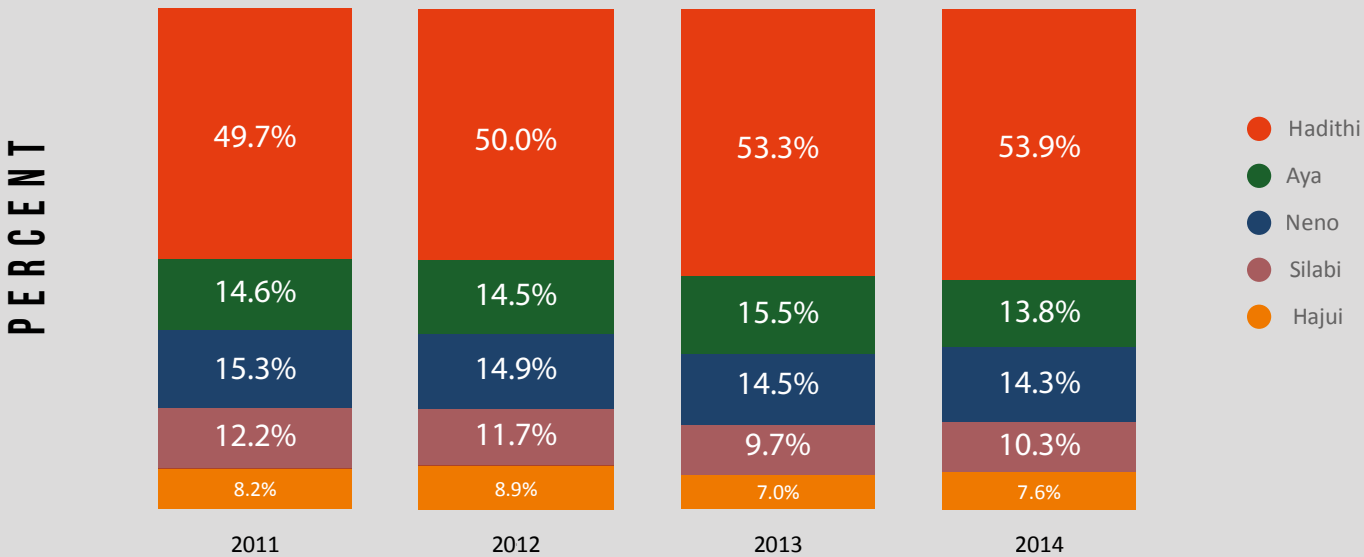




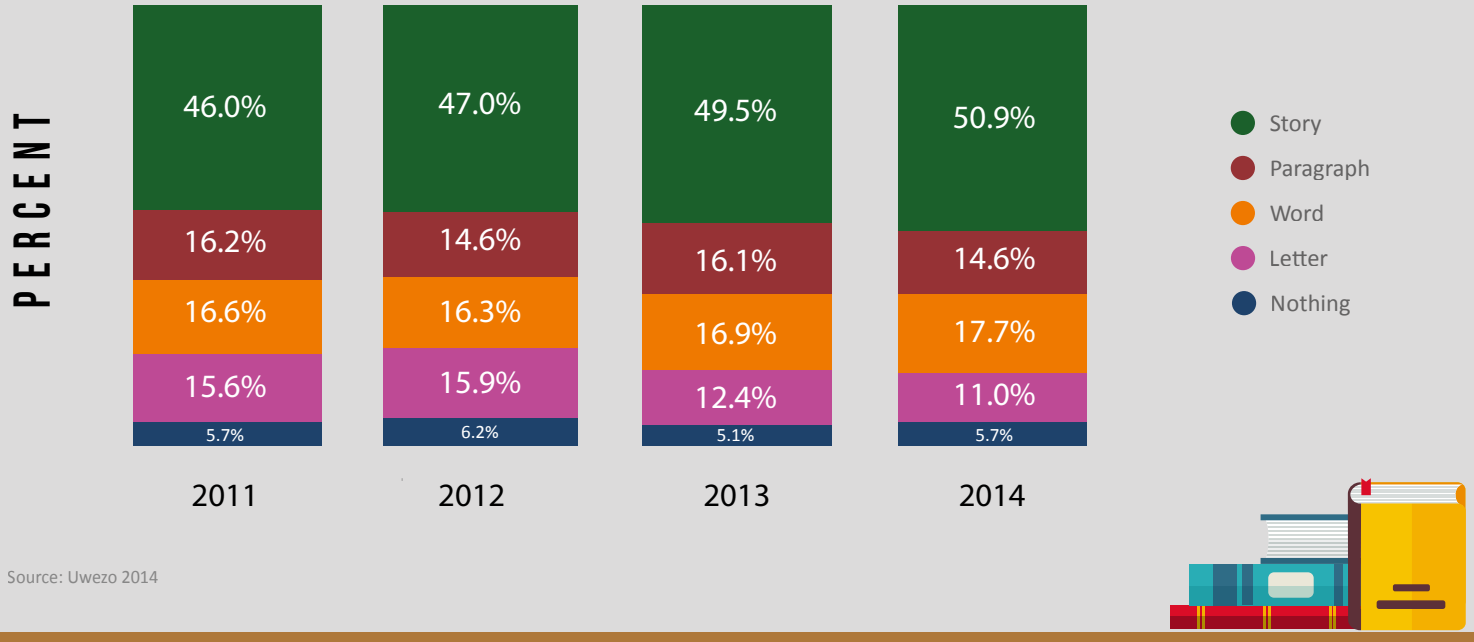
Regional disparities in learning outcomes persist. A child in the Central region is over seven times more likely to solve a Class 2 numeracy or literacy problem than his/her counterpart in the North Eastern region.



Children's (aged 7 to 13) Kiswahili literacy skills, by year

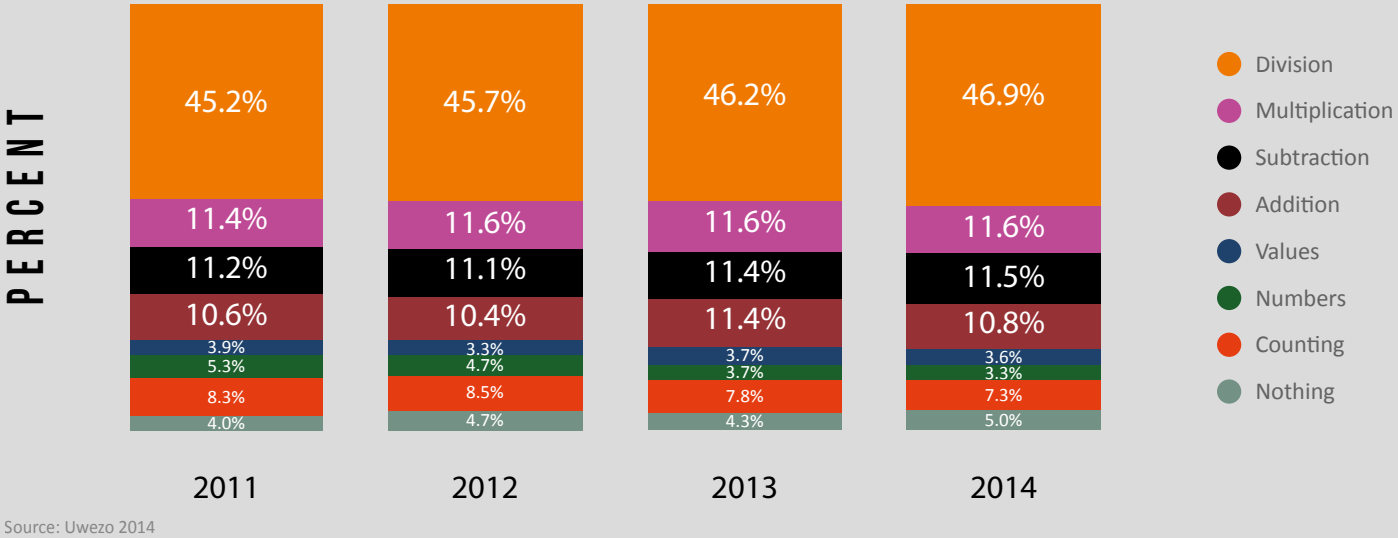


Children's (aged 7 to 13) English literacy skills, by year



Source: Uwezo 2014

Children's (aged 7 to 13) numeracy skills, by year



Source: Uwezo 2014

4.5 The Quality Of Education In Kenya: Access To Schooling Is Widespread But Are Children Learning?

BACKGROUND

The final EFA goal emphasises the role of education in building key skills. The goal is to: "Improv[e] all aspects of the quality of education and ensur[e] excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills."

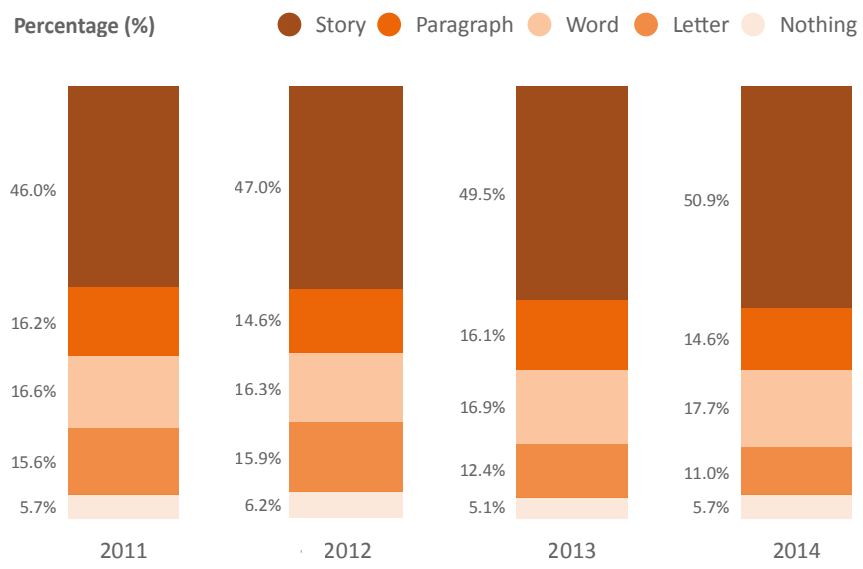
To examine national progress towards this goal, three aspects of educational quality are examined: i) the proportions of children with literacy and numeracy skills based on children's performance in Uwezo tests; ii) the changes in these proportions over time;[10] and iii) regional disparities in rates of literacy and numeracy.

EVIDENCE

Figure 4 shows that English literacy levels among children aged 7 - 13 years have remained almost unchanged over the five years between 2011 and 2014. The percentage of children who could not read letters of the alphabet was 5.7 in both 2011 and 2014. The percentage of those who could read a Class 2 story, has on the other hand registered only marginal improvement from 46% in 2011 to 50.9% in 2014. Similarly, Figure 5 shows minimal progress in Kiswahili literacy levels over the five year period. The percentage of children who could not read silabi (letters of the alphabet) was 8.2 in 2011 and 7.6 % in 2014. The percentage of those who could read a Class 2 hadithi (story) improved marginally from 49.7% in 2011 to 53.9% in 2014.

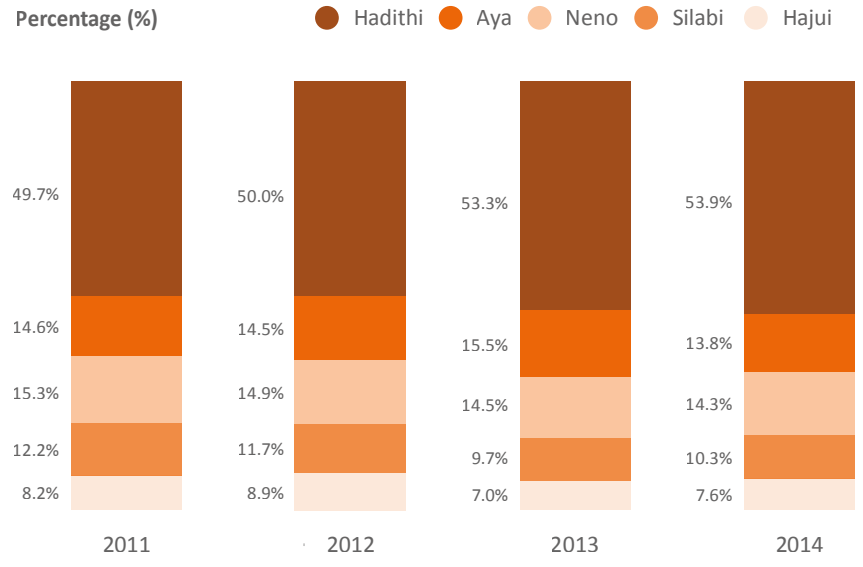
As indicated in Figure 6, the case for numeracy is worse than literacy in both English and Kiswahili. Over the five year period, the percentage of children aged 7 – 13 years who could not count and match numbers actually rose from 4% in 2011 to 5% in 2014. The percentage of those who could do division, which is the highest level of the tests, registered less than 2 percentage points' improvement from 45.2% in 2011 to 46.9% in 2014. It is important to note that in all three tests, Kiswahili literacy and English literacy and numeracy, learning outcomes improved by less than 5 percentage points' over 5 years. On annual basis, this would be statistically insignificant.

Figure 4: Percentage distribution of competencies among children aged 7-13 years in English literacy at Standard 2 level difficulty, 2011-2014



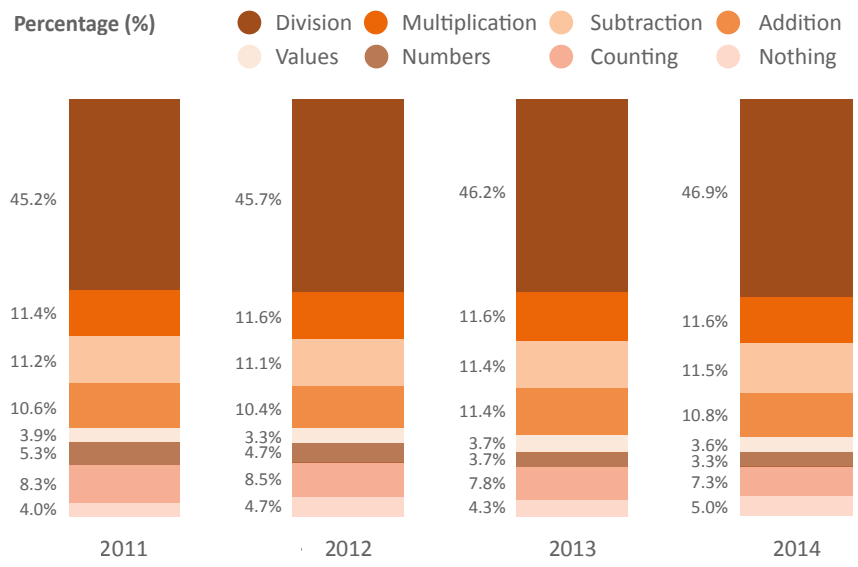
Source: Authors' calculations using data from Uwezo surveys 2-5.
Notes: All children's test scores have been standardized to take a mean of 0 and standard deviation of 100.

Figure 5: Percentage distribution of competencies among children aged 7-13 years in Kiswahili literacy at Standard 2 level difficulty, 2011-2014



Source: Authors' calculations using data from Uwezo surveys 2-5.
Notes: All children's test scores have been standardized to take a mean of 0 and standard deviation of 100.

Figure 6: Percentage distribution of competencies among children aged 7-13 years in numeracy at Standard 2 level difficulty, 2011-2014



Source: Authors' calculations using data from Uwezo surveys 2-5.
Notes: All children's test scores have been standardized to take a mean of 0 and standard deviation of 100.

Table 8: Mean standardized test scores, by age and region

	AGE						
REGION	7	8	9	10	11	12	13
CENTRAL	56.2	100.4	123.5	143.4	156.4	165.0	170.6
COAST	8.5	41.1	70.4	94.6	119.4	134.4	147.8
EASTERN	21.4	55.7	87.3	111.0	132.9	145.8	155.9
NAIROBI	58.5	100.0	126.9	148.6	166.5	170.2	171.6
NORTH EASTERN	0.7	23.8	44.9	65.8	85.5	100.2	112.3
NYANZA	2.9	37.1	68.9	96.6	124.2	140.4	154.6
RIFT VALLEY	18.3	48.7	79.9	101.9	127.1	138.7	149.8
WESTERN	-3.6	27.9	56.9	87.2	113.8	132.2	147.6
NATIONAL AVERAGE	**21.3**	**54.4**	**84.2**	**106.7**	**130.9**	**142.5**	**153.9**

Source: Authors' calculations using data from Uwezo surveys 1-5.

Notes: All children's test scores have been standardized to take a mean of 100 and standard deviation of 100.

The results illustrate that learning outcomes among children in Kenya have remained low. The data show no evidence of progress over time in the proportions of children who passed the Standard 2 level numeracy and literacy tests (Kiswahili and English). In the 2014 Uwezo assessment, 39% of children aged 7-13 years passed the numeracy and literacy tests. Similar pass rates were recorded in the three previous rounds: 40% in 2011, 37% in 2012 and 41% in 2013. Regional disparities in learning outcomes also persist. For example, a child in the Central region is over seven times more likely to have attained a Standard 2 level of literacy and numeracy than a child in the North Eastern region.

Further analysis of regional results are reported in Table 8 which presents standardized test scores by region for children aged 7-13 years, and Table 9 which reports data on the share of children who were able to read at word level and correctly perform place-value tasks. Children aged 6 years were again excluded as they had only recently started their education. Results echo the spatial disparities noted in earlier sections of this report. Children in regions with lower school readiness (see Section 4.1), lower enrolment rates and higher neighbourhood correlations acquire core skills much more slowly than children in other regions. Results in Table 8 strongly indicate that across all regions, age is positively correlated with a child's ability to demonstrate basic numeracy and literacy skills. The younger the child, the lower his/her competencies in basic literacy and numeracy. The magnitude of the correlation between a child's age and competencies vary with regions. For instance, a 7-year-old in Western has lower competencies than his/her counterpart in North Eastern, yet the reverse is true for the 13-year-olds in the same regions.

For example, Table 9 shows that 75% of 7-year-olds in Central region and 80% of 7-year-olds in Nairobi region were able to read at word level and perform place-value tasks, compared with 50% of 7-year-olds in the North Eastern, Nyanza and Western regions. County-level results can be found in Tables D4a and D4b of Appendix D.

The previous section provided a situation analysis of progress against the Education For All goals for 2015. The analysis noted significant achievements in terms of access to schooling for the average child in Kenya. However, while important, these averages mask persistent and large disparities in educational opportunities and outcomes. While these have been represented as spatial differences, the fundamental drivers of these differences remain to be fully explored.

Inspired by progress achieved under the EFA agenda, the new Sustainable Development Goal for Education (SDG 4) aims to "ensure

inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030. As mentioned in the report's introduction, the 2030 Agenda for Sustainable Development, which includes the set of 17 Sustainable Development Goals, was adopted by world leaders at the United Nations Sustainable Development Summit on 25 September 2015. However, the framework of targets, indicators and statistical data to monitor and evaluate progress towards the SDGs is yet to be finalised. This report, therefore, comes at a critical juncture for identifying potential indicators to monitor progress in education in Kenya.

As a point of departure, given the challenges facing the country, it is recommended that goals are monitored at the county level. Alternatively, indicators could be stated as the "lowest performance of any given county" rather than "country-wide averages", which, as this report has clearly demonstrated, can conceal yawning regional disparities. In the latter case, the application of a framework based upon the lowest performing areas is consistent with a social justice approach that seeks to guarantee a minimum level of educational opportunity for all citizens.

The current set of ten targets under SDG 4 is presented in Appendix B. Table 10 presents a set of four indicators, which can be easily measured using Uwezo survey data, that can provide a foundation for monitoring progress towards four of the ten targets (4.1, 4.2, 4.5 and 4.6). The indicators for targets 4.1 and 4.6 refer to children aged 14-16 years as children in that age range should have completed the full cycle of primary education (eight years). As such, these indicators capture the extent to which the primary school system delivers a full and minimum quality of education.

Based on these recommended indicators, Table 11 presents data from the latest round of the Uwezo assessment (2014) to construct baseline estimates for the eight Kenyan regions (see Table D5 in Appendix D for county-level information). Consistent with the findings in Section 4, the North Eastern region performs worst across all four indicators. For instance, only 45% of children aged 14-16 in this region passed both literacy and numeracy tests at a Standard 2 level. Moreover, even in Nairobi, 18% of children aged 14-16 years did not possess basic numeracy and literacy skills. Sustained efforts to improve learning outcomes in all regions of the country are clearly warranted.

[10] Direct comparison of Uwezo test scores over time is imperfect as the tests administered to children change for each year's assessment. In addition, to avoid a child within a household overhearing the answers of another child, a number of different test sets are used each year. However, the level of difficulty for all tests in all rounds has remained pegged at Standard 2 level.

Table 9: Share of children with basic literacy and numeracy skills, by age and region

	AGE						
REGION	7	8	9	10	11	12	13
CENTRAL	74.8	89.0	93.2	95.9	96.9	97.7	98.5
COAST	51.6	63.9	74.3	81.5	87.8	91.4	94.4
EASTERN	55.2	69.6	81.6	87.5	92.6	94.3	95.5
NAIROBI	79.5	89.6	93.5	96.6	98.5	99.2	98.9
NORTH EASTERN	48.0	59.4	69.0	75.3	81.1	83.4	85.7
NYANZA	45.0	61.9	74.2	82.9	89.4	93.8	95.9
RIFT VALLEY	54.4	67.3	77.4	83.6	90.2	91.8	93.6
WESTERN	42.0	56.3	68.0	78.3	86.2	91.1	94.2
NATIONAL AVERAGE	**56.4**	**69.5**	**79.3**	**85.3**	**91.0**	**93.2**	**95.1**

Source: Authors' calculations using data from Uwezo surveys 2-5.

Notes: Basic literacy and numeracy skills are defined as being able to read a word and being able to correctly place numbers of two digits in order of magnitude.

Table 10: Proposed indicators for SDG 4 targets

	TARGET FOR SDG 4	SUGGESTED UWEZO INDICATOR
4.1	All girls and boys complete free, equitable and quality primary education.	The percentage of children aged 14-16 years who have completed eight or more years of education.
4.2	All girls and boys have access to pre-primary education.	The percentage of children attending Standard 1 who have been to pre-school.
4.5	Eliminate gender disparities in education and ensure equal access to all levels of education.	The difference in the percentage of boys and girls aged 6-13 years attending school.
4.6	Ensure that all youth achieve literacy and numeracy.	The percentage of children aged 14-16 years who can complete both language and numeracy tests at a Standard 2 level.

Source: Authors' calculations using data from Uwezo surveys 2-5.

Notes: Basic literacy and numeracy skills are defined as being able to read a word and being able to correctly place numbers of two digits in order of magnitude.

Table 11: Baseline data (2014) for proposed SDG 4 indicators, by region

REGION	ATTENDED PRE-SCHOOL	ENROLMENT GAP	PRIMARY COMPLETION RATE	PASSED THE STD 2 LEVEL LITERACY AND NUMERACY TESTS
CENTRAL	85.1	0.3	67.2	84.9
COAST	89.7	1.6	34.9	69.4
EASTERN	88.1	0.1	47.1	72.1
NAIROBI	86.5	3.1	65.5	82.1
NORTH EASTERN	56.5	-11.1	28.7	45.1
NYANZA	90.1	0.8	45.5	74.5
RIFT VALLEY	85.3	-0.3	39.1	72.0
WESTERN	89.3	1.3	34.2	68.2
NATIONAL AVERAGE	**86.1**	**0.2**	**45.7**	**73.0**
MINIMUM	*56.5*	*-11.1*	*28.7*	*45.1*
DISTANCE	*29.6*	*11.3*	*17.0*	*27.9*

Source: Authors' calculations using data from Uwezo 2014.

Notes: Pass rates refer only to children aged 14-16. 'Distance' is the gap between the national average result and that of the lowest scoring region. 'Minimum' is the score attained by the lowest scoring region. Enrollment gap is the enrollment rate for girls minus the enrollment rate for boys.





5. Conclusion

The primary issue raised in this report is the existence of large and persistent inequalities in children's learning outcomes that exhibit a strong spatial dimension. The data consistently indicated large gaps in children's access to school and rates of basic literacy and numeracy between leading and lagging counties, and significant clustering of children into 'better-off' and 'worse-off' communities. Differences between neighbourhoods in both access and educational attainment were very large. Despite the notable progress in expanding access to schooling in general, a significant minority of children are being left behind. Consequently, the promise of education as a means to overcome entrenched economic inequality remains elusive for many Kenyan youth. As it is currently delivered, education risks entrenching the very inequality it is supposed to fight.

Further challenges highlighted by the analysis were as follows. First, large differences were observed in children's 'school readiness' across the different regions and counties of Kenya. These differences were primarily driven by differences in household characteristics, such as adult literacy and poverty rates. Household conditions were found to play a significant role in the future educational attainment of children, implying that many children are starting school at a learning disadvantage.

Second, access to primary school has expanded significantly in recent decades. Most school-aged children are now attending primary school. However, national averages mask large regional differences. And access figures mask the slow rate of progression through school and the number of children who do not finish. In some communities and counties, far fewer children have the opportunity to start or complete their primary schooling.

The overall policy implication from the analysis is that there is no room for complacency. Education is more than just access to schooling. Instead, the full distribution of learning outcomes must be kept firmly in sight. The presence of neighbourhoods, counties and even large regions of the country where children are not able to achieve the most basic literacy and numeracy competencies presents a critical challenge for Kenya's policy makers.

These challenges are unlikely to be met by a 'business as usual' approach to national educational reform. Priority actions must be identified to strengthen schooling in the country's most challenging contexts in order to better level the playing field of educational opportunity. At the same time, the active monitoring of learning outcomes with a focus on under-performing areas will remain critical within a comprehensive national system of measuring progress against the SDG for education and the other goals of the 2030 Sustainable Development Agenda.



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APPENDIX A

Education For All Goals

GOAL 1:

Expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children.

GOAL 2:

Ensuring that by 2015 all children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to, and complete, free and compulsory primary education of good quality.

GOAL 3:

Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life-skills programmes.

GOAL 4:

Achieving a 50 per cent improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults.

GOAL 5:

Eliminating gender disparities in primary and secondary education by 2005, and achieving gender equality in education by 2015, with a focus on ensuring girls' full and equal access to and achievement in basic education of good quality.

GOAL 6:

Improving all aspects of the quality of education and ensuring excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.

Source: www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-all/efa-goals/

APPENDIX B

Sustainable Development Goal for Education

GOAL 4:

ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL.

4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes

4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education

4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university

4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

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

4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy

4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development

4.8 Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all

4.9 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

4.10 By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States

Sources: https://sustainabledevelopment.un.org/topics
http://www.un.org/sustainabledevelopment/education/#b7990e9a6d4827466

APPENDIX C

Regression Results

Table C1: Regression results for test scores (standardized)

REGION	(I) TEST SCORE	(II) ENGLISH	(III) SWAHILI	(IV) MATH
CHILD'S AGE	9.10***	6.26***	6.27***	11.94***
	(1.53)	(1.57)	(1.49)	(2.01)
CHILD IS FEMALE	4.99***	4.29***	4.41***	5.63***
	(1.47)	(1.51)	(1.50)	(1.97)
CHILD WENT TO PRE-SCHOOL	2.18	2.04	0.13	3.27
	(2.31)	(2.63)	(2.14)	(3.14)
MOTHER NO PRIMARY EDU.	-7.41***	-6.36***	-6.27***	-8.51***
	(2.24)	(1.91)	(2.02)	(3.26)
MOTHER NO SECONDARY EDU.	-15.23***	-17.77***	-15.41***	-13.87***
	(2.31)	(2.21)	(2.14)	(2.97)
MOTHER TEENAGE PREGNANCY	-4.86**	-5.09**	-7.12***	-3.61
	(2.20)	(2.26)	(2.12)	(2.92)
POOR HOUSEHOLD	-12.09***	-8.65***	-10.69***	-14.51***
	(1.62)	(1.68)	(1.82)	(2.30)
ULTRA-POOR HOUSEHOLD	-18.27***	-14.73***	-15.84***	-21.26***
	(2.80)	(2.23)	(2.55)	(4.12)
SIZE OF HOUSEHOLD	-0.80	0.14	-1.33**	-1.01
	(0.56)	(0.52)	(0.52)	(0.77)
NO. CHILDREN IN HOUSEHOLD	-0.42	-1.78**	-0.11	0.10
	(0.76)	(0.73)	(0.73)	(0.99)
PEER ENROLLMENT	6.94	8.61	7.57	5.80
	(10.33)	(9.15)	(9.17)	(14.05)
COMMUNITY ADULT EDU.	-6.43**	-3.61	-4.79	-8.65*
	(3.26)	(2.64)	(2.97)	(4.46)
COMMUNITY IS POOR	-5.56***	-6.51***	-5.76***	-4.99*
	(1.93)	(1.57)	(1.83)	(2.70)
CONSTANT	-148.17***	-128.06***	-122.10***	-171.25***
	(14.50)	(14.12)	(14.27)	(19.20)
OBS.	*17653*	*17653*	*17653*	*17653*
R2 ADJ.	*0.13*	*0.15*	*0.13*	*0.09*
RMSE	*61.12*	*56.14*	*61.04*	*81.87*

* p<.1, ** p<.05, *** p<.01

Source: Authors' calculations using data from Uwezo 4-5.

Notes: All tests are standardized to take a mean of zero and standard deviation of 100; sample restricted to children attending class 1 who were six/seven years old; district fixed effects included; standard errors, in parentheses, are clustered at the PSU level; see text for variable description.

Table C2: Regression results for school access indicators, children aged 6-13

REGION	(I) ENROLLED NOW	(II) NEVER ENROLLED	(III) CLASS (INCL. 0)	(IV) CLASS (EXCL. 0)
CHILD'S AGE	3.39***	-3.44***	0.72***	0.73***
	(0.06)	(0.06)	(0.00)	(0.00)
CHILD IS FEMALE	0.85***	-0.71***	0.14***	0.15***
	(0.18)	(0.18)	(0.01)	(0.01)
CHILD WENT TO PRE-SCHOOL	11.48***	-11.42***	0.29***	-0.01
	(0.49)	(0.49)	(0.02)	(0.02)
MOTHER NO PRIMARY EDU.	-1.91***	1.49***	-0.21***	-0.17***
	(0.38)	(0.37)	(0.02)	(0.02)
MOTHER NO SECONDARY EDU.	-1.49***	1.39***	-0.22***	-0.23***
	(0.27)	(0.27)	(0.02)	(0.01)
MOTHER TEENAGE PREGNANCY	-1.30***	1.24***	-0.10***	-0.07***
	(0.24)	(0.24)	(0.02)	(0.01)
POOR HOUSEHOLD	-1.54***	1.40***	-0.16***	-0.16***
	(0.24)	(0.24)	(0.01)	(0.01)
ULTRA-POOR HOUSEHOLD	-3.28***	2.74***	-0.25***	-0.28***
	(0.49)	(0.49)	(0.03)	(0.03)
SIZE OF HOUSEHOLD	-0.21***	0.16***	-0.02***	-0.02***
	(0.05)	(0.05)	(0.00)	(0.00)
NO. CHILDREN IN HOUSEHOLD	0.06	0.01	-0.01	-0.01
	(0.09)	(0.09)	(0.01)	(0.01)
PEER ENROLLMENT	81.35***	-76.24***	2.94***	1.22***
	(1.54)	(2.22)	(0.10)	(0.08)
COMMUNITY ADULT EDU.	0.49	-0.18	-0.02	-0.04
	(0.41)	(0.46)	(0.07)	(0.04)
COMMUNITY IS POOR	1.07***	-0.88***	0.05**	0.00
	(0.22)	(0.24)	(0.02)	(0.02)
CONSTANT	-21.64***	117.32***	-6.22***	-4.23***
	(1.46)	(2.08)	(0.10)	(0.09)
OBS.	*180970*	*180970*	*180970*	*152917*
R2 ADJ.	*0.27*	*0.26*	*0.62*	*0.66*
RMSE	*26.56*	*26.01*	*1.40*	*1.18*

* p<.1, ** p<.05, *** p<.01

Source: Authors' calculations using data from Uwezo survey rounds 4-5.

Notes: Dependent variable in columns (I) and (II) are dummy variables multiplied by 100; class is a continuous interval measure; in column (III) children not enrolled are assigned a class of zero; in column (IV) the sample is restricted to children attending school; district fixed effects included; standard errors, in parentheses, are clustered at the PSU level; see text for variable description.

APPENDIX D

County-Level Information

Table D1: School readiness indicators

COUNTY	READY CHILDREN			READY FAMILIES (MOTHERS)			READY COMMUNITIES			SCORE RANK
	NO LETTERS	NO NUMBERS	PRESCHOOL	NO SCHOOLING	PRIMARY OR LESS	TEEN AT BIRTH	ENROLLMENT	ADULT EDU.	POVERTY	
BARINGO	10.4	10.1	86.9	16.9	68.4	28.8	90.0	14.0	78.9	34
BOMET	15.5	12.2	89.0	3.4	75.9	45.1	95.7	0.8	41.3	21
BUNGOMA	17.2	20.4	79.6	6.0	60.4	33.0	93.2	0.5	24.8	22
BUSIA	9.1	12.1	87.8	11.2	75.6	38.3	91.2	1.1	25.2	20
ELGEYO-MARAK-WET	7.0	4.2	89.8	4.9	72.4	38.9	92.9	5.3	66.9	24
EMBU	10.0	13.9	94.4	4.2	64.7	24.3	96.2	0.0	30.1	12
GARISSA	14.4	14.3	43.1	76.2	86.6	22.5	78.8	81.4	59.8	43
HOMA BAY	8.1	10.0	78.9	5.1	79.3	45.5	91.3	0.2	58.4	31
ISIOLO	9.5	14.6	68.2	48.6	74.1	33.1	83.3	46.9	85.8	40
KAJIADO	9.9	11.6	67.0	28.6	63.8	28.3	90.2	28.4	32.4	32
KAKAMEGA	17.6	18.5	89.5	9.4	71.7	34.4	93.9	0.8	25.3	27
KERICHO	12.9	14.6	92.8	5.0	74.7	39.4	94.8	0.0	45.4	25
KIAMBU	2.6	5.5	87.4	2.1	42.8	25.7	95.5	0.0	9.3	2
KILIFI	9.9	13.7	84.9	27.0	79.6	41.8	88.6	29.3	52.5	36
KIRINYAGA	1.3	8.5	36.2	0.0	58.3	31.3	99.0	0.0	3.2	4
KISII	12.2	12.4	87.9	7.2	56.7	40.0	93.1	2.9	64.9	28
KISUMU	6.7	8.3	92.6	3.9	55.7	42.4	90.8	0.0	18.2	10
KITUI	11.8	15.0	83.7	6.0	80.1	38.1	94.6	1.9	68.1	33
KWALE	14.7	15.9	79.9	33.2	83.6	41.7	85.6	30.5	55.1	38
LAIKIPIA	4.6	8.8	80.3	12.5	61.7	30.3	92.9	15.0	27.4	14
LAMU	8.0	15.9	90.0	33.9	93.4	26.5	91.1	28.6	36.8	35
MACHAKOS	4.5	8.8	88.7	1.9	68.3	32.0	96.6	0.0	28.7	8
MAKUENI	6.9	8.3	90.6	2.4	72.8	31.5	94.6	0.2	50.0	16
MANDERA	15.6	16.8	59.2	83.3	89.8	25.7	84.1	87.4	82.6	47
MARSABIT	13.1	17.3	65.7	66.4	83.7	30.2	75.6	73.2	84.1	44
MERU	6.2	9.5	84.8	7.9	66.8	24.7	94.3	4.1	26.6	11
MIGORI	14.8	13.6	80.7	4.6	71.7	47.9	91.4	1.1	46.6	30
MOMBASA	4.4	5.2	91.4	12.6	65.6	32.4	91.3	2.9	34.8	15
MURANG'A	9.0	10.9	89.3	1.7	60.4	33.1	95.8	0.0	21.4	9
NAIROBI	1.7	3.3	85.9	2.8	41.7	31.9	93.5	0.5	4.5	1
NAKURU	7.4	7.8	85.2	5.3	54.9	32.0	93.7	1.2	14.0	7
NANDI	9.3	8.0	87.8	3.4	67.4	35.9	92.2	0.1	44.4	18
NAROK	17.6	15.3	74.6	39.5	81.1	40.9	88.9	42.9	81.6	39
NYAMIRA	12.9	13.2	87.0	5.9	55.9	38.1	95.1	0.8	65.2	26
NYANDARUA	2.6	6.9	93.5	4.2	59.0	22.5	97.2	1.3	10.4	3
NYERI	3.5	9.9	97.5	0.0	61.7	26.3	96.1	0.0	18.5	5
SAMBURU	15.7	21.3	68.8	67.4	86.6	40.8	80.8	73.4	90.1	46
SIAYA	13.0	15.5	85.2	6.5	64.1	34.7	89.6	0.0	26.3	23
TAITA TAVETA	2.2	5.6	88.5	6.4	75.6	38.3	94.6	1.5	40.8	13
TANA RIVER	6.0	16.4	77.1	33.2	63.6	33.9	83.9	36.6	81.7	37
THARAKA NITHI	6.3	13.3	86.4	7.5	71.5	21.6	95.0	3.1	39.1	17
TRANS NZOIA	13.8	15.4	86.1	8.5	63.6	33.0	94.3	3.4	27.7	19
TURKANA	29.2	27.6	70.8	62.1	77.7	23.5	86.6	70.8	93.3	45
UASIN GISHU	6.4	6.4	89.2	4.6	51.9	30.0	92.1	0.3	13.7	6
VIHIGA	14.2	19.3	90.4	4.5	64.1	29.3	94.9	1.2	59.8	29
WAJIR	17.8	20.2	65.3	61.4	74.6	22.7	85.2	66.6	79.0	42
WEST POKOT	15.2	19.6	80.2	48.1	83.9	36.3	87.3	60.2	87.1	41
NATIONAL AVERAGE	**9.1**	**11.0**	**84.3**	**11.3**	**63.2**	**33.5**	**92.7**	**8.4**	**34.1**	**-**

Source: Authors' calculations using data from Uwezo survey rounds 4-5

Notes: see Tables 1 to 3. Based on children aged 7 years or under who were enrolled in Standard 1. All data refer to the percentage of children with the specified characteristic. For Ready Communities covers enrollment, whether the majority of mothers in the community had no education and whether the majority of households in the community were poor.

Table D2: Indicators of access to primary school, by county

COUNTY	GRADE	GRADE GAP	ENROLLED	NEVER ENROLLED
BARINGO	3.0	-35.8	83.4	15.7
BOMET	3.5	-24.7	94.6	5.0
BUNGOMA	3.2	-33.2	90.1	9.5
BUSIA	3.0	-37.4	88.5	11.1
ELGEYO-MARAK-WET	3.2	-31.4	91.9	7.8
EMBU	3.6	-22.1	94.6	5.0
GARISSA	2.6	-44.8	76.4	22.7
HOMA BAY	3.2	-36.0	88.6	11.1
ISIOLO	2.7	-40.8	81.1	17.7
KAJIADO	2.9	-36.5	85.0	14.6
KAKAMEGA	3.2	-32.7	91.9	7.7
KERICHO	3.4	-26.5	93.2	6.6
KIAMBU	3.8	-19.3	95.0	4.8
KILIFI	2.5	-50.1	79.9	19.2
KIRINYAGA	4.0	-17.0	96.7	2.1
KISII	3.5	-26.8	92.6	7.1
KISUMU	3.3	-33.4	90.0	9.5
KITUI	3.3	-32.0	92.8	6.9
KWALE	2.5	-49.9	78.2	20.3
LAIKIPIA	3.6	-26.5	90.8	8.9
LAMU	3.0	-38.9	88.1	11.4
MACHAKOS	3.7	-22.2	96.3	3.3
MAKUENI	3.6	-25.5	94.3	5.4
MANDERA	2.7	-39.3	82.6	16.4
MARSABIT	2.3	-49.7	72.4	26.3
MERU	3.5	-25.6	93.8	5.3
MIGORI	3.1	-36.0	88.3	11.4
MOMBASA	3.1	-33.4	87.7	11.7
MURANG'A	4.0	-17.7	97.7	2.1
NAIROBI	3.3	-25.8	91.5	8.1
NAKURU	3.4	-27.6	92.2	7.4
NANDI	3.1	-35.2	90.4	9.3
NAROK	2.7	-42.0	83.6	15.9
NYAMIRA	3.6	-24.6	94.7	5.0
NYANDARUA	3.8	-19.9	95.9	3.7
NYERI	3.9	-17.6	96.3	3.6
SAMBURU	2.3	-49.2	71.4	26.7
SIAYA	3.1	-38.4	87.8	12.0
TAITA TAVETA	3.6	-27.1	93.4	6.4
TANA RIVER	2.2	-52.3	73.3	25.2
THARAKA NITHI	3.3	-28.8	93.9	5.5
TRANS NZOIA	3.3	-30.6	91.5	8.2
TURKANA	2.3	-48.6	71.4	27.0
UASIN GISHU	3.3	-29.3	90.7	8.6
VIHIGA	3.3	-29.9	93.9	5.5
WAJIR	2.6	-42.2	78.8	20.2
WEST POKOT	2.2	-51.1	73.8	25.5
NATIONAL AVERAGE	**3.2**	**-31.4**	**89.6**	**9.9**

Source: Authors' calculations using Uwezo survey rounds 2-5.

Notes: Based on children aged 7 and under enrolled at Standard 1. Data refer to surveyed children

Table D3: Indicators of inequalities in access to education and learning outcomes, by location and by gender

COUNTY	METRICS OF LEARNING INEQUALITY				METRICS OF ACCESS INEQUALITY			
	COMMUNITY	HOUSEHOLD	RATIO C/H	FEMALE	COMMUNITY	HOUSEHOLD	RATIO C/H	FEMALE
BARINGO	41.0	52.1	78.8	7.9	44.6	52.0	85.9	0.8
BOMET	17.1	38.5	44.3	11.5	10.7	18.8	57.0	0.5
BUNGOMA	12.8	36.7	34.9	14.2	15.1	24.2	62.3	1.0
BUSIA	13.0	33.1	39.4	10.0	4.6	8.1	56.8	1.4
ELGEYO-MARAK-WET	11.8	32.2	36.8	13.2	7.1	14.4	49.4	1.2
EMBU	14.1	32.5	43.5	12.2	22.7	27.4	82.9	2.6
GARISSA	33.1	45.7	72.5	-4.9	38.4	48.5	79.2	-3.3
HOMA BAY	12.0	31.1	38.6	7.2	4.6	8.0	57.1	0.8
ISIOLO	26.7	35.1	76.1	-4.8	23.5	29.3	80.4	-0.6
KAJIADO	25.3	37.5	67.5	0.3	18.3	25.2	72.5	-1.2
KAKAMEGA	11.8	32.4	36.3	17.3	2.8	5.9	47.6	2.0
KERICHO	14.3	36.7	38.9	10.5	2.9	9.3	31.8	0.9
KIAMBU	19.7	34.7	56.8	7.6	11.4	19.0	59.8	0.1
KILIFI	16.7	36.0	46.4	3.5	7.3	11.5	63.3	-0.4
KIRINYAGA	6.2	26.3	23.6	3.3	3.5	14.5	24.3	-0.9
KISII	19.3	37.4	51.6	9.9	7.4	11.1	66.9	0.5
KISUMU	13.9	34.4	40.5	6.2	3.6	5.1	70.8	1.4
KITUI	15.7	36.2	43.4	13.7	4.5	6.5	68.9	0.8
KWALE	19.8	39.0	50.7	4.0	7.8	15.3	51.0	2.4
LAIKIPIA	23.7	38.8	61.0	6.4	15.5	27.1	57.3	-0.4
LAMU	20.9	34.3	60.9	-1.4	9.8	11.0	89.3	-0.8
MACHAKOS	16.5	33.9	48.6	12.4	1.8	1.6	108.4	1.3
MAKUENI	19.1	33.1	57.6	10.3	8.0	12.1	66.6	0.8
MANDERA	32.8	41.7	78.5	-10.4	24.7	35.1	70.6	-4.9
MARSABIT	30.1	36.7	82.0	-7.2	39.2	43.7	89.7	-2.9
MERU	19.5	36.1	54.1	7.3	7.0	18.0	38.7	1.0
MIGORI	14.0	34.4	40.6	5.8	4.4	9.2	47.8	0.8
MOMBASA	12.3	35.7	34.5	2.5	5.4	18.1	29.9	2.5
MURANG'A	12.0	26.1	46.0	15.0	3.4	8.3	41.3	-0.5
NAIROBI	12.2	28.3	43.2	6.0	32.7	46.7	70.0	-0.9
NAKURU	16.4	34.6	47.4	7.9	13.1	23.4	56.1	1.4
NANDI	16.3	36.2	45.1	13.4	6.2	11.4	54.1	1.1
NAROK	20.2	36.2	55.9	2.5	13.9	21.2	65.4	-0.1
NYAMIRA	12.0	29.9	40.1	7.1	2.5	4.7	53.7	-0.4
NYANDARUA	10.3	27.0	38.1	9.6	4.7	16.1	29.2	1.8
NYERI	12.3	32.9	37.3	8.4	3.8	5.9	65.2	0.2
SAMBURU	21.1	29.3	72.0	-14.5	23.9	30.1	79.3	-7.3
SIAYA	9.6	23.1	41.6	9.3	9.5	13.2	72.2	1.6
TAITA TAVETA	18.4	33.4	55.1	12.7	4.6	4.8	95.6	-1.1
TANA RIVER	28.3	42.4	66.7	-6.0	25.9	37.3	69.5	-2.3
THARAKA NITHI	15.7	36.7	42.8	11.0	12.9	21.3	60.6	3.1
TRANS NZOIA	15.2	38.6	39.5	8.6	10.4	17.9	58.0	1.4
TURKANA	32.0	45.3	70.7	-5.7	42.3	55.2	76.6	-1.6
UASIN GISHU	23.4	41.9	55.9	4.9	17.7	27.7	63.9	0.8
VIHIGA	12.1	32.0	37.7	15.0	3.1	11.7	26.4	1.5
WAJIR	25.9	38.7	67.0	-14.8	25.6	41.3	61.9	-5.9
WEST POKOT	32.7	45.5	71.8	1.6	35.9	44.8	80.2	-0.3
NATIONAL AVERAGE	**25.3**	**41.1**	**61.6**	**6.7**	**19.8**	**26.9**	**73.4**	**0.2**

Source: Authors' calculations using data from Uwezo survey rounds 2-5.

Notes: Based on Uwezo test results and variations in school enrolment for all children i.e. all children who were surveyed aged 6 – 16 years. Community (neighbourhood) and household (sibling) correlations are expressed as percentages of the variance explained (R2)

Table D4a: Mean standardized test scores, by age and county

COUNTY	AGE						
	7	8	9	10	11	12	13
BARINGO	-81.5	-51.3	-23.9	-1.2	22.8	32.6	43.6
BOMET	-87.9	-51.9	-22.1	5.4	29.9	48.5	57.9
BUNGOMA	-102.9	-73.3	-44.6	-15.1	7.3	28.3	43.7
BUSIA	-106.3	-78.0	-46.6	-17.3	10.4	30.4	47.0
ELGEYO-MARAK-WET	-75.0	-38.3	-3.8	19.5	46.9	61.5	71.8
EMBU	-65.0	-21.9	4.5	20.9	45.5	55.2	58.2
GARISSA	-90.4	-72.9	-53.3	-37.5	-22.9	-4.0	3.3
HOMA BAY	-103.5	-70.8	-39.8	-10.9	25.7	40.0	52.2
ISIOLO	-106.0	-84.7	-56.8	-28.0	-4.0	9.4	22.3
KAJIADO	-57.6	-30.8	-1.7	14.7	34.4	40.8	54.6
KAKAMEGA	-103.2	-69.9	-42.9	-11.5	17.2	34.7	48.6
KERICHO	-71.1	-43.1	-9.2	16.6	35.3	46.9	60.5
KIAMBU	-33.5	3.5	28.9	48.3	60.1	66.7	72.6
KILIFI	-107.1	-70.1	-46.4	-20.3	3.0	25.5	44.4
KIRINYAGA	-56.1	7.9	17.2	45.8	64.0	61.3	73.5
KISII	-82.2	-48.2	-12.9	12.9	36.9	49.0	62.6
KISUMU	-92.3	-58.9	-28.5	-4.6	20.8	39.3	52.5
KITUI	-99.9	-65.9	-32.4	-6.3	20.0	35.5	51.1
KWALE	-111.9	-90.6	-70.7	-32.9	-5.6	12.7	33.2
LAIKIPIA	-65.7	-31.6	3.3	17.4	40.9	54.7	59.5
LAMU	-101.3	-55.5	-28.7	-1.9	29.4	40.2	59.9
MACHAKOS	-71.1	-38.0	-4.5	20.2	38.5	53.0	60.4
MAKUENI	-73.8	-38.2	-9.2	26.3	41.7	56.3	66.9
MANDERA	-101.2	-76.2	-50.4	-27.0	-4.7	7.3	17.8
MARSABIT	-120.1	-93.8	-72.7	-44.6	-12.0	-10.9	9.2
MERU	-69.6	-35.0	-3.1	15.0	34.5	48.6	57.4
MIGORI	-107.6	-76.0	-45.7	-15.5	17.3	28.0	49.7
MOMBASA	-70.4	-28.2	6.9	26.7	48.2	56.2	60.6
MURANG'A	-50.3	-3.8	20.3	39.8	50.6	65.0	69.2
NAIROBI	-41.5	0.0	26.9	48.6	66.5	70.2	71.6
NAKURU	-68.2	-29.7	0.6	24.7	45.6	59.4	62.5
NANDI	-82.0	-42.1	-13.4	16.4	35.7	49.9	58.6
NAROK	-107.0	-77.5	-44.7	-23.0	2.9	18.5	38.6
NYAMIRA	-78.8	-35.7	-7.4	16.3	36.0	47.7	61.4
NYANDARUA	-55.6	-18.9	9.3	31.0	43.3	58.1	60.0
NYERI	-40.9	8.1	33.4	45.9	59.6	71.0	74.8
SAMBURU	-118.0	-98.3	-72.3	-48.2	-19.3	-11.2	7.6
SIAYA	-115.2	-76.6	-43.5	-12.2	15.2	40.6	52.8
TAITA TAVETA	-63.1	-35.2	1.7	22.8	48.5	57.2	68.1
TANA RIVER	-111.1	-91.0	-65.7	-43.9	-14.6	2.9	14.8
THARAKA NITHI	-59.2	-23.6	12.5	27.1	44.9	55.8	60.7
TRANS NZOIA	-90.2	-60.9	-29.0	-2.1	17.2	38.6	50.2
TURKANA	-118.4	-97.4	-77.9	-51.9	-30.8	-16.4	-6.2
UASIN GISHU	-56.2	-23.8	3.0	23.9	45.4	51.5	61.0
VIHIGA	-103.1	-67.1	-35.6	-4.1	26.0	37.9	54.6
WAJIR	-106.2	-79.6	-65.1	-42.1	-21.2	-6.8	13.2
WEST POKOT	-118.0	-93.3	-69.4	-44.2	-18.0	-1.4	10.3
NATIONAL AVERAGE	**-78.7**	**-45.6**	**-15.8**	**6.7**	**30.9**	**42.5**	**53.9**

Source: Authors' calculations using data from Uwezo survey rounds 2-5.

Notes: Test score is standardized to take a mean of 0 and standard deviation of 100 (for the entire sample of children).

Table D4b: Share of children with basic literacy and numeracy skills, by age and county

COUNTY	AGE						
	7	8	9	10	11	12	13
BARINGO	56.7	67.7	77.7	82.2	86.4	89.2	90.3
BOMET	45.2	61.6	72.1	82.3	90.4	94.8	96.8
BUNGOMA	41.0	54.7	65.7	76.7	82.4	88.9	93.6
BUSIA	44.0	56.5	69.6	79.5	87.5	92.0	95.1
ELGEYO-MARAK-WET	58.2	75.5	85.7	90.6	95.5	98.0	98.6
EMBU	60.7	79.5	84.5	89.9	96.4	97.1	96.9
GARISSA	52.6	60.1	68.1	73.3	77.2	81.3	82.1
HOMA BAY	41.6	59.9	73.7	83.8	89.5	94.0	96.4
ISIOLO	40.6	53.5	69.5	76.0	82.9	86.7	87.9
KAJIADO	65.0	76.3	81.5	88.9	93.4	91.8	93.9
KAKAMEGA	41.9	56.8	67.6	78.6	87.3	92.4	94.2
KERICHO	56.3	71.8	82.8	89.8	94.1	94.9	97.6
KIAMBU	79.5	89.4	94.7	96.8	97.2	98.0	98.7
KILIFI	42.4	58.8	69.9	77.7	84.8	90.7	94.9
KIRINYAGA	59.8	89.7	89.7	95.6	98.6	95.2	99.4
KISII	53.1	66.5	80.2	86.0	92.0	95.2	96.8
KISUMU	49.5	66.3	76.7	83.3	89.5	94.7	96.1
KITUI	41.8	57.9	73.0	81.2	89.3	92.3	95.2
KWALE	40.8	47.8	55.5	70.2	79.2	84.3	89.7
LAIKIPIA	62.8	76.1	86.9	87.9	93.4	95.4	96.0
LAMU	46.8	70.0	78.1	85.9	91.1	94.5	98.1
MACHAKOS	57.8	71.4	86.0	90.1	94.5	95.9	96.5
MAKUENI	58.5	75.2	84.6	93.0	96.0	96.8	97.8
MANDERA	47.0	59.6	71.9	77.7	85.5	85.8	87.8
MARSABIT	37.2	50.4	61.0	70.1	79.0	76.8	81.3
MERU	62.2	74.2	85.2	90.1	92.4	95.3	96.0
MIGORI	37.8	54.1	65.7	78.0	87.9	89.8	93.4
MOMBASA	63.4	77.4	87.8	91.2	95.3	95.8	96.9
MURANG'A	72.7	87.5	93.2	95.7	97.1	98.5	98.6
NAIROBI	79.5	89.6	93.5	96.6	98.5	99.2	98.9
NAKURU	64.0	79.1	85.1	90.4	95.5	96.8	97.1
NANDI	55.1	71.7	80.8	87.6	92.8	94.9	96.2
NAROK	40.6	54.6	70.2	77.5	84.1	86.9	93.6
NYAMIRA	53.9	74.9	85.5	90.0	92.8	95.8	97.3
NYANDARUA	74.8	87.4	91.0	94.4	94.8	97.0	97.1
NYERI	77.4	90.6	94.0	95.8	96.5	98.9	98.2
SAMBURU	36.5	47.7	60.6	67.5	76.1	78.1	82.0
SIAYA	35.0	56.0	68.5	79.4	86.9	94.0	96.0
TAITA TAVETA	66.2	77.1	84.9	90.3	95.3	97.5	97.7
TANA RIVER	42.1	51.8	63.0	73.3	79.5	85.7	87.2
THARAKA NITHI	64.9	74.4	86.7	89.8	93.9	96.3	95.0
TRANS NZOIA	50.1	61.5	73.3	82.6	88.7	92.9	93.6
TURKANA	35.8	47.8	56.4	66.9	73.1	78.5	78.2
UASIN GISHU	69.5	81.0	86.0	90.9	94.6	93.9	96.2
VIHIGA	42.3	58.6	73.1	80.4	90.9	91.6	94.6
WAJIR	44.4	58.3	65.3	73.4	78.3	81.6	86.4
WEST POKOT	36.7	48.1	60.4	67.5	76.2	80.2	80.9
NATIONAL AVERAGE	**56.4**	**69.5**	**79.3**	**85.3**	**91.0**	**93.2**	**95.1**

Source: Authors' calculations using data from Uwezo survey rounds 2-5.

Notes: Basic literacy and numeracy skills are defined as being able to read a word and being able to correctly place numbers of two digits in size order.

Table D5: Baseline data (2014) for proposed SDG 4 indicators, by county

COUNTY	PRESHOOL	ENROLLMENT GAP	COMPLETION	SKILLS
BARINGO	86.9	-2.1	35.3	70.7
BOMET	90.8	0.8	45.4	81.4
BUNGOMA	83.1	0.9	29.1	62.5
BUSIA	88.3	0.5	30.0	62.3
ELGEYO-MARAK-WET	87.8	0.2	34.8	79.6
EMBU	97.9	0.9	45.4	76.9
GARISSA	54.1	-8.6	29.1	43.2
HOMA BAY	89.5	1.3	48.0	78.6
ISIOLO	70.7	-1.3	32.8	60.9
KAJIADO	76.5	0.0	36.9	60.8
KAKAMEGA	91.8	1.7	36.1	72.5
KERICHO	91.7	-1.4	44.8	77.6
KIAMBU	88.1	0.2	71.2	82.8
KILIFI	90.8	1.2	26.0	71.7
KIRINYAGA	53.4	-2.5	69.9	88.6
KISII	91.0	0.5	55.0	79.9
KISUMU	92.9	0.9	46.5	75.1
KITUI	89.6	0.8	37.8	72.5
KWALE	80.1	1.9	20.9	55.0
LAIKIPIA	78.3	-0.1	54.4	78.2
LAMU	96.4	-0.9	43.6	80.0
MACHAKOS	90.3	0.5	56.8	73.0
MAKUENI	90.1	-0.8	51.3	83.4
MANDERA	55.1	-11.7	26.5	38.1
MARSABIT	75.5	-2.5	22.5	40.5
MERU	85.8	0.4	49.7	67.3
MIGORI	86.3	0.7	39.5	75.6
MOMBASA	95.9	2.6	50.5	78.3
MURANG'A	93.2	1.0	53.0	90.0
NAIROBI	86.5	3.1	65.5	82.1
NAKURU	81.1	0.3	53.4	79.1
NANDI	91.3	0.4	37.4	77.9
NAROK	84.5	-0.8	22.3	63.8
NYAMIRA	85.7	3.0	59.8	65.8
NYANDARUA	91.6	0.8	67.7	75.2
NYERI	99.0	1.0	75.1	86.2
SAMBURU	76.1	-5.5	22.2	52.4
SIAYA	91.7	-0.7	32.7	68.7
TAITA TAVETA	95.5	0.4	57.4	75.1
TANA RIVER	69.4	-1.7	23.3	51.2
THARAKA NITHI	88.9	0.5	45.8	80.4
TRANS NZOIA	89.8	-0.4	45.2	72.3
TURKANA	69.1	-4.8	18.5	45.2
UASIN GISHU	89.4	3.4	41.1	84.0
VIHIGA	94.1	1.5	44.9	76.0
WAJIR	63.8	-13.6	33.3	64.3
WEST POKOT	87.5	-1.2	18.0	55.1
NATIONAL AVERAGE	**86.1**	**0.2**	**45.8**	**72.9**
MINIMUM	*53.4*	*-13.6*	*18.0*	*38.1*
DISTANCE	*32.7*	*13.8*	*27.8*	*34.8*

Source: Authors' calculations using data from Uwezo survey round 5 (2014).

Notes: Pass rates refer only to children aged 14-16. 'Distance' is the gap between the national average result and that of the lowest scoring region. 'Minimum' is the score attained by the lowest scoring region. Skills refer to literacy and numeracy pass rates for children aged 14-16. Enrollment gap is the enrollment rate for girls minus the enrollment rate for boys.






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