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African Union

Education in Africa

Placing equity at the heart of policy

Continental report

Education 2030

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Education 2030

African Union

The African Union (AU) is a continental body consisting of the 55 member states that make up the countries of the African Continent. Guided by its vision of "*An Integrated, Prosperous and Peaceful Africa, driven by its own citizens and representing a dynamic force in the global arena,*" AU promotes Africa's growth and economic development by championing citizen inclusion and increased cooperation and integration of African states. In Education, the AU contributes to development of human resources and intellectual capital through facilitating access to revitalized, quality, relevant, harmonized education and training systems, whilst ensuring gender equality, safe and healthy learning environments. The AU is implementing the Continental Education Strategy (CESA 16-25) that capitalizes on education actors, Member States, Regional Economic Communities and Development Partners among others to collectively transform the education systems in Africa, focusing on Early Childhood Education, Higher Education, TVET, Teacher Development, Curriculum Development, among other CESA strategic objectives.

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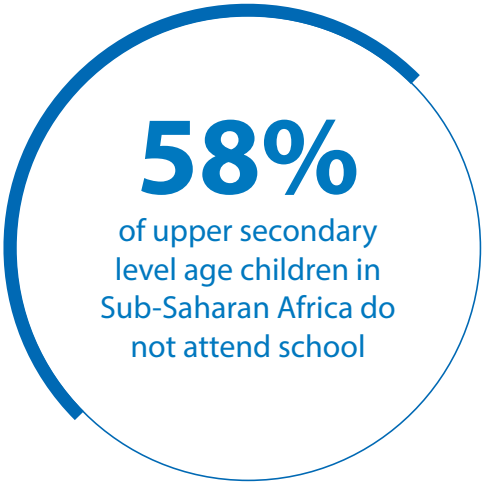
SHORT SUMMARY

Putting equity at the heart of quality education for all in Africa

Learning to read and write, and do simple maths, is a basic requirement to be able to navigate in today's increasingly globalized and competitive world. Providing children with quality education opens the door for them to a lifetime of better opportunities. These translate not only in terms of the jobs that they will be able to have and how much they will earn, but it also has an impact on their physical and mental health.

Although many countries in Africa are taking significant steps to ensure quality education for all, too many children are still being left behind. One in five primary school age children are not in the classroom. And almost six in ten adolescents are out of school. This is due to several interlinking factors such as geographical location, gender, extreme poverty, disability, crises, conflict, and displacement.

In this comprehensive new analysis, UNESCO explores how these factors impact a child's access to quality learning. It highlights the importance of addressing barriers to inclusion through actions such as making secondary education compulsory, building more schools, developing adapted curricula, improving the quality of teachers, and providing financial and academic assistance to children. The report aims to provide African governments with guidelines and advice as they try to overcome these challenges.



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"Since wars begin in the minds of men and women it is in the minds of men and women that the defences of peace must be constructed"

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African Union

Education in Africa

Placing equity at the heart of policy

Continental report

Foreword

Education in Africa: Placing equity at the heart of policy

If there is one thing that we have learnt from the COVID-19 pandemic, it is that humans are resilient and creative. Our determination and ability to adapt has helped us get through this difficult time and forge the world as we know it today. These are the same qualities that will enable us to build a better world for tomorrow.

Over the last few months, we have also come to better understand the uncertainties of the future. Many challenges may be added to those that already exist. The African continent has not been spared by the effects of what started out as a health crisis, but ended up having ramifications in the economic, social, and cultural sectors. Among these, the already fragile education sector has suffered greatly. Strengthening preparedness and resilience for future crises, while building a more equitable quality education system, is therefore of paramount importance.

Every little step counts. Education has a critical role to play, not only in the overall well-being of young people at school, but also because it opens the door to a brighter future for them as adults. For children, school is a focal point for nutrition, health, psychosocial support, and social assistance. But the education they receive is also critical for a country's meaningful and sustainable economic growth and development. Schools are at the heart of building a better world for all, which is why education must be at the centre of our concerns.

UNESCO embraces this new continental report with enthusiasm. Developed as a collaboration between the African Union and UNESCO, it offers insights into the road to change. It is a framework for the transformation of education and training systems, contributing to efforts to achieve the targets set out by the Continental Education Strategy for Africa (CESA) 2016-25 and SDG 4. It also seeks to implement sustainable educational development in the context of Africa's specific priorities. In short, the report provides a comprehensive analysis of education systems from early childhood to university, including digital technologies, employment, health, and economic development.

This journey is not insignificant. Poor quality education programmes can have profoundly negative effects on children beyond learning and development. They can jeopardize their safety, health, and psychosocial well-being. It is vital for us to provide them with a safe, stimulating, and healthy environment in which they can grow to their full potential. A multidimensional approach to this task will allow us to consider the disparities of class, environment, gender, language, and political crisis within education systems and empower us to develop a global intervention strategy that leaves no child behind.

This task, however, is far from simple. The findings of the report show that it will require collective thinking and solidarity in our actions. Above all, it will require perseverance and a real commitment to transform education systems to meet our higher purposes, as per the outcome of the Transforming Education Summit and the African Union declaration from the high-level Heads of State event of September 2022.

Leveraging the report by the UNESCO International Commission on the Futures of Education, the Transforming Education Summit sought to fundamentally rethink the purpose, content, and delivery of education in the 21st century. It also aimed to elevate education in national and global political agendas in order to mobilize ambition, solidarity, and solutions, not just to recover pandemic-related learning losses but also to reignite progress towards SDG 4 and sow the seeds for the transformation of education. The Secretary-General's Vision Statement on Transforming Education is a manifesto and urgent call to Member States and the public to join efforts towards transforming education. The SDG 4 High-Level Steering Committee, co-chaired by UNESCO and Sierra Leone, has been tasked with ensuring the effective follow-up of the summit – strengthening cooperation and alignment of actions among education partners at global, regional, and country levels.

Six Global Initiatives[1] emerged from the Transforming Education Summit aimed at mobilizing cross-country cooperation and bringing transformation to scale, addressing urgent aspects of learning losses, and laying the foundation for change. These critical areas of action will be monitored using a small group of indicators—building on the SDG 4 benchmark indicators and the national SDG 4 benchmarking process—to assess progress and bottlenecks.

At a regional level, UNESCO is already incorporating the key findings of this report into its programme activities to support and develop the capacity of African countries to monitor and report against CESA and SDG4 targets, assessing the first six years of implementation of the two agendas. Evaluating achievements made so far is instrumental to ensuring that countries and the continent learn from their experiences and integrate lessons into their future plans. It is expected that countries continue to monitor and report on their progress on a regular basis, so that lessons learnt can feed the joint CESA-SDG 4 continental reports in 2025 and 2030.

This is part of our joint efforts to scale up our commitment to education, taking into account the recommendations from this report and the Transforming Education Summit. ***Placing equity at the heart of education policy*** is central to building an African continent where well-being and equal opportunity are at the core of our ambitions.

Stefania Giannini
Assistant Director-General for Education
UNESCO

1. Greening education: getting every learner climate-ready, gateways to public digital learning, advancing gender equality and girls' and women's empowerment, addressing education in crisis situations.
Foundational learning: addressing the learning crisis, and transforming the financing of education.

Foreword

Equity as the bedrock of achieving agenda 2063 aspirations and SDG4 through education

I am delighted to present this report developed by the African Union Commission and UNESCO. It is a result of research and engagements between the representatives of the two institutions. It is also a direct implementation of the outcomes of the 2018 Pan African High-Level Conference on Education in Africa, which called for a stronger relationship and technical collaboration between the AU and UNESCO, as the custodians of the Continental Education Strategy for Africa 2016 - 2025 and the Sustainable Development Goal 4 respectively.

Despite the efforts made by African states to improve access to quality education in recent decades, progress remains to be made. It is now recognized that in situations of great fragility, the most disadvantaged populations are the most likely to be left behind. This observation has been further reinforced by the sudden onset of the Covid-19 pandemic, which has disrupted already unstable African education systems by causing dropouts and school closures, thus breaking the educational continuity for millions of children. This report developed by the African Commission and UNESCO addresses the issue and delves into the factors of inequality that impede equitable schooling among children.

Africa's desire for shared prosperity and well-being, for unity and integration, for a continent of free citizens and expanded horizons, where the full potential of men, women and youth, boys and girls are realized, and with freedom from fear, disease and want, can only be achieved through reinforcing the link between safety and Peace and Education. The advent of the COVID-19 pandemic forced a new delivery model, new planning and funding paradigm on the global teaching and learning systems, and in particular African Education systems. This effort is geared towards laying the pathway for realizing the aspirations of Agenda 2063: The Africa We Want, through sound, responsive and resilient education systems.

COVID-19 is fundamentally a public-health crisis, but its social and economic impact on African Union member states are inestimable, particularly on the Education sector. This report highlights some of the response mechanisms put in place by the member states towards mitigating the effects of these challenges.

Thus, the entire report is anchored on the concept of Equity which must become the guidelines for African education policies. It is the primary responsibility of the two institutions to provide continuous support to AU member states towards ensuring that no child is left behind, and in COVID-19 context, that every child in rural and disadvantaged urban centers, and in other fragile countries and contexts, is able to receive the right education and training. This is also an opportunity to salute the creativity of teachers who ensure the success and well-being of learners, through the use of different technologies, as pedagogical tools. While acknowledging the unfailing support of our partners, I urge all the CESA clusters members to take ownership of the recommendations of this report and include them in their action plans.

Additionally, the report further highlights the CESA 16-25 and SDG 4 indicators that speaks to access, enrollment, completion and transition of learners from early childhood to upper secondary. The African Union Commission, through the Pan African Institute for Education for Development (IPED), has continually worked with the member states to ensure that capacity to collect and use data to inform technical and policy level intervention in these areas.

In conclusion, I am immensely proud of the work put into the production of this report. With this publication, the African Union Commission reiterates its commitment to support its member states to domesticate and implement the recommendations proffered herein.

H.E Professor Mohamed Belhocine
Commissioner for Education, Science,
Technology and Innovation African Union Commission

Acknowledgments

This publication is the result of a Continental Report conducted under the auspices of UNESCO Dakar to monitor progress on achievement of CESA 16-25 and SDG 4 implementation. The production of this report required tremendous commitment and involvement of the partners and formal and informal contributions from numerous individuals and institutions.

The contents of this publication cannot fully reflect the richness of ideas, interactions, partnerships and collaborations associated with the effort. These acknowledgements are an imperfect attempt at recognizing those who generously gave their time and energy to help with the production of the Joint CESA & SDG 4 Continental Report - with apologies for the many that contributed that we have failed to include here. We hope that this report may contribute to ongoing efforts for accelerating African countries' progress towards the achievement of the strategic objectives and targets set out in both CESA 16-25 and SDG 4.

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Acronyms

ABE	Alternative basic education (Ethiopia)
ACE	African Higher Education Centers of Excellence
ADEA	Association for the Development of Education in Africa
ADPP	Aid for the Development of People for People (Mozambique)
AfECN	Africa Early Childhood Network
AK	Akazi Kanoze (Rwanda)
ANAR	Adjusted net attendance rate
ASAMA	Action Scolaire d'Appoint pour les Malgaches Adolescents (Action for Inclusive Education in Madagascar)
AU	African Union
AUC	African Union Commission
CAMaL	Combined Activities for Maximized Learning
CBT	Competency-based training
CESA	Continental Education Strategy for Africa
CIEFFA	Centre International pour l'Education des Filles et des Femmes en Afrique (International Centre for Girls' and Women's Education in Africa)
COGEP	Comité de gestion des écoles primaires (Primary school management committee) (Togo)
CONASUR	Conseil National de Secours d'Urgence et de Réhabilitation (Council for Emergency Relief and Rehabilitation) (Burkina Faso)
CONFEMEN	Conférence des ministres de l'Education des Etats et gouvernements de la Francophonie (Conference of the Ministers of Education of French-Speaking Countries)
CoP	Community of practice
COVID-19	Coronavirus disease 2019
DAC	Development Assistance Committee
DHS	Demographic and health survey
DMS	Data Must Speak
DPIA	Disability parity index adjusted
ECCE	Early childhood care and education
ECD	Early childhood development
ECDE	Early childhood development and education
ECDI	Early childhood development index
ECE	Early childhood education
ECOWAS	Economic Community of West African States
EDC	Education Development Center (Rwanda)

EGRA	Early Grade Reading Assessment
EMIS	Education management information system
ESD	Education for sustainable development
ESDP	Education sector development programme
ESP	Education sector plan
FAWE	Forum for African Women Educationalists
FDI	Foreign direct investment
FLN	Foundational literacy and numeracy
FUNAE	Fundo de Energia (Energy Fund) (Mozambique)
GAR	Gross attendance ratio
GBV	Gender-based violence
GCED	Global citizenship education
GCI	Gender at the Centre Initiative
GCPEA	Global Coalition to Protect Education from Attack
GDP	Gross domestic product
GEMR	Global Education Monitoring Report
GER	Gross enrolment ratio
GES4CESA	Gender Equality Strategy for CESA
GIR	Gross intake ratio
GPE	Global Partnership for Education
GPI	Gender parity index
GPIA	Gender parity index adjusted
HCI	Human capital index
HIC	High-income country
HRMS	Human Resources Management System
ICQN/TVD	Inter-Country Quality Node on Technical and Vocational Skills Development
ICT	Information and communication technology
IDA	International Development Association
IDP	Internally displaced person
IECD	Integrated early childhood development (Kenya)
IGAD	Intergovernmental Authority on Development
IIEP-UNESCO	UNESCO International Institute for Educational Planning
ILO	International Labour Organization
ISCED	International Standard Classification of Education

JMP	Joint Monitoring Programme
J-PAL	Abdul Latif Jameel Poverty Action Lab
LIC	Low-income country
LMIC	Lower middle-income country
LMIS	Labour market information system
LPIA	Location parity index adjusted
MENA	Middle East and North Africa
MICS	Multiple Indicator Cluster Survey
MIRADOR	Management Intégré des Ressources axé sur une Dotation Rationnelle (Integrated Management of Resources Based on Rational Allocations) (Senegal)
MoGE	Ministry of General Education (Zambia)
NACECE	National Centre for Early Childhood Education (Kenya)
NAMCOL	Namibia College of Open Learning
NEET	Not in education, employment, or training
NER	Net enrolment rate
NFE	Non-formal education
NGO	Non-governmental organization
ODA	Official development assistance
OECD	Organisation for Economic Co-operation and Development
OOSC	Out-of-school children
OOSR	Out-of-school rate
PAQAF	Pan-African Quality Assurance and Accreditation Framework
PASEC	Programme d'Analyse des Systèmes Educatifs de la CONFEMEN (CONFEMEN Programme for the Analysis of Education Systems)
Pefop	Plateforme d'expertise en formation professionnelle (Platform of expertise in vocational training)
PERI	Projet d'Education et de Renforcement Institutionnel (Education and Institutional Strengthening Project) (Togo)
PIA	Parity index adjusted
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
PMI	Progressive Mathematics Initiative (The Gambia)
PPP	Purchasing power parity
PSI	Progressive Science Initiative (The Gambia)
PTA	Parent teacher association
PV	Photovoltaic
R&D	Research and development

RBF	Results-based financing
RCT	Randomized controlled trial
REACH	Results in Education for All Children
REC	Regional Economic Community
RPL	Recognition of prior learning
SABER	Systems Approach for Better Education Results
SEACMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SADC	Southern African Development Community
SDG	Sustainable development goal (UN Agenda)
SHS	Senior high school (Ghana)
SMS	Short message service
SO	Strategic objective (CESA Agenda)
SPC	School profile card
SRC	Student representative council (Ghana)
SRGBV	School-related gender-based violence
SSA	Sub-Saharan Africa
STEM	Science, technology, engineering, and mathematics
STEP	Skills Towards Employability and Productivity programme
STI	Science, technology, and innovation
STISA	Science, Technology and Innovation Strategy for Africa (African Union)
TALIS	Teaching and Learning International Survey
TaRL	Teaching at the Right Level
TFEMPS	Task Force on Education Management and Policy Support (ADEA)
TIMSS	Trends in International Mathematics and Science Study
TMIS	Teacher management information system
TOSSD	Total Official Support for Sustainable Development
TTF	Teacher Task Force
TTP	Teacher Training Program (Cameroon)
TVET	Technical and vocational education and training
UIS	UNESCO Institute for Statistics
UMIC	Upper middle-income country
UN	United Nations
UNESCO	United Nations Educational, Cultural and Scientific Organization
UNEVOC	International Centre for Technical and Vocational Education and Training (UNESCO)

UNFPA	United Nations Population Fund
UNGA	United Nations General Assembly
UNGEI	United Nations Girls' Education Initiative
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
VISUS	Visual Inspection for defining the Safety Upgrading Strategies
WASH	Water, sanitation and hygiene
WGEMPS	Working Group on Education Management and Policy Support
WHO	World Health Organization
WPIA	Wealth parity index adjusted
WRN	Work Ready Now!

Country acronyms

BEN	Benin
CAR	Central African Republic
DRC	Democratic Republic of the Congo
GNB	Guinea-Bissau
LSO	Lesotho
STP	Sao Tomé and Principe
TGO	Togo
USA	United States of America

Chapter 1

Reorienting education systems for the 'Africa We Want'

A continental report supporting efforts around CESA and SDG 4 in Africa

The Continental Education Strategy for Africa (CESA 16-25) was adopted by African Union heads of state and government as the framework for transforming education and training systems on the continent. CESA concretizes the vision set out in its Agenda 2063 for enabling citizens to be effective agents of change to achieve the 'Africa We Want.' It also localized the United Nations' 2030 Agenda for Sustainable Development goal on education (SDG 4) and the Education 2030 Framework for Action by focusing on the continent's priorities. In doing so, CESA puts forward 12 strategic objectives, 6 guiding principles, and 9 pillars to guide the implementation of these objectives.

This report aims to contribute to ongoing efforts to accelerate Africa's progress towards achieving the objectives and targets set out in both CESA and SDG 4. In this respect, it builds directly on the efforts and outputs of the African Union Commission (AUC), UNESCO's Institute for Statistics (UIS), the UNESCO Global Education Monitoring Report (GEMR), United Nations Children's Fund (UNICEF), UNESCO's International Institute for Educational Planning (IIEP) as well as the 12 CESA clusters.[i] In particular, the report aims to align with the ongoing SDG 4 benchmarking exercise the AUC and UIS are conducting. As of November 2021, the benchmark indicators have been selected and consultations are underway with Member States to decide on national benchmarks for these indicators. This continental report anchors its conceptual framework and the quantitative components of its baseline situation analysis on these indicators.

A consolidated framework for analysing the state of education

More specifically, this report presents the baseline situation analysis of both CESA's strategic objectives and SDG 4 targets in a consolidated framework organized around six topics: early childhood education (ECE), primary and secondary education, skills for work (with a focus on technical and vocational education and training [TVET] and tertiary education), teachers, education facilities, and means of implementation. Each of these topics are taken up in separate chapters, with analysis of the issue framed within a broader policy perspective.

In each chapter:

- The particular topic is situated within the CESA and SDG 4 frameworks.
- Salient policy issues are highlighted.
- Relevant indicators are listed and described (see *Appendix 3*) and data availability for relevant indicators is presented in each chapter.
- Baseline situation is analysed with a focus on the benchmark indicators identified by UIS and AUC for monitoring progress toward SDG 4 and CESA. Where relevant and possible, data from additional SDG 4 and CESA indicators are also analysed.
- Where relevant and possible, country-level changes with regards to these benchmark indicators are described.
- Examples of ongoing initiatives on the particular topic are mentioned, with policy cases featured and described in detail.

i. STEM Education, Women and Girls Education, ICT in Education, Peace and Education, Teacher Development, Early Childhood Education and Development, School Feeding, Higher Education, Education Planning, Curriculum, Life Skills and Career Guidance, and TVET.

Equity as the continental report's anchoring theme

As a reflection of the shared commitment in CESA and SDG 4 to leave no child behind, this report puts equity at the core of its analysis. *Chapter 2* highlights key issues concerning equitable education, summarizes the equity-related findings in subsequent chapters, and presents ongoing efforts to enhance equity and inclusion in Africa. In keeping with the key message about putting equity at the heart of education policy, the rest of the report treats equity as a cross-cutting analytic focus. Special emphasis is placed on the issue of quality education and learning as key aspects of the equity agenda.

Notes on the analysis methods used in the report

The policy issues highlighted, the statistical analyses presented, and the ongoing efforts described in this report, are the outputs of a three-pronged research process. The first consisted of two parts: a desk review of over 300 documents to identify key relevant policy issues, and an in-depth desk review for the policy issues identified. A second prong involved identifying recent/ongoing efforts mentioned in the reviewed documents, collecting additional information on over 100 such cases, and preparing case stories for 10 of them. The third involved statistical analysis using data mainly from UNESCO's Institute for Statistics (UIS) SDG 4 database with a focus on those indicators used in the continental benchmarking exercise. The report presents analysis on baseline performances of countries with an equity lens and, when data allows it, includes some preliminary discussion on changes since 2015.[ii] *Appendix 1* presents details on the methodology of the research process.

Joining the call to prioritize equitable policies to support learning and quality education for all

Even before COVID-19, only a handful of countries in Africa were on track to fulfilling the commitments under SDG 4.[1] The pandemic has, without a doubt, made it even harder for governments to get on track. It magnified existing disparities and aggravated system-level weaknesses. However, it has also made the call to invest in effective, resilient, and equitable education systems louder and clearer than ever before. This report joins others in this call by both celebrating the efforts and achievements of African governments, and by putting a spotlight on critical policy issues and implementation challenges.

References

[1]UNDESA (UN Department of Economic and Social Affairs), 'Sustainable Development Goals Progress Chart 2021', 2021, p. 1. https://unstats.un.org/sdgs/report/2021/progress-chart-2021.pdf

ii. The statistical analyses presented in this document aim to establish the situation of education in Africa at the start of the CESA 16-25 and SDG 4, in other words, at the baseline (see Appendix 1 on methodology for further details).

Chapter 2

Placing equity at the heart of education policy

CHAPTER SUMMARY

This chapter makes the case for placing equity at the heart of education policy as African countries pursue the strategic objectives laid out by CESA and the targets set by Agenda 2030. Different sources of inequality in education are discussed and their implications for educational outcomes are examined across different countries. Equity at different levels and for different 'inputs' of education is analysed in subsequent chapters, but a summary of the main findings is included here. In addition, it presents ongoing efforts by governments to make education more equitable and inclusive, to increase access for displaced children, and to respond to disruptions as a result of the COVID-19 pandemic. The chapter concludes by explaining how 'business as usual' models of expansion and quality improvement may in some cases widen disparities, and therefore highlights the need to take into account equity implications when making policy and investment decisions.

Background

Equity in Agenda 2030 and Education 2030 Framework for Action

Equity [1] [2] is at the heart of SDG 4. It is about giving all children equal access to safe, quality, and relevant education, and thus recognizes the importance of fairness (e.g. 'ensuring that personal and social circumstances are not obstacles to achieving educational potential').[3] In Agenda 2030, governments 'commit to providing inclusive and equitable quality education at all levels,' and affirm that 'all people, irrespective of sex, age, race, colour, ethnicity' and 'persons with disabilities, migrants, indigenous peoples, and children and youth, especially those in vulnerable situations or other status, should have access to inclusive, equitable, quality education and life-long learning opportunities'. They also underline the need for 'particular attention and targeted strategies' for vulnerable groups to fulfil this commitment'.[4] The central position that equity is assigned in Agenda 2030 is mirrored in the Education 2030 Framework for Action, which describes 'inclusion and equity in and through education [as] the cornerstone of a transformative education agenda'.[5]

These commitments in Agenda 2030 are concretized in SDG Target 4.5 which aims by 2030 to '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'.[6] For the SDGs, gender equality is conceptualized as an 'equal opportunity to enjoy education of quality, achieve equal levels and enjoy equal benefits from education'.[7] In addition to being a central component of SDG Target 4.5, gender equality is also integral to targets 4.1, 4.2, 4.3, and 4.6 that explicitly refer to 'all girls and boys' and 'all women and men', Target 4.7 which includes education for gender equality among the topics for promoting sustainable development, and to Target 4.a, which references the importance of gender-sensitive learning environments. Moreover, SDG 4's commitment to gender equality is further strengthened by SDG 5, which focuses directly on the issue.[8] Agenda 2030's focus on gender equality is clearly reflected in the Education 2030 Framework for Action, which highlights 'gender-sensitive policies, planning and learning environments; mainstreaming gender issues in teacher training and curricula; and eliminating gender-based discrimination and violence in schools'.[9]

Equity in CESA

CESA 16-25 to some extent mirrors Agenda 2030's focus on equity by including in its guiding principles, that 'holistic, inclusive and equitable education with good conditions for lifelong learning is sine qua non for sustainable development'.[10] However, CESA's description of its strategic objectives focuses primarily on gender equality. It includes as one of its pillars 'gender equity, equality and sensitivity throughout the education and training systems' and one of its strategic objectives (SO 5) sets out plans to 'accelerate processes leading to gender parity and equity'.[11] In an effort to operationalize CESA's objective on gender equality, the Forum for African Women Educationalists (FAWE) and the International Centre for Girls' and Women's Education in Africa (CIEFFA), in collaboration with the United Nations Girls' Education Initiative (UNGEI), formulated the Gender Equality Strategy for CESA, which focuses on both gender-sensitive teaching programmes and science, technology, engineering, and mathematics (STEM) education among other issues.[12] Reference to other forms of discrimination and sources of disparities in education are mentioned only in CESA's overview of sectors, and include 'regional location, minority groups, pastoral communities, and the poor' [13] for primary education, 'social class, geographic location, minority groups, and disability' for tertiary education,[14] and 'marginalized and vulnerable groups' for informal and non-formal education. Equitable education beyond gender equality is not explicitly reflected in CESA's strategic objectives.[i]

Equity in the Nairobi Declaration

In this respect, the 2018 Nairobi Declaration, which focuses on transforming education to meet the 2063 Agenda for the 'Africa We Want', is noteworthy in that the commitment by African governments and other national and international stakeholders regarding equity goes beyond simply achieving gender equality.[15] It includes 'reach[ing] the unreached' by 'implementing and adequately resourcing diversified and appropriate learning policies and programmes, inclusive and gender-responsive curriculum, promoting multilingual education, sign languages and Braille',[16] and 'ensuring that education sector planning effectively addresses [...] all forms of exclusion, including among others disabilities and albinism' and 'making our educational systems more responsive, flexible and resilient to include refugees and internally displaced people'. [17] The declaration says particular attention must be paid to marginalized and vulnerable

i. The emphasis of CESA's Gender Equality Strategy on interventions to protect and support students with multiple disadvantages is noteworthy in this regard.

children in early childhood development, care, and education policies, and refers to making education systems more responsive to include refugees and internally displaced people, and 'making the learning and teaching environment more healthy, inclusive, and safe through adequate responses to school-related violence and discrimination based on gender, disability, origin, race, ethnicity, religion or any other factor'.[18]

Relevant SDG 4 and CESA indicators related to equity are described in *Appendix 3*.

The case for putting equity at the heart of all policy decisions

Underlining the equity perspective reflected in Agenda 2030, CESA, and the Nairobi Declaration is a shared commitment to leave no child behind. Yet, this may fall short of overcoming persistent disparities in education outcomes and learning unless governments put equity at the heart of all their policy-making and budgeting processes and decisions. In expanding access to education at pre-primary, secondary, and tertiary levels, and in enhancing quality, a business-as-usual approach is likely to leave disadvantaged and marginalized children at the end of the line, and thus widen existing disparities in society rather than narrowing them. Equity goes beyond access; it is a quality issue. Hence, to overcome persistent disparities, governments cannot treat equity as a complementary, side issue in their policy-making processes. Equity needs to be placed at the heart of it all. Hence, this report's thematic focus on equity is both a celebration of what has been achieved on the continent since 2015 and a call to do much more.

Putting equity at the heart of policies would be an investment with both short-term returns in educational outcomes and long-term returns in equitable growth[19] and reduced poverty.[20] The children who are most likely to be excluded from education (including those living in extreme poverty, children with disabilities, or those affected by conflict) are also the ones who could potentially benefit the most from quality schooling in terms of its impact on their learning outcomes.[21] It could also have positive benefits for their long-term well-being through the impact this will have on their future income, social integration, physical, and mental health.[22] These long-term positive effects on children from disadvantaged backgrounds, in aggregate, can reduce social and economic inequalities[23] and help minimize the intergenerational transmission of poverty.[24] But as things stand, these children are still more likely to receive lower quality and fewer years of education in schools, especially where there are insufficient qualified teachers and resources. [25] [26]

Addressing inequality in the absence of a 'silver bullet' solution

Inequality,[ii] both globally and in Africa, emerges from the complex interaction between multiple factors which rules out the viability of any 'silver bullet' solution.[27] However, equitable access to quality education, and particularly secondary education, is as close as any government policy may get to finding one.[28] An examination of changes in inequality and poverty levels in Africa over the last two decades reveals that while some countries have succeeded in coupling economic growth and poverty reduction with lower levels of inequality, others have seen growing income inequality.[29] This mixed picture underscores the significance and urgency of investing in equitable quality education to help prevent the intergenerational transmission of poverty and to narrow income inequalities for future generations. This is only possible by addressing inequity issues in learning opportunities.

ii. Throughout this chapter, the term 'inequality' is used to refer to income inequality.

Sources of inequality in education

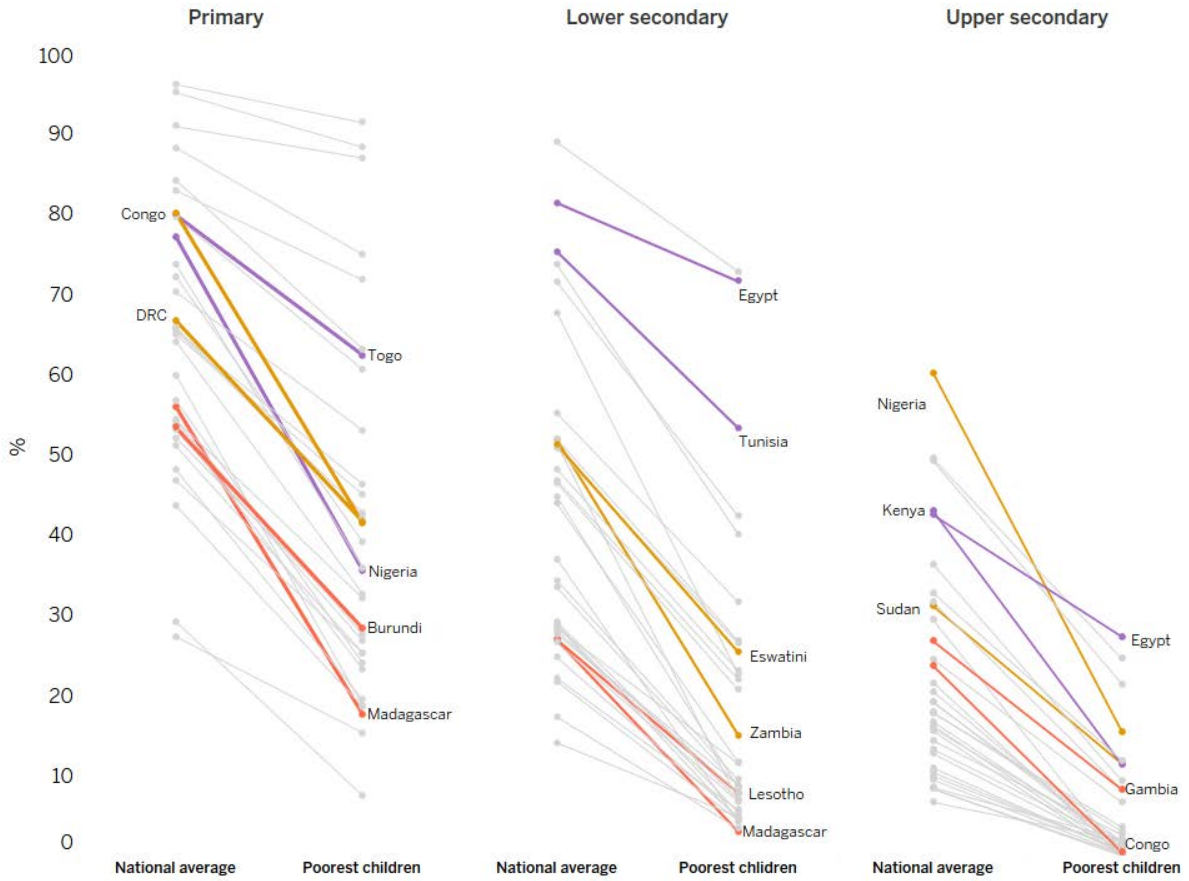
The review of Agenda 2030, Education 2030 Framework for Action, CESA, and the Nairobi Declaration in the preceding section shows the wide range of factors that may be the basis (singularly or in complex interaction with each other) for disparities observed in accessing education and learning outcomes. These include 'sex, age, race, colour, ethnicity, language, religion, political or other opinion, national or social origin, property or birth, as well as persons with disabilities, migrants, indigenous peoples, and children and youth, especially those in vulnerable situations',[30] 'regional location, minority groups, pastoral communities, and the poor',[31] 'social class',[32] 'marginalized and vulnerable groups',[33] 'the unreached',[34] and people with 'disabilities and albinism'.[35] However, limitations in the availability of quantitative data requires simplifying the factors related to disparities. This may result in the exclusion of 'unreached' children who are often 'invisible' in data. From this simplified list, factors associated with education disparities for which data is available from administrative sources or household surveys are: household income, parental education, gender, location (urban-rural, subnational administrative units), migrant and refugee status, and disabilities. In the rest of this section, these factors are described along with their impact on education equality.

Poverty, and more broadly household wealth, is linked to enrolment, retention, completion, and learning outcomes[36] through multiple channels. This includes families' perceptions about the value of education and their ability to afford the direct and indirect costs of schooling,[37] children's poverty-related experiences of malnutrition, stunting, and morbidity that affect their schooling,[38] underfunding of schools and lower availability of qualified teachers and learning materials in poorer communities,[39] and higher vulnerability of poor households when faced with external shocks.[40] Wealth-related disparities in enrolment, retention, and learning outcomes can be observed in a variety of forms across the continent and at all levels of education.[41] [42] [43] However, the size of these disparities varies significantly across countries and levels of education.

Figure 2.1 compares a country's national average completion rate with that of children from the poorest households (quintile 1), across primary, lower and upper secondary levels. Overall, the figures underscore the sizable gap between children from the poorest households and other children at all levels of education, and how those from the poorest households continue to be left behind until countries approach universal access.

It is worth noting, however, that even between countries at similar points in their journey towards universal access, the size of the wealth gap varies. At each level, three pairs of countries are selected as examples to demonstrate the extent of this variation. For instance, at primary level, Nigeria and Togo have similar average completion rates. Yet there is a sizable difference between the completion rates of children from the poorest households. Togo has a higher rate, suggesting that primary education in that country may be more equitable than in Nigeria. Conversely, the DRC and Congo have observably different average completion rates, with a higher rate in Congo. Yet these are similar for children from the poorest households, suggesting that primary education in the DRC may be more equitable than in Congo. Similar examples can be found in *Figure 2.1* for the lower and upper secondary levels.

Figure 2.1 Completion rate (national average and children from poorest households), by level of education



Data source: SDG 4.1.2: "Percentage of a cohort of children or young people aged 3-5 years above the intended age for the last grade of each level of education who have completed that grade". http://data.uis.unesco.org/
All data is from 2014-2018 period

Differences in parental education are also linked to disparities in enrolment, retention, and learning outcomes. These differences may have a direct effect on their involvement in and expectations for their child's learning. A household's overall wealth may also influence a child's access to quality learning.[44][45] While recent analysis of the intergenerational transmission of education in nine African countries[iii] suggests a declining trend since the 1960s, parental education remains a 'strong determinant of the educational outcomes of children' with observable variations across countries in intergenerational educational mobility.[46]

Gender is also linked to disparities in enrolment, retention, completion, and learning outcomes through multiple mechanisms including social conditioning,[47]gender-based differences in parental expectations and education-related investments,[48] child marriages and early childbearing,[49] child labour,[50] gender-based violence,[51] and discrimination. Indeed, gender inequalities in society (including the labour market)[52] and education are, to a large extent, mutually causal. As a result, progress towards gender parity in education can help reduce gender inequalities in society and work, and vice versa. When gender-related factors intersect with other disadvantages, such as poverty, remote location, and disability, their negative effects on education can be aggravated.[53] Depending on the context, the factors at play, and the level of education, gender-based disparities may favour either girls or boys. While external shocks such as conflict, natural disasters, economic crises, and pandemic-induced school closures often exacerbate existing gender disparities, they may, in some cases actually decrease them when the 'advantaged gender' drops

iii. Comoros, Ghana, Guinea, Madagascar, Malawi, Nigeria, Rwanda, United Republic of Tanzania, and Uganda.

out at higher rates as a result of the external shock. [54 55]

Figure 2.2 captures the broad patterns in gender disparities across education levels. Each dot represents one country's adjusted gender parity index (GPIA) for completion rate at the specified education level. The grey zone represents 'parity'. [iv]

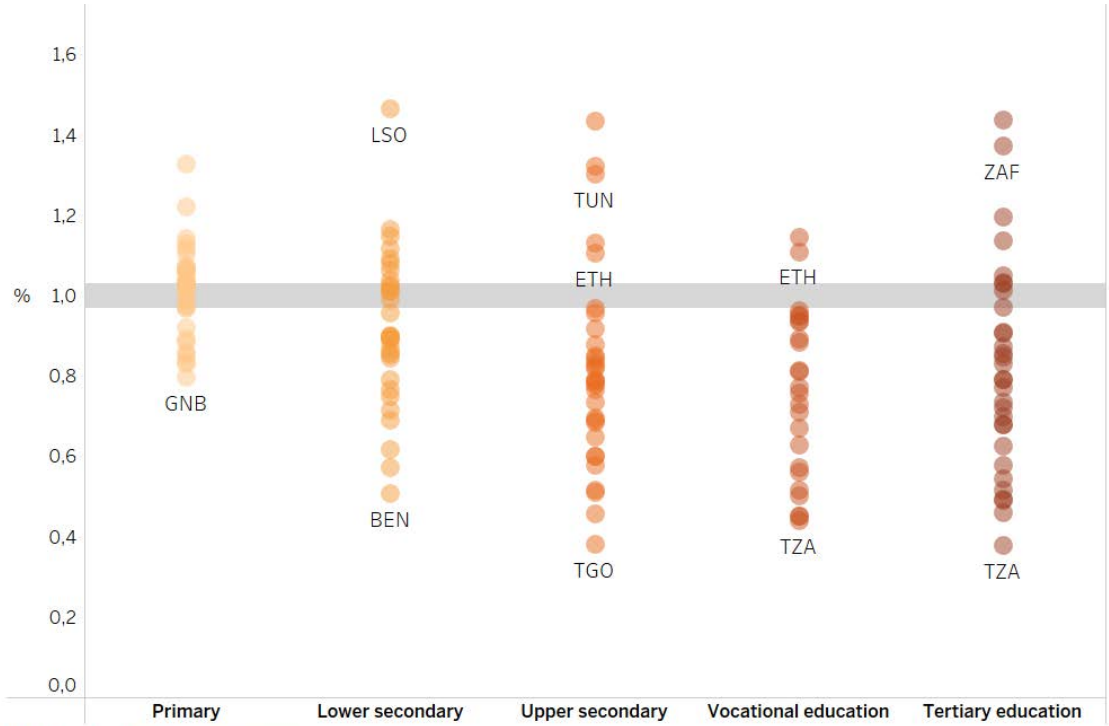
(i) Significant variation exists across countries, and the spread is wider at higher levels of education. The GPIA for completion rate ranges from 0.78 to 1.33 at primary level, from 0.51 to 1.46 at lower secondary level, and from 0.38 to 1.43 at upper secondary level.

(ii) There are increasing gender gaps as children move up in education level. At primary level, there are eight countries that have gender parity. This number drops to five at lower secondary level, and to zero at upper secondary level.

(iii) In most countries, boys are favoured in higher levels of education. At primary level, there are 11 countries where boys are favoured. This number increases to 20 at lower secondary level and 28 at upper secondary level. The six countries where girls are favoured at upper secondary level are Eswatini, Ethiopia, Lesotho, Sao Tomé and Principe, South Africa, and Tunisia.

These patterns are discussed in more detail in *Chapter 4* on primary and secondary education, and in *Chapter 5* on TVET and tertiary education. A summary of findings from these two chapters are presented in the General findings section in this chapter.

Figure 2.2 Adjusted gender parity index for completion rate (primary, lower secondary, upper secondary), gross enrolment ratio (vocational education), and gross attendance ratio (tertiary education)

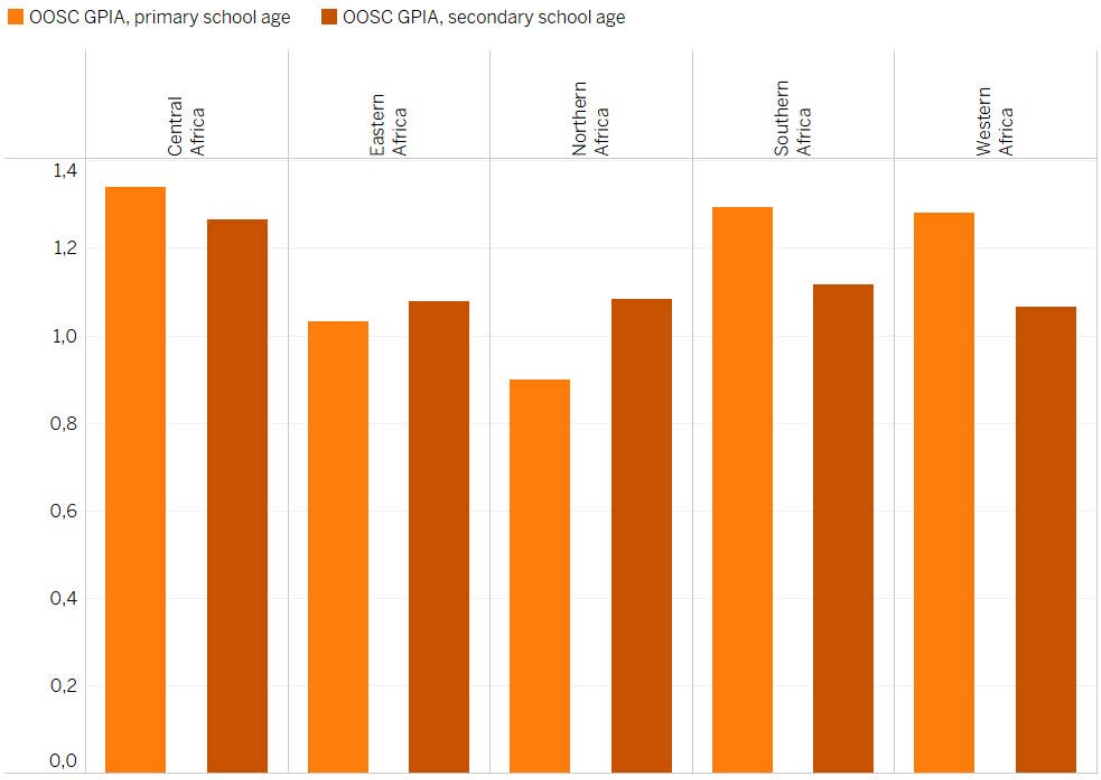


Data source: UIS, http://data.uis.unesco.org/
All data is from 2014-2018 period

iv. The further the GPIA value is from 1, the greater the disparity between girls and boys. Where values are above 1, girls are favoured (i.e., the proportion of girls completing the specified education level is higher than the proportion of boys). Where values are below 1, boys are favoured.

Figure 2.3 shows regional aggregate GPIA values for the out-of-school rate (OOSR) at primary and secondary levels.[v] [vi] In all regions, there are more girls out of school at secondary level than boys. The size of the gap is relatively low in western Africa and high in central Africa. For primary school age children, close-to gender parity is observed in eastern Africa, boys are out of school at higher rates than girls in northern Africa, and girls are out of school at higher rates than boys in western, southern and central Africa.[vii] *Chapter 4* presents and discusses country-level findings regarding gender disparities in accessing primary and secondary education.

Figure 2.3 Adjusted gender parity index for out-of-school rate



Data source: UIS, SDG 4.1.4: "Proportion of children and young people in the official age range for the given level of education who are not enrolled in pre-primary, primary, secondary or higher levels of education". http://data.uis.unesco.org/
Note: Regions are listed alphabetically
All data are from 2016

The location of a child's home may also be linked to disparities in enrolment, retention, completion, and learning outcomes. Living in a remote rural area or a high density urban area can have implications for a child's ability to access and regularly attend school, particularly when combined with secondary factors such as climate, terrain, and safety.[56] Location can also have indirect effects if the school's location (e.g. in a remote mountainous area, or a semi-arid underinvested region) is correlated with resource allocation (e.g. qualified teachers, learning materials, school funds)[57] or infrastructure investments (e.g. ICT infrastructure, WASH facilities, classrooms).[58] Location can also influence the impact that a crisis has on accessing education. For example, children living in rural areas have fewer of the resources needed to continue learning during COVID-19 related school closures.[59] Location can also have an indirect effect on a child's educational outcomes because of language differences. The home language of children living

v. The OOSR values in this analysis are based on administrative data, which allows for including regional aggregate values. The data is from UIS SDG 4 database, which includes rates based on both administrative and household survey data.
vi. GPIA values between 0.97 and 1.03 are considered as gender parity. The further the absolute GPIA value is from 1, the greater the disparity between girls and boys. Where the values are above 1, boys are favoured (i.e., the proportion of boys out of school is higher than for girls). Where values are below 1, girls are favoured.
vii. Note that regional values reflect aggregate calculations limited to countries with available data. These regional aggregate values are produced by UNESCO-UIS. Details are presented in Appendix 2.

in remote rural areas is more likely to be different from the language of instruction than for their peers in urban areas.[60] For children in urban areas, even if their home language is different from the language of instruction, they are more likely to have regular exposure to this language in their daily lives than their peers in rural areas.[61]

Conflicts, crises and disasters, and children's experiences of displacement also have implications for disparities in education. These, along with becoming an asylum seeker, refugee, or an internally displaced person (IDP) can disadvantage a child who previously did not face any sizable barriers in access or learning in school. They can also aggravate existing disadvantages faced by a child because of their gender, poverty, or disability.[62] They may impede a child's regular attendance in school and lead to their dropping out. Existing schools may be closed due to violence or destruction, the quality of education may decline with fewer teachers and diminished learning supplies, or families may not see them as safe enough to send their children. In the case of displacement, schools in places of temporary residence may be overwhelmed and under-resourced, which could negatively impact the retention and learning outcomes of displaced children,[63] as well as those in host communities. Or there may not be any schools in the area in which to enrol displaced children.

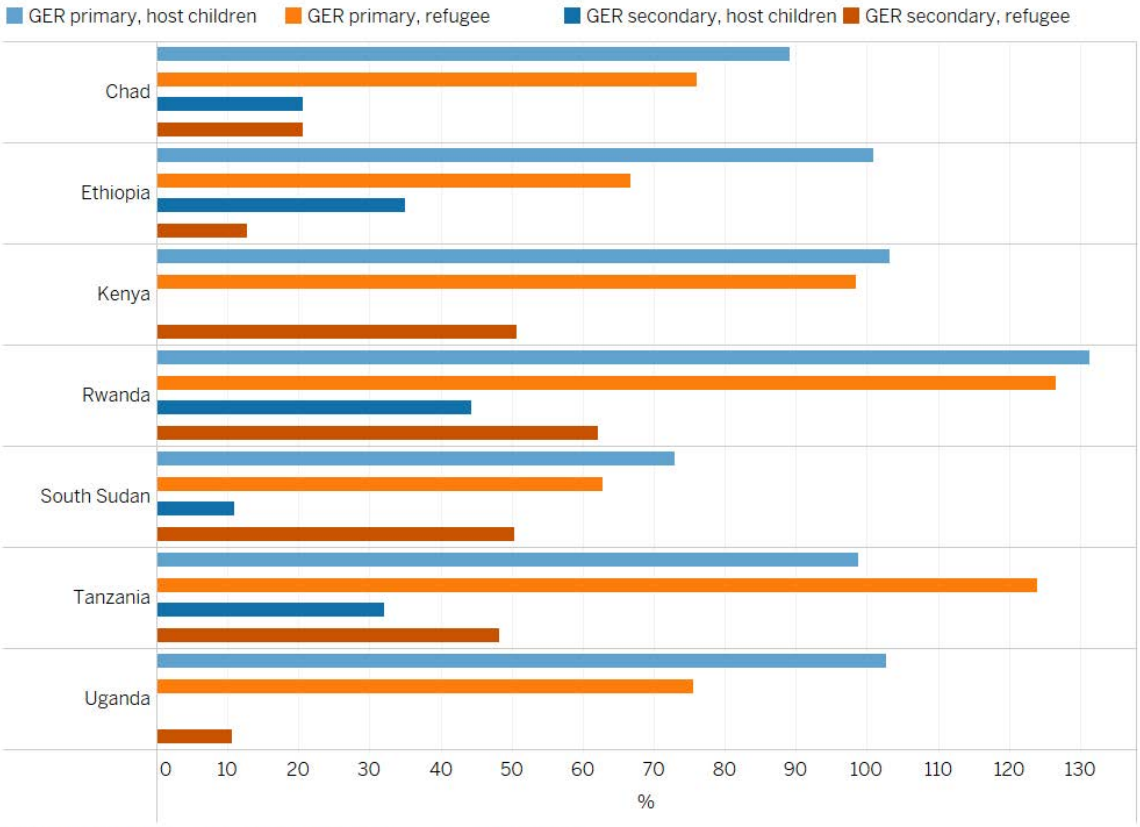
Even if barriers to access are overcome, several obstacles stand in the way of ensuring equitable learning when quality is not the priority. These include not knowing the language of instruction, learning losses accumulated while on the move, and differences between home and host country curricula among others. In addition, the experience of conflict, crises, disaster, and displacement may be accompanied by other adverse experiences, including extreme poverty, malnutrition, chronic stress, separation from family members, loss of a family member, and other traumatic experiences, which could potentially deteriorate a child's mental and physical health, and subsequently, their educational outcomes.

Education data on children who are asylum seekers, refugees, or IDPs is limited in Africa. For asylum seekers and refugees, part of the challenge is the lack of disaggregation by international protection status in national education management information systems (EMIS) in countries where refugees are included in public schools. More broadly, national EMIS do not distinguish between displaced students and local students, where children who are refugees or internally displaced are attending schools alongside host children. This data limitation underscores the need to enhance EMIS and to strengthen technical capabilities to accurately and safely collect data on refugees and IDPs. In this respect, the efforts of Burkina Faso's National Council for Emergency Relief and Rehabilitation (CONASUR)[viii] to regularly collect and disseminate data on the status of IDPs, including IDP children's access to education, is worth noting.

Figure 2.4 compares the gross enrolment ratio (GER) for refugee children and host children at primary and secondary level in seven African countries.[ix] At the primary level, the GER for refugee children is observably lower than host children in Chad, Ethiopia, and Uganda; higher than host children in United Republic of United Republic of United Republic of United Republic of Tanzania; and close to host children in Kenya, Rwanda, and South Sudan. At secondary level, the GER for refugee children is higher than host children in Rwanda, South Sudan, and United Republic of United Republic of United Republic of United Republic of Tanzania, lower than host children in Ethiopia, and about the same in Chad.

viii. http://www.conasur.gov.bf/
ix. Note that the underlying data for refugee children is collected by UNHCR and is limited to those who reside and attend school in official refugee camps.

Figure 2.4 Gross enrolment ratio for refugee and host children



Data source: UIS, National monitoring database (http://data.uis.unesco.org/) and UNHCR
Note: Countries are listed alphabetically.
UIS Data are from the following years: Chad (2019), Ethiopia (2015), Kenya (2016), Rwanda (2019), South Sudan (2015), Uganda (2017), Tanzania (2019)
All data for refugee GER are from 2019

Disabilities[x] can be linked to access, retention, and learning outcomes if schools pose barriers that hinder the full participation of a child in learning processes or if, due to limited screening and availability of corrective devices (especially children with vision and hearing impairments), they are left behind. [64 65] In this respect, the heterogeneity of disabilities (including disability types, severity, and having a single or multiple disabilities) remains a critical yet under-discussed component of effective policy design and resource allocation. A study conducted in South Africa shows that developmental screening is an effective measure in detecting and intervening potential problems at an early stage. However, it also reveals that very few public hospitals provide universal screening.[66] Patterns of exclusion from learning within schools may also have other causes. For instance, curricula may not be adapted to the specific needs of children with disabilities, or teachers might pay less attention to and have lower expectations from them.[67] Due to inadequate training of school personnel in prevention and protection measures, they may not be in a position to address problems related to stigma and violence that children with disabilities may face.[68] In some communities, misconceptions about disabilities could also become exclusionary factors that hinder educational opportunities for them.[69]

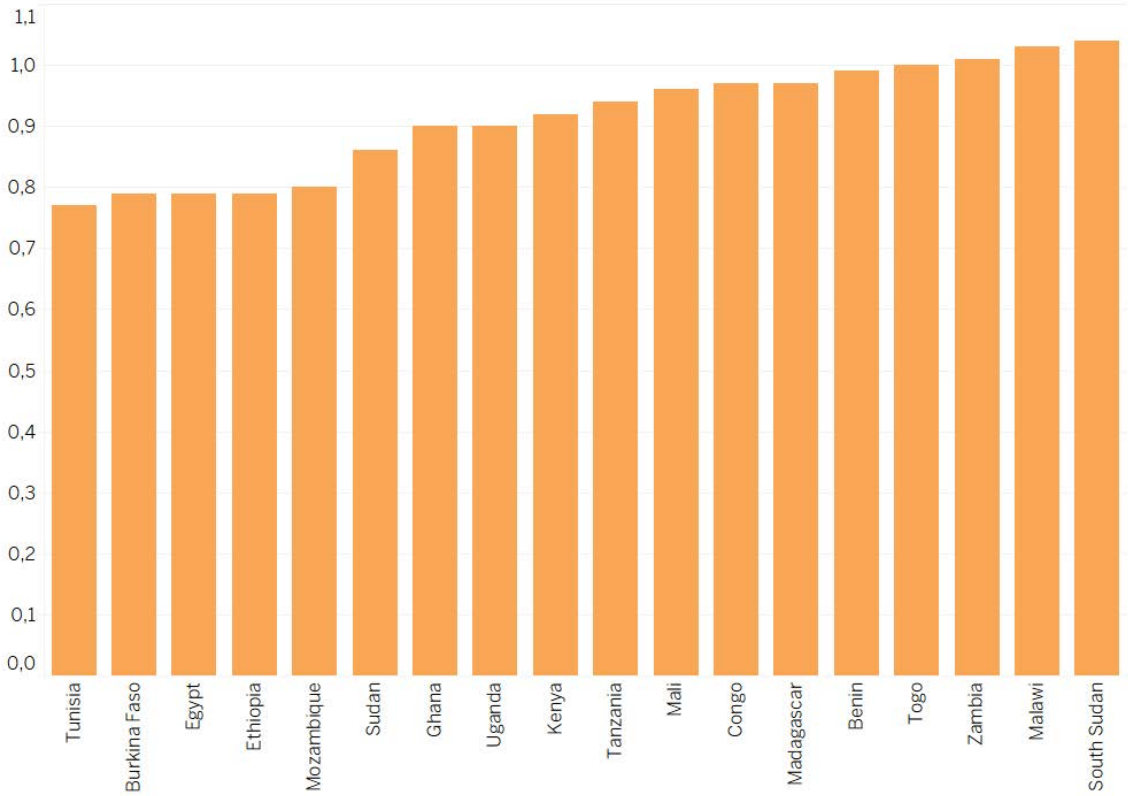
Data is very limited for examining disability-related disparities. Data unreliability and lack of disaggregation, sampling limitations in household surveys, the limited range of disabilities reported on, and more generally the absence of a harmonized definition of disability, limit efforts to analyse and better understand the challenges faced.[70] Only Mali appears to have collected relevant data since 2015 to analyse disability-related disparities in completion rates. No country has collected data on the impact on

x. The UN Convention on the Rights of Persons with Disabilities describes people with disabilities as including 'those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others'.

learning outcomes as captured in reading and mathematics assessments. Some studies that highlight the scope of the challenge of ensuring no child with a disability is left behind include the following:

- A study using census data for 19 countries (11 of which are African)[Xi] from 2006 to 2011 to analyse education outcomes for children with and without disabilities shows that children with disabilities are at a 'substantial disadvantage for ever enrolling in school, completing primary or secondary education, or being literate'.[71] An even more concerning finding is that these disparities have increased over time. Children with disabilities gained less from the expansion of access to primary and secondary education than children without disabilities.[72] Similarly, disparities emerge in the literacy and numeracy outcomes of students with and without disabilities, which can be partially attributed to the absence or ineffective implementation of inclusive policies and practices.[73]
- Another study using household survey data from 2006 to 2015 calculates the adjusted disability parity index (DPIA) for the proportion of 15 to 29 year olds who 'ever attended school' in 18 African countries.[74] *Figure 2.5* shows the DPIA for 'ever attended school' for this age group. Benin, Congo, Madagascar, Malawi, South Sudan, Togo, and Zambia appear to have achieved parity between children with and without a disability. But this parity concerns only 'ever attending school', and does not capture retention, progression, completion, or total educational attainment. For the rest of the countries, children with a disability 'ever attend school' at lower rates than their peers without a disability, with the largest gap in Tunisia which has a DPIA value of 0.77.

Figure 2.5 Adjusted disability parity index for the proportion of 15 to 29 year olds who 'ever attended school'



Data source: UIS, "Education and disability: Analysis of data from 49 countries", Information Paper N. 49 , March 2018
Note: Countries are listed in order of the adjusted disability parity index for the proportion of 15-29 year olds who ever attended school
Data is from the following years: Tunisia (2013), Burkina Faso (2006), Egypt (2014), Ethiopia (2007), Mozambique (2007), Sudan (2008), Ghana (2010), Uganda (2015), Kenya (2009), Tanzania (2013), Mali (2009)., Congo (2015), Madagascar (2015), Benin (2014), Togo (2014), Zambia (2012), Malawi (2014), South Sudan (2008)

Disparities in educational outcomes emerge rarely as a result of a single source of inequality. Rather, they become evident at the intersection of multiple sources that interact with and build on each other. [75] The equity-related findings from the quantitative data analysis presented in this report can only capture a sub-group of the sources of disparity, which were outlined earlier in this section. Comparisons between countries limit the scope and depth of equity analysis, mostly due to limited availability of disaggregated data across multiple countries for a given time period. Hence, the story revealed with this analysis is unavoidably a shallower and more constricted version of the multilayered disadvantages experienced by individual children. Increasingly, however, data from household surveys allows for multilayered analysis to examine different aspects and intersections of disparities at the country level. Below, using data from MICS conducted in an unnamed country, a multidimensional analysis of disparities is presented to demonstrate the possibilities for analysis. The increasing availability of such data, though far from widespread at the moment, is a welcome development for equity-focused sector analysis and policy planning.

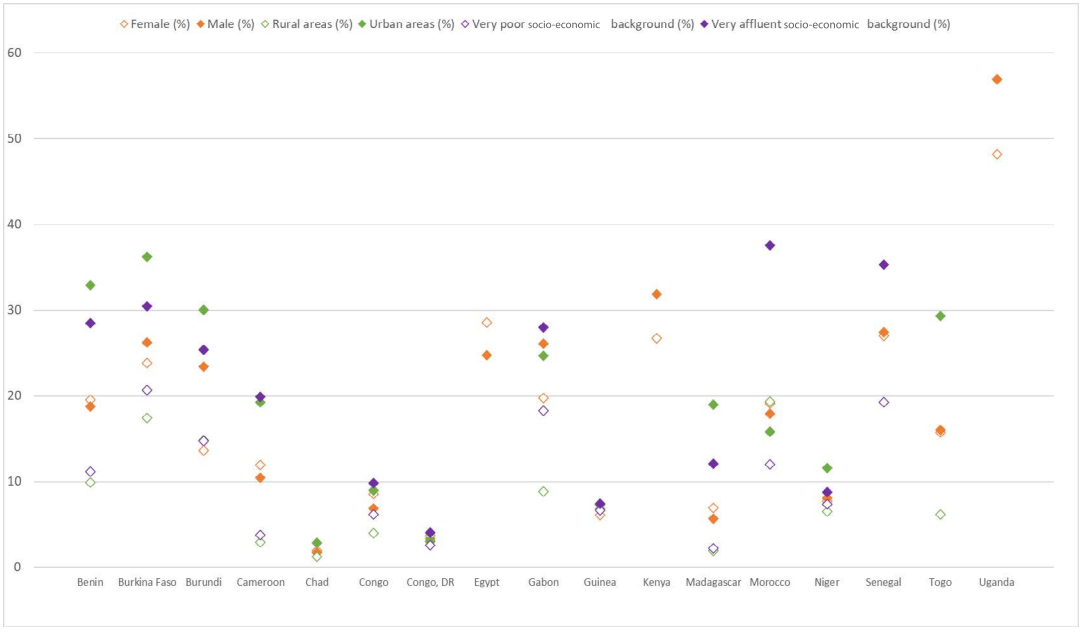
Figure 2.6 Primary education completion rate, unnamed country

Data source: SDG 4.1.2: "Percentage of a cohort of children or young people aged 3-5 years above the intended age for the last grade of each level of education who have completed that grade". http://data.uis.unesco.org/
Note: The value for boys living in the poorest households in urban areas is missing.

The lack of disaggregated learning data prevents rigorous analysis and effective interventions focused on populations at the bottom of the learning pyramid. *Figure 2.7* and *2.8* present data on the proportion of end-of-primary students achieving at least a minimum proficiency level in reading and mathematics, based on three dimensions of equity with available information: (1) gender, (2) location, and (3) socio-economic background. For reading, out of 21 countries with aggregate data available for at least one year since 2015, 15 offer data disaggregated by gender, 13 by location, and 12 by socio-economic background (In mathematics the numbers are: 20 aggregate data, 17 disaggregated data by gender, 13 by location, and 12 by socio-economic background). The disadvantages faced by pupils from rural areas and very

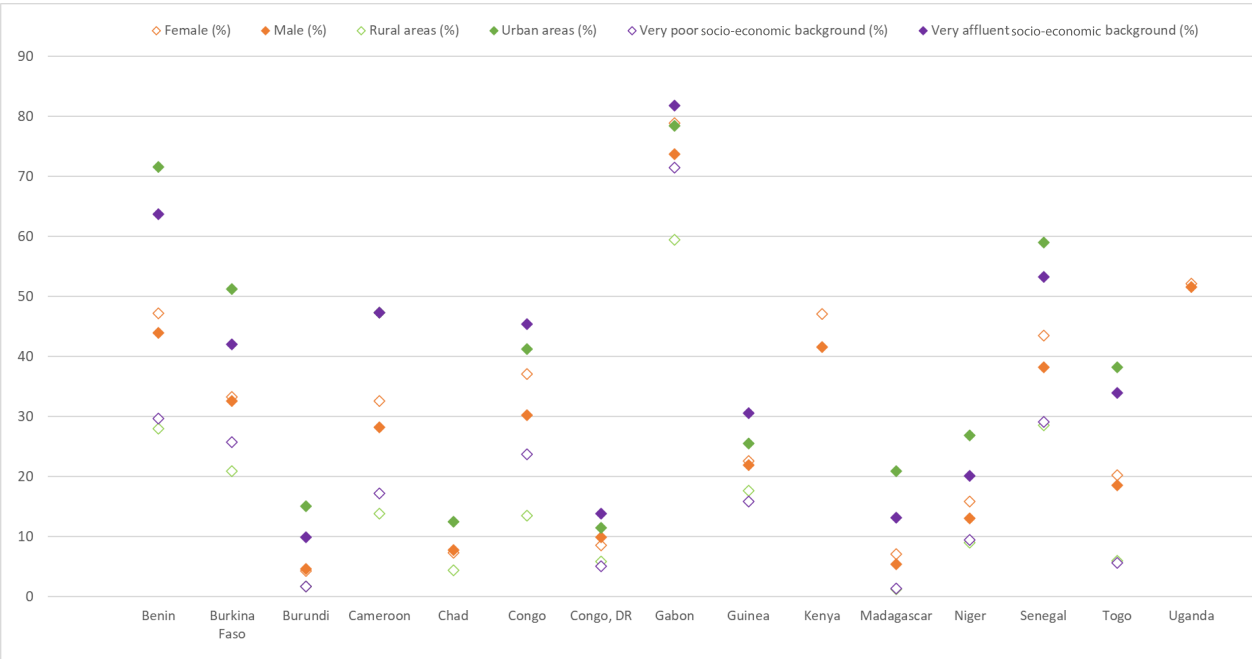
poor backgrounds are stark. The picture would be even more bleak if the available data made it possible to show the learning situation for children who meet several of these conditions. The data also does not provide much insight on the learning outcomes of refugee children and those with disabilities.

Figure 2.7. Proportion of end-of-primary students achieving at least a minimum proficiency level in reading by gender, location, and socio-economic background



Data source: UIS, SDG 4.1.1: 'Proportion of students at the end of primary education achieving at least a minimum proficiency level in reading (%)', http://data.uis.unesco.org.
Note: Countries are listed in alphabetical order. All data are from 2019 except for Kenya (2018) and Uganda (2015)

Figure 2.8. Proportion of end-of-primary students achieving at least a minimum proficiency level in mathematics by gender, location, and socio-economic background



Data source: UIS, SDG 4.1.1: 'Proportion of students at the end of primary education achieving at least a minimum proficiency level in mathematics (%)', http://data.uis.unesco.org.
Note: Countries are listed in alphabetical order. All data are from 2019 except for Kenya (2018) and Uganda (2015)

Attending school contributes to learning, but the effort required to improve outcomes does not end there. The impact of an additional year of schooling in the acquisition of fundamental skills varies greatly from education system to education system.[76] Despite governments' commitment to universal education, many children attend school but are not learning, and the number of adults without basic literacy remains stubbornly high.[77]

General findings

This section summarizes equity-related findings discussed in more detail in subsequent chapters. Despite data limitations, they aim to highlight the broad scope of equity that begins with enrolment, but expands to include retention, completion, learning, resource allocation, and education workforce management.

In *Chapter 3*, analysis of access to early childhood education shows the following:

- In all countries where participation rate can be disaggregated by household wealth (quintiles), a major gap is observed between young children from the wealthiest households and the poorest households. This diminishes only as countries approach universal early childhood education. In most countries, a sizable gap also exists between the participation rates of young children in urban areas and their peers in rural areas.
- ECE's role in supporting school readiness is a powerful tool to mitigate the widening of inequalities in developmental outcomes in a child's early years, and a way of breaking the intergenerational cycle of inequity. Ensuring that young children from poorer households have access to quality ECE may keep them from falling too far behind their wealthier peers before they even get to primary school.

In *Chapter 4*, analysis of access and completion at primary, lower secondary, and upper secondary levels reveals the following:

- At the primary school age, in about half the countries, the out-of-school rate is less than 10%. In another third, it is between 1 out of 10 (10%) and 1 out of 3 (33%). In the remaining countries where data is available, the out-of-school rate at primary school age is alarmingly high: South Sudan (62%), Djibouti (42%), Sudan (41%), Eritrea (39%), Mali (38%), and Niger (36%).
- Patterns of gender disparity in completion rates across countries, regions, and education levels often vary. Broadly speaking, in several countries in eastern Africa and southern Africa, gender disparities at primary level favour girls, while in many countries in western Africa, they favour boys. However, at secondary and tertiary levels, gender disparities favour boys in most African countries.
- Several countries have reached, or are near reaching gender parity at the primary level, and some preserve it in lower secondary level too. For most countries, however, gender disparities usually worsen as children move up to higher levels of education. In most cases, gender disparities favour boys over girls in higher levels of education.
- Wealth disparities in completion rates are pervasive, yet their size varies across countries and increases in higher levels of education.

In *Chapter 4*, analysis on learning offers the following conclusions:

- The proportion of students achieving a minimum proficiency in reading and mathematics appears to decrease as they progress to higher grades (from Grade 2/3, to end of primary, and to lower secondary).
- Notable differences emerge across countries. For both Grade 2 and 3, the proportion of students acquiring a minimum competency in mathematics reaches more than 50% in countries like Burkina Faso, Burundi, Cameroon, Congo, and Senegal. However, in Ghana, Lesotho, Madagascar, The Gambia, and Sierra Leone it is less than 10%. Country differences to a lesser extent are seen at the end of primary.
- The sources of disparity in access to education can also result in exclusion from learning opportunities. Notably, disadvantaged and marginalized children do not seem to benefit from learning processes as much as their peers and have lower learning outcomes on average.
- In addition to the most salient dimensions of inequality (i.e., gender, location, socio-economic background), studies examining learning outcomes across different groups often find and highlight other sources, such as language and the support of parents or guardians.

In *Chapter 5*, analysis of skills for life and work with a focus on TVET and tertiary education-related indicators found the following:

- In all countries where data is available, observable differences exist between the proportion of young women and men who are not in education, employment, or training (NEET), yet the size of the gap varies across countries. In all of them, a higher proportion of young women are NEET.
- In terms of young people's access to vocational education, in almost all countries, young men participate in vocational education at higher rates than young women.
- For attendance in tertiary education, there are only a few countries where gender parity is observed. For most countries, young women are disadvantaged. However, there are a few countries where it is young men who are disadvantaged.
- Regarding wealth disparities in tertiary education attendance: for countries where the gross attendance ratio is less than 5%, young people who are not from the wealthiest households (i.e., wealth quintiles 1, 2, 3, and 4) have close to zero chance of attending tertiary education. Only in countries where the tertiary education gross attendance ratio is above 20%, do young people from the poorest households have a meaningful chance (above 5%) of attending tertiary education. While household wealth-based disparities are sizable and pervasive, the size of the gap varies across countries.
- Gender disparities often go beyond enrolment and completion at different education levels and include differences in the fields of study. For instance, in most African countries, a lower proportion of young women are enrolled in vocational education compared to young men, and a lower proportion of young women attend engineering and ICT career programmes compared to their male peers.[78]
- Beyond access and completion, it is key that tertiary education and TVET guarantee the acquisition of skills for work for all. Efforts are needed to introduce tools to measure and compile information about adults' competencies for work in order to identify the gaps between labour supply and demand, and thus achieve a better alignment between the programmes and the needs of the productive system. Issues with limited data availability hinder the development of better-informed TVET and labour market policies and interventions.[79] Available data on the incidence of skill and educational mismatches of employed youth from 10 African countries suggest a high prevalence of undereducation (57%) and underskilling (29%) but also some overeducation (8%) and overskilling (18%). [80]

***Chapter 6* focuses on teachers and underscores the following equity-related findings:**

- With respect to equitable allocation of teachers, the analysis suggests considerable variation across countries.
- The proportion of female teachers at different levels of education also varies significantly. However, what is consistent across all countries is that the proportion of female teachers at the upper secondary level (which generally holds higher prestige and provides higher remuneration) is notably lower than at the primary level.

Possibly the most pertinent finding from an equity-related analysis of education data from Africa is the limited scope and depth of information systems. As discussed in *Chapter 8*, while the role of disaggregated data in measuring progress towards reducing inequalities is widely recognized, in most cases, available data allows only for gender parity analysis. Wealth parity and urban/rural parity analysis is possible only in some cases and is mostly limited to access-related indicators. Data is at best sparse for disparity analysis examining children with disabilities or those affected by crises, or for examining the allocation of facilities, teachers, and financial resources. Furthermore, most of the indicators and data collection efforts are focused on measuring access and progress, and less on learning.

Examples of ongoing efforts and remaining challenges

African governments have undertaken a wide range of programme-level and policy-level efforts to ensure that no child is left behind. While some are introduced in this chapter, many others are highlighted in subsequent chapters. Some of these introduced below target certain groups, such as children who are refugees or those with disabilities. Others are system-wide efforts to ensure that education services are adapted and that resources are distributed equitably (see *Chapter 4* for other examples of targeted intervention models and system-wide reform efforts).

For many African countries, inclusivity remains the biggest missing piece of the equitable education puzzle. As of 2020, thanks to the intensification of governmental efforts in recent years, more than half of the countries in Africa are pursuing inclusive education policies with a focus on children with disabilities.[81] Efforts are underway in many countries, including Angola, Ethiopia, Kenya, and Malawi[82] to ensure that children with and without disabilities are learning in the same classrooms and schools (see *Chapter 4* for other examples on inclusive education efforts).

Ensuring that crisis-affected and displaced children can access quality education is an immense challenge for equitable education, particularly for governments whose education systems are already overstretched. Indeed, most of the four million refugee children and seven million internally displaced children in Africa[83] are in fragile countries with limited quality education services.[84] [xii] Hence, the efforts of these governments to increase crisis-affected and displaced children's access to quality education and the transition of displaced youth to the labour market are commendable.

In this regard, initiatives by governments and humanitarian and development partners include: targeted resource allocation to areas settled by refugees (e.g. construction of classrooms, training of teachers, and provision of textbooks in the Lake Chad region);[85] accelerated learning programmes to prepare out-of-school refugee children and IDP children for late entry or re-entry into the education system (e.g. Ethiopia's national Alternative Basic Education programme implemented also in refugee camps);[86] adapted skills development programmes to support displaced young people in entering the labour

xii. As of 2017, countries with the largest refugee populations in Africa are: Uganda (1.4 million), Sudan (0.9 million), Ethiopia (0.9 million), DRC (0.5 million), Chad (0.4 million), Kenya (0.4 million). Countries with the largest IDP populations are: DRC (4.5 million), Sudan (2.1 million), South Sudan (1.9 million), Nigeria (1.7 million), Ethiopia (1.1 million).

market (e.g. inclusive skills development and entrepreneurship training for young refugees in northern Uganda).[87]

- The Djibouti Declaration on Regional Conference on Refugee Education (2017) is significant in this respect. Member states of the Intergovernmental Authority on Development (IGAD) took collective responsibility to ensure refugee children 'have access to quality education in a safe learning environment within [...] communities without discrimination' and adopted an action plan to this end.[88]
- Particularly noteworthy among government interventions are Uganda's Education Response Plan for Refugees and Host Communities[89] (2018), and Chad's recently launched National Education Strategy for Refugees (see *Policy case study # 2*).
- More broadly, the persistence of conflict and disaster-induced displacement in Africa, combined with current pressures from the COVID-19 pandemic and the threat of future climate disruptions, calls for the intensifying of efforts around crisis-sensitive planning[xiii] [90] and resilient system building[91] (see *Chapter 4* for more examples of ongoing efforts to improve resilience and crisis-sensitivity in education).

One of the many challenges highlighted by the COVID-19 pandemic is the disproportionately negative impact that school closures have on disadvantaged children, which is likely to widen disparities in enrolment, completion, and learning.[xiv] [92] [XV] [93]

- Even in the midst of the pandemic, many governments and non-state actors were able to mobilize efforts to target disadvantaged children to mitigate their learning losses and prevent life-changing events that may lead to school dropouts (including child labour, pregnancies, and marriages).[94]
- Existing gender programmes were adapted to respond to education needs during the pandemic (e.g. the Adolescent Girls Initiative for Learning and Empowerment in Nigeria was adapted to enhance distance learning).[95]
- New remote learning programmes were adapted to ensure that disadvantaged children could also continue their studies while schools were closed (e.g. in Malawi, the government adapted its distance learning efforts to reach learners from marginalized areas and those with limited access to the internet or electricity, by introducing the Emergency Radio Education Programme).[96]
- Targeted programmes were launched to address the alarming increase in sexual violence against adolescents and child marriages (e.g. in Mali, the government initiated a programme to safeguard children from violence, with a focus on girls, which includes psychosocial support intervention).[97]
- In Central African Republic, the government initiated a teacher training programme on addressing gender-based violence and supporting students' mental health.[98]
- The ECOWAS heads of state and government signed the Declaration on Zero-Tolerance to Sexual and Gender-Based Violence and called for urgent action for mainstreaming child protection in their responses to the COVID-19 pandemic.[99]

More recently, with schools reopening across the continent, governments are ramping up efforts to ensure that disadvantaged children are returning to school and are able to remedy their learning losses and catch up (for more information on government responses to the impact of COVID-19 on education, see *Chapter 4*).

xiii. Crisis-sensitive educational planning incorporates the potential risks of conflict and natural disasters, and accounts for equity in education by identifying how conflict increases inequality and exclusion.
xiv. The COVID-19 pandemic is not the first major disease-related shock disrupting education systems in Africa. The 2014-2016 Ebola outbreak also caused major disruptions, but affected fewer countries.
xv. Globally, schools were closed for 79 days on average due to the pandemic. Students impacted by closures reported a reduction in learning activities which disproportionately affected those with limited access to remote learning opportunities.

Past and ongoing efforts to expand access to education at all levels have demonstrated that 'business as usual' models of expansion and quality improvement can mean putting disadvantaged children at the end of the line for reaping the benefits of longer and higher quality education, and thus widen disparities in learning outcomes and ultimately labour market outcomes. Hence, leaving no child behind is also about strengthening social cohesion, securing a productive workforce, and improving economic efficiency.[100] It requires using an equity lens in all policy and investment decisions, be they related to school construction, teacher recruitment and deployment (see *Policy case study #8* in Chapter 6 on government efforts in Senegal for improving teacher workforce management), school fees (see *Policy case study #4* in Chapter 4 on Ghana's abolition of secondary school fees), or school grants.

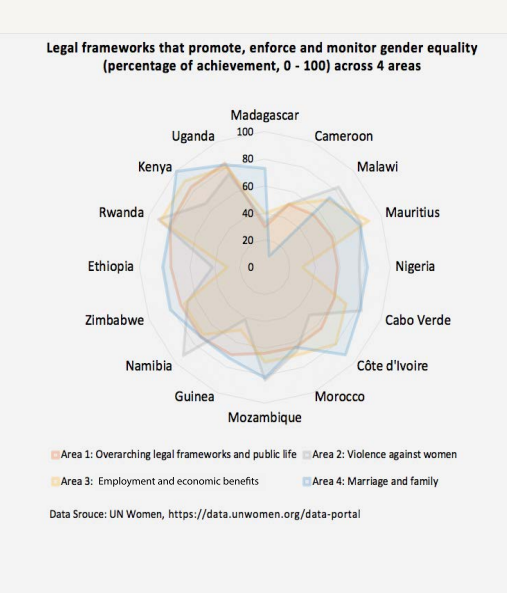
If equity is indeed placed at the heart of all policy discussions, then disadvantaged children, and the teachers teaching them, will be given the additional support necessary to not be left behind. However, this requires financial resources which may include: reallocation from other already resource-constrained education services, reallocation from other national priorities such as health and security, progressive taxation in the medium-term,[101] increased development aid[102], and in some cases, innovative financing models (e.g. impact bonds).[103] The financial allocation challenges facing governments have been further complicated by the COVID-19 pandemic, both due to its effect on declining government revenues and the urgency of increasing spending on health and safety nets.[104] In this regard, the 2021 Kenyatta Declaration on education financing by 11 African countries is noteworthy as signatories committed to either continuing to spend at least 20% of their budget on education throughout the pandemic, or to incrementally increase spending to reach the 20% benchmark. In addition to expanding the financial resources allocated to education, governments continue to search for new ways to capitalize on cost-effective and, when targeted effectively, pro-equity interventions such as early childhood education and development programmes (see *Chapter 3*), school feeding programmes,[105] and structured pedagogy interventions.[106]

As significant as equitable education's short-term returns in learning outcomes and long-term returns in reduced poverty,[107] increased income,[108] and equitable growth[109] may be, the political incentives facing decision-makers in national or subnational governments,[110] [111] or bilateral aid agencies[112] often do not consistently push towards equitable investments in quality education. Yet champions of equitable education inside national governments, bilateral aid agencies, and international organizations continue pushing onward in this uphill battle to ensure that no child is left behind. Their efforts have become particularly relevant during the COVID-19 pandemic as financing needs in the health sector increase rapidly.

The prioritization of equitable education in national strategic plans constitutes a major victory in this uphill battle. On this point, the recent launch by Sierra Leone of its Radical Inclusion Policy deserves much attention. With a dual focus on students with disabilities and pregnant/parent learners, the policy both responds to the pandemic's negative impact on equitable education and also helps remedy decades-long discriminatory policies towards pregnant students.[113] Gender-responsive education sector planning is also noteworthy as part of governmental efforts to prioritize equitable education in national education strategic plans.[114] Likewise, Lesotho's revision of its education sector plan to prioritize the tackling of gender-related issues, and the United Republic of United Republic of United Republic of United Republic of United Republic of Tanzania's new education sector plan in Zanzibar that puts gender equality at the heart of all its programmes, are both notable.[115]

Box 2.1 Enabling legal frameworks for equity

Promoting equity in education is more effective when backed by policies and legal frameworks that promote equality across all facets of society. The SDG indicators for enabling legal frameworks related to equity are **SDG 4.5.3:** 'Existence of funding mechanisms to reallocate education resources to disadvantaged populations', and **SDG 5.1.1** 'Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex'. The related CESA indicator is: **A.1** 'Existence of African Language Policy'. Data is collected only for the SDG indicators.



For SDG 4.5.3: Out of 31 countries for which there is endline data (2020), but no baseline data, 26 say they have no funding mechanisms to reallocate education resources to disadvantaged populations. Five countries (Congo, Ethiopia, Guinea, South Africa, and Zambia) report having such mechanisms. Policy-makers should focus on this gap in their efforts to improve equitable access to education.

For SDG 5.1.1: As seen in the graph, there are disparities among the four gender equality legal frameworks across countries in Africa. Overall, they tend to perform well or above average on gender equality in only one or two areas, and low on the other disparities. As such, it is important for countries to implement enabling legal frameworks to support gender equality across all areas. Achieving equity in education is linked to progress on gender equality in all aspects of public life.

Although moving towards equitable education starts with the planning process, the real value of these strategic plans becomes apparent when the daily experiences of disadvantaged children in their classrooms and schools change for the better. Hence, equitable education is about teaching being aligned with children's actual learning level.[116] It is also about a relevant and culturally appropriate curriculum, and learning materials that reflect both society's diversity and global values that support equality.[117] It is about a diverse teacher workforce.[118] It is about adaptable and accessible learning environments, and the availability of learning materials adapted for children with disabilities.[119] It is also about thinking of the well-being of the child as a whole and implementing multisectoral programmes that include health, nutrition, and social protection, such as water, sanitation, and hygiene (WASH) facilities, school feeding programmes[120], and cash transfers to reduce the financial barrier to accessing education. It is about free pre-primary, primary, and secondary education,[121] and local languages being used as the language of instruction in early grades.[122] And ultimately, it is about disadvantaged children feeling safe, included, and respected by their peers and teachers.

xvi. Child marriage also exposes girls to health risks and complications related to early fertility and sexually transmitted infections.
xvii. Although child marriage affects both girls and boys, the incidence among girls is higher, as this phenomenon is partly the result of entrenched social and cultural norms of gender inequality. Globally, the prevalence of child marriage among boys is only one-sixth that of girls.
xviii. A study for Kenya, shows that reducing primary school dropout rates delayed the onset of girls' fertility from 16% to 13% in just three years.
xix. Research suggests that mothers' education is strongly associated with their children's health and education achievement.
xx. COVID-19 has increased the risk of early marriage. According to UNICEF, up to 10 million more girls will be at risk of becoming child brides due to the pandemic.

Policy case study #1: Abolishing child marriage and improving girls' education in Burkina Faso

Early marriage deprives children of their childhood, jeopardizing their access to education and health,[xvi] [123] increasing their household responsibilities[xvii] [124] and the potential to experience domestic violence and isolation from family and community.[125] At the same time, lack of education opportunities is one of the reasons leading to early marriage and pregnancy. Better-educated girls are less likely to marry as children, have less risk of early fertility,[xviii] and invest more in their human capital, with positive intergenerational effects.[xix] [126] [127]

Prior to COVID-19, there appeared to be a decrease in early marriages but often with poignant regional differences.[xx] [128] In sub-Saharan Africa (SSA), progress has been slower as child marriage rates are among the highest in the world (34%), replacing South Asia where a decade ago it was 50% but has since dropped to 28%.[xxi] [129] SSA governments and the international community have deployed great efforts to reduce the incidence of child marriage. For instance, the African Union has been implementing ambitious campaigns to bring the issue of child marriage to the forefront, generating advances in the regulatory framework, policies, and action plans in several countries.[130]

A holistic strategy to fight for a better life for girls in Burkina Faso

Burkina Faso has the fifth highest child marriage rate in the world,[131] with 1 out of 2 girls marrying before the age of 18, and 1 in 10 before the age of 15.[132] Rural, poor, and less educated girls are often the most affected.[xxii] [133] While the causal relationship between early marriage and the educational level of girls goes in both directions,[xxiii] the association between the two phenomena appears evident.[134] Less educated girls are more likely to be married at early ages. The proportion of non-educated girls married before the age of 18 in Burkina Faso is 62%, but this percentage drops to 33% for girls with some primary education, and 14% for those with some secondary education.[135] A recent study also shows that marriage is the second reason for girls' drop out of school, after financial constraints.[xxiv] Forty per cent of girls drop out due to marriage, compared to 4% of boys.[136] Therefore, measures to address girls' lack of educational opportunities and to prevent child marriages could have a meaningful and long-lasting impact. The multiple incidences of social, economic, and cultural factors[xxv] [137] make a holistic approach necessary.

One example in this regard is Burkina Faso's 2016-2025 National Strategy on Ending Child Marriage.[138] [xxvi] The first phase lays the groundwork for changing the values and social norms that legitimize the practice of child marriage, and aims to empower adolescent girls to decide when and who they marry.[139] It proposes concrete actions including prevention awareness, financial and literacy support programmes for victims and their families, strengthening of the legal and protective system, and coordination of monitoring and evaluation efforts.[140]

xxi. South Asia ranks second with 28%.
xxii. Areas with a high prevalence of marriages are characterized by a low level of development, high rates of household poverty, low schooling, and low employment opportunities.
xxiii. Child marriage reduces girls' chances of attending school and performing well. Not attending school, in turn, increases the risk of child marriage and early childbearing.
xxiv. 61% of girls who drop out do so because of financial constraints.
xxv.Traditional Burkinabe law encouraged girls to marry before the age of 17. It's estimated that 36% of girls who marry early are in polygamous marriages with older men, do not participate in decision-making on issues that affect them, are not free to move around, and are socially excluded.
xxvi. Countries such as Ghana, Malawi, and Mozambique have adopted similar national strategies to address systemic issues related to child marriage.

In 2016, UNICEF and UNFPA also launched a programme in Burkina Faso to end child marriage in support of the government's efforts[xxvii] [141] and to promote the right of girls to marry only after the age of 18. Some of its actions include, training child protection committees, educating and mobilizing parents and community members, empowering girls through door-to-door training on life skills and sexual and reproductive health, and accelerated learning programmes.[142]

It is too early to evaluate the effects of these initiatives, but some preliminary achievements show their potential for success: raising millions of people's awareness against child marriage through two national campaigns,[143] informing them about the harmful consequences of child marriage,[144] training 43,000 teachers on the issue,[145] assisting nearly 70,000 girls aged 10-19 to enrol and continue their education to delay child marriage,[146] life skills training for over 60,000 adolescents,[147] and the development of a strategy to identify girls at risk of child marriage in 2,000 villages. [148] [xxviii]

While the actions of the Burkinabe government and its partners are on the right track, barriers remain. One important concern is the lack of the strategy's full alignment with national and international standards. For example, the minimum legal age for marriage is currently set at 17 for girls (20 for boys), and girls can be granted exemption to marry at 15.[xxix] [149] This is contrary to the Constitution and other national laws which guarantee gender equality.[150] Additional actions are also needed to ensure compliance with legal frameworks regardless of cultural and social norms. Many child marriages in Burkina Faso occur in customary or religious ceremonies and are not legally registered.[151]

Policy case study #2: Lessons from Chad's response to the challenges of refugee education

Africa is home to more than seven million refugees, and sub-Saharan Africa is home to more than 26% of the world's refugee population. The largest number of refugees in Africa originates from South Sudan, the DRC, Somalia, Sudan, Central African Republic (CAR), Burundi and Nigeria.[152] Moreover, the continent hosts one of the highest proportions of child refugees in the world: six out of every ten refugees in Africa is a child.[153] While the efforts of host countries and the international community are vast, the challenges in terms of reception, care, and inclusion of the refugee population into national education systems remain significant. According to global statistics, in 2019, the gross enrolment ratio of refugee children is 77% at primary level and 31% at secondary level.[154]

xxvii. The initiative is part of a global UNICEF and UNFPA programme to address child marriage in 12 countries where it is most prevalent: Bangladesh, Burkina Faso, Ethiopia, Ghana, India, Mozambique, Nepal, Niger, Sierra Leone, Uganda, Yemen, and Zambia.
xxviii. With support from community facilitators, traditional, religious, and local leaders using door-to-door household visits.
xxix. The Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (Maputo Protocol) calls on governments to develop laws that establish 18 as the minimum age of marriage for both girls and boys (Article 6c).

A pioneering role in inclusive refugee education

Refugees living in Chad coming mainly from South Sudan, the Central African Republic, and Nigeria. As of September 2020, there were 482,691 refugees and asylum seekers in the country of which 55% were children.[155] Despite having been hard hit by various financial and natural crises, conflicts in neighbouring countries, and facing major financial constraints, the Chadian government's commitment to refugee education makes it a pioneer and a reference worldwide.

With the '2013/2016 National Education Strategy for Refugees' launched in 2012, and more recently, the Education Strategy 2030,[xxx] Chad has taken concrete steps to integrate refugee children into the education system.[156] These include:

- Transformation of refugee camp establishments into public establishments (2018).
- Continued training of Chadian teachers and their assignment to schools in camps.
- Implementation of a transition curriculum to facilitate children's move from the education system of their country of origin to the Chadian system.
- Significant investment in learning materials and education infrastructure.[xxxi] [157]

With these efforts, the government has substantially improved the availability and quality of education it offers refugee children. Between 2014 and 2020, their primary school gross enrolment ratio (GER) rose from 73% to 79%, while the GER at secondary level increased from 14% to 24%.[xxxii] [158] At the same time, the number of students per classroom decreased from 158 to 122. Nearly 300 Chadian teachers have been assigned to schools in refugee camps and sites and more than 600 refugee teachers have received training. Thus, the number of qualified teachers has also increased significantly, from 24% to 42% at primary, and 34% to 62% at secondary level.[159]

Improving access to post-primary education for all children

While the comprehensive educational inclusion strategy for the refugee population has yielded significant results in a short period of time, important education barriers remain that the country and its partners are working hard to address. Access to secondary education is a structural challenge in Chad that also affects the host population and has serious repercussions on the real opportunities for the social and economic inclusion of the refugee population.[160] In 2018, while the secondary GER for the refugee population was 22%, the national secondary GER was only 20%. [161] [xxxii] Further efforts are therefore needed to improve access to secondary education for children in both host and refugee communities.

xxx. Also, the Interim Plan for Education in Chad 2018-2020 and the National Development Plan 2017-2021. https://planipolis.iiep.unesco.org/sites/default/files/ressources/chad_plan_interimaire_de_leducation_2018-2020.pdf
xxxi. In 2014, refugee camps had a total of 598 hard and semi-hard classrooms in good condition, and 996 functional latrines. In 2020, the number of classrooms in good condition was 995 and the number of functional latrines 1,016.
xxxii. The figure for host country learners was 89% in primary and 20% in secondary.
xxxiii. The data on Chad refugees' access to education is from 2018-2019, with the exception of secondary GER for refugee and non-refugee population, which is from 2019-2020.

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Chapter 3

Early childhood education and school readiness[i 1]

CHAPTER SUMMARY

Some of the key issues and findings put forward in this chapter include:

- In their efforts to expand ECE services, countries have adopted different approaches (e.g. a progressive universalization approach, or a community-based age-indifferent expansion approach) and used a broad range of service delivery models that varying in terms of their intensity (e.g. half-day versus full-day programmes), location, and timing. While this diversity is indicative of ECE's adaptability to needs and context, it also raises concerns about quality. Evidence is clear on the importance of quality in ECE for young children's development. Therefore, a focus on quality should be central to policy discussions around expanding access to ECE, not only with regards to the structural elements of the services, but also in terms of process-related and system-level elements.

- However, to take advantage of ECE's potential to reduce the existing inequalities in developmental outcomes in early years, equitable ECE services (including targeted programmes) and multisectoral intervention models with a focus on children facing adverse experiences, are important building blocks. In this respect, providing ECE services during crises such as conflicts, natural disasters, and pandemics, gains particular importance given its potential to mitigate their negative effects on young children's development.

- Some of the key findings from the baseline period are:

  - Differences in access to ECE across countries in Africa is sizable, and much more so than at other education levels. In addition, while the change in access to ECE over the last five years has been broadly positive, it is far from consistent or uniform.

  - Wealth-related disparities are large and pervasive. Location-related disparities (rural versus urban) are also sizable in all countries where data is available, but wealth-related disparities seem to run deeper. With respect to gender parity, girls and boys seem to benefit equally from ECE in about half of the countries. In one-quarter of them, boys are favoured, and in the remaining quarter, girls are favoured.

  - Data from seven countries looking at the change in ECE access suggests that the poorest children are more likely to be at the end of the line in benefiting from expanded access and be the first ones to lose access when ECE availability declines.

  - In terms of the quality of ECE services as captured in teachers' academic qualifications (i.e., the proportion of ECE teachers academically qualified according to national standards), differences are observed, though in about half of the countries with available data, more than 90% of the teachers are academically qualified.

i. For the purposes of this report, school readiness refers to how well young children are prepared to engage in formal learning as evidenced by their levels of development when they reach the official age for entering primary school. However, the concept can be used in a broader sense to also incorporate how well families are prepared to send their children to school and how well-prepared primary schools are to receive young children in early grades.

Background

Early childhood education in CESA

CESA describes early childhood education (ECE)[ii] as the next frontier for Africa in order to realize sustained quality education.[2] A child's readiness to learn in school is described as an essential ingredient for a successful education journey. Accordingly, ECE is identified for special focus, along with TVET and secondary education, in CESA's action area for the formulation of appropriate policies conducive to expansion of education.[3] Likewise, the AU's Agenda 2063 recognizes ECE's vital role. In fact, one of the key transformation outcomes in Agenda 2063 is 'at least one out of every three children [in Africa] having access to kindergarten education'. Interestingly however, CESA does not include a strategic objective on ECE, a gap the Nairobi Declaration amply fills by including a commitment to developing 'integrated approaches to early childhood development, care and education policies, programming and financing with an emphasis on holistic development including literacy and numeracy with particular attention to marginalized and vulnerable children, with the commitment to progressively ensure at least one year of free and compulsory pre-primary education and with the active participation of families, communities and local governments'.[4]

Despite not having a strategic objective on ECE, CESA discusses extensively the many challenges still facing the service on the continent. It describes ECE as being severely underdeveloped in spite of growing evidence of its importance, and identifies it as a neglected policy and investment area characterized by disparities, poor management, and a lack of coherent curriculum.[5] CESA also highlights quality challenges stemming from inadequate planning, limited resource allocation, poorly trained teachers, and inadequate materials.[6] In order to address these, and given ECE's vital role in sustained quality education, the AU calls for special attention to be paid to ECE in CESA.[7] Accordingly, the CESA cluster on early childhood education has focused its efforts on supporting governments with the expansion and improvement of early childhood education services, and advocating with global stakeholders for more investment in the early childhood period on the African continent.[8]

ECE in Agenda 2030[iii] [9] [10]

The AU's assertion about the importance of ECE finds parallels in the global Agenda 2030 for Sustainable Development, which includes early childhood among the education levels for which countries commit to providing inclusive and equitable quality education. This commitment is concretely captured in the SDG Target 4.2: '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'. The SDGs anchor the importance for education of early childhood development in children's readiness for primary education. Accordingly, it highlights ECE's suitability to holistically support young children's development in the cognitive, physical, social and emotional realms, all of which are vital for their school readiness.[11] It also underlines ECE's role in introducing young children to organized instruction outside the family context, which can help contribute to their smooth transition from the home environment to the primary school environment.[12]

Relevant SDG 4 indicators on early childhood education are described in *Appendix 3*.

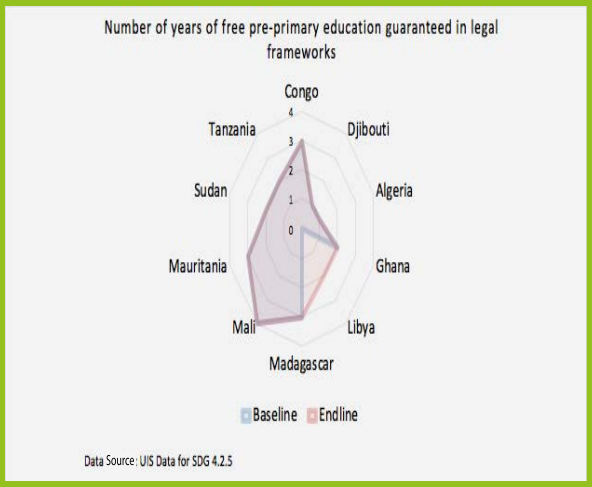
ii. This chapter focuses on ECE defined as the formal and non-formal education services provided in the early childhood period. While early childhood refers to the period between birth to age 8, given the mandate of the report and the pertinent benchmark indicator used by UIS and AUC (SDG 4.2.2), analysis in this chapter is primarily concerned with pre-primary education services for children one year younger than the official primary age (i.e., age 5 or 6 in most countries).

iii. The importance placed on ECE in the SDGs is neither unconventional nor new. In fact, it builds upon the foundations laid by the Jomtien World Declaration on Education for All (2000), the Dakar Framework for Action (2000), and the Incheon Declaration (2015). These global commitments all underscore ECE, and more broadly early childhood development's (ECD) role in building 'the competencies and skills that enable people to learn throughout life as well as children's long-term development, well-being and health.' As early as 2000, the Dakar Framework for Action included among its commitments, 'expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children'.

Box 3.1 Enabling legal frameworks for early childhood education

Efforts to expand access to ECE services may be more effective when backed by policies and enabling legal frameworks. In the absence of indicators from CESA, there is one SDG indicator for the enabling legal frameworks related to ECE: SDG 4.2.5 'Number of years of (a) free and (b) compulsory pre-primary education guaranteed in legal frameworks.'

Out of 46 African countries with available data at both baseline (2016) and endline (2020), 36 reported having 0 years of free pre-primary education guaranteed in legal frameworks. As seen in the graph, at baseline, only 9 countries guarantee at least 1 year of free pre-primary education; at endline this number grows to 10. Mali (with 4 years of free pre-primary education) and Congo, Madagascar, and Mauritania (with 3 years) are leading the way. They are followed by Ghana, Libya, Sudan, and the United Republic of United Republic of Tanzania (2 years), and then Algeria and Djibouti (1 year).



The fact that most African countries still do not guarantee even a minimum of one year of free pre-primary education may pose an obstacle to expanding equitable access to ECE across the continent, especially for children from the poorest households who cannot afford the fees associated with not-free pre-primary education.

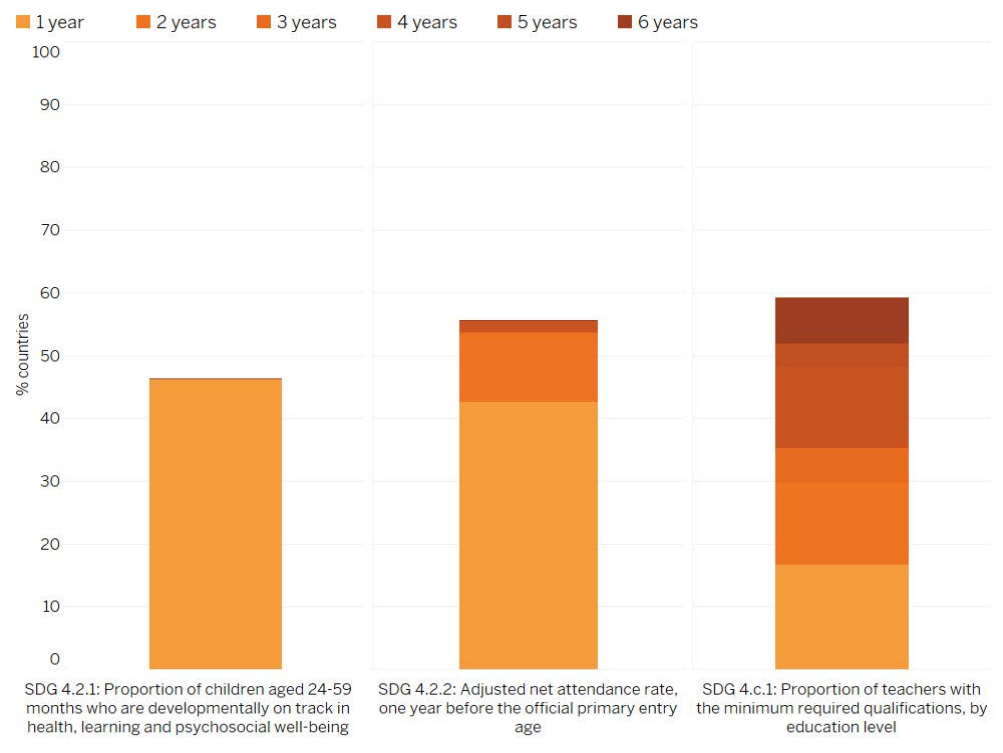
Regarding policies concerning compulsory pre-primary education, out of 54 countries for which there is data both at baseline and endline, 53 countries reported guaranteeing 0 years of compulsory pre-primary education. With Ghana the only country guaranteeing 2 years of compulsory and free pre-primary education, it is ahead of the curve in developing an enabling legal framework to improve equitable access.

Different approaches to expanding access to ECE

With the growing recognition of its role in school readiness,[13] several countries have rapidly expanded access to ECE since 2015, including Madagascar, Sierra Leone and Togo (see *Figure 3.3* and *General findings* section for more details). Generally speaking, the different approaches adopted fall into two broad categories. Some countries like Kenya, expanded access to early childhood education services through public, private, and/or community-based services without prioritizing one age group over another, and instead provide services to all children in the official ECE age range. Others (e.g. South Africa and more recently Ethiopia) have adopted a progressive universalization approach, starting with offering one year of ECE for all children, with the public sector taking the lead, and with the aim to gradually increase the number of years through public, private, and/or community-based services. Some of these countries (e.g. Ethiopia) also had a pro-poor policy commitment, prioritizing children from disadvantaged households in their expansion efforts and introducing free pre-primary education.

Box 3.2 Data availability

Figure 3.1 Proportion of countries with 1, 2, 3, 4, 5, and 6 available data points over the period 2015-2020, for indicators on early childhood development, access to early childhood education, proportion of pedagogically trained teachers



Data for SDG 4.2.1 is collected via household survey and for SDG 4.2.2 via both via administrative information systems and household surveys. This report uses data from household surveys, including in this figure on data availability. Between 2015-2020, around half of African countries have collected data on early childhood development (as measured by SDG 4.2.1) and participation rates in organized learning one year before the official primary entry age (SDG 4.2.2). However, for most of them (representing respectively 46% and 43%), only one year is available while only 13% of countries have collected data for more than one year for SDG 4.2.2 (none for SDG 4.2.1). Availability of data, which is collected via administrative information systems, is better for the proportion of pedagogically trained teachers: 59% of countries have data for at least one year and most of these countries have data for more than one year from 2015 to 2020.

Diverse ECE service delivery models

Service delivery models adopted in expanding access to ECE have varied both within and across countries in terms of their intensity (e.g. programmes that are half-day versus full-day, or once a week versus five days a week), location (institution-based, community-based versus home-based services), and timing (year-long versus seasonal programmes using accelerated school readiness model). This diversity is both a reason for celebration (as ECE's adaptability to young children and their families' needs and context is vital for access), but also a cause for concern, as diverse delivery models may vary not only in intensity but also in their quality.

A focus on quality essential for expansion efforts

While studies on the effect of programme intensity on young children's development suggest the picture is not clear cut,[14] there is some evidence that higher quality ECE programmes lead to greater skills gains,[15] and low-quality programmes compromise learning and development.[16] For young children in low quality

programmes, the negative effects may in some cases go beyond their learning and development being compromised. Their safety, health, and emotional well-being may also be put at risk. In the case of children with disabilities, access to ECE services can facilitate earlier identification of special needs and risk factors for developmental delay, enable the provision of integrated support, and complement ongoing early interventions.[17] It is therefore of utmost importance that in their efforts to expand access to ECE, governments consider prioritizing quality and inclusion in their policy planning and implementation regarding both public and private provision of ECE services.

Multiple dimensions of quality in ECE services

The quality of ECE services depends on several factors, including structural (e.g. physical conditions, adult-child ratio), process-related (e.g. pedagogy, adult-child interactions), and system-level elements [18] (e.g. standards and monitoring, financing and management). In this respect, government efforts in developing and enforcing guidelines on minimum standards are particularly important. Standards that encompass the different quality dimensions can play a vital role in ensuring that good ECE services are available both across public, private, and other non-state providers, and for diverse delivery models (see the example in *Policy case study #3* on Kenya's efforts for quality assurance). Such minimum standards are particularly relevant for the provision of integrated inclusive ECE services. [19] Undertakings to enhance the process-related elements of ECE services could benefit from a better understanding of the state of curricular and pedagogical practices in different contexts. In this respect, the Casablanca Declaration and Call for Action on Quality Early Childhood Education and the Professionalization of Teachers and Educators (2019) and other regional and continental efforts, including by the Africa Early Childhood Network (AfECN) and the Association for the Development of Education in Africa's (ADEA) Inter-Country Quality Node on ECD led by Mauritius, are worth noting.

ECE as a potential tool to narrow inequalities in school readiness

ECE's role in supporting school readiness also makes it a potential tool to mitigate the widening of inequalities in developmental outcomes in a child's early years, and a 'powerful opportunity to break intergenerational cycles of inequity'. [20] Ensuring that young children from poorer households have access to quality ECE may keep them from falling too far behind their wealthier peers before they even get to primary school. ECE interventions have been found to generate sizable long-term benefits for health and labour market outcomes in the USA when they are high quality and target disadvantaged children. [21] Yet, while evidence from low- and middle-income countries suggest consistent positive associations between participation in ECE and educational attainment (a mean of an additional 0.9 years of education across countries if attended ECE), the evidence on the association between ECE participation and labour market outcomes is varied, suggesting the importance of improving the quality and targeting of ECE programmes to realize the full range of its potential long-term benefits.[22]

Using ECE as a tool to reduce inequalities in development outcomes in early years requires 'bold measures that benefit disadvantaged children at least as much as their better-off peers' in each policy and investment decision, while expanding access to ECE.[23] When governments do not put equity at the heart of their expansion efforts, then children from wealthier families are more likely to access ECE, and the programmes they access are more likely to be of higher quality, which can widen the gap between them and children from poorer households and marginalized groups [24] (for a more detailed discussion on this, see the analysis on wealth disparities in access to ECE in the General findings section). Such inequalities can be tied to household wealth. They can also be related to other household-level factors (such as parental education, location of residence, ethnicity or religion of the household members), context (such as displacement), and individual-level factors (such as the disability status of a child).[25] In this respect, policy efforts and investments to promote inclusion in quality ECE by providing early childhood intervention programmes for children with vulnerabilities, implementing inclusive pedagogical approaches, and ensuring affordable access to ECE services remain critical.[26]

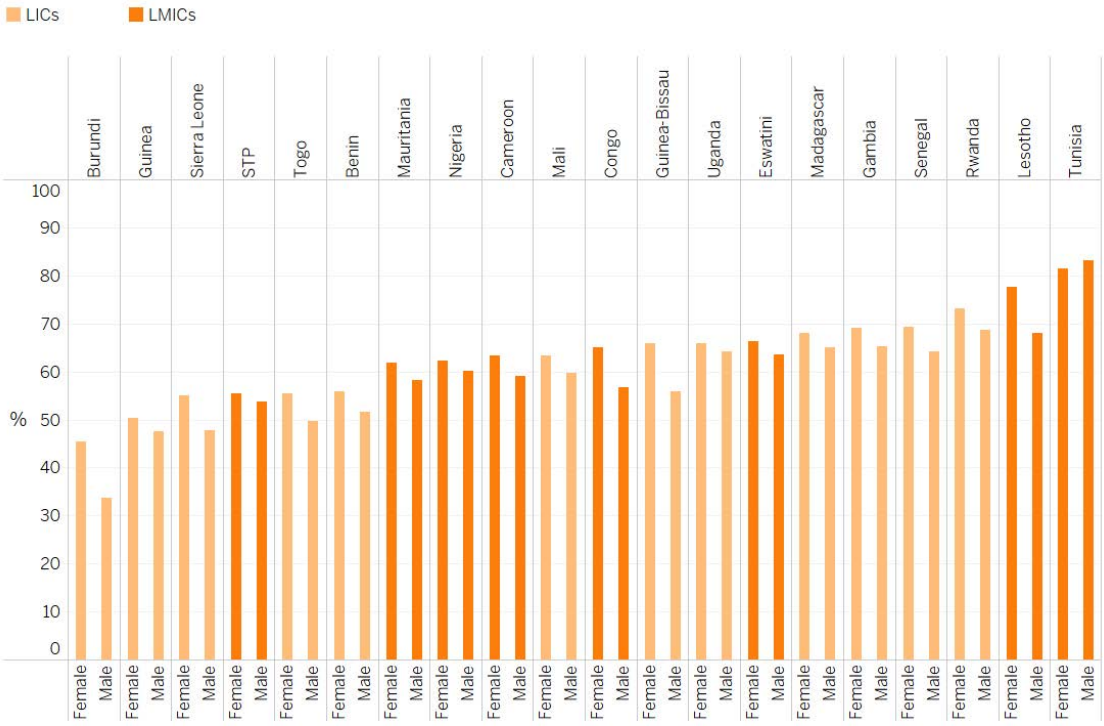
ECE as only one piece of the bigger puzzle of early childhood development

While SDG 4 and CESA's focus on education translates into a focus on ECE policies, this constitutes only part of broader efforts to support early childhood development (ECD).[27] As also noted in Agenda 2063's aspirations,[28] by providing early childhood development through health, nutrition, and protection, as well as education policies, governments can help families to set the stage for their children to thrive throughout their lives.[iv 29]

The imperative to focus ECD interventions on young children facing adverse experiences

ECD interventions are particularly critical for children who have adverse experiences in early childhood (including abuse, neglect, chronic extreme poverty, loss of primary caregiver). If the stress from adverse experiences is not addressed, it can turn 'toxic' and can potentially have life-long repercussions.[30] Yet, one in four African children live in a conflict zone.[31] Close to half (45.8 %) of children in sub-Saharan Africa live in extreme poverty (i.e., on less than USD 1.90 PPP per day).[32] Despite significant improvements, one out of three children in sub-Saharan Africa is stunted.[33] *Figure 3.2* shows that in almost all African countries where data is available, about one in three children aged 24-59 months are developmentally not on track. In some countries like Benin, Burundi, Guinea, Sao Tomé and Principe, Sierra Leone, and Togo, this is the case for about half of children. Hence, it is critical that efforts and investments in ECD are increased by intensifying health, nutrition, protection, and early learning interventions targeting young children and their families, especially in contexts where they may be affected by extreme poverty, conflicts, or natural disasters.

Figure 3.2 Proportion of children aged 24-59 months who are developmentally on track in terms of health, learning, and psychosocial well-being



Data source: UIS, SDG 4.2.1: "The proportion of children aged 24 to 59 months who are developmentally on track in health, learning and psychosocial well-being", http://data.uis.unesco.org/
Note: Countries are listed in order of their proportion of girls aged 24-59 months who are developmentally on track in health, learning, and psychosocial well-being
Data is from the following years: Burundi (2017), Guinea (2016), Sierra Leone (2017), Togo (2017), Benin (2018), Guinea-Bissau (2014), Mali (2015), Uganda (2016), Senegal (2017), Gambia (2018), Madagascar (2018), Rwanda (2015), STP (2014), Mauritania (2015), Congo (2015), Cameroon (2014), Nigeria (2016), Eswatini (2014), Lesotho (2018), Tunisia (2018)

iv. The Nurturing Care Framework for Early Childhood Development launched in 2018 is noteworthy in this respect. It presents a roadmap for action, builds on evidence about how early childhood development can be supported, and works with governments to assess, improve, and integrate their early childhood development policies and programmes.

Falling short of reaping ECE's potential benefits

The benefits of ECE have the potential to go beyond children's school readiness and foundational learning outcomes and extend into the labour market.ECE services create work opportunities through the expansion of the ECE workforce and enable the primary caregivers (most of whom are women) to have the option of more fully engaging in the labour market.[35] Despite its direct benefits for young children and indirect benefits for the labour market, ECE continues to be underfunded by governments relative to other educational levels (see *Chapter 8* on policy-making for a discussion and analysis on government financing by education level).

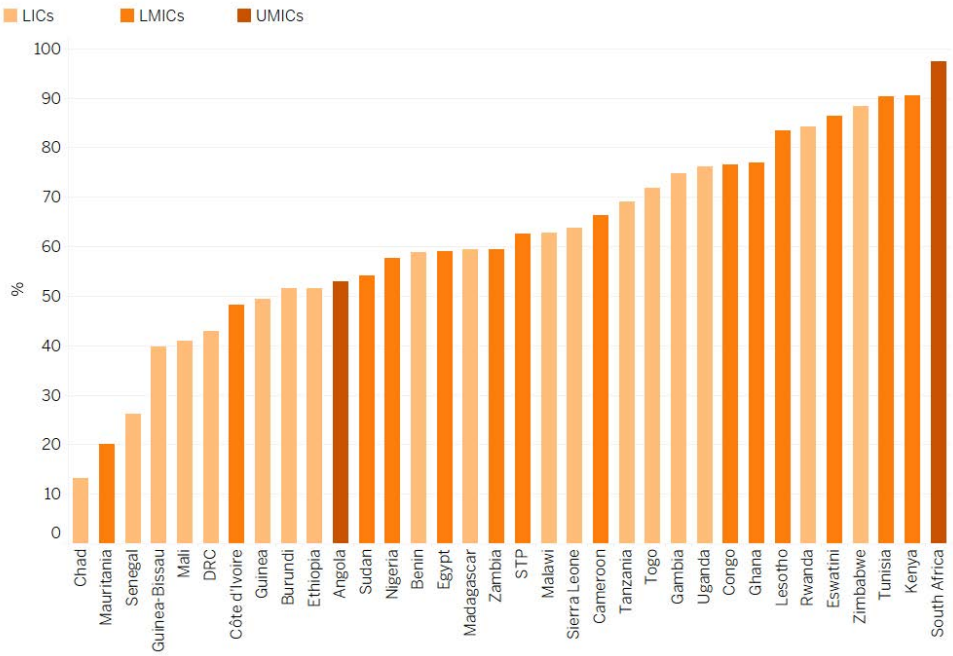
General findings

Access to ECE

For African countries where data is available, access to ECE varies much more than at other education levels. *Figure 3.3* shows participation rates in organized learning one year before the official primary entry age and notes countries' income grouping. While several southern African countries, including Eswatini, South Africa, and Zimbabwe, as well as Kenya and Tunisia are approaching universal pre-primary access, in other countries like Chad and Mauritania, around one in five children attend organized pre-primary education.

Differences in access across countries observed in *Figure 3.3* seem only to some extent to reflect differences in country income levels. For instance, young children in low-income countries such as Rwanda and Zimbabwe have significantly higher access to ECE than those in some lower-middle income countries such as Côte d'Ivoire, Mauritania, and Sudan. This imperfect relation between countries' income levels and access to ECE is worth noting.

Figure 3.3 Participation rate in organized learning one year before the official primary entry age



Data source: UIS, SDG 4.2.2 : "Participation rate in organized learning (one year before the official primary entry age)", http://data.uis.unesco.org/
Note: Countries are listed in order of their partipation rate.
Data is from the following years: Chad (2014), Senegal (2016), Guinea-Bissau (2014), Mali (2015), DRC (2018), Guinea (2016), Burundi (2017), Ethiopia (2016), Benin (2014), Madagascar (2018), Malawi (2016), Sierra Leone (2017), Tanzania (2015),Togo (2017), Gambia (2018), Uganda (2016), Rwanda (2015), Zimbabwe (2015), Mauritania (2015), Côte d'Ivoire (2016), Sudan (2014), Nigeria (2016), Egypt (2014), Zambia (2018), STP (2014), Cameroon (2014), Congo (2015), Ghana (2014), Lesotho (2014), Eswatini (2014), Tunisia (2018), Kenya (2014), Angola (2015) , South Africa (2016)

Change in access to ECE

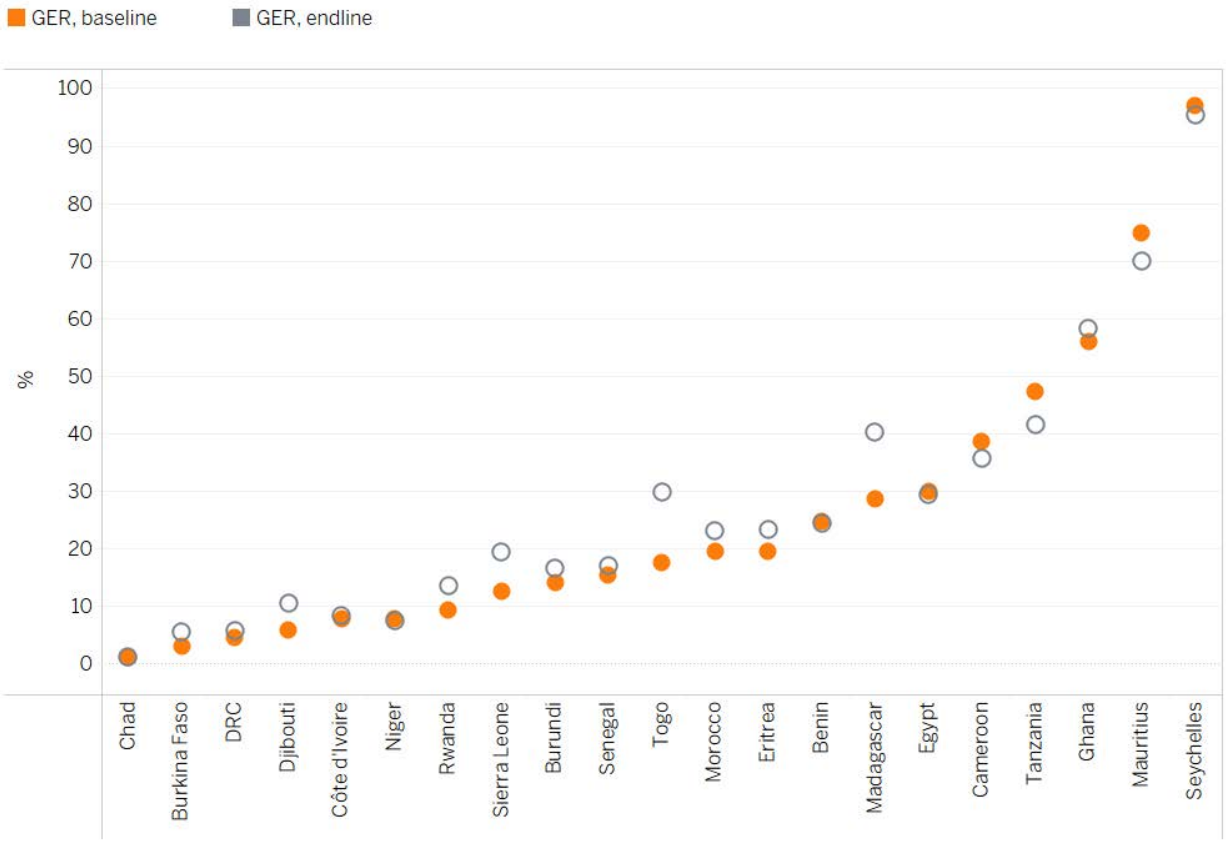
Unfortunately, data availability limits the scope of analyses on change in participation rate (adjusted net attendance rate). *Figure 3.4* shows values for the seven countries with available baseline and endline data. While sizable positive change is observed in some countries like Ghana and Senegal, in other countries like Benin and Zimbabwe, the participation rate seems to have declined. An alternative indicator that measures access to ECE (though less precisely that ANAR), and has more data available to examine change over the period of concern, is gross enrolment ratio (GER).

Figure 3.4 Change in participation rate in organized learning (one year before the official primary entry age) (%), by household income

Data source: UIS, SDG 4.2.2 : "Participation rate in organized learning (one year before the official primary entry age)", http://data.uis.unesco.org/
Baseline and endline data is from the following years: Benin (2014 and 2018), Cameroon (2014 and 2018), Ghana (2014 and 2018), Lesotho (2014 and 2018), Mali (2015 and 2018), Senegal (2016 and 2019), Zimbabwe (2015 and 2019)

Figure 3.5 shows GER in early childhood education for countries with data for both baseline and endline periods. The scope of change is generally positive but far from being clear and uniform. In a few countries, Madagascar, Sierra Leone, and Togo, GER has increased notably, while in several other countries (Burkina Faso, Burundi, Djibouti, Eritrea, Morocco, and Rwanda), GER has increased only slightly. In Benin, Chad, Côte d'Ivoire, Egypt, Ghana, Niger, Senegal, and Seychelles, GER appears almost stagnant, while in Cameroon, Mauritius, and United Republic of United Republic of United Republic of Tanzania, it appears to have declined since 2015.

Figure 3.5 Change in gross enrolment ratio, early childhood education



Data source: UIS, SDG 4.2.4 "Gross enrolment ratio", http://data.uis.unesco.org/
Note: Countries are listed in order of their baseline's gross enrolment ratio
Baseline and endline are from the following years: Chad (2016 and 2019), Burkina Faso (2016 and 2019), DRC (2015 and 2018), Djibouti (2016 and 2020), Côte d'Ivoire (2016 and 2019), Niger (2016 and 2019), Rwanda (2016 and 2019), Sierra Leone (2016 and 2019), Burundi (2016 and 2019), Senegal (2015 and 2019), Togo (2015 and 2020), Morocco (2016 and 2019), Eritrea (2015 and 2018), Benin (2016 and 2019), Madagascar (2016 and 2019), Egypt (2016 and 2019), Cameroon (2016 and 2019), Tanzania (2016 and 2019), Ghana (2016 and 2019), Mauritius (2016 and 2019), Seychelles (2016 and 2019)

Gender, income, and location disparities in accessing ECE

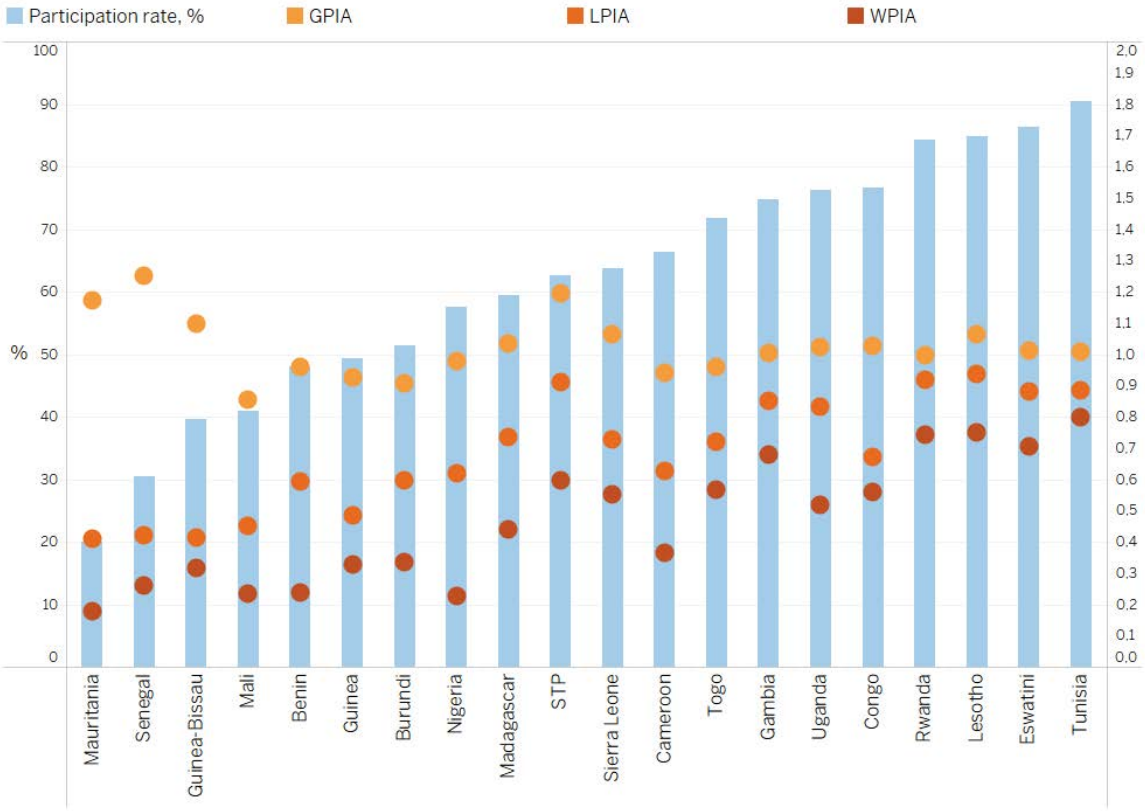
To realize ECE's potential as a 'powerful opportunity to break intergenerational cycles of inequity,'[36] equitable access is vital.

Figure 3.6 presents adjusted gender parity index (GPIA), adjusted location parity index (LPIA), and adjusted wealth parity index (WPIA) for participation rate in organized pre-primary education.[v]

- With respect to gender parity, in about half the countries with available data, girls and boys are equally likely to benefit from ECE. In about a quarter of the countries, boys are favoured (with Mali having the biggest disparity with a GPIA value of 0.86), and in the remaining quarter, girls are favoured with regards to gender disparity in accessing ECE (Senegal has the biggest disparity with a GPIA value of 1.25).
- With respect to location, disparity is observed between urban and rural areas with urban areas favoured in all countries. However, the size of the gap varies greatly. In countries like Guinea-Bissau, Mauritania, and Senegal, children's participation rate in rural areas is less than half that of urban areas. Countries like Eswatini, Lesotho, Rwanda, Sao Tomé and Principe, and Tunisia, are pushing towards rural-urban parity in access to ECE.
- When wealth-related disparities in accessing ECE are examined, the prevalent and deep disadvantage of children from the poorest households is marked. In some countries, including Benin, Mali, Nigeria, and Senegal, the participation rate of children from the poorest households (Q1) is about a quarter of the participation of their peers from the wealthiest households (Q5).

v. Note that the further a parity index is from '1, the greater the disparity in ECE access. Values between 0.97 and 1.03 are considered as parity.

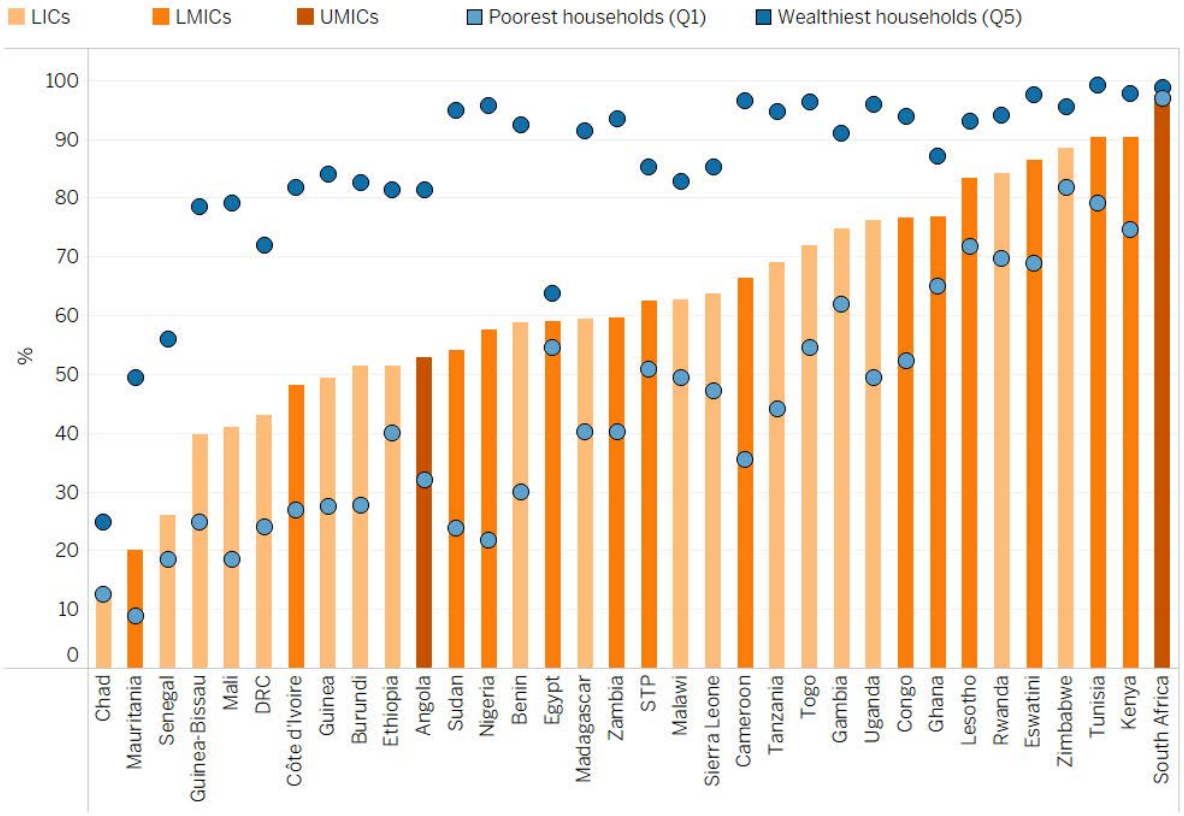
Figure 3.6 Participation rate in organized learning one year before the official primary entry age (%) and adjusted gender parity index (GPIA), adjusted location parity index (LPIA), and adjusted wealth parity index (WPIA) for participation rate



Data source: UIS, SDG 4.2.2 : "Participation rate in organized learning (one year before the official primary entry age)", http://data.uis.unesco.org/
Note: Countries are listed in order of their participation rate
Data is from the following years: Mauritania (2015), Senegal (2017), Guinea-Bissau (2014), Mali (2015), Benin (2018), Guinea (2016), Burundi (2017), Nigeria (2016), Madagascar (2018), STP (2014), Sierra Leone (2017), Cameroon (2014), Togo (2018), Gambia (2018), Uganda (2016), Congo (2015), Rwanda (2015), Lesotho (2018), Eswatini (2014), Tunisia (2018)

Figure 3.7 presents further analysis of wealth-related disparities in participation rates in pre-primary education. Countries are ordered from lowest to highest participation rate, with the bar showing the participation rate value itself, and the colour of the bar showing the country's income grouping. The lighter blue dots mark participation rate for children from the poorest households (Q1) and the darker blue dots mark participation rate for children from the wealthiest households (Q5). Sizable disparities are observed across wealth lines. In most countries where the participation rate can be disaggregated by household wealth levels, a gap greater than 20 percentage points is observed between young children from the wealthiest households versus the poorest households. However, there is sizable variations in wealth-related disparities between countries, and it seems that a focus on equitable access by governments pays off to some extent. For instance, when Ethiopia (where the government has an explicit equity-focus in its expansion efforts) is compared with countries that have similar average ANAR figures such as Burundi, Côte d'Ivoire, and Guinea, it is observed that in Ethiopia, a higher proportion of children from the poorest households have access to ECE compared to their peers in these other countries. Egypt also stands out as a country where the gap between children from the wealthiest and poorest households is relatively smaller than other countries with similar average participation rates.

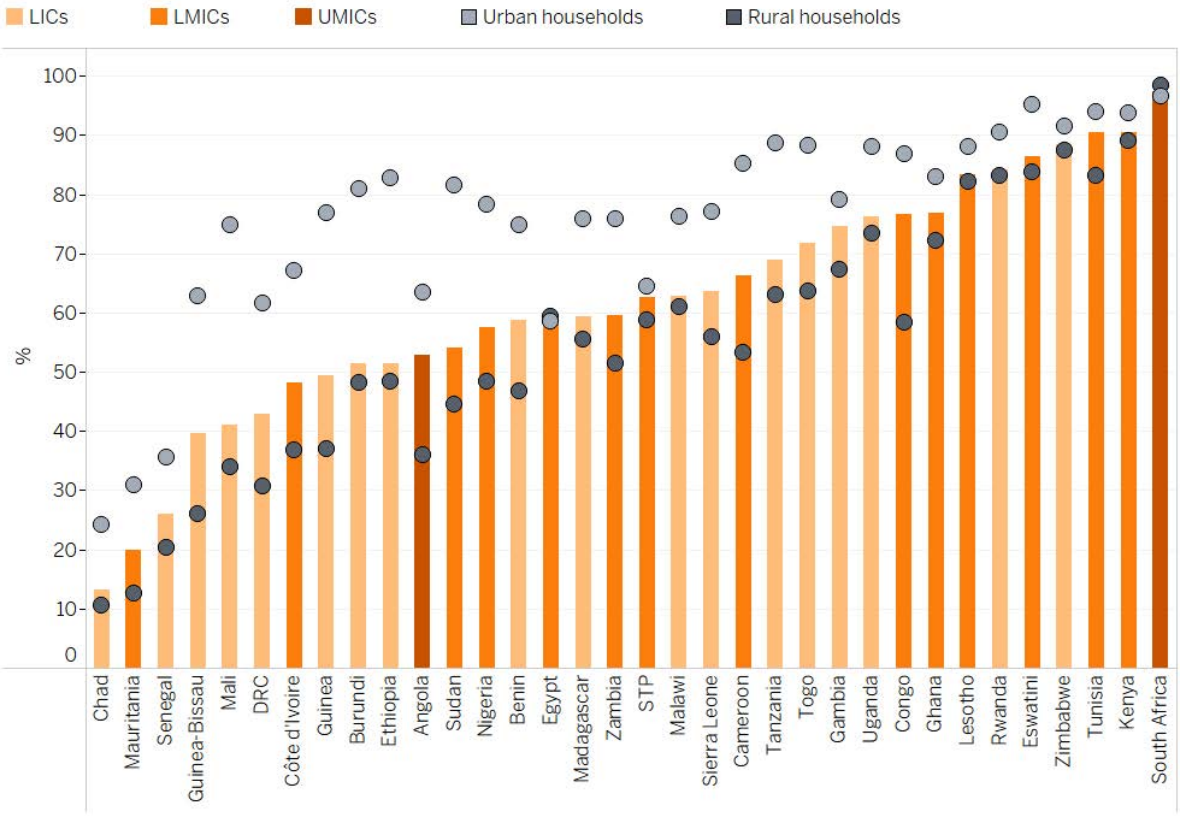
Figure 3.7 Participation rate in organized learning one year before the official primary entry age, by household wealth



Data source: UIS, SDG 4.2.2 : "Participation rate in organized learning (one year before the official primary entry age)". http://data.uis.unesco.org/
Note: Countries are listed in order of their partipation rate.
Data is from the following years: Chad (2014), Senegal (2016), Guinea-Bissau (2014), Mali (2015) , DRC (2018), Guinea (2016), Burundi (2017), Ethiopia (2016), Benin (2014), Madagascar (2018), Malawi (2016), Sierra Leone (2017), Tanzania (2015), Togo (2017), Gambia (2018), Uganda (2016), Rwanda (2015), Zimbabwe (2015), Mauritania (2015), Côte d'Ivoire (2016), Sudan (2014), Nigeria (2016), Egypt (2014), Zambia (2018), STP (2014), Cameroon (2014), Congo (2015), Ghana (2014), Lesotho (2014), Eswatini (2014), Tunisia (2018), Kenya (2014), Angola (2015) , South Africa (2016)

Figure 3.8 presents further analysis of location-related disparities in participation rate in pre-primary education. Countries are ordered from lowest to highest participation rate, with the bar showing the participation rate value itself, and the colour of the bar showing the country's income grouping. The darker grey dots mark participation rate for children from households in rural areas, and the lighter grey dots mark participation rate for children from households in urban areas. With respect to location-related disparity, in most countries, a sizable gap is observed between the participation rates of young children in urban areas and their peers in rural areas in almost all countries where data is available. The exceptions are Egypt, Kenya, South Africa, and Zimbabwe where urban-rural parity seems to exist in accessing pre-primary education.

Figure 3.8 Participation rate in organized learning one year before the official primary entry age, by household location (urban and rural)



Data source: UIS, SDG 4.2.2 : "Participation rate in organized learning (one year before the official primary entry age)", http://data.uis.unesco.org/
Note: Countries are listed in order of their partipation rate.
Data is from the following years: Chad (2014), Senegal (2016), Guinea-Bissau (2014), Mali (2015) , DRC (2018), Guinea (2016), Burundi (2017), Ethiopia (2016), Benin (2014), Madagascar (2018), Malawi (2016), Sierra Leone (2017), Tanzania (2015), Togo (2017), Gambia (2018), Uganda (2016), Rwanda (2015), Zimbabwe (2015), Mauritania (2015), Côte d'Ivoire (2016), Sudan (2014), Nigeria (2016), Egypt (2014), Zambia (2018), STP (2014), Cameroon (2014), Congo (2015), Ghana (2014), Lesotho (2014), Eswatini (2014), Tunisia (2018), Kenya (2014), Angola (2015) , South Africa (2016)

In this regard, a recent study comparing ECE access inequality in LMICs across subnational administrative units, in addition to gender, income, urban/rural location, is worth noting. Its findings suggest that the size of the disparities between subnational administrative units is larger than those related to gender, income, or urban/rural location.[37] The study identifies Nigeria and Uganda as countries with the largest gaps between their subnational administrative units, and Eswatini, Malawi, and Sierra Leone as having the smallest gaps.

Change in poorest children's access to ECE

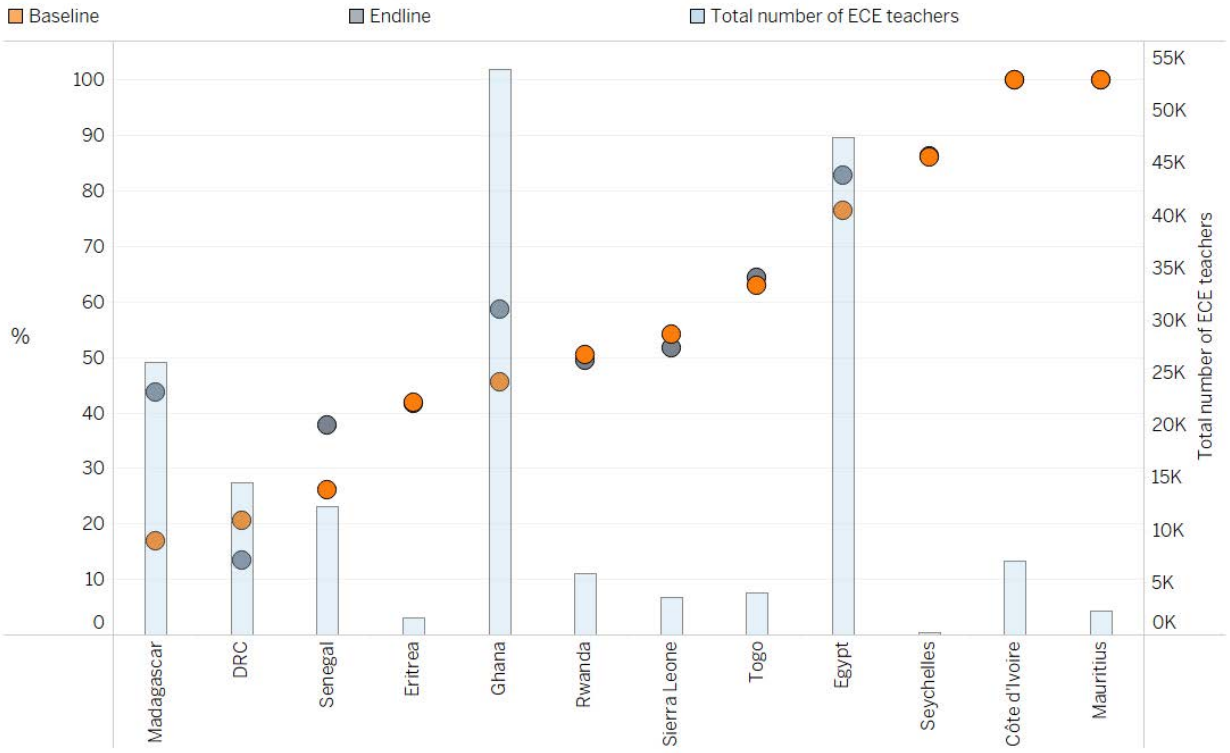
Given the potential impact of access to ECE on equitable education outcomes and the sizable wealth-related disparities highlighted above, it is worth examining changes in access to ECE with a focus on children from the poorest households (Q1). The available data is not adequate to examine trends at the continent or region levels as data is available for only seven countries (see *Figure 3.4*). An analysis of change over the period in focus in these countries shows a somewhat indeterminate trend that, if anything, suggests poorest children are at the end of the line when it comes to benefiting from expanded access and are more likely to lose access when ECE service availability declines. In three of the four countries where the average participation rate increased (Ghana, Mali, Lesotho), the percentage point increase in the participation rate of children from the wealthiest households is greater than the increase for children from the poorest households. In those countries where the average participation rate decreased (Benin, Cameroon, Zimbabwe), the percentage point decrease in the participation rate of children from poorest households is greater than the decrease for children from the wealthiest households. While the underlying data limits our ability to make any conclusive remarks on trends, it re-emphasizes the need to focus more on monitoring equitable access to ECE going forward.

Quality of ECE trained and qualified teachers

Similar to equity, available data is not adequate to capture comprehensively the quality of ECE or changes in quality over the focus period of this report. As seen in *Figure 3.9*, an analysis of the proportion of ECE teachers who have received the minimum pedagogical training required (an indicator capturing one component of ECE quality), in the 12 countries where data is available for cross-time comparison, suggests two patterns:[vi]

- The proportion of trained ECE teachers in the baseline period varies largely across countries, from around 20% in the DRC to 100% in Côte d'Ivoire and Mauritius.
- With respect to change over time, the proportion of trained ECE teachers appears stagnant in most countries where data is available. Only in Madagascar, Senegal, and Ghana, a sizable positive change is observed**.** In the DRC, the country with the lowest value in 2015, the proportion of trained ECE teachers has further declined since then. However, it should be noted that the total number of trained ECE teachers increased by about 25% (from 14,543 to 18,222).
- *Figure 3.9* also incorporates the total number of ECE teachers for countries as a rough measure, showing the size of the training efforts needed to get all of them pedagogically trained. In Egypt, for example, where participation rate is about 60% and almost 85% of the about 45,000 ECE teachers are trained, a training programme reaching 6,000 ECE teachers could mean universal pedagogical training for them. In Rwanda, where participation rate is about 85% and more than 50% of the about 10,000 ECE teachers are trained, a training programme reaching 5,000 ECE teachers could mean universal pedagogical training.

Figure 3.9 Change in the proportion of teachers who have received at least the minimum organize pedagogical teacher training, pre-primary level



Data source: UIS, SDG 4.c.1: "Percentage of teachers by level of education taught who have received at least the minimum organized pedagogical teacher training pre-service and in-service required for teaching at the relevant level in a given country, in a given academic year". http://data.uis.unesco.org/
Note: Countries are listed in order of their baseline's proportion of teachers who have received at least the minimum organized pedagogical teacher training.
Baseline and endline data are from the following years: Madagascar (2014 and 2019), DRC (2015 and 2018), Senegal (2015 and 2019), Eritrea (2015 and 2018), Rwanda (2016 and 2019), Ghana (2015 and 2019), Sierra Leone (2015 and 2019), Togo (2015 and 2020), Egypt (2016 and 2019), Seychelles (2016 and 2019), Côte d'ivoire (2016 and 2019), Mauritius (2016 and 2019)
Total number of ECE teachers data is from the following years: Madagascar (2016), DRC (2015), Senegal (2015), Eritrea 2016), Rwanda (2016), Ghana (2016), Sierra Leone (2016), Togo (2016), Egypt (2016), Seychelles (2016), Côte d'ivoire (2016), Mauritius (2016)

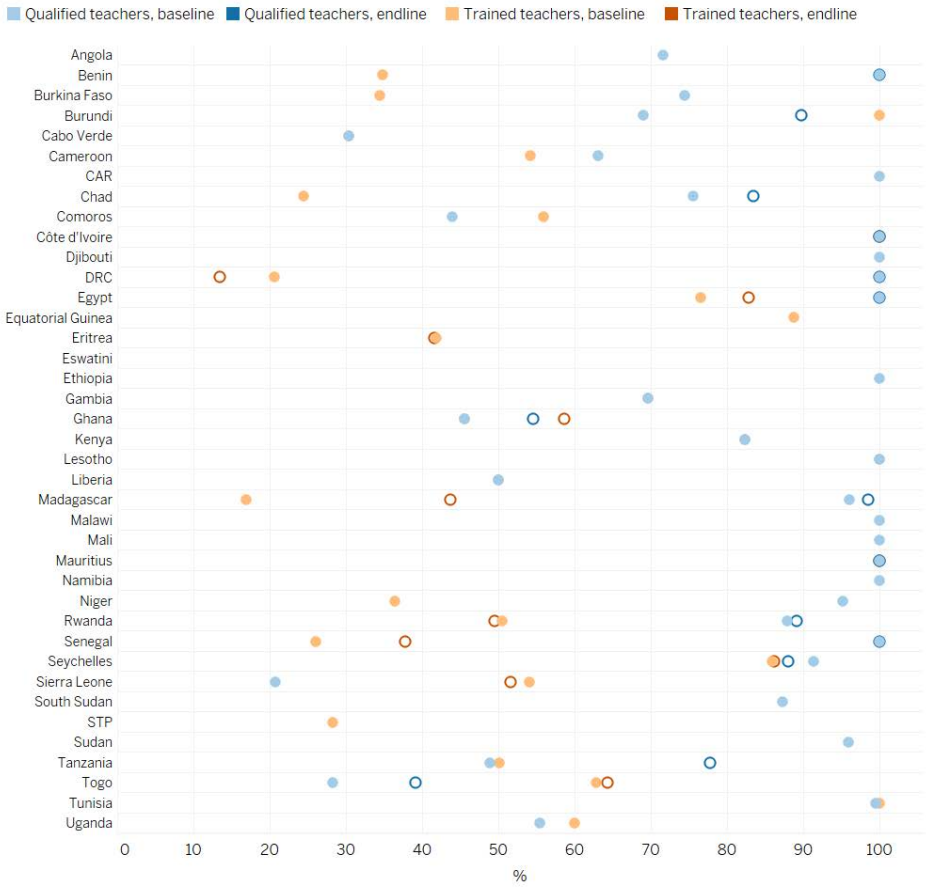
vi. It is worth noting that the pedagogical training required can vary across countries and may not be ECE-specific in some countries.

Another indicator related to the quality of ECE concerns the academic qualifications of ECE teachers. Academic qualifications focus primarily on the educational attainment and pre-service training of the early childhood workforce, and link more directly to recruitment policies. Pedagogical training, on the other hand, focuses primarily on the teacher's capabilities as they relate to the learning processes, and link to both recruitment and workforce development policies. *Figure 3.10* shows the baseline and endline values of the proportion of pedagogically trained ECE teachers and the proportion of academically qualified[vii] [38] ECE teachers in the same graph. Several observations emerge.

Compared to the indicator on pedagogical trained teachers, data on the indicator for academically qualified teachers is available in more countries.

- In most countries where data is available on both indicators, a higher proportion of teachers are academically qualified than pedagogically trained.
- In about a third of the countries, all ECE teachers are academically qualified.
- In most countries where baseline and endline data is available, the proportion of academically qualified ECE teachers appears to have increased but, as previously mentioned, it is stagnant in most countries for pedagogically trained teachers.

Figure 3.10 Proportion of teachers who have received at least the minimum organized pedagogical teacher training and percentage of teachers academically qualified according to national standards, pre-primary level



Data source: UIS, SDG 4.c.1: "Percentage of teachers by level of education taught who have received at least the minimum organized pedagogical teacher training pre-service and in-service required for teaching at the relevant level", SDG 4.c.3: "Percentage of teachers qualified according to national standards, by level of education and type of institution". http://data.uis.unesco.org/
Note: Countries are listed alphabetically.
Baseline and endline data are from the following years:
Qualified teachers: Angola (2016), Burundi (2014 and 2019), Benin (2016 and 2019), Burkina Faso (2016), CAR (2016), Côte d'Ivoire (2016 and 2019), Cameroon (2015), DRC (2014 and 2018), Comoros (2017), Cabo Verde (2016 and 2018), Djibouti (2016 and 2018), Egypt (2016 and 2019), Ethiopia (2017), Ghana (2015 and 2018), Gambia (2015), Kenya (2014), Liberia (2016, Lesotho (2015), Madagascar (2016 and 2019), Mali (2018), Mauritius (2016 and 2019), Malawi (2015) , Namibia (2017 and 2018), Niger (2017 and 2019), Rwanda (2016 and 2019), Sudan (2014), Senegal (2015 and 2019), Sierra Leone (2017 and 2019), South Sudan (2015), Seychelles (2016 and 2019), Chad (2016 and 2019), Togo (2015 and 2020), Tunisia (2015) , Tanzania (2014 and 2019), Uganda (2016)
Trained teachers: Burundi (2016 and 2018), Benin (2016 and 2018), Burkina Faso (2017 and 2019), Côte d'Ivoire (2016 and 2019), Cameroon (2015), DRC (2015 and 2018), Comoros (2017, Cabo Verde (2016 and 2018), Egypt (2016 and 2019), Eritrea (2015 and 2018), Ghana (2015 and 2019), Gambia (2015), Equatorial Guinea (2015), Kenya (2014), Liberia (2016), Lesotho (2015), Madagascar (2014 and 2019), Mauritius (2016 and 2019), Niger (2018 and 2018), Rwanda (2016 and 2019), Senegal (2015 and 2019), Sierra Leone (2015 and 2019), STP (2015), Seychelles (2016 and 2019), Chad (2016) , Togo (2015 and 2020), Tunisia (2016), Tanzania (2016), Uganda (2017)

vii. An academically qualified teacher is defined as 'one who has at least the minimum academic qualifications required for teaching their subjects at the relevant level in a given country'. National academic qualification requirements can vary across countries.

Examples of ongoing efforts and remaining challenges

System-level reforms for equitable access to ECE

In intensifying their efforts to expand equitable access to ECE, most governments have introduced both system-level reforms and targeted interventions. Some examples of system-level reforms include:

- In Ethiopia, the government undertook several system-level reforms in recent years, guided by two critical policy documents with a clear equity focus: the National Policy Framework for ECCE (2010) and the Education Sector Development Programme V (ESDP V) (2015). ESDP V states that 'quality, targeted ECCE provision will be used as a tool to increase equity in the education system' and 'by focusing ECCE expansion first in the areas with lower educational attainment (and on the children most at risk of exclusion, drop-out and under-achievement within those areas), the government will seek to improve the performance of children who can benefit most from the support in order to transition more successfully into Grade 1'.[39] In an effort to ensure that every child is ready for primary school, it also introduced an accelerated readiness programme for those children who could not benefit from existing ECE programmes before entering Grade 1.[40] By committing to providing one year of pre-primary education to all children and making equity a priority, Ethiopia was able to substantially expand access to pre-primary education in a relatively equitable manner. Over a 20-year period, the proportion of children benefiting from the one year of primary education increased from about 1 out of 60 to 1 out of 2 (based on the adjusted net attendance rate in 2015),[41] and the target set in ESDP V is to attain 100%.[42]
- In Ghana, the government introduced a national early childhood development policy as far back as 2004, which affirmed access to quality pre-schooling as vital to improving ECD outcomes. In 2007, two years of ECE were included under free and compulsory basic education.[43] As a result, the GER increased from just over 60% in 2005 to 117% in 2016.[44] By 2017, there were over 14,400 public and 8,000 private preschools in Ghana. The government continues its efforts to enhance the quality of ECE services while moving even closer to universal access. [45]
- In the United Republic of United Republic of United Republic of Tanzania, the government recently expanded the scope of its policy on per child capitation grant to schools, to include children in pre-primary education.[46]

Targeted interventions for equitable access to ECE

Examples of targeted interventions by governments for equitable access to ECE include:

- In South Africa, to expand equitable access to quality ECE in the year before primary school, the government provides pro-poor subsidies in the form of additional funds to the poorest 40% of public schools, which are used primarily for securing additional learning materials and reducing the number of children per classroom.[47]
- Also in South Africa, the government provides a per-child, per-day subsidy to community-based centres providing ECE services. The subsidy is allocated to these non-state providers based on either a family income means test, or whether the child receives a child support grant. The centres must be registered with the Department of Basic Education[48] and comply with certain standards. In 2017, to facilitate more non-state actors in registering with the ministry and providing ECE services, the government introduced the 'early childhood development grant' to fund infrastructure improvements for ECD centres run by non-state actors that serve poor communities.
- In the United Republic of United Republic of United Republic of Tanzania, the government launched the 'Fursa Kwa Watoto' (Opportunities for Children) programme, which aims to improve the developmental outcomes of young children in the most marginalised communities. It works through

pre-primary classes attached to existing primary schools, and satellite classes in difficult-to-reach areas.[49]

- In Mozambique, the government collaborated with the Aga Khan Foundation, Aid for the Development of People for People, and Save the Children, to expand ECE services in rural areas. With their support, it built schools and transferred responsibility for the maintenance and management of them to local community committees.[50]
- In Côte d'Ivoire, the government is collaborating with the Education Partnership Group in piloting and evaluating the impact of an accelerated school readiness programme for 5 and 6 year olds who have not had access to a preschool programme before Grade 1.[51]

Enhancing the quality of ECE

Efforts to boost the quality of ECE have also intensified with the growing recognition of its importance in improving school readiness. Government efforts focus to a large extent on the ECE workforce. For example:

- Ethiopia has committed to 100% of pre-primary schools having a qualified leader.[52]
- In an effort to address the limited availability of qualified teachers following a decision to make one year of pre-primary compulsory, the United Republic of United Republic of Tanzania in 2014 initiated a 'massive employment exercise' involving a new three-year-long diploma programme in six teacher training colleges.[53] It also organized nationwide training for one teacher from every primary school that was already providing pre-primary education in a bid to build their skills and knowledge around the pre-primary curriculum and pedagogy.[54]
- In Ghana, the government organized an innovative programme targeting young teachers from disadvantaged districts who were selected to receive training in an effort to increase the proportion of pupil to qualified teacher ratio in disadvantaged areas.[55] This broader teacher training programme, 'the Untrained Teachers Diploma in Basic Education', also included pre-primary teachers.
- Also in Ghana, the government collaborated with Sabre Education and two colleges to improve teacher candidates' experiences in the placement year during their ECE diploma programmes. As part of this collaboration, a network of model classrooms was created to help facilitate pre- and in-service training, in-classroom coaching, and mentoring.[56]
- South Africa provides conditional grants to local governments to support the training of ECE practitioners and also to offer financial assistance to public and private schools and registered community-based centres.[57]
- The curriculum is a crucial component for enhancing the quality of ECE services, but systematic analysis across Africa of this area is lacking. In this respect, the ongoing efforts to map the state of ECE curricula on the continent, as part of the broader efforts towards an African Continental Curriculum Framework, are noteworthy.

ECE and crises

Crises often exacerbates the provision of ECE services in different ways. On the one hand, conflicts, natural disasters, and pandemics risk disrupting ECE and making service provision particularly challenging (see *Chapter 2*, *Chapter 4* and *Chapter 7*, respectively on equity, primary and secondary education, and facilities for a discussion on the effects of crises on education and government responses). On the other hand, given the importance of mitigating the negative effects of adverse experiences on young children's development, expanding equitable access to ECE in humanitarian settings is particularly important. In this context, several governments have collaborated with non-state actors to introduce various service delivery models for ECE in humanitarian settings.

- In the Central African Republic, the government collaborates with UNICEF and Plan International to expand early childhood programmes to reach children affected by the civil war. Through these programmes, young children can play and learn in community ECD centres and child-friendly spaces, and parenting groups can participate in educational sessions, as well as take part in play activities with their children.[58]
- In Cameroon, Chad, Central African Republic, and the United Republic of United Republic of Tanzania, iACT implements the 'Little Ripples' programme as part of efforts to promote refugee-led solutions. The programme facilitates the creation of community-based refugee-led preschools, and trains and employs refugee women to manage them and deliver the ECE curriculum.[59]

A growing body of research suggests that the COVID-19 pandemic has taken a toll on both young children's development through increased risks to their and their families' well-being,[viii 60] and the decreased availability of ECE and other ECD services due to service disruptions and school/centre closures.[61] In response, governments and non-state actors have initiated a range of interventions for remote learning at the pre-primary level, including online learning, television and radio-based learning, paper-based learning, and mobile learning via social messaging applications, telephone calls, and SMS. [62] In Malawi, the government, in collaboration with Save the Children, initiated interactive radio instruction sessions for children at both pre-primary and lower primary levels. These are complemented by a programme providing instructions to parents.[63] Ubongo, a major producer of kids' edutainment in Africa, introduced content related to the pandemic and expanded its reach on free-to-air television and radio channels. [64]

Prioritizing ECE and optimizing across access, quality, and equity

Expanding equitable, quality services in the relatively new ECE sector is a great challenge, particularly for those countries whose primary and secondary education services are under increasing pressure from growing demand. However, prioritizing ECE policies and investments is not necessarily a trade-off at the expense of primary education. Given its significant contribution to children being ready to learn when they arrive in Grade 1, investing in ECE is an investment in primary education.[65] In planning for and investing in ECE services, African governments will continue to be faced with difficult decisions requiring optimization across access, quality, and equity. While increasing access to ECE, they will also need to continue to (i) invest in curriculum, learning materials, and teacher training, (ii) increase per child spending in ECE in order to build an effective workforce and progressively lower pupil to teacher ratios, (iii) include those children who are hard to reach, and (iv) accommodate children with different abilities.[66]

Prioritizing ECE in a resource-constrained context

African governments' planning and investment decisions regarding ECE are being made in a particularly resource-constrained context where both governments and bilateral donors provide only limited funding[67] (see *Chapter 8* on policy-making for an analysis of government funding across education levels). The current allocation of resources to ECE is in contrast to the urgency of providing free ECE services to children from poorer households in order to realize its equity potential. While there are no precise figures for Africa, it is estimated that the investment gap in pre-primary education is almost 90% in LICs and 75% in LMICs.[68] In other words, current public spending in pre-primary education in low-income countries is estimated to cover only 10% of the total amount needed to get to universal access.

viii. Risks to young children and their families' well-being may include losing employment and source of income, losing ability to care for young children due to falling ill, losing social safety nets due to disruption of social services, increased poverty and food insecurity, an increase in domestic violence.

In this respect, governments could consider both increasing the share of the education budget allocated to ECE and identifying policy changes for more efficient use of the existing allocation.[69] Such changes could relate to adjusting the duration and intensity of ECE, enhancing the effectiveness of the curriculum and teacher capabilities, improving the equitable allocation of teachers, and developing complementary low-cost early learning opportunities like early learning radio and television initiatives. They could also promote the private sector's involvement in the provision of ECE services in wealthier areas so that public funding may focus more on disadvantaged communities.[70]

Policy case study #3: Strong institutional backbone and community-led expansion of ECE in Kenya

Participation in early childhood education in Kenya has always been higher than in most African countries. As of 2018, there are over 42,000 early childhood development and education (ECDE) centres serving 3.3 million young children,[71] meaning that three out of every four children in the target age group benefit from ECE services[ix][72] In these ECDE centres, approximately 120,000 teachers are employed and more than 90% of them are trained.[73]

Community-driven ECE in the spirit of 'harambee'

Access to ECE services expanded rapidly after Kenya's independence in 1963 with the government utilizing the spirit of 'harambee' or self-help as a means for nation building from the bottom up. [74][75] In this model, local communities identify the location for ECDE centres and mobilize human and material resources for constructing, furnishing, and equipping them.[76] They also identify teachers in some cases, pay their salaries, and establish committees to oversee the management of centres.[77] In the post-independence period, this community-driven model scaled up nationwide with over 800,000 young children enrolled by 1990,[78] with communities still actively engaged in more than half of these centres.[79]

The expansion of ECE services and the upward trend in number of trained ECE teachers in Kenya has continued[80] despite some challenges related to decentralization since 2010.

Success factors in a challenging period

Two factors that helped over this challenging period were the central government's success in taking on a new role as standard setter and guidance provider, and the existing institutional backbone which enabled a strong curriculum and availability of trained teachers.

The Ministry of Education intensified efforts to provide county governments and ECDE centres with clear policy and curriculum guidance. In 2016, it announced the Integrated Early Childhood Development Policy (IECD), formulated the ECDE Standard Guidelines, and set the standards for establishing, managing, and supervising ECE institutions.[81] It also developed an assessment tool to track children's development, support their smooth transition to primary school, and harmonize the learning environment between the two levels. [82]

The government also continued to invest in teacher training by strengthening the National Centre for Early Childhood Education (NACECE)[83] which is mandated with developing the ECE curriculum and coordinating national ECE teacher training programmes. The existence of this institutional backbone, combined with widely available diploma programmes at teachers' colleges, has enabled the expansion of ECE services to be matched with an increase in the number of trained teachers.

ix. Gross enrolment ratio in pre-primary education in Kenya was 75.8% in 2016.

Diversity of service models for equitable ECE

The government's efforts in improving ECE services have focused not only on quality but also on equity as there have been clear geographical disparities in their provision, [84] [85] with semi-arid and arid areas and urban slums lagging behind, and distance and cost being the main barriers.[86] To expand access to all children, the government collaborates with non-state actors in the development and scaling up of alternative models of service delivery, including Madrassah Resource Centres targeting underprivileged Muslim communities,[87] [88] culturally appropriate ECE services for the Samburu and Maasai,[89] and the Rapid School Readiness Initiative targeting marginalized and nomadic pastoralist communities.[90]

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Chapter 4

Primary and secondary education

CHAPTER SUMMARY

This chapter focuses on schooling and learning at the primary and secondary levels. This summary presents only the main findings from the statistical data analysis due to the significant scope and length of the key issues discussed in the chapter. Some of these findings include:

Access

Data on completion rates in and around 2016 suggests that countries are at different stages of their journeys to universal access at primary, lower secondary, and upper secondary levels. In some countries, universal primary education appears within reach by 2030 and universal access efforts for lower secondary education have had notable success. However, in other countries, access even at primary level requires urgent and intense policy attention. When data for a directly related indicator, the out-of-school rate, is analysed, the figures highlight the size of the exclusion problem, particularly in post-primary levels where, in half the countries with available data, more than two out of five children are out of school.

An analysis of gender disparities in completion rates suggests diverging regional patterns, which highlight both the diversity of factors that keep boys and girls from attending school, and the variability of these factors across countries and age groups. An analysis considering both the wealth and gender disparities in completion rates suggests the importance of broadening the conversation about gender disparity so as to better appreciate the sizable effect poverty has on children's education opportunities. Additional analyses suggest that gender affects children's education outcomes both independently and in interaction with household wealth, in ways that vary from country to country.

Learning

Data on reading and mathematics learning outcomes in and around 2016 is limited and concentrated in the early grades and end of primary. Sizable differences are observed across countries in terms of the proportion of students achieving at least a minimum proficiency level. However, overall, the share of pupils at minimum proficiency seems to decline as children progress from early to later grades of primary. Generally speaking, the number of children achieving at least a minimum proficiency level has increased for both subjects over the last five years, with the size of this increase varying across countries and subject areas.

Several findings emerge from the analysis of disparities in learning outcomes as measured by proficiency in reading and mathematics at primary level:

- In both subjects, vast wealth disparities are observed in the early grades and at the end of primary education. They are greater for reading than for mathematics, particularly in early grades.
- Gender disparities exist in both subjects. At early grades, some countries have attained or are approaching gender parity. In some, the proportion of girls achieving at least minimum proficiency is higher than the proportion of boys, while in others, the proportion of boys is higher than girls. At the end of primary level, some subject-specific gender disparity patterns seem to emerge.
- Most children do not learn in their first/home language, which may affect learning processes and result in lower education outcomes.

Introduction

For analytical purposes, access[i] and learning are examined separately in this chapter. However, the links between the two are many and significant at both school and student level. Higher attendance rates are associated with better learning outcomes,[1 2] while chronic absenteeism is linked to slower academic progression.[3 4] At the same time, grade repetition and low performance in school are associated with higher dropout rates[5 6 7] due to various factors, including parents adjusting investment in their children's education in response to changes in their school performance and perceived likelihood of success.[8]
At the country level, access and learning pose both a double policy challenge and an opportunity for governments. In some cases, rapid expansion of education services may strain existing resources and necessitate additional policy measures and investment to ensure that quality of education does not deteriorate. In others, improvements in learning outcomes can help increase both learners' and parents' demand for education and, as a result, can potentially enhance retention, completion, and intake in secondary education.[9]

Background

Access at primary, lower secondary, and upper secondary levels

Access to primary and secondary education in Agenda 2030 and CESA

Enrolment, progression, and completion at primary and secondary education levels lie at the heart of SDG 4, which commits governments to 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'. In Target 4.1, governments commit to ensuring that 'all girls and boys complete free, equitable and quality primary and secondary education'. Similarly, in CESA, African governments commit to ensuring 'improved completion rates at all levels'. CESA celebrates the mobilization of efforts and resources that saw about 144 million school age children enrolled in primary school in Africa between 1999 and 2012,[10] but highlights the remaining challenges regarding access among marginalized groups, completion rates, as well as quality.[11]

While improving learning outcomes has gained increased prominence in policy efforts at national and continental level, the challenge of getting all children to enrol, progress, and complete primary and secondary school remains at the top of most governments' policy agendas.[ii] This should not come as a surprise with both the size of the school age population continuing to increase, and about 100 million primary and secondary school age children still remaining out of school as of 2019.[12] In fact, sub-Saharan Africa has the largest out-of-school population globally and the highest out-of-school rate with 1 in 5 primary school age children (18.8%), 1 in 3 lower secondary school age adolescents (36.7%), and 1 in 2 upper school age youth (57.5%) estimated to be out of school.[13]

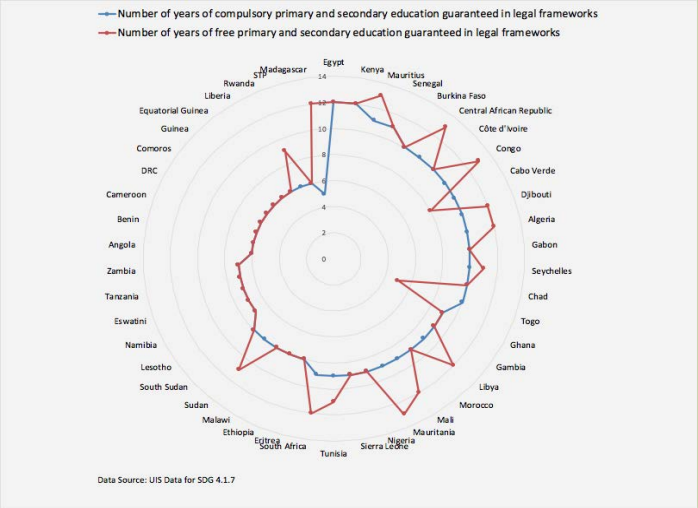
Relevant SDG 4 and CESA indicators on access and completion for primary and secondary education are described in *Appendix 3*.

i. In this report, 'access' is used as an umbrella term that includes enrolment, attendance, retention, progression, and completion.
ii. Lesotho's Education Sector Plan (2016-2026) with a focus on increasing completion and transition rates; Malawi's National Education Sector Investment Plan (2020-2030) focusing on increasing equitable access to secondary education for girls, vulnerable groups, and students from rural areas; and Kenya's National Education Sector Strategic Plan (2018-2022) prioritizing increasing access in secondary schools, are worth noting as examples of recent national-level policy prioritizing secondary school completion.

Box 4.1 Enabling legal frameworks for access to education

Ensuring access to education for all is more effective when backed by policies and enabling legal frameworks. In the absence of CESA indicators, the SDG indicator for the enabling legal frameworks related to education access is SDG 4.1.7: 'Number of years of (a) free and (b) compulsory primary and secondary education guaranteed in legal frameworks'.

For the number of free education years: Out of the 46 countries for which there is endline data (2020), one-third (15 countries) provide free primary education for the first 5 to 7 years, one-third provide free education for the first 8 to 10 years, and the remaining provide free education for the first 11 to 13 years. While many countries in Africa guarantee access to free education across all levels, most still provide it through primary or lower secondary levels, though access and transition can still be hindered due to financial obstacles.

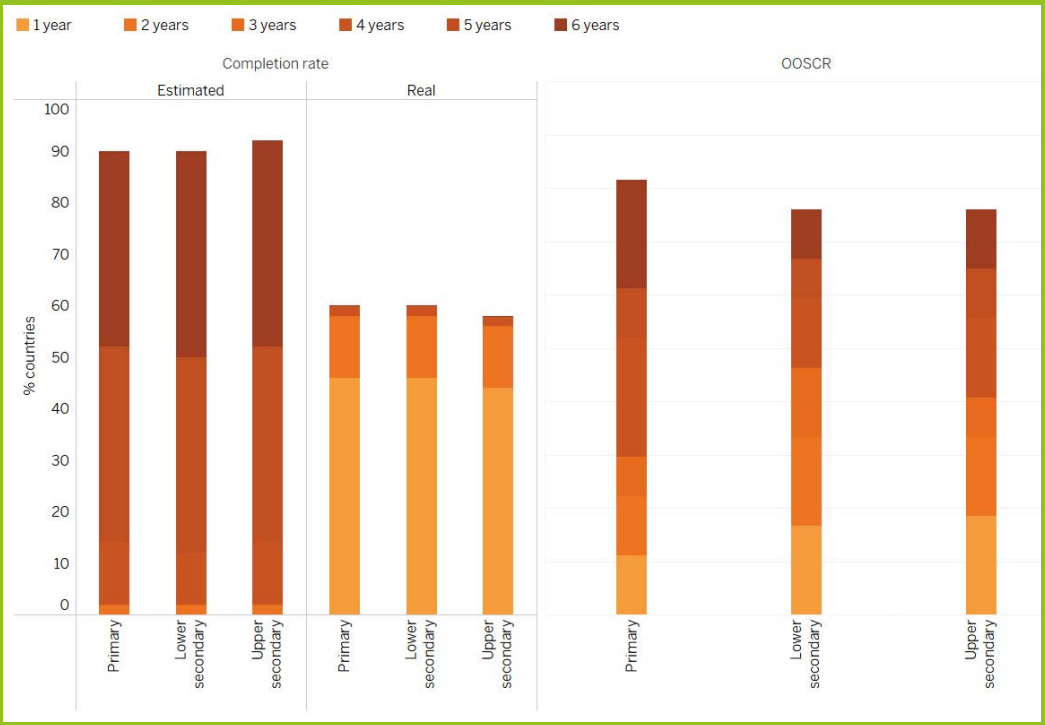


For the number of compulsory education years: For the 54 countries for which there is endline data (2020), 5 countries guarantee 0 years of compulsory education in their legal frameworks, 18 guarantee compulsory education for the first 6 to 7 years, and 27 guarantee compulsory education for the first 8 to 10 grades. Only 4 countries guarantee compulsory education for 11 to 12 grades. Most African countries guarantee compulsory primary education in their legal frameworks. There are more countries guaranteeing compulsory education for the lower secondary level than those guaranteeing compulsory education for both lower and upper secondary levels. Burundi, Botswana, Mozambique, Niger, and Somalia guarantee 0 years of compulsory pre-primary education. Adoption of legal frameworks guaranteeing compulsory education, at least for the primary years, is crucial for expanding access to basic education.

Finally, most countries in Africa have aligned their policies, making the same range of school years both compulsory and free. Among the countries where free and compulsory education years are not aligned, a majority of them guarantee more years of free education than compulsory years of education. However, two countries (Togo and Cabo Verde) guarantee fewer years of free education than the ones that are guaranteed as compulsory. Such misalignment might create barriers to access and completion for children who require free access to education at all compulsory levels.

Box 4.2 Data availability

Figure 4.1 Proportion of countries with 1, 2, 3, 4, 5, and 6 available data points over the period 2015-2020, for benchmark indicators on access to primary and secondary education.



Data source: UIS, SDG 4.1.2, and 4.1.4

Figure 4.1 shows data availability for the two benchmark indicators on access to primary and secondary education: indicator 4.1.2 on completion rate (based on household survey data) and indicator 4.1.4 on out-of-school rate (based on administrative data). While data availability on completion rates for the period considered (2015-2020) appears high, this is mostly due to UIS' new approach to data production for this indicator, which involves estimating annual values based on past values. In its September 2021 data release, UIS started including estimated values for completion rate.[14] As for the out-of-school rate (OOSR), most countries have administrative data for more than two years for all education levels considered. However, this proportion decreases as education levels increase, going from 70% in primary school to around 57% in upper secondary.

Barriers to enrolment and completion

A child's journey through primary and secondary school is often littered with barriers to overcome and gaps to avoid falling through. At each education level, a child is expected to enrol at the official age of intake, progress through all the grades without repetition or taking time off, complete each level on time, and transition to the next level without delay. The education system presumes each of these blocks build on one other and the child progresses through all these stages smoothly. The systems are often built for the child who walks at a perfect speed without ever tripping. They are rarely structured to accommodate the child who starts the journey late, walks slower, trips often, or has to take a break or two.

Yet, the schooling journey is far from smooth for most children. For a child who does not have a birth registration, or one who is an asylum seeker without the required documentation, enrolment procedures in primary school could become a major barrier. A child from a household experiencing extreme poverty might end up not transitioning from free primary school to not-free lower secondary school if the family cannot afford the enrolment fees. A child who is chronically absent from lower secondary school because of having to work to earn an income, or give care to an ill relative, may eventually fall behind in their classes and consequently may decide to leave school permanently. Similarly, an albino child may experience bullying in early grades which could result in lower self-esteem and motivation about

learning, which then could lead to grade repetition and eventual drop out.[15] The reasons for exclusion are numerous, especially for children who face multiple disadvantages. Unless the education system finds ways to accommodate the reality of their lives, millions will continue to be excluded from education.

General findings

Countries are in different stages of the journey to universal access

Figure 4.2 shows country-level completion rates by education level. An analysis of children's progression through education levels for those countries where data on completion rates is available, shows four broad categories:

1. Countries where more than two-thirds of children do not complete primary (e.g. Chad and Guinea-Bissau). Access to primary education requires urgent and intense policy attention and investment in these countries.[iii]

2. Countries where about half of the children do not complete primary school. Most of these are low-income countries, including Benin, Burundi, Ethiopia, Guinea, Madagascar, Malawi, Mali, Rwanda, Senegal, and Uganda. But there are also several lower and upper middle-income countries in this category, including Angola, Côte d'Ivoire, and Mauritania. With the exception of Mali, countries in this category are characterized by a high gross intake ratio (GIR) (around 120% or higher) into the first grade of primary education. This large gap between GIR and completion rate suggests potential problems with internal efficiency of the primary education system, which requires significant policy attention. In most of them, about one out of four children go on to complete lower secondary education.[iv]

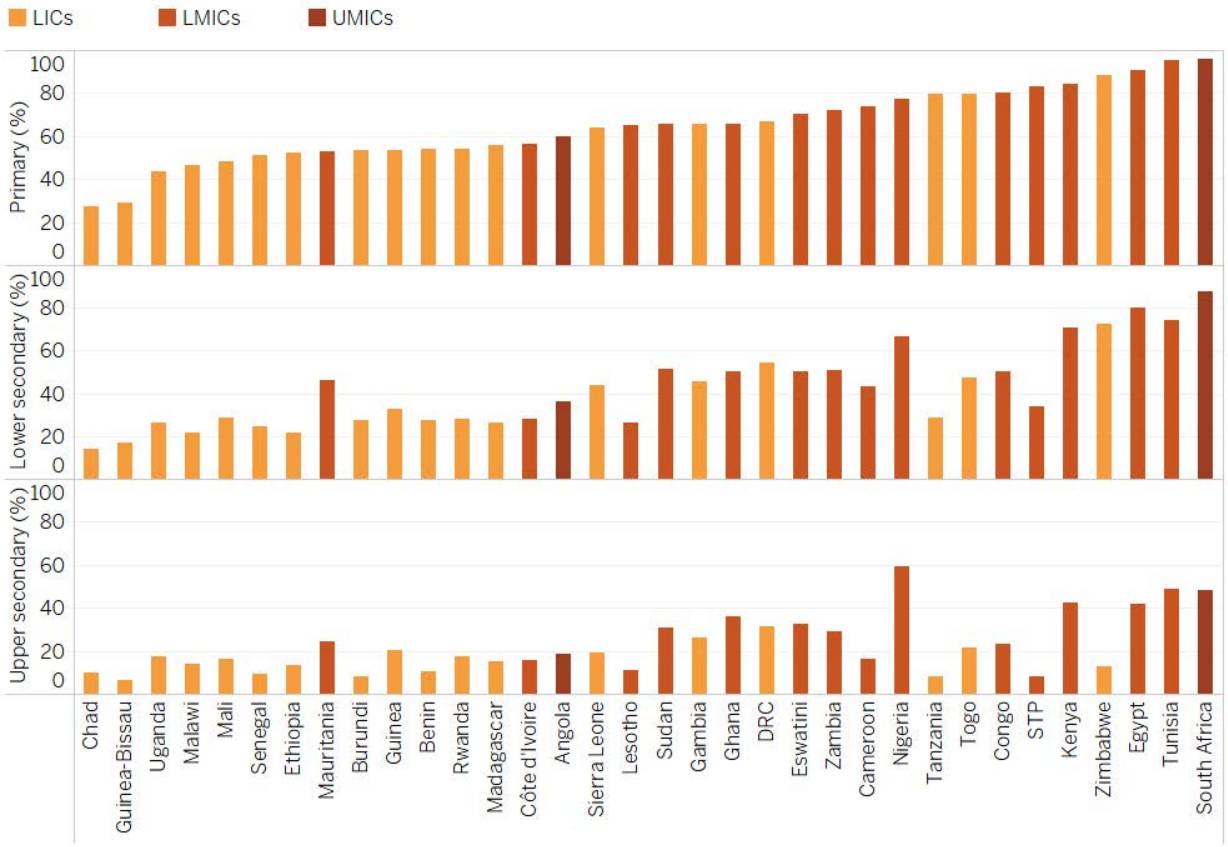
3. Countries where the majority of children complete primary school, but there are still around 15-35% who do not. Most of these are lower and upper middle-income countries, including Cameroon, Congo, Eswatini, Ghana, Kenya, Lesotho, Nigeria, Sao Tomé and Principe, Sudan, and Zambia. However, there are also several low-income countries whose policies and investments have ensured that a majority of their children complete primary education despite low-income levels, including The Gambia, the DRC, Sierra Leone, the United Republic of United Republic of Tanzania, Togo, and Zimbabwe. For some of them, (e.g. Kenya, Nigeria, Sudan, Zimbabwe), around 80% of the children who complete primary education also go on to complete lower secondary school.[v]

4. Countries where universal primary education appears within reach by 2030. These include Egypt, South Africa, and Tunisia[16] In the case of South Africa, universal access efforts for lower secondary education have had notable success and is almost within reach by 2030.[17]

In addition, and more generally, a sizable decline is observed in completion rates across education levels, underlining challenges with progression and transition between levels. However, the size of this decline varies. In countries such as Mauritania and Nigeria, the reduction in completion rates for lower secondary is smaller relative to countries with similar primary completion rates. However, in countries such as Lesotho, United Republic of United Republic of Tanzania, Sao Tomé and Principe, and Zimbabwe, the size of the decline in completion rates for upper secondary level is larger relative to countries with similar primary completion rates.

iii. It must be noted that the countries with no data on completion rates are more likely to be countries with lower state capabilities for data collection and as an extension more likely to be countries with lower educational outcomes, including completion rates. Thus, while only two countries are found to be in this category, other least developed countries and countries affected by conflict (e.g. Somalia, Niger) are likely to fall in this group if they had data available on completion rates.
iv. Mauritania is an exception in this regard. The completion rate is 53% at primary level and 46% at lower secondary level.
v. These four countries diverge after the lower secondary level. In Nigeria, for example, the completion rate is 67% for lower secondary and 59% for upper secondary level. In Zimbabwe, while 73% of children complete lower secondary school, only 13% go on to complete upper secondary.

Figure 4.2 Completion rate, by education level and income group

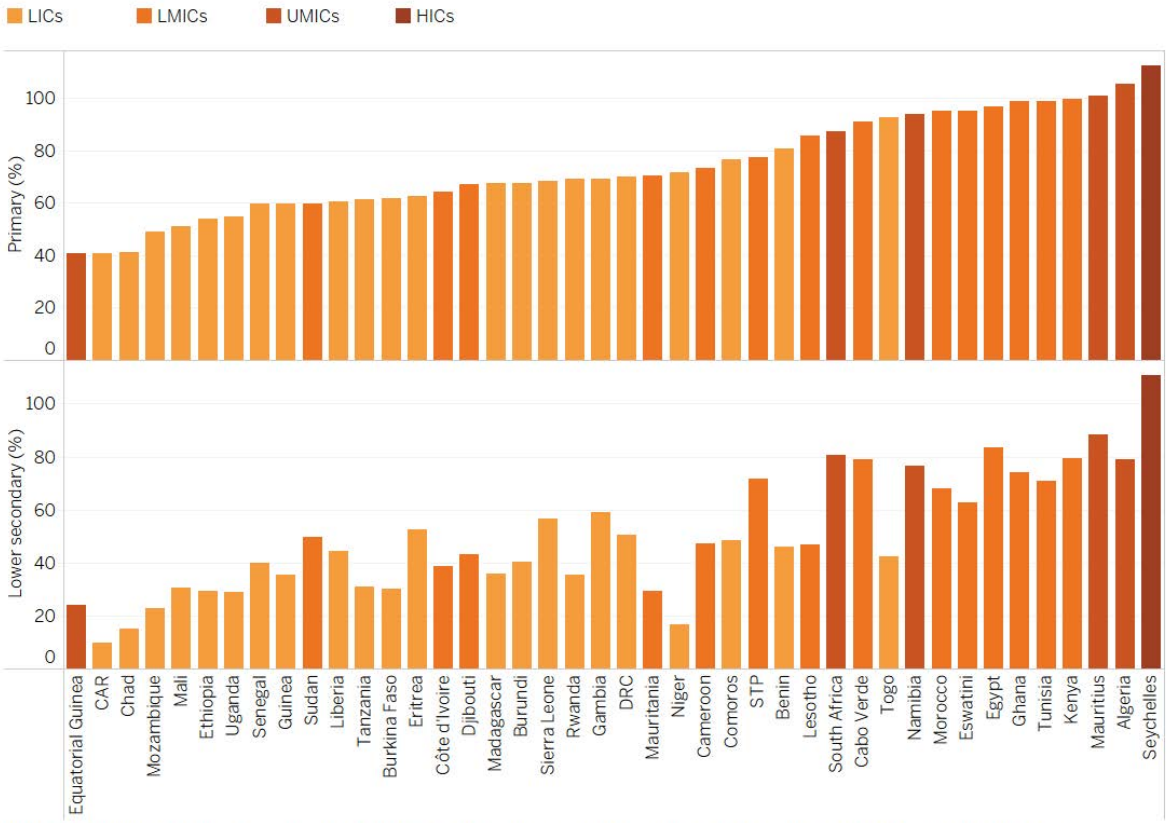


Data Source: UIS, SDG 4.1.2. "Completion rate (primary education, lower secondary education, upper secondary education)", http://data.uis.unesco.org/
Note: Countries are listed in order of their primary completion rate.
Data is from the following years: Chad (2014), Guinea-Bissau (2014), Uganda (2016), Malawi (2016), Mali (2015), Senegal (2016), Ethiopia (2016), Mauritania (2015), Burundi (2017), Guinea (2016), Benin (2014), Rwanda (2015), Madagascar (2018), Côte d'Ivoire (2016), Angola (2015), Sierra Leone (2017), Lesotho (2014), Sudan (2014), Gambia (2018), Ghana (2014), DRC (2018), Eswatini (2014), Zambia (2018), Cameroon (2014), Nigeria (2016), Tanzania (2015), Togo (2017), Congo (2015), STP (2014), Kenya (2014), Zimbabwe (2015), Egypt (2014), Tunisia (2018), South Africa (2016)

Data for the completion rate indicator (SDG 4.1.2) is collected via household surveys. Therefore, it is available only in those countries where these are conducted. Its frequency is limited compared to administrative data in most countries. In addition, the values lag by a few years as the data is collected from a cohort of children aged 3 to 5 years above the intended age for the last grade of the education level being analysed. Partly due to these issues, some governments and education stakeholders also use the thematic SDG indicator 4.1.3, which measures the gross intake ratio (GIR) to the last grade of the respective education level, as an indirect measure of completion rate. *Figure 4.3* shows GIR for primary and lower secondary levels. The data for this indicator is from administrative records and is therefore available annually in many countries. However, it can be disaggregated only by gender in most countries, which hinders multidimensional equity analysis. Also, the data for SDG indicator 4.1.3 is available for only primary and lower secondary levels on the UIS database.

Similar to completion rates, a sizable variation between countries is observed for the GIR to last grade of the education level. *Figure 4.3* orders the countries from lowest to highest values at primary level, and keeps the same order for lower secondary, which highlights a noteworthy comparative pattern. Countries differ significantly in terms of the likelihood that a child who reaches the last grade of primary will reach the last grade of lower secondary education. Countries where the GIR for the last grade of lower secondary is particularly low (relative to their peers with similar GIR for the last grade of primary education), include Benin, Burkina Faso, Cameroon, Central African Republic, Comoros, Lesotho, Mauritania, Niger, Rwanda, United Republic of United Republic of Tanzania, and Togo. For instance, while GIR to the last grade of primary education is similar for Niger and Cameroon, GIR to the last grade of lower secondary education in Cameroon is almost three times higher. These differences between countries across education levels may partly be reflective of differences in policy and investment priorities.

Figure 4.3 Gross intake ratio to the last grade, primary education and lower secondary education, by income group



Data source: SDG 4.1.3: "Total number of new entrants into the last grade of primary education or lower secondary general education, regardless of age, expressed as a percentage of the population at the intended entrance age to the last grade of primary education or lower secondary general education", http://data.uis.unesco.org/
Note: Countries are listed in order of their gross intake ratio at the last grade in primary education
Data is from the following years: Equatorial Guinea (2015), CAR (2016), Chad (2016), Mozambique (2015), Mali (2016), Ethiopia (2015), Uganda (2016), Senegal (2015), Guinea (2016), Sudan (2016), Liberia (2017), Tanzania (2016), Burkina Faso (2016), Eritrea (2015), Côte d'Ivoire (2016), Djibouti (2016), Madagascar (2016), Burundi (2016), Sierra Leone (2016), Rwanda (2016), Gambia (2016), DRC (2015), Mauritania (2015), Niger (2016), Cameroon (2016), Comoros (2017), STP (2016)n Malawi (2014)n Benin (2016), Lesotho (2016), South Africa (2016), Cabo Verde (2016), Togo (2016), Namibia (2018), Morocco (2016), Eswatini (2016), Egypt (2016), Ghana (2015), Tunisia (2016), Kenya (2016), Mauritius (2016), Algeria (2016), Seychelles (2016)

Gender disparities in completion rates

Looking not only between but also within countries where data is available to compare the completion rates of different groups of children, several notable patterns are observed. *Figure 4.4* shows adjusted gender parity index[vi] [18] for completion rates by education level (countries are grouped by region).[vii]

- In terms of the completion rates of girls and boys at primary level, several countries have reached or are near reaching gender parity.[viii] In some of these countries (e.g. Egypt, Sudan, Zimbabwe), this parity is preserved at the lower secondary level.
- For many countries in eastern and southern Africa, girls' primary school completion rates are higher than that of boys.[ix] For some of the southern African countries (e.g. Eswatini, Lesotho, South Africa), either the gender gap favouring girls persists through the lower and upper secondary levels, or there is gender parity. For others, the gender gap 'reverses' in the lower and upper secondary (e.g. Zambia) or only in the upper secondary (e.g. Zimbabwe). For most of the eastern African countries where girls' primary school completion rates are higher than that of boys, the gender gap reverses across the education levels. In contrast to the primary level, boys' completion rates are higher than girls' at the

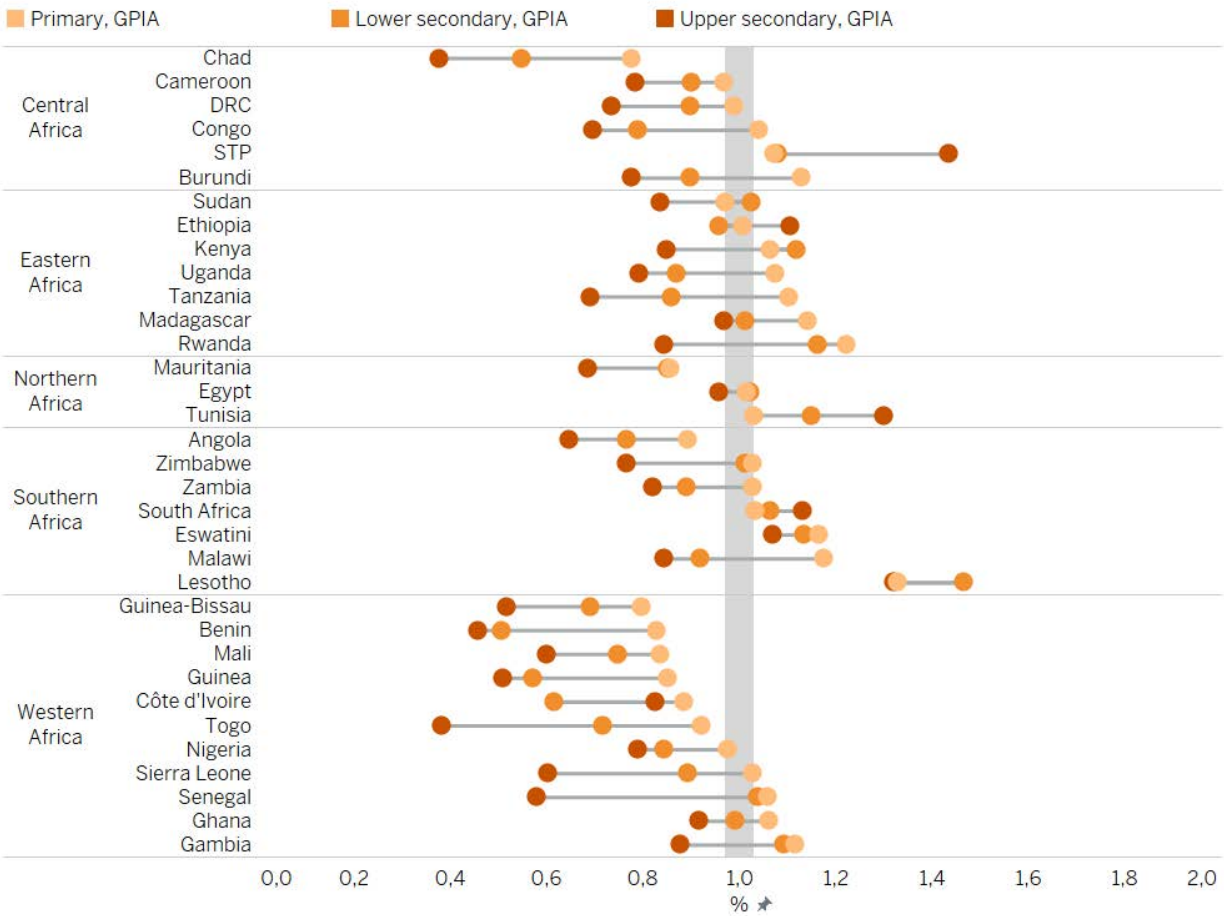
vi. Gender parity index (GPI) represents the ratio of a given indicator's value for girls to the same indicator's value for boys. Adjusted gender parity index corrects for the asymmetry of the unadjusted GPIA. A GPI between 0.97 and 1.03 indicates parity between the genders.
vii. The report uses the AU's regional categorization.
viii. Countries that have accomplished gender parity in primary school completion (and their respective GPIA) are: the DRC (0.99), Egypt (1.01), Ethiopia (1.01), Nigeria (0.98), Sudan (0.97), Sierra Leone (1.03), Tunisia (1.03), Zambia (1.03), and Zimbabwe (1.03).
ix. Among the countries with available data, the exceptions in eastern and southern Africa are Sudan and Ethiopia, where there is gender parity, and Angola, where boys are favoured.
x. The exceptions to this reversal are Kenya and Rwanda (where boys are less favoured through lower secondary, yet in upper secondary completion, boys are favoured).

lower secondary and upper secondary education levels.[x]

- For several countries in western Africa, boys' primary school completion rates are higher than for girls.[xi] The gender disparity in these countries persist through lower secondary and upper secondary levels.

These complex patterns across countries and levels of education highlight not only the multiplicity and diversity of factors that keep girls versus boys from attending school, but also how these factors vary across countries and age groups.

Figure 4.4 Adjusted gender parity index (GPIA) for completion rates, by level of education and region



Data source: UIS, SDG 4.1.2 "Percentage of a cohort of children or young people aged 3-5 years above the intended age for the last grade of each level of education who have completed that grade", http://data.uis.unesco.org/
Note: Countries are listed in order of their GPIA completion rate average
Data is from the following years: Chad (2014), Cameroon (2014), DRC (2018), Congo (2015), STP (2014), Burundi (2017), Sudan (2014), Ethiopia (2016), Kenya (2014), Uganda (2016), Tanzania (2015), Madagascar (2018), Rwanda (2015), Mauritania (2015), Egypt (2014), Tunisia (2018), Angola (2015), Zimbabwe (2015), Zambia (2018), South Africa (2016), Eswatini (2014), Malawi (2016), Lesotho (2014), Guinea-Bissau (2014), Benin (2014), Mali (2015), Guinea (2016), Côte d'Ivoire (2016), Togo (2017), Nigeria (2016), Sierra Leone (2017), Senegal (2016),Ghana (2014), Gambia (2018)

xi. Ghana, The Gambia, and Senegal are exceptions, with boys less favoured in primary school completion. In Ghana, at lower secondary completion, there is gender parity while at upper secondary completion, boys are favoured. In The Gambia and Senegal, boys continue to be less favoured through lower secondary, but in upper secondary they are favoured over girls.

Wealth and gender disparities in completion rates

Figure 4.5, *Figure 4.6*, and *Figure 4.7* show the completion rates among girls and boys from households in the poorest quintile, along with girls' and boys' average completion rates for primary, lower secondary, and upper secondary levels.[xii]

- Broadly speaking, at the primary level (see *Figure 4.5*), completion rates for children from households in the poorest quintile are significantly lower than the average completion rate for boys and girls (with the exception of countries nearing universal primary completion). However, the size of the gap varies across countries. In some, including Angola, Benin, Côte d'Ivoire, Mali, Mauritania, and Uganda, the completion rate for girls from the poorest households is around a third of the national average for girls. In other countries, including Eswatini, Lesotho, Rwanda, and The Gambia, the completion rates of girls from the poorest households are relatively closer to the average completion rate for girls. Generally speaking, the size of the gap between the average rates for girls and the average rate for boys, and the gap between the rate for the poorest girls and the poorest boys are similar, with some exceptions, including Cameroon, Côte d'Ivoire, Eswatini, and Togo. In these countries, poverty may be interacting with factors giving rise to gender disparities in ways that either increase the gender gap (e.g. Cameroon) or decrease it (e.g. Eswatini).

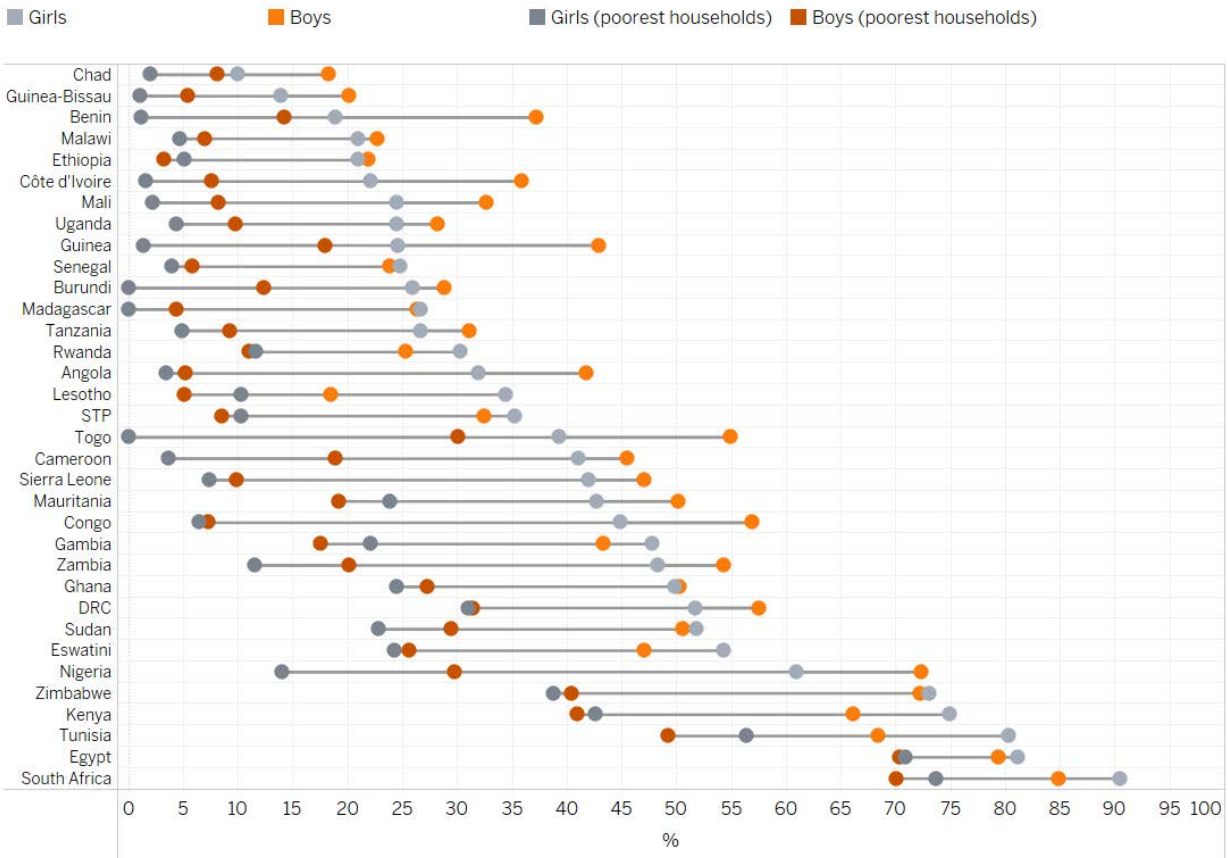
Figure 4.5 Primary education completion rate for boys, girls, boys from poorest households, girls from poorest households

Data source: UIS, SDG 4.1.2 "Percentage of a cohort of children or young people aged 3-5 years above the intended age for the last grade of each level of education who have completed that grade", http://data.uis.unesco.org/
Note: Countries are listed in order of their average completion rate for girls
Data is from the following years: Chad (2014), Guinea-Bissau (2014), Mali (2015), Uganda (2016),Benin (2014), Guinea (2016), Mauritania (2015), Malawi (2016), Ethiopia (2016), Senegal (2016), Côte d'Ivoire (2016), Angola (2015), Burundi (2017), Madagascar (2018), Rwanda (2015), Sudan (2014), Sierra Leone (2017), DRC (2018), Ghana (2014), Gambia (2018), Cameroon (2014), Zambia (2018), Nigeria (2016), Togo (2017), Eswatini (2014), Lesotho (2014), Congo (2015), Tanzania (2015), STP (2014), Kenya (2014), Zimbabwe (2015), Egypt (2014), Tunisia (2018), South Africa (2016)

xii. Throughout the report, the term 'poorest household' refers to the lowest quintile (20%) and 'wealthiest household' refers to the highest quintile (20%) in household wealth estimation.

- Looking at lower secondary education (see *Figure 4.6*), in most countries, the completion rate for girls from the poorest households declines significantly compared to the average rate for girls, and the completion rate for boys from the poorest households declines significantly compared to the average rate for boys. In addition to countries like Egypt, Kenya, South Africa, Tunisia, and Zimbabwe with relatively high overall completion rates from lower secondary level, other countries that stand out include the DRC and Mauritania where the gap between the average rate for girls and the rate for girls from the poorest households are smaller than countries with similar average completion rates. For instance, while Mauritania's lower secondary completion rate for girls is similar to Sierra Leone's, for girls from the poorest households the completion rate in Mauritania (24%) is more than three times the rate in Sierra Leone (7%); and twice the rate for boys (19% versus 8%). While the lower secondary completion rate in the DRC is similar to the rate in Congo, for girls from the poorest households, the completion rate in the DRC (31%) is about five times the rate in Congo (6%); and about four times the rate for boys (31% and 7%)

Figure 4.6 Lower secondary education completion rate for boys, girls, boys from poorest households, girls from poorest households



Data source: UIS, SDG 4.1.2 "Percentage of a cohort of children or young people aged 3-5 years above the intended age for the last grade of each level of education who have completed that grade", http://data.uis.unesco.org/
Note: Countries are listed in order of their average completion rate for girls
Data is from the following years: Chad (2014), Guinea-Bissau (2014), Benin (2014), Malawi (2016), Ethiopia (2016), Côte d'Ivoire (2016), Mali (2015), Uganda (2016), Guinea (2016), Senegal (2016), Burundi (2017), Madagascar (2018), Tanzania (2015), Rwanda (2015), Angola (2015), Lesotho (2014), STP (2014), Togo (2017), Cameroon (2014), Sierra Leone (2017), Mauritania (2015), Congo (2015), Gambia (2018), Zambia (2018), Ghana (2014), DRC (2018), Sudan (2014), Eswatini (2014), Nigeria (2016), Zimbabwe (2015), Kenya (2014), Tunisia (2018), Egypt (2014), South Africa (2016)

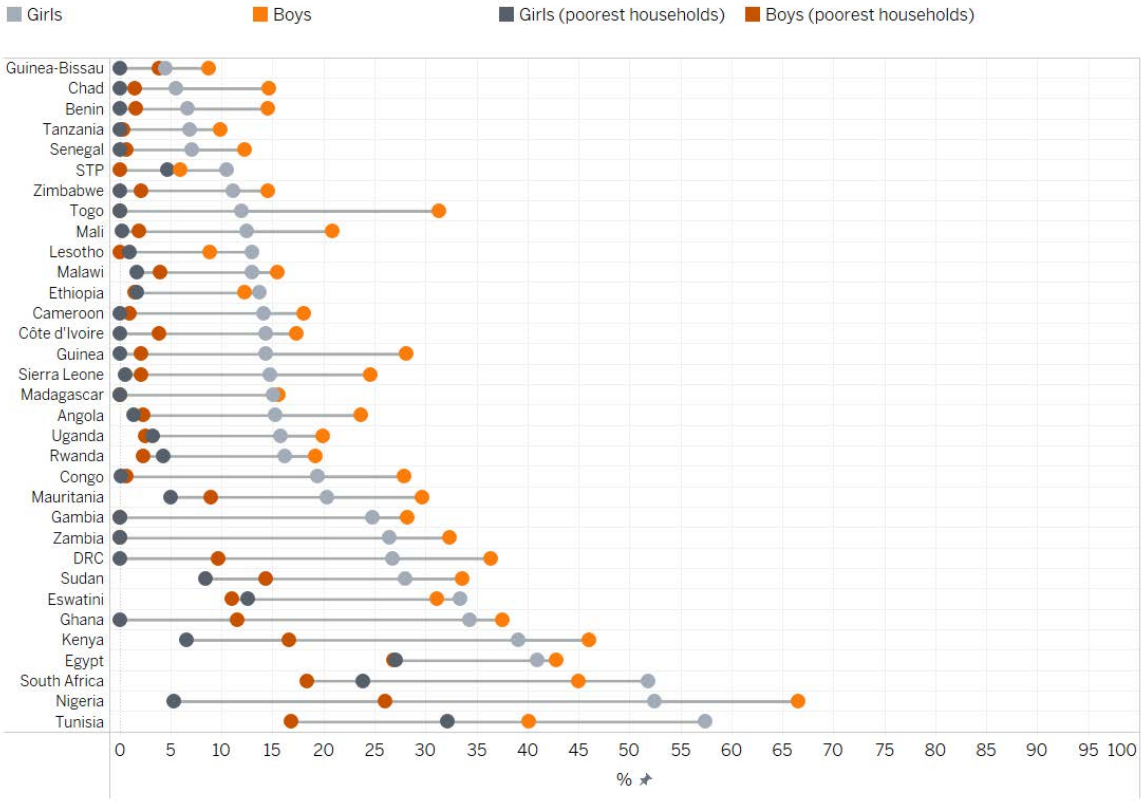
- When upper secondary education is analysed (see *Figure 4.7*), in several countries such as Benin, Cameroon, Chad, Congo, Madagascar, the DRC, and The Gambia,[xiii] completion rates for girls from the poorest households are very close to zero. While in some of these countries, the completion rate for boys from the poorest households is also very close to zero (e.g. Benin, Cameroon, Madagascar, The Gambia, Togo), in others (e.g. Côte d'Ivoire, the DRC, Ghana, Guinea-Bissau) boys from the poorest households still seem to get a shot at completing upper secondary education, though a significantly

xiii. Other countries in this list include Côte d'Ivoire, Ghana, Guinea, Guinea-Bissau, Mali, Senegal, United Republic of Tanzania, Togo, Zambia, Zimbabwe.

lower one than their wealthier male peers. Egypt, Eswatini, South Africa, Tunisia, and to a lesser extent Mauritania, Rwanda, Sao Tomé and Principe, and Sudan are worth highlighting as countries where girls from the poorest households have a chance at completing upper secondary school, though it is still far from being an equal one to their wealthier female peers.

- Overall, these findings underline the importance of broadening the conversation about gender disparity in ways that better appreciate the sizable effect poverty has on children's education opportunities.

Figure 4.7 Upper secondary education completion rate for boys, girls, boys from poorest households, girls from poorest households



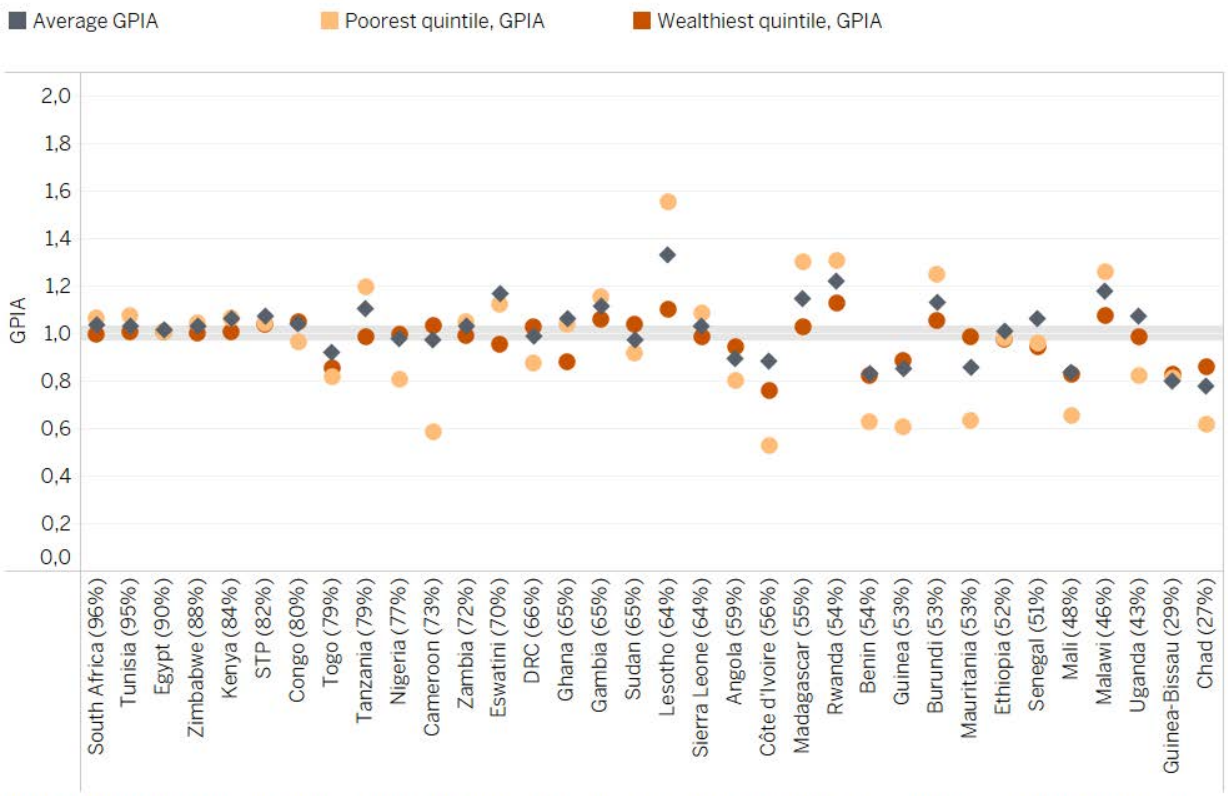
Data source: UIS, SDG 4.1.2 "Percentage of a cohort of children or young people aged 3-5 years above the inte l age for the last grade of each level of education who have completed that grade", http://data.uis.unesco.org/
Note: Countries are listed in order of their average completion rate for girls
Data is from the following years: Guinea-Bissau (2014), Chad (2014), Benin (2014), Tanzania (2015), Senegal (2016), Burundi (2017), STP (2014), Zimbabwe (2015), Togo (2017), Mali (2015), Lesotho (2014), Malawi (2016), Ethiopia (2016), Cameroon (2014), Côte d'Ivoire (2016), Guinea (2016), Sierra Leone (2017), Madagascar (2018), Angola (2015), Uganda (2016), Rwanda (2015), Congo (2015), Mauritania (2015), Gambia (2018), Zambia (2018), DRC (2018), Sudan (2014), Eswatini (2014), Ghana (2014), Kenya (2014), Egypt (2014), South Africa (2016), Nigeria (2016), Tunisia (2018)

Sources of disparity, including gender and household wealth, may also interact with each other in influencing children's educational outcomes. An analysis of GPIA by household wealth at different education levels suggests that gender affects children's education outcomes both on its own, but also in interaction with household wealth. (see *Figure 4.8*)

Figure 4.9 and *Figure 4.10* show average GPIA, GPIA for children from the poorest households (Q1), and GPIA for children from the wealthiest households (Q5) at primary, lower secondary, and upper secondary levels respectively (values for completion rate are noted on the x-axis at the bottom).[xiv] In these three figures, countries are ordered from highest to lowest completion rates (marked with the horizontal bars and with values noted on the x-axis at the top) for an easier comparison between countries that are in similar places on their journeys to universal access.

xiv. Where GPIA is around 1 (0.97-1.03), the country has accomplished gender parity in the completion rates for that level. Where it is less than 0.97, gender disparity exists in completion rates and boys are favoured over girls, and where GPIA is more than 1.03 there is gender disparity in completion rates and boys are less favoured. For example, in Eswatini, there is gender disparity in lower secondary school completion rates on average with boys less favoured (GPIA = 1.13), however, among children from the poorest households there is gender disparity with girls less favoured (GPIA = 0.94), and among children from the wealthiest households there is gender parity (GPIA = 0.99).

Figure 4.8 Adjusted gender parity index for primary education completion rate, by household wealth



Data source: UIS, SDG 4.1.2 "Percentage of a cohort of children or young people aged 3-5 years above the intended age for the last grade of each level of education who have completed that grade", http://data.uis.unesco.org/
Note: Countries are listed in order of their average completion rate
Data is from the following years: South Africa (2016), Tunisia (2018), Egypt (2014), Zimbabwe (2015), Kenya (2014), STP (2014), Congo (2015), Togo (2017), Tanzania (2015), Nigeria (2016), Cameroon (2014), Zambia (2018), Eswatini (2014), DRC (2018), Ghana (2014), Gambia (2018), Sudan (2014), Lesotho (2014), Sierra Leone (2017), Angola (2015), Côte d'Ivoire (2016), Madagascar (2018), Rwanda (2015), Benin (2014), Guinea (2016), Burundi (2017), Mauritania (2015), Ethiopia (2016), Senegal (2016), Mali (2015), Malawi (2016), Uganda (2016), Guinea-Bissau (2014), Chad (2014)

A comparison between countries with similar completion rates reveals very different patterns of gender disparity, both on average and among children in the poorest and wealthiest homes. This attests to the country-specificity of how gender, on its own and in interaction with household wealth, shapes children's progression in education.

- For instance, comparing primary school completion in Sierra Leone and Lesotho, two countries with similar average completion rates, shows that on average, Lesotho is characterized by gender disparity with boys being favoured, and Sierra Leone is characterized by gender parity. Among children from the wealthiest households, in Lesotho, the gender gap is slightly less than average with girls still favoured, while in Sierra Leone, gender parity remains. Among children from the poorest households in Lesotho, the gender disparity is worse than average with girls still favoured. In Sierra Leone, a gender gap emerges with girls favoured.[xv]
- A comparison of primary school completion in Cameroon (74%) and Zambia (72%), shows that on average, in both countries, there is gender parity among children from the wealthiest households. However, among children from the poorest households, significant differences exist. In Zambia, there is slight disparity with boys being less favoured. In Cameroon, there is a major disparity as boys are favoured over girls.[xvi]

xv. Average GPIA is 1.13 for Lesotho and 1.03 for Sierra Leone; GPIA for children from the wealthiest households is 1.10 for Lesotho and 0.98 for Sierra Leone; GPIA for children from the poorest households is 1.55 for Lesotho and 1.08 for Sierra Leone.
xvi. Average GPIA is 1.03 for Zambia and 0.97 for Cameroon; GPIA for children from the wealthiest households is 0.99 for Zambia and 1.03 for Cameroon; GPIA for children from the poorest households is 1.05 for Zambia and 0.58 for Cameroon.

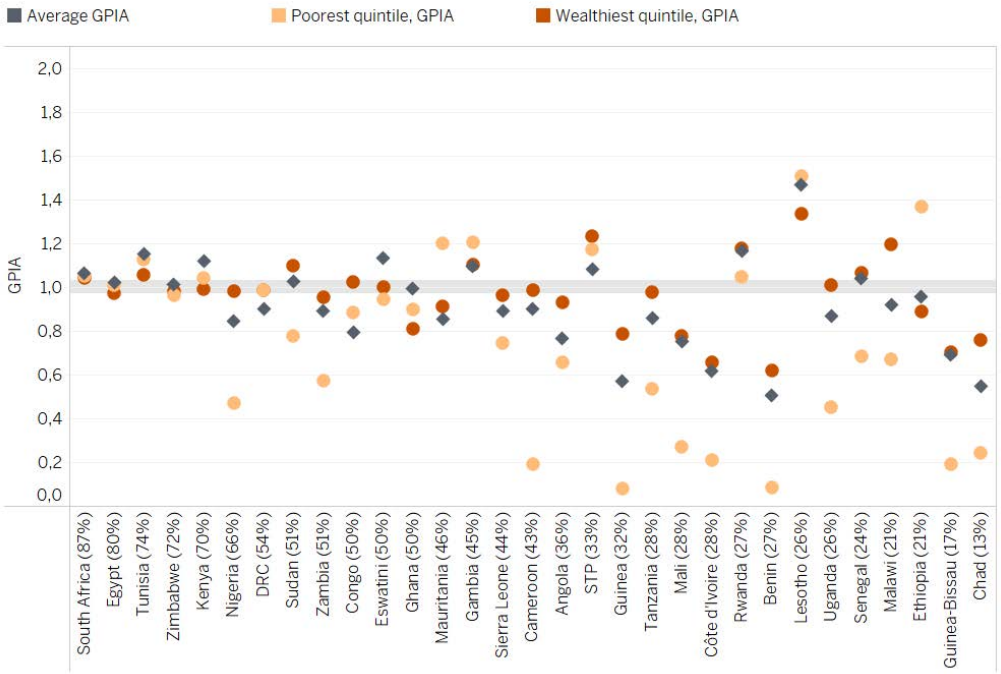
- A comparison of primary school completion in Guinea-Bissau (29%) and Chad (27%), shows that, on average in both countries, there is sizable gender disparity with girls less favoured. In Guinea-Bissau, household wealth does not appear to have an observable effect. In Chad, however, there is a sizable difference between the GPIA for children from the poorest and wealthiest households, suggesting that household wealth matters for the impact of gender-related factors on primary school completion.[xvii]

Despite the variation across countries, some broader patterns are observed, although with several exceptions.

- **At primary level:** (i) For those countries where average GPIA is lower than 1, that is where boys are favoured, being from the poorest households appear to aggravate the disparities at the expense of girls (e.g. Benin, Chad, Guinea, Mauritania); (ii) For those countries where girls are favoured, being from the poorest households seem to exacerbate the disparities at the expense of boys (e.g. Burundi, Lesotho, Malawi, Rwanda); (iii) For several countries that accomplished gender disparity on average, gender gaps emerge among children both in the poorest (Q1) and wealthiest (Q5) households (e.g. DRC, Ethiopia), suggesting the significance of context-specific dynamics in the interaction between gender and household wealth and its effect on outcomes.

- **At the lower secondary level**, similar to primary, for those countries where average GPIA is lower than 1, that is where boys are favoured, being from the poorest households generally aggravates the disparities at the expense of girls (e.g. Benin, Cameroon, Chad, Guinea-Bissau, Nigeria, Togo, Zambia). Ethiopia and Ghana are worth noting as exceptions to this pattern. In Ethiopia, on average boys are favoured in completing lower secondary, yet being from the poorest households does not aggravate the disparities for girls. It is in fact girls that are favoured. In Ghana, on average there is gender parity at the lower secondary level, yet gender disparities emerge among children from both the poorest (Q1) and the wealthiest (Q5) households with boys being favoured, and the disadvantage for girls from the wealthiest households is greater than the disadvantage for girls from the poorest households.

Figure 4.9 Adjusted gender parity index for lower secondary education completion rate, by household wealth

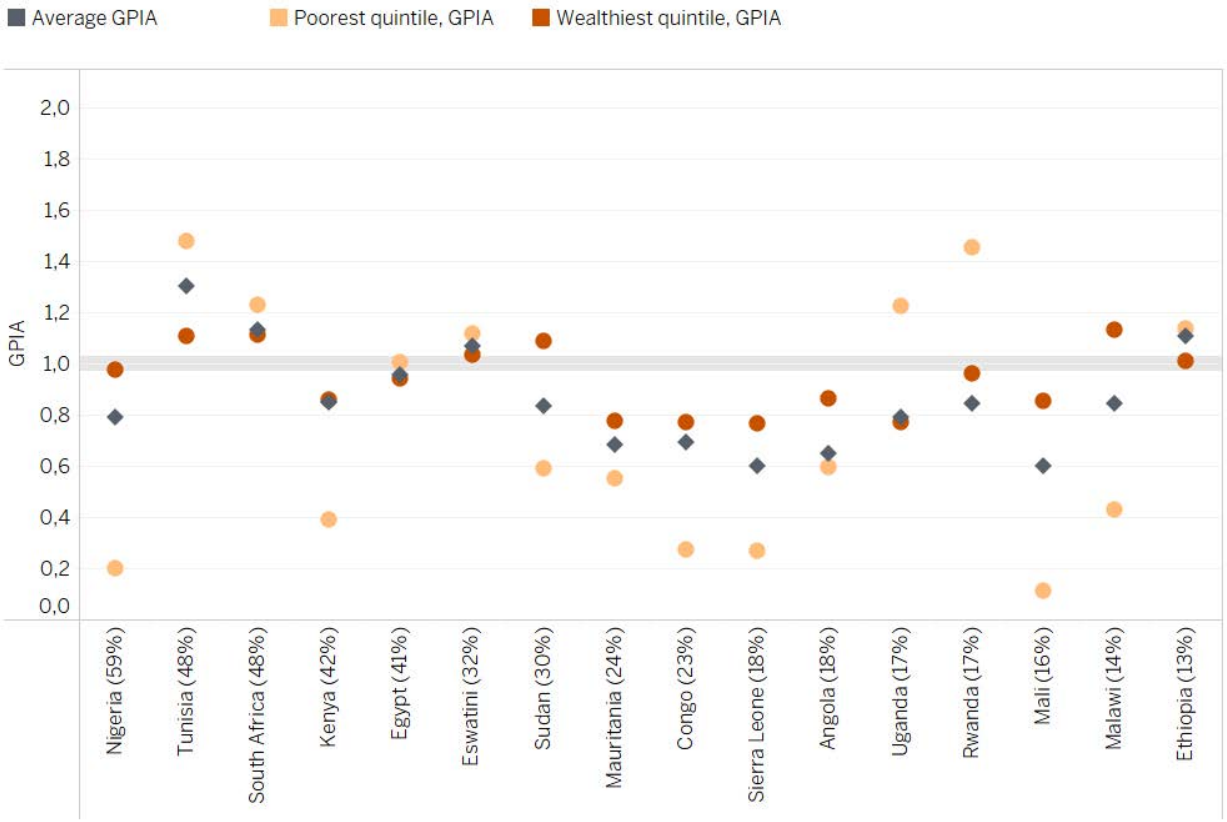


Data source: UIS, SDG 4.1.2 "Percentage of a cohort of children or young people aged 3-5 years above the intended age for the last grade of each level of education who have completed that grade", http://data.uis.unesco.org/
Note: Countries are listed in order of their average completion rate
Data is from the following years: South Africa (2016), Tunisia (2018), Egypt (2014), Zimbabwe (2015), Kenya (2014), STP (2014), Congo (2015), Togo (2017), Tanzania (2015), Nigeria (2016), Cameroon (2014), Zambia (2018), Eswatini (2014), DRC (2018), Ghana (2014), Gambia (2018), Sudan (2014), Lesotho (2014), Sierra Leone (2017), Angola (2015), Côte d'Ivoire (2016), Madagascar (2018), Rwanda (2015), Benin (2014), Guinea (2016), Burundi (2017), Mauritania (2015), Ethiopia (2016), Senegal (2016), Mali (2015), Malawi (2016), Uganda (2016), Guinea-Bissau (2014), Chad (2014)

xvii. Average GPIA is 0.80 for Guinea-Bissau and 0.78 for Chad; GPIA for children from the wealthiest households is 0.82 for Guinea-Bissau and 0.86 for Chad; GPIA for children from the poorest households is 0.81 for Guinea-Bissau and 0.62 for Chad.

- **At the upper secondary level**, for those countries where GPIA is lower than 1, that is where boys are favoured, being from the poorest households aggravates the disparities in most cases, with the exception of Rwanda and Uganda. Among those countries where, on average, the gender gap favours girls (Lesotho, Sao Tomé and Principe, Tunisia, Ethiopia), the disparities are aggravated among children who are from the poorest households.[xviii]

Figure 4.10 Adjusted gender parity index for upper secondary education completion rate, by household wealth



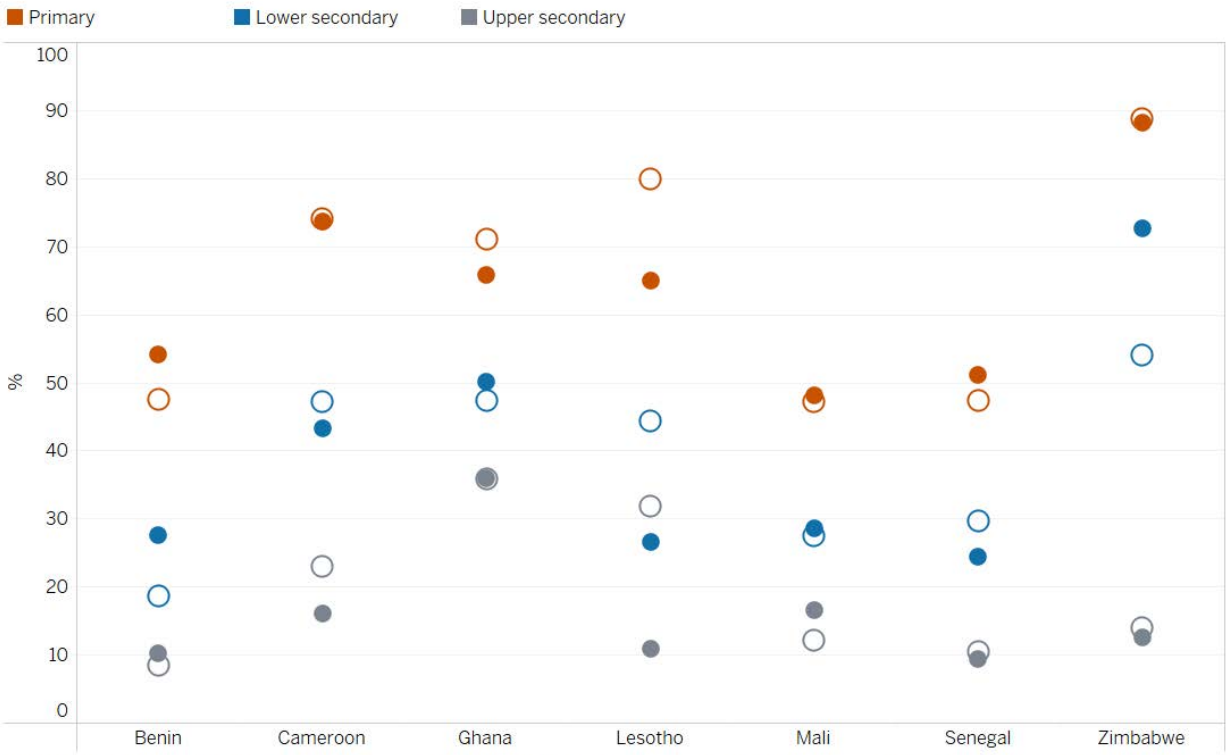
Data source: UIS, SDG 4.1.2 "Percentage of a cohort of children or young people aged 3-5 years above the intended age for the last grade of each level of education who have completed that grade", http://data.uis.unesco.org/
Note: Countries are listed in order of their average completion rate
Data is from the following years: Nigeria (2016), Tunisia (2018), South Africa (2016), Kenya (2014), Egypt (2014), Ghana (2014), Eswatini (2014), DRC (2018), Sudan (2014), Zambia (2018), Gambia (2018), Mauritania (2015), Congo (2015), Togo (2017), Guinea (2016), Sierra Leone (2017), Angola (2015), Uganda (2016), Rwanda (2015), Mali (2015), Cameroon (2014), Côte d'Ivoire (2016), Madagascar (2018), Malawi (2016), Ethiopia (2016), Zimbabwe (2015), Lesotho (2014), Benin (2014), Chad (2014), Senegal (2016), STP (2014), Tanzania (2015), Burundi (2017), Guinea-Bissau (2014)

Changes in completion rates

Analysis of the change in completion rates over the focus period at primary, lower secondary, and upper secondary levels, is limited by data availability. There is data available for all three levels for only seven countries (Benin, Cameroon, Ghana, Lesotho, Mali, Senegal, Zimbabwe). Among these, a consistent pattern cannot be observed across countries or education levels. In both Benin and Mali, for instance, completion rates declined for all three education levels. In Zimbabwe, the rate declined for lower secondary, increased slightly for upper secondary, and has remained almost the same for primary level. In both Cameroon and Lesotho, the completion rates increased across all three levels. Lesotho particularly stands out for the size of the increase (see discussion on its policies in *Examples of ongoing efforts and remaining challenges*). Certain government policies, such as the elimination of school fees, complemented with higher investment in teachers and facilities, can result in significant increases in both enrolment and completion rates (see *Policy case study #4* on Ghana's abolition of secondary school fees).

xviii. Note that the GPIA for the upper secondary completion rate for children from the poorest households is at '0' for several countries, because the completion rate for girls and/or boys is estimated as zero.

Figure 4.11 Change in completion rate, by education level



Data Source: UIS. SDG Indicator 4.1.2: "Percentage of a cohort of children or young people aged 3-5 years above the intended age for the last grade of each level of education who have completed that grade", http://data.uis.unesco.org/
Note: Countries are listed alphabeticcaly.
Baseline and endline data is from the following years:
Primary: Benin 2014 and 2019, Cameroon 2014 and 2019, Ghana 2014 and 2019, Lesotho 2014 and 2019 , Mali 2015 and 2019, Senegal 2016 and 2019, Zimbabwe 2015 and 2019
Lower secondary: Benin 2014 and 2018, Cameroon 2014 and 2018, Ghana 2014 and 2018, Lesotho 2014 and 2018, Mali 2014 and 2018, Senegal 2016 and 2019, Zimbabwe 2015 and 2019
Upper secondary: Benin 2014 and 2018, Cameroon 2014 and 2018, Ghana 2014 and 2018, Lesotho 2014 and 2018, Mali 2014 and 2018, Senegal 2016 and 2019, Zimbabwe 2015 and 2019

Out-of-school children

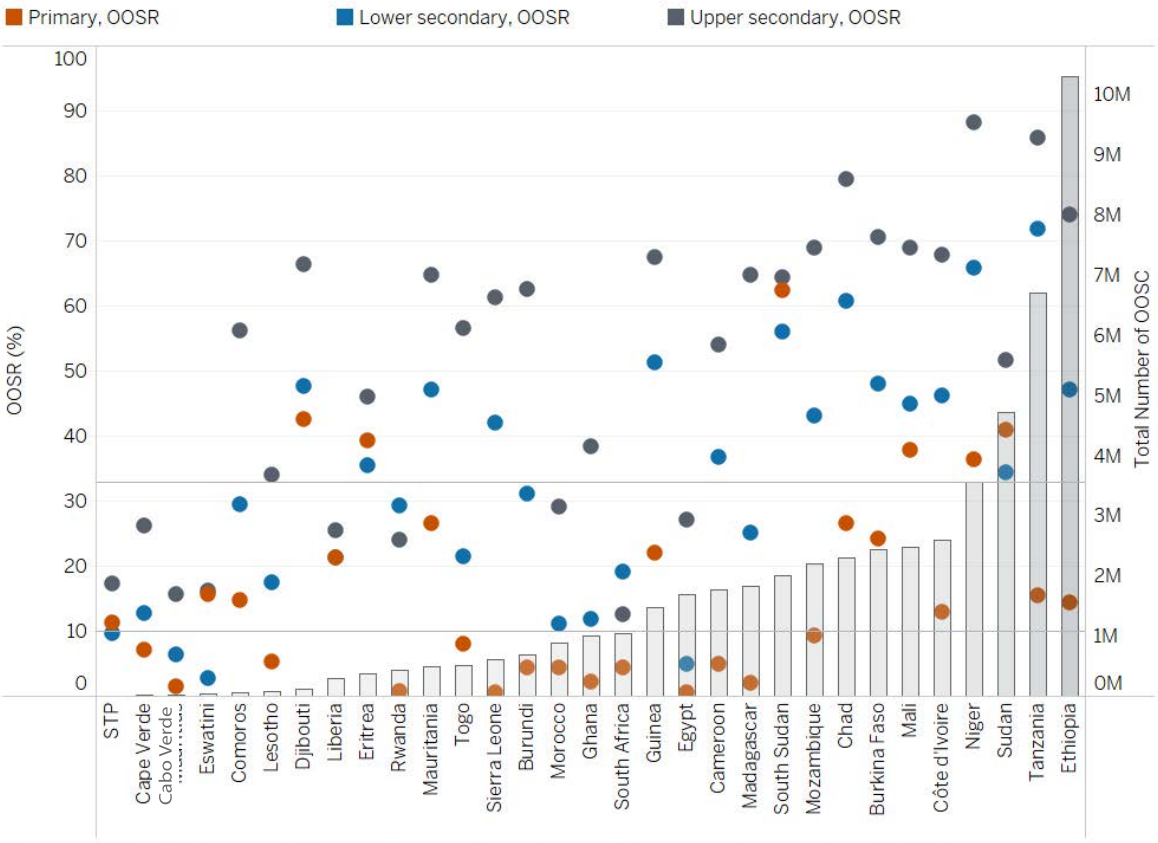
The out-of-school rate (OOSR) and the number of children who are out of school in different age groups, is directly related to completion rates. *Figure 4.12* shows OOSR at each education level and the total number of out-of-school children who are of primary, lower secondary, and upper secondary school age[xix] Countries are ordered from those with the lowest number of children out of school to those with the highest.

- **At the primary school age**, in about half the countries, the out-of-school rate is less than 10%. In another third, it is between 1 out of 10 (10%) and 1 out of 3 (33%). In the remaining countries where data is available, the out-of-school rate at primary school age is alarmingly high: South Sudan (62%), Djibouti (42%), Sudan (41%), Eritrea (39%), Mali (38%), and Niger (36%).
- **At the lower secondary school age**, the out-of-school rate increases for all countries. In only three countries (Egypt, Eswatini, Mauritius), the rate is below 10%. In half of the countries, more than 2 out of 5 children (40%) are out of school.
- **At the upper secondary school age,** in more than half of the countries where data is available (19 out of 31 countries), over 50% of the children are out of school. In some countries like Burkina Faso, Chad, Ethiopia, Niger, and United Republic of United Republic of Tanzania, the out-of-school rate for this age group is higher than 70%.
- The analyses of out-of-school rates gain additional perspective when combined with the number of out-of-school children[xx] The total number of out-of-school children in Ethiopia, Niger, Sudan, and United Republic of United Republic of Tanzania combined is almost equal to the total number of out-of-school children in

xix. The data underlying the OOSR is from the UIS SDG database (SDG 4.1.4) and is calculated based on administrative data. Note that this database provides two sets of values for SDG 4.1.4 – one based on household survey data and the other on administrative data. The data underlying the total number of out-of-school children is from the national monitoring dataset on the UIS database (re-named 'other policy relevant indicators' since September 2021), and captures the total number for primary, lower secondary, and upper secondary levels (but not pre-primary).
xx. Although the largest number of out-of-school children in Africa are in Nigeria, it is not reported here as a result of availability of data for the period.

the remaining 27 countries where data is available. In some of these, while OOSR is relatively low at certain education levels, the number of children who are out of school is sizable (e.g. approximately 2.3 million children of primary school age in Ethiopia) and United Republic of United Republic of Tanzania (approximately. 1.5 million). In others, both OOSR and the number of out-of-school children are high at certain education levels (e.g. approximately 2.5 million of primary school age in Sudan), and lower and upper secondary school age in United Republic of United Republic of Tanzania.

Figure 4.12 Total number of out-of-school children and out-of-school rate, by education level

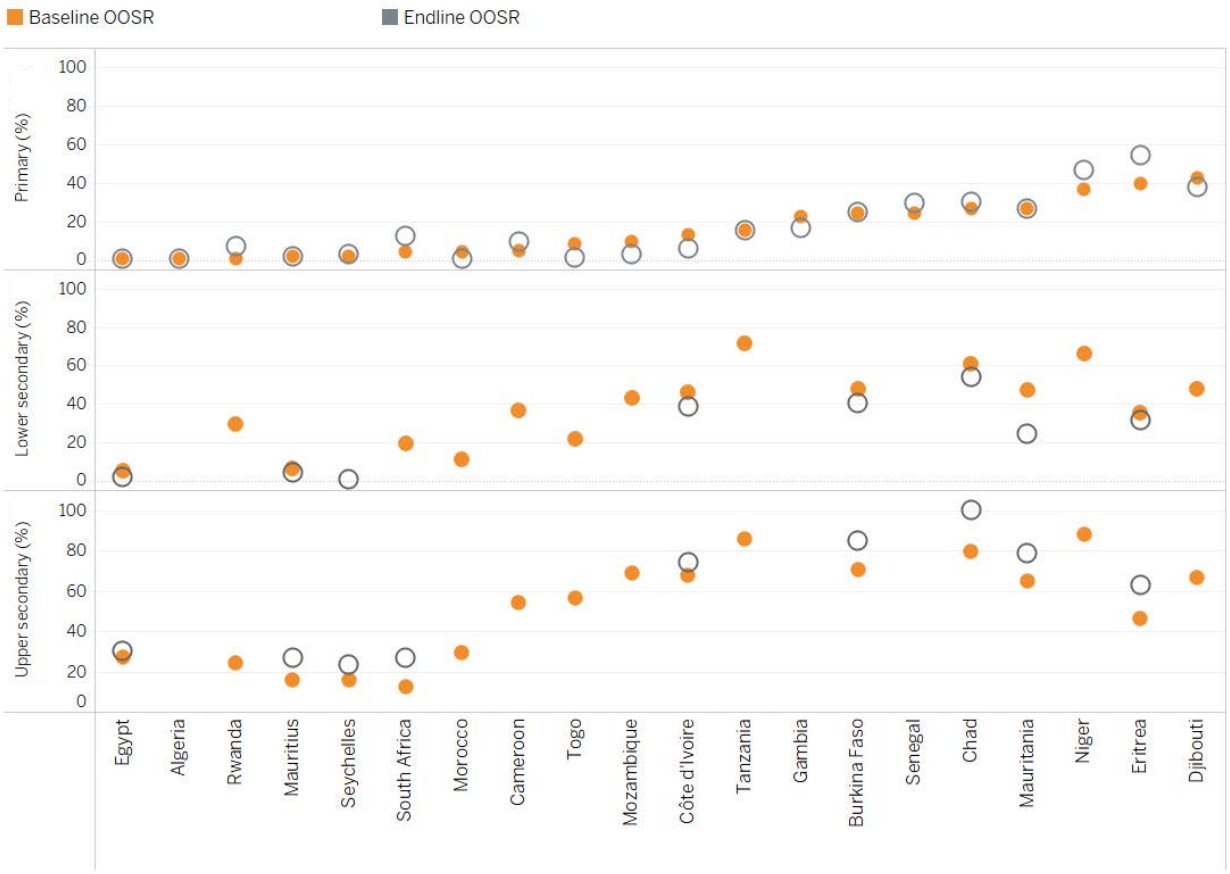


Data source: UIS, SDG 4.1.4: "Proportion of children and young people in the official age range for the given level of education who are not enrolled in pre-primary, primary, secondary or higher levels of education", http://data.uis.unesco.org/
Note: Countries are listed in order of their total number of OOSC
All data are from 2015-2018

Change in out-of-school rate

Similar to completion rates, data availability hinders a continent-wide examination of changes in out-of-school rates over the focus period. For primary school-aged children, the out-of-school rate appears to have declined in several countries and increased in others (e.g. Eritrea, Niger, Rwanda, South Africa). For lower secondary school-aged children, the rate appears to be near stagnant in some countries and declining in others (e.g. Burkina Faso, Chad, Côte d'Ivoire, Eritrea, Mauritania). However, the out-of-school rate among upper secondary school-aged children appears to be increasing in several countries (e.g. Burkina Faso, Chad, Côte d'Ivoire, Eritrea, Mauritius, Mauritania, Seychelles, South Africa). While limited data availability makes it difficult to identify any broader patterns, these examples suggest that progress in expanding access is not necessarily a linear, smooth path. When combined with a growing school age population, the absence of a consistent decrease in the out-of-school rate translates into an overall increase in the total number of out-of-school children, a disconcerting trend further aggravated by the COVID-19 pandemic.

Figure 4.13 Change in out-of-school rate (OOSR)



Data source: SDG 4.1.4: "Proportion of children and young people in the official age range for the given level of education who are not enrolled in pre-primary, primary, secondary or higher levels of education", http://data.uis.unesco.org/
Note: Countries are listed in order of their primary OOSR
Baseline and endline are from the following years:
Primary: Egypt (2016 and 2019), Algeria (2016 and 2019), Rwanda (2016 and 2019), Mauritius (2016 and 2019), Seychelles (2016 and 2019), South Africa (2015 and 2018), Morocco (2016 and 2019), Cameroon (2016 and 2019), Togo (2016 and 2020), Mozambique (2016 and 2019), Côte d'Ivoire (2016 and 2019), Tanzania (2016 and 2019), Gambia (2016 and 2019), Burkina Faso (2016 and 2019), Senegal (2015 and 2019), Chad (2016 and 2019), Mauritania (2016 and 2019), Niger (2016 and 2019), Eritrea (2015 and 2018), Djibouti (2016 and 2020)
Lower secondary: Egypt (2016 and 2019), Rwanda (2017 and 2019), Mauritius (2016 and 2019), South Africa (2017 and 2018), Morocco (2017 and 2019), Cameroon (2016), Togo (2017), Mozambique (2015), Côte d'Ivoire (2016 and 2019), Tanzania(2016), Burkina Faso (2016 and 2019), Chad (2016 and 2019), Mauritania (2016 and 2019), Niger (2016), Eritrea (2015 and 2018), Djibouti (2015)
Upper secondary: Egypt (2016 and 2019), Rwanda (2017 and 2019), Mauritius (2016 and 2019), Seychelles (2015 and 2019), South Africa (2015 and 2018), Morocco (2017 and 2019), Cameroon (2015), Togo (2017), Mozambique (2015), Côte d'Ivoire (2016 and 2019), Tanzania (2016), Burkina Faso (2016 and 2019), Chad (2016 and 2019), Mauritania (2016 and 2019), Niger (2015), Eritrea (2015 and 2018), Djibouti (2015)

Examples of ongoing efforts and remaining challenges

Persistent challenge of progression and completion

While African governments achieved remarkable progress in getting children to enrol in school, supporting them to progress through the grades, and to complete primary and especially lower and upper secondary education, remains a major challenge. As a result, even with an impressive increase in the number of children enrolled in primary school, a large number of school-aged children leave education before completion and end up out of school. Moreover, about one in three children in Africa do not complete primary school and three in five do not complete lower secondary.[19] Several African governments, recognizing that the expansion of primary and secondary schooling by means of 'business-as-usual' may not be adequate to include disadvantaged children, have initiated targeted programmes with integrated interventions that address multiple barriers that keep children out of school, including

poverty, societal norms, and the quality of education.[20]

- In South Sudan, the government implements a multipronged programme to increase girls' schooling beyond the first four years by providing cash transfers that are conditional on attendance, organizing behaviour change communication via radio programmes, and allocating capitation grants to schools.[21] In addition, the government targets its investments in education facilities and organizes targeted teacher training programmes in conflict-affected areas.[22]
- In Ethiopia, the government implements targeted in-service training and mentoring efforts in selected primary schools and alternative basic education to ensure that out-of-school children are able to return to school, catch up due to improved instruction, and stay in school.[23]
- In Nigeria, the government recently initiated a new programme that incorporates life skills training for girls in secondary school, aiming to improve completion rates. [24]
- Several governments have initiated accelerated learning programmes to ensure that those children who are excluded from and in education have the opportunity to catch up, thrive in school, and complete primary school and be ready to transition to lower secondary level (see *Policy case study #5* on tailored learning programmes).

The road ahead for African governments in ensuring that all children complete primary and lower secondary education will be more challenging in terms of the effective design and implementation of targeted programmes. This will require increased per-child public spending given the higher marginal cost of supporting difficult to reach children in enrolling, progressing, and completing school. Yet tackling this challenge is about more than just achieving a sectoral objective. Its resolution lies at the heart of enhancing intergenerational mobility among marginalized groups and strengthening the social fabric of a peaceful society.[25] To rise to this challenge successfully, African governments have together built an impressive pool of interventions and policies that can be learnt from and built upon (see *Policy case studies #1* and *2* for cases on equity). These models reflect the governments' tailored efforts to address the complex and diverse factors shaping disadvantaged children's exclusion from primary and secondary education in their own national contexts.

An increasing number of African governments are committing to tackle the challenge of ensuring that children with disabilities have access to quality education. More than half the countries are considered to be pursuing inclusive education policies.[26] In Ethiopia, children with and without disabilities learn in the same classroom and schools are grouped into clusters to share resources for inclusive education.[27] In United Republic of United Republic of Tanzania, itinerant teachers provide support for visually impaired learners with a focus on adapting and preparing materials, as well as performing vision screening and referrals.[28] In Rwanda, improved access for learners with special educational needs was put forward as the first strategic goal in the national education sector plan. Likewise, national standards exist to provide a framework for quality inclusive education. [29]

Africa's young population positions it well to capitalize on the demographic dividend, (i.e., when the size of the labour force increases relative to the dependent population), and secondary education that equips youth with the right skills has a vital role to play.[30] With more children than ever completing primary school, a growing share of an increasing population is demanding to transition to secondary school.[31] To meet this demand, many governments have shifted their policy attention to secondary education in recent years, so that the promise of this both for young people and economic growth is not undermined by inadequate learning outcomes and irrelevant skills. This is a frontier with significant investment needs to made to make sure that there are more teachers who are qualified and more facilities that can support the effective learning of relevant skills. It is also one where equitable access could have society-level equity implications when this generation of young people enters the labour market. Within this context, the decision by several governments to abolish secondary school fees deserves closer examination.

The challenge of expanding access to primary and secondary education in the face of a growing population and chronically low per-student spending is further aggravated by crises. Conflicts, natural disasters, and pandemics risk disrupting the already not-so-smooth journey of millions of children

through the education system. A crisis can delay their enrolment, force school closures, and compel families to make decisions that reshape their children's life courses, such as child marriages and child labour. To prevent these disruptions to schooling and to mitigate the impact on children's lives, especially for those who were already marginalized and disadvantaged,[32] governments are faced with the challenge of planning for and investing in resilient education systems. [33] Refugee host countries face the additional challenge of strengthening their education systems to cater for both host and refugee communities. More immediately, however, governments face the challenge of putting into action urgent measures that ensure children's return to school, supporting them in readjusting and catching up,[34] and investing in teachers so they can take on these enormous tasks inside and outside the classroom.[35]

While the progress made in getting more children enrolled in and completing primary and secondary school is worthy of celebration, the challenge of getting the remaining children to do the same is real and can be daunting. Addressing the access challenge, not in isolation but jointly with efforts to improve quality and enhance learning outcomes, could make it more surmountable. This is because low-quality schooling and limited learning rank high among the factors leading to children dropping out of education.[36] Policies and investments for the provision of higher quality schooling where children learn and thrive may also encourage more of them to stay in school and complete secondary education. As highlighted in *Figure 4.11*, Lesotho's efforts to increase access and completion rates by eliminating school fees sequentially on a grade-by-grade basis, without compromising education quality, and in fact reducing the pupil-teacher ratio by recruiting more teachers, and building additional classrooms and schools, is worthy of praise and attention in this regard. [37]

Policy case study #4: A bid to break down barriers to secondary education through free schooling

Many countries in Africa have made significant progress in improving secondary school enrolment, moving from a net enrolment rate (NER) of 13% in 1970 to 43% in 2018.[38] While this outcome is linked to efforts of various kinds, including both supply (e.g. construction of new schools) and demand-side interventions (e.g. scholarships and monetary aid to low-income students), countries like Ghana, Malawi,[39] and Sierra Leone,[40] have recently opted to abolish secondary school fees in an attempt to break down barriers to access to secondary education, especially for students from the poorest households.[41]

Abolishing upper secondary school fees in Ghana

Ghana has managed to maintain its close to universal access to primary education with the net enrolment rate stabilizing at around 87% since 2015.[42] In secondary education, the net enrolment rate has undergone a significant evolution from 52% in 2014 to 57% in 2019.[43] Two major policy reforms have been key to achieving this result, both targeting upper secondary education. The first reform was in 2015 and involved the introduction of a progressive free senior high policy, which was a form of partial funding of secondary education that exempted parents from paying some of the costs.[xxi] The second, in 2017, provided free tuition, textbooks, meals, and eliminated all other fees.[xxii] [44]

The objective was to ensure that no qualified student was denied access to upper secondary education. Available statistics show that for the period from 2013 to 2016, per year, almost 100,000 students from low-income families could not enrol in upper secondary education because of financial constraints.[45]

xxi. Examples of such costs are examination fees, entertainment fees, library, Student Representative Council (SRC) fees, sports fees, cultural fees, science development fees, mathematics competition fees, and information and communication technology (ICT) fees. xxii. Library fee, boarding fee, science laboratory fee, examination fees, utility fee, and Parents Teachers Association (PTA) fees.

For the 2017/18 academic year, this figure was reduced to 62,000.[46] In addition, the country achieved the highest upper secondary enrolment in its history with more than 470,000 students.[47] In 2018, the percentage of students entering upper secondary education increased to 85% from between 70 and 73% in 2016.[48] Transition rates between the final grade of lower secondary and the first grade of upper secondary have also increased, reaching 78% in 2017 after years of stagnation at 68%.[49]

So far, little is known about the equity effects of the free Senior High School (SHS) reform. Though breaking financial barriers can increase potential to access SHS, competition also limits access to quality schools. To address this, the government has introduced a formula to allocate 30% of places in 'elite schools' to students from public lower secondary schools.[50]

Pressures on the system and the call for not sacrificing quality

The free SHS policy is likely to continue increasing demand for upper secondary education, which may put additional pressure on existing resources. This may have negative effects on quality and learning outcomes if mitigating measures are not implemented. So far, official statistics on pupil/classroom and teacher ratios have remained unchanged. However, this needs to be closely monitored and additional measures may need to be implemented. In 2018, for instance, the Ministry of Education introduced a dual-track enrolment system to accommodate the increased enrolment of over 150,000 students,[51] with potential implications for average hours students spend learning while in school.

Background

Learning equity in primary and secondary school

This section builds on the analyses on intake, progression, and completion in primary and secondary education, with a focus on the links with learning and quality. The complex interaction of multiple elements shapes a child's learning outcomes. Some of these are related to the school (e.g. curriculum, pedagogy, teacher quality, facilities, learning materials, safety at school). Others are related to the child and their family (e.g. household income, parental education, malnutrition, chronic illnesses, displacement), or to the community/society and education system/governance. However, if a child is facing multiple disadvantages and adverse experiences, an intervention targeting only one of these will have a limited impact on improving their education outcomes.[53] Some of these elements are taken up in subsequent chapters, including teachers, education facilities, and education governance. This section underlines broader issues concerning learning objectives and outcomes, analyses key indicators measuring learning outcomes, and describes government efforts in this area.

Quality and learning outcomes and SDG 4 and CESA

Increased access to primary education in the decades preceding the establishment of the Sustainable Development Goals led to a greater emphasis being placed on educational quality in the SDGs.[53] Since 2015, the difficulty of enhancing quality while expanding access in Africa has been at the forefront of many global policy discussions.[54] Efforts to tackle the 'learning crisis', which sees a significant number of students finish primary school without basic reading, writing and arithmetic skills,[55] appear to have taken centre stage in the sectoral priorities of several African governments.[56] As underlined by CESA, they see meeting demand while not compromising learning outcomes as a key challenge. [57]
Agenda 2030, and specifically SDG Target 4.1, puts forward a two-pronged commitment whereby the completion of free, equitable, and quality primary and secondary education is to lead to 'relevant and effective learning outcomes.' Mirroring this commitment, the Education 2030 Framework for Action places a strong emphasis on learning outcomes within the broader framework of lifelong learning. Other SDG 4 targets formulated around learning outcomes include SDG 4.4 (highlighting relevant skills, including technical and vocational skills, for employment, decent jobs, and entrepreneurship as a learning outcome area), SDG 4.6 (focusing on literacy and numeracy for youth and adults as a learning outcome area), and SDG 4.7 (underlining knowledge and skills needed to promote sustainable development).[xxiii] There are additional SDGs that also put forward learning objectives, such as knowledge on sexual and reproductive health (SDG 3.7 and 5.6), awareness of sustainable development and lifestyles in harmony with nature (SDG 12.8), awareness on climate change mitigation and adaptation (SDG 13.3).

CESA presents an even broader range of learning objectives that include not only 'requisite knowledge and skills' (SO 4) and literacy,[xxiv 58] but also scientific knowledge (SO 7), ICT capacities (SO 3), and peace and conflict resolution (SO 10). Indeed, CESA's particular focus on STEM sets it apart from the SDGs. Scientific knowledge is central to CESA and is anchored in Agenda 2063's goal of having well-educated citizens and a skills revolution that is underpinned by science, technology, and innovation.[59] CESA also puts forward a broader learning objective related to the 'knowledge, competencies, skills, innovation, and creativity required to nurture African core values and promote sustainable development at the national, sub-regional and continental levels.' [60] Reflecting the importance of these learning outcomes for CESA, five of its twelve clusters have been actively working on them. The STEM Education, Peace and Education, and Life Skills and Career Guidance clusters have been looking at different learning objectives, while the Curriculum Cluster and ICT in Education Cluster have focused on elements key to learning outcomes.

Understanding stakeholders' divergent learning objectives

Learning outcomes seem to be receiving increasing attention in national, continental, and global level policy debates and efforts. [61 62 xxv] Yet these fall short of spelling out different stakeholders' often divergent learning objectives and forging a consensus on those to be prioritized. [63 xxvi] Specifically, what national bureaucrats, politicians, families, or communities want children to be learning in school often differs from what the private sector or the development donors may want.[64] To some extent, this may be seen as a reflection of the multiplicity of education objectives put forward in SDGs and CESA (including literacy, scientific knowledge, global citizenship, job skills). While these learning objectives are not necessarily conflictual, they unavoidably create competing demands on limited learning time and resources**.** In analysing learning outcomes, this chapter aims to reflect the wide range of learning objectives prioritized by different stakeholders. However, the availability of data limits the scope of analysis for most of these

xxiii. SDG 4.7 specifically mentions education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenships, and appreciation of cultural diversity and of culture's contribution to sustainable development.
xxiv. Literacy is the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts.
xxv. Recent examples of national level prioritization of learning outcomes include Kenya's National Education Sector Strategic Plan (2018-2022) that identifies 'improve learning outcomes in secondary schools' as a goal and competence-based education as a target towards reaching this goal; Egypt's Strategic Plan for Pre-University Education (2014-2030) that sets as a goal 'development of secondary education in a manner compatible with international standards'; and Botswana's Education and Training Sector Strategic Plan (2015-2020) that identifies ensuring 'quality education meets local/international standards' and 'improved literacy' as a strategic objective.
xxvi. Learning objectives include a wide array of skills, knowledge, values, and attitudes, such as foundational literacy skills, transferable skills, digital skills, job-specific technical skills, values to be a dutiful community member and citizen.

objectives with the exception of foundational literacy and numeracy skills (see *Box 4.7* on data availability for more information).

Growing focus on foundational literacy and numeracy skills

Among the different learning objectives put forward by the SDGs and CESA, foundational literacy and numeracy (FLN) skills have received particular attention both in terms of monitoring and global donor efforts. The SDG 4.1.1 has been identified as both a global SDG indicator and a benchmark indicator for continental and global monitoring efforts. It measures literacy and numeracy proficiency at three points in the education cycle: early grades, end of primary education, end of lower secondary education.[65] In recent years, analyses based on the limited data available for measuring FLN focused on what came to be called the 'learning crisis' [66] and sparked significant policy attention in global education debates.[67] Proponents of focusing on FLN as a policy and funding priority highlight its critical role in making meaningful progress on other SDG targets, and applaud its concreteness and measurability which make it an actionable and accountability-enabling goal.[68]

Investments in early years and foundational learning not only have benefits for short- and long-term learning outcomes and possible positive spill over effects for the acquisition of other skills (such as life skills, job specific skills, and digital skills), but that they are also relatively progressive.[69] More specifically, because there are more children enrolled in the early years of education, it is argued that more students, and particularly those from the poorest households, are likely to benefit from spending on this level of education.[70] In contrast, spending in higher grades disproportionately benefits children from wealthier households and may not contribute to reducing inequalities.[71] Thus, in broad terms, investments in foundational skills in early years are considered to be equity enhancing, and consequently, could be assessed in the same category as other broad-access interventions such as school feeding in early grades. [72]

Disparities in the acquisition of foundational skills

An issue parallel to these discussions that requires more attention is that of disparities in the acquisition of foundational skills. Mirroring the sources of disparities that exclude the disadvantaged and marginalized from education (see earlier discussion in this chapter on disparities in accessing education), these children can also be excluded within education.[73] That is, although some children attend school and appear in enrolment figures, they do not learn.

Understanding non-learning

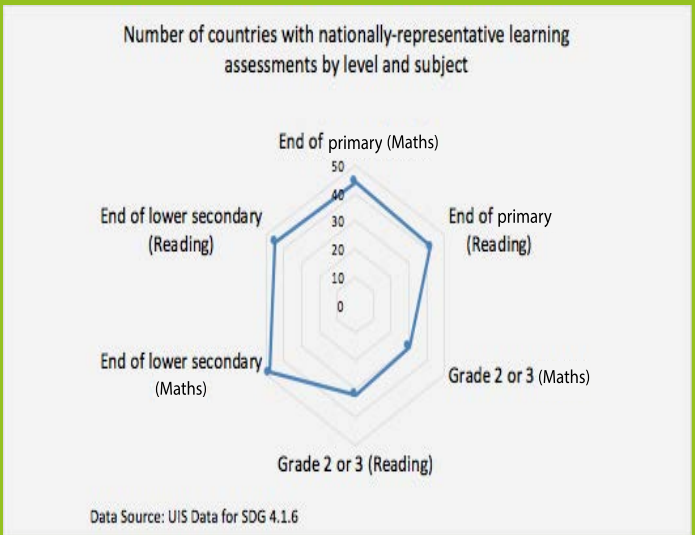
There could be a wide range of factors underlying this non-learning at the learner, teacher, school, and system levels, many of which are discussed in this report. Regardless of what leads to a child not learning at school, data on foundational learning outcomes suggests that the aggregate effect of these factors on individual children varies according to the scope and depth of the broader disadvantages (e.g. poverty, malnutrition and high morbidity, gender discrimination, adverse experiences such as domestic or community violence and conflict-related trauma, disabilities) affecting a child's well-being.[74] Hence, policy efforts around foundational learning outcomes may face a double challenge. That of improving learning outcomes while narrowing down existing inequalities. Not paying adequate attention to equity and tailored interventions, could aggravate existing inequalities. [75]

Relevant SDG 4 and CESA indicators on learning in primary and secondary are described in *Appendix 3*.

Box 4.3 Enabling legal frameworks for learning

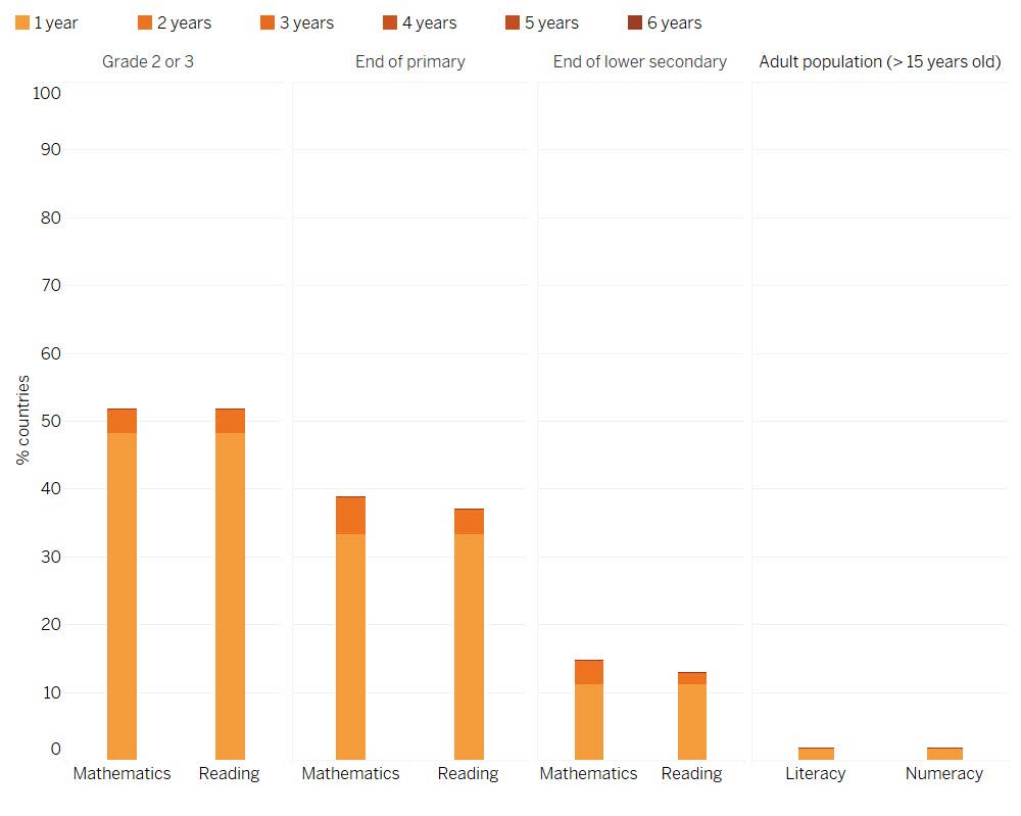
Efforts to improve children's learning outcomes are more effective when backed by policies and enabling legal frameworks. The CESA indicator for the enabling legal frameworks related to learning outcomes are: **4.3** 'Membership in the Network of African Learning Assessments'.

The SDG indicator for the enabling legal frameworks related to learning is **4.1.6** 'Administration of a nationally-representative learning assessment (a) in Grade 2 or 3; (b) at the end of primary education; and (c) at the end of lower secondary education'; **For SDG 4.1.6**: More countries across the continent tend to administer nationally representative learning assessments at the end of the primary or lower secondary levels, rather than in the early grades, notably Grade 2 or 3. The lack of data on learning in the early grades does not allow for countries to diagnose issues with students' learning outcomes early on, and reduces the effectiveness of interventions at later grades.



Box 4.4 Data availability

Figure 4.14 Proportion of countries with 1, 2, 3, 4, 5, and 6 available data points over the period 2015-2020, for indicators on primary and secondary education



Data source: UIS, SDG

Figure 4.14 illustrates significant limitations in learning data availability from 2015 to 2020. About half of the countries have not collected any data on reading and mathematics learning outcomes since 2015. This rate is particularly low for data collection at the end of lower secondary level. Data frequency is also concerning. Less than 6% of the countries have collected data on learning outcomes more than once since 2015. Lack of data is particularly striking for SDG indicator 4.6.1 on functional literacy and numeracy skills of the over 15-year-old population. Only one country (South Africa) has collected data for this indicator since 2015.

Importance of learning processes and coherence among the building blocks of learning processes

Although the focus of the findings of this report is on learning outcomes due to the scope of the SDG indicators, efforts to improve these outcomes cannot be made without considering the importance of learning processes. While growing access to education has made learning more accessible, in designing learning processes and implementing them in the classroom, attention needs to be paid to the diversity of learners' contexts and needs.[76] In this respect, curricula and pedagogy play a significant role in democratizing learning and determining whether an education system is inclusive and equitable.[77] However, more systematic and comparative research is needed on how curricula, pedagogy, teacher capabilities, and assessment practices, can help attain these outcomes in the African context.

Efforts to improve learning processes and outcomes for all often go hand in hand with curriculum and/or pedagogical reforms. Broadly speaking, a clear curriculum based on specific competences, learning objectives, and instruction time is often a building block for many reform efforts. However, a consistent curriculum can be most effectively operationalized when accompanied with the appropriate pedagogy applied by teachers who are equipped with the necessary knowledge and skills, along with access to teaching and learning materials aligned with the curriculum and pedagogy.[78] Patchwork reforms of only some of these building blocks of learning (i.e., curriculum, pedagogy, teacher training, teaching and learning materials, learning assessments[xxvii]) may not deliver the expected improvements in learning outcomes. Furthermore, the resulting misalignment among these building blocks might also undermine the success of future reform efforts.[79]

Need to better understand non-formal education and its learning outcomes

While the analyses on learning outcomes presented in this chapter focus predominantly on formal education[xxviii] [80] and to a large extent, on FLN skills in line with the prioritized SDG indicators and associated data availability constraints, the importance of non-formal education (NFE)[xxix] [81] for children's learning experiences and outcomes should not be overlooked. In this respect, NFE's relevance goes beyond FLN skills and includes life skills and values education. Many children in Africa who are not enrolled in formal education are enrolled in various kinds of NFE institutions.[82] Particularly in the Sahel countries, Qur'anic schools stand out as significant providers of NFE despite being deemed controversial.[83] The body of information on the learning objectives and outcomes of children attending these institutions is surprisingly limited, not only regarding skills but also values and attitudes.[84] Policy discussions on the role of NFE could benefit from more information on the learning objectives, pedagogies, and learning outcomes of the various NFE providers.

Potential and limitations of family engagement in improving learning outcomes

Similarly, while the analyses put forward in this chapter is almost exclusively focused on learning that takes place inside a school, efforts to enhance learning outcomes are likely to benefit from recognizing the role of families and including parental/caregiver involvement as a complementary intervention area. Pertinent studies suggest a strong association between parental engagement and children's early literacy skills,[85] an association between parental involvement in school activities and children's school performance,[86] as well as the positive impact of increased parental involvement in school-related decisions on children's learning outcomes.[87] Hence, policy efforts for enhancing learning processes could benefit from thinking beyond the boundaries of the school and unleashing the potential of family involvement in enhancing children's learning outcomes.[xxx] In many contexts, this involvement appears to be diminished as a result of parents' low educational attainment, limited availability of time,[88] social norms, and their beliefs about the future benefits of education.[89] Parental engagement is also contingent on the existence of constructive relationships with schools, particularly for families from marginalized communities.[90] This means that parents are willing and able to engage with schools, and that schools' personnel are willing and trained to communicate effectively with parents.[91]

xxvii. In this paragraph, learning assessments refer to both formative and summative assessments at the national or subnational levels.
xxviii. Formal education refers to education that is institutionalized, intentional, and planned through public organizations and recognized private bodies.
xxix. Non-formal education, like formal education, is institutionalized, intentional, and planned by an education provider. Its defining characteristic is that it is an alternative or complement to formal education within the process of the lifelong learning of individuals.
xxx. The effect of parental involvement on learning outcomes could either be direct (e.g. parents follow up more regularly with their children about school and homework), or indirect (e.g. parents hold schools to account more effectively and, in response, schools improve their learning processes).

Box 4.5 Enabling legal frameworks for global citizenship education and education for sustainable development

Efforts to improve children's acquisition of global citizenship skills and to ensure education for sustainable development are most effective when they are integrated into national education policies, curricula, teacher training, and student assessment.

The CESA indicator for enabling legal frameworks in these dimensions is: **10.3** 'Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, (iii) peace, life skills, media and information literacy education, are mainstreamed in four areas: (a) national education policies, (b) curricula, (c) teacher education and (d) student assessment.'

There are three SDG indicators: **4.7.1** Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment'; **4.7.3** 'Extent to which the framework on the World Programme on Human Rights Education is implemented nationally (as per the UNGA Resolution 59/113)'; and **4.7.6** 'Extent to which national education policies and education sector plans recognize a breadth of skills that needs to be enhanced in national education systems.'

For SDG 4.7.1: In the six countries for which there is data at endline (2020) a high degree of heterogeneity is observed. For Algeria, global citizenship education (GCED) and education for sustainable development (ESD) are less mainstreamed in national education policies than they are in curricula, teacher training, or student assessment. In the DRC and Mauritius, there is a relatively noticeable gap between GCED and ESD mainstreaming in teacher education training education versus curricula and student assessment.

Efforts to strengthen citizenship and sustainability education

With the increasing focus on foundational literacy and numeracy outcomes at global, continental, and national levels, other crucial components of the learning agenda may be at risk of a diminished policy interest and investment. This also concerns peace and global citizenship education (GCED) which aims to foster the knowledge and skills necessary for social transformation and international cooperation.[92] Ongoing efforts to democratize pedagogy and revise curricula,[93] complemented with alternative teacher training programmes,[94] revision of learning materials, and development of new GCED learning materials, are important in this regard. Data collection on GCED can inform evidence-based policy-making. UIS data collection about SDG 4.7.1 on global education citizenship[95] was limited for countries in Africa. Therefore, recent efforts to enhance the coverage and quality of the SDG 4.7.1 data are welcome.

General findings

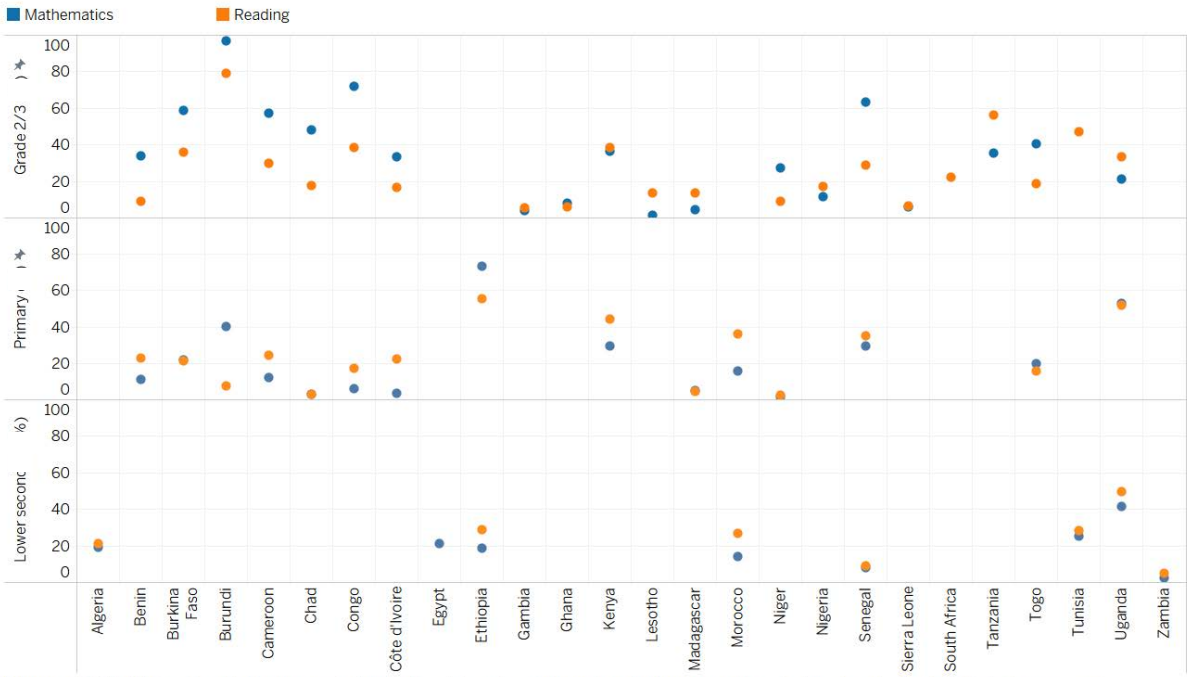
Minimum proficiency in reading and mathematics

For the baseline period this report focuses on, data on the proportion of students achieving at least a minimum proficiency level in reading and mathematics is available for 19 countries for Grade 2 or 3, and for 13 of them at the end of primary.[xxxi] For another 9 countries, data is also available for lower secondary level. Broadly speaking, the proportion of students achieving at least a minimum proficiency level seems

xxxi. Data on the proportion of students achieving at least a minimum proficiency level at the end of lower secondary is even more limited (7 countries for reading and mathematics) and has therefore not been analysed in the report.

to decline as they progress into higher grades. Across countries, notable differences are observed for both Grade 2 and 3, with less than 10% of children in Ghana, Lesotho, Madagascar, The Gambia, and Sierra Leone versus more than 50% of enrolled children in Burkina Faso, Burundi, Cameroon, Congo, and Senegal achieving at least a minimum proficiency level in mathematics. Differences to a lesser extent are seen at the end of primary, with less than 10% of children in Chad, Madagascar, and Niger versus more than 30% of children in Burundi and Uganda achieving at least a minimum proficiency level in mathematics.

Figure 4.15 Proportion of students achieving at least a minimum proficiency level in mathematics and reading (%), by education level



Data source: UIS, SDG 4.1.1: "Percentage of children in primary education and at the end of secondary education reaching at least a minimum proficiency level in reading and mathematics", http://data.uis.unesco.org/
Note: Countries are listed alphabetically
All data are from 2014-2018 period

Changes in minimum proficiency in reading and mathematics

Given the data availability limitations mentioned earlier, changes in learning outcomes can be analysed in only a limited number of countries:

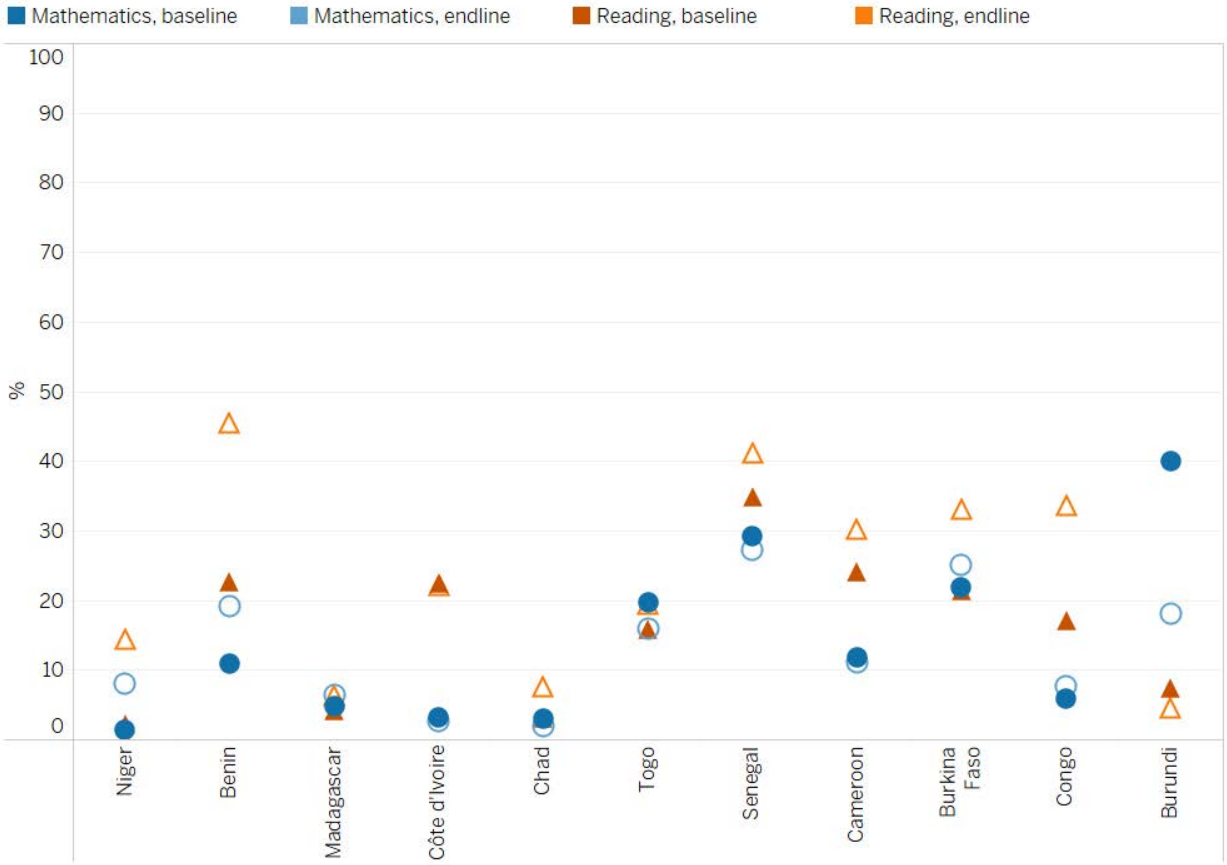
- In most of the countries where data is available, the proportion of children in Grade 2 or 3 who achieve at least a minimum proficiency level in mathematics and reading has increased in both subject areas, although the extent of this increase varies across countries and subject areas. For instance, in Benin, Chad, Côte d'Ivoire, and Niger, the increase in the proportion of students achieving at least a minimum proficiency for both subjects are similar and substantial. In comparison, in Togo, limited change is observed in both subjects, while in Cameroon, there is a small increase in the proportion for reading and almost none for mathematics. In Burkina Faso and Burundi, there appears to be no observable change in either subject area over the period.

Figure 4.16 Change in the proportion of students in Grade 2 or 3 achieving at least a minimum proficiency level in mathematics and reading (%)

Data source: UIS, SDG 4.1.1: "Percentage of children in primary education and at the end of secondary education reaching at least a minimum proficiency level in reading and mathematics". http://data.uis.unesco.org/
Note: Countries are listed in order of their proportion of students achieving at least a minimum proficiency level in mathematics and reading
Baseline and endline data are from the following years: Niger 2014 and 2019, Benin 2014 and 2019, Côte d'Ivoire 2014 and 2019, Chad 2014 and 2019, Togo 2014 and 2019, Senegal 2014 and 2019, Cameroon 2014 and 2019, Burkina Faso 2014 and 2019, Congo 2014 and 2019, Burundi 2014 and 2019

Similarly, focusing on the proportion of children who achieve at least a minimum proficiency level in mathematics and reading at the end of primary education, a positive change is observed in most countries in both subject areas, though the size of the change varies across countries and the subject area. Broadly speaking, the proportion of children who achieve at least a minimum proficiency level in mathematics is greater than in reading. It is worth mentioning that in several countries, the size of the change in reading is very limited (e.g. Madagascar and Côte d'Ivoire) and the change is negative in Burundi.

Figure 4.17 Change in the proportion of students at the end of primary with at least a minimum proficiency level in mathematics and reading (%)



Data source: UIS, SDG 4.1.1: "Percentage of children in primary education and at the end of secondary education reaching at least a minimum proficiency level in reading and mathematics", http://data.uis.unesco.org/
Note: Countries are listed in order of their proportion of students achieving at least a minimum proficiency level in mathematics and reading
Baseline and endline data are from the following years: Niger (2014 and 2019), Benin (2014 and 2019), Côte d'Ivoire (2014 and 2019), Chad (2014 and 2019), Togo (2014 and 2019), Senegal (2014 and 2019), Cameroon (2014 and 2019), Burkina Faso (2014 and 2019), Congo (2014 and 2019), Burundi (2014 and 2019)

Disparities in learning outcomes in reading and mathematics

The sources of disparity in access to education examined earlier in this chapter can also result in exclusion from education[96] and disparities in learning outcomes. Notably, disadvantaged and marginalized children do not seem to benefit from learning processes as much as their peers and have lower learning outcomes on average.

Figure 4.18 and *Figure 4.19* show disparities related to gender, household wealth, and household location by plotting relevant adjusted parity indices (PIA).[xxxii] *Figure 4.18* captures PIA values for learning outcomes at Grade 2-3.

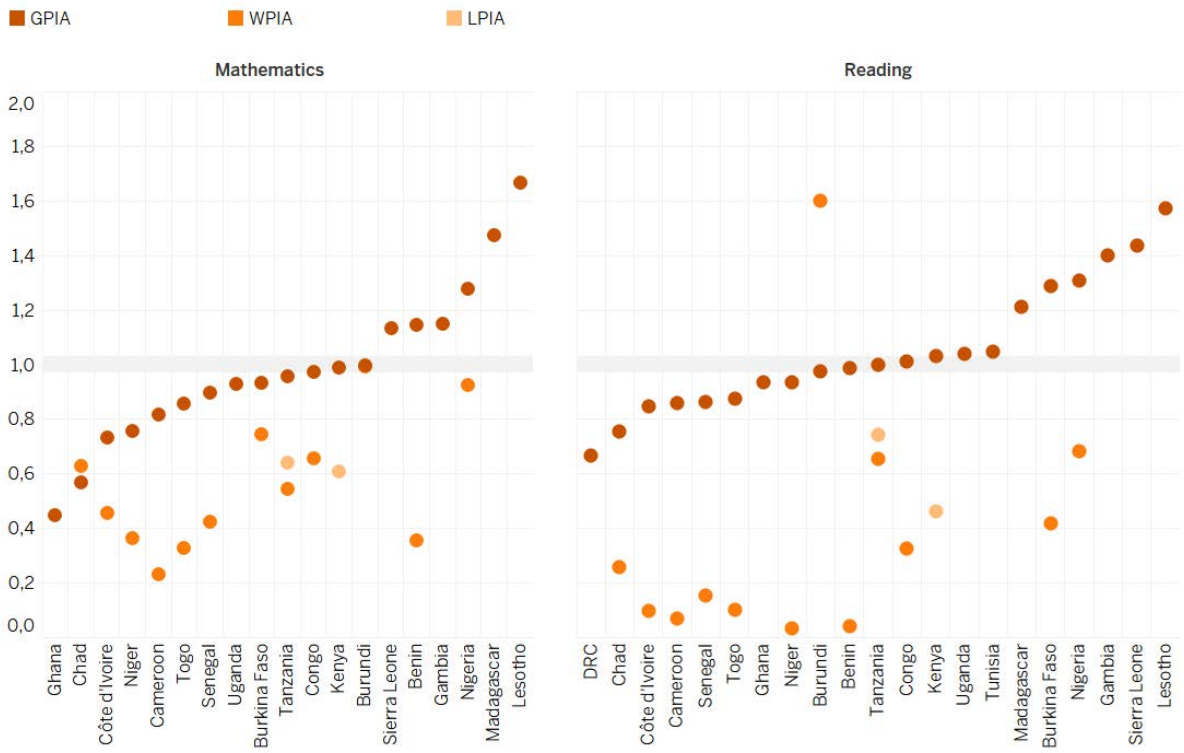
- Household wealth (WPIA - Q1/Q5): In all countries, a lower proportion of students from the poorest households achieve minimum proficiency in mathematics and in reading except for reading outcomes in Burundi. However, there is a sizable difference across countries in the size of the learning gap between students from the poorest and the wealthiest households, with Nigeria and Burkina Faso closer to parity for mathematics compared to Cameroon and Togo, and Nigeria and the United Republic of United Republic of Tanzania close to parity for reading compared to Niger and Benin.

xxxii. PIA values between 0.97 and 1.03 denote parity. When a value is lower than 1, the proportion of female students (or students from the poorest households, or students from rural households) achieving at least a minimum proficiency level in a given subject is lower than the proportion of male students (or students from the wealthiest households, or students from urban households). When a value is greater than 1, it is the other way around.

It is also worth noting that household wealth-based disparities are much larger in reading than in mathematics in Grade 2-3.

- Gender (GPIA): In Grade 2-3, several countries seem to have reached or to be approaching gender parity in both mathematics and reading proficiency levels, as measured by the proportion of students achieving at least minimum proficiency. However, large gender gaps are observed in some countries are disconcerting (Chad, Ghana, Lesotho, Madagascar, and Nigeria in mathematics; and Burkina Faso, Chad, DRC, Lesotho, Madagascar, Nigeria, Sierra Leone, and The Gambia in reading).
- Location (LPIA - rural/urban): In Grade 2-3, only two countries (Kenya and the United Republic of United Republic of Tanzania) have disaggregated location (rural-urban) data. Both countries are at similar parity levels in mathematics (close to 0.6). In reading, however, the United Republic of United Republic of Tanzania moves towards parity (0.74) while Kenya moves further away from it (0.4).
- None of the countries have data for the disability adjusted parity index (PIA) on learning outcomes in Grade 2-3.

Figure 4.18 Gender, wealth, and location disparities in reading and mathematics learning outcomes, Grade 2-3



Data source: UIS, SDG 4.1.1; "Percentage of children in primary education and at the end of secondary education reaching at least a minimum proficiency level in reading and mathematics", http://data.uis.unesco.org/
Note: Countries are listed in order of their GPIA average
All data are from 2014-2018

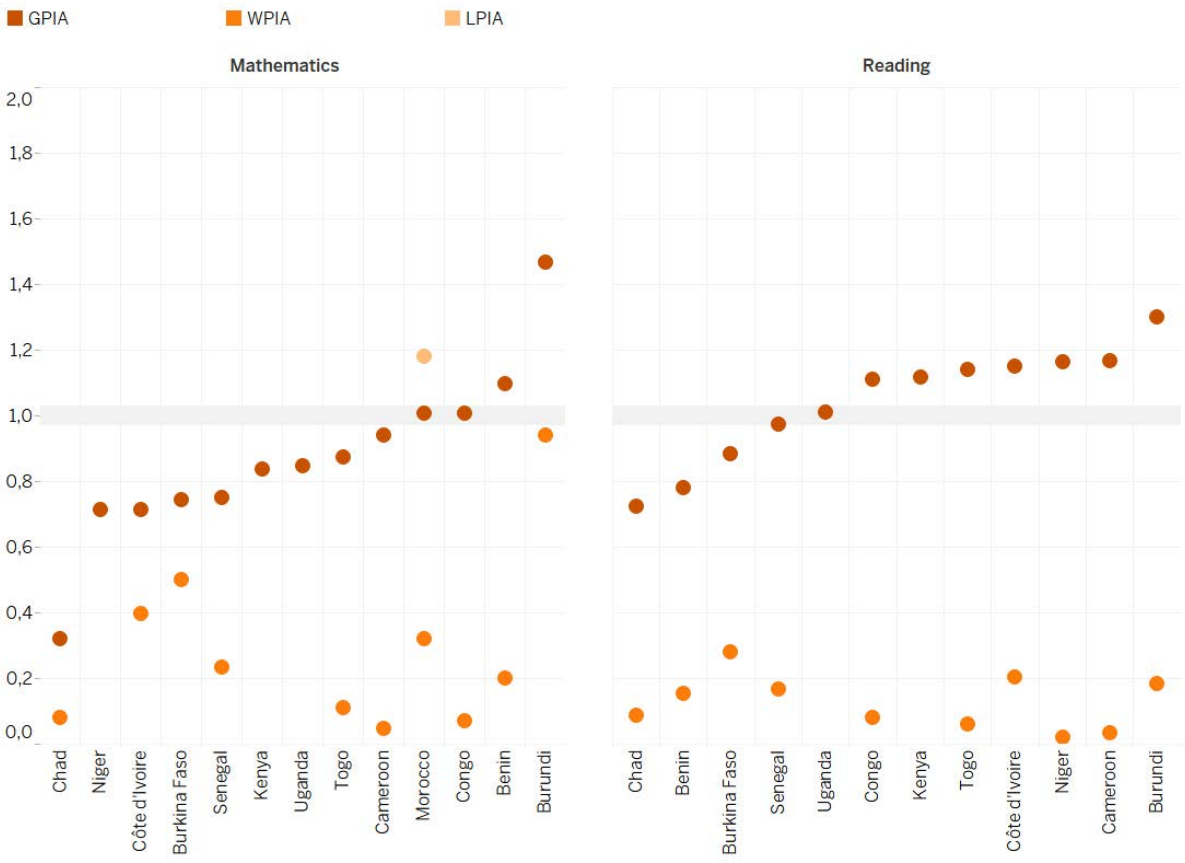
Figure 4.19 captures PIA values for learning outcomes at the end of primary level.

- Household wealth (WPIA - Q1/Q5): In all countries with available data, a lower proportion of students from the poorest households achieve at least minimum proficiency compared to students from wealthiest households. With the exception of mathematics in Burundi and Burkina Faso, WPIA is less

than 0.4 in all countries, suggesting for every 10 students from wealthiest households who achieve at least minimum proficiency, fewer than four students from poorest households do.

- Gender (GPIA): At the end of primary level, only two countries have reached gender parity in learning outcomes in mathematics (Morocco and Congo), and two in reading (Senegal and Uganda). In all other countries, either female students outperform their male peers or vice versa.
- Location (LPIA - rural/urban): The only data point available for LPIA is for mathematics in Morocco and shows that a higher proportion of students from rural households achieve minimum proficiency than their peers from urban households.
- None of the countries have PIA for disability on learning outcomes at the end of primary level.

Figure 4.19 Gender, wealth, and location disparities in reading and mathematics learning outcomes, end of primary



Data source: UIS, SDG 4.1.1: "Percentage of children in primary education and at the end of secondary education reaching at least a minimum proficiency level in reading and mathematics", http://data.uis.unesco.org/
Note: Countries are listed in order of their GPIA average
All data are from 2014-2018

Language as a source of disparity in learning outcomes

Studies examining learning outcomes across different groups of students often find and highlight other Language as a sources of inequalities, such as language.

- There is long-standing evidence showing that using mother tongue as a medium of instruction has multiple benefits on student participation, attrition rates, the likelihood of family and community engagement in the child's learning, and on a child's cognitive learning.[97]

- In addition, the children most impacted by inadequate language policies are often disadvantaged on other grounds. Those at the bottom 40% of the socio-economic distribution are more likely to be taught in a language different from their mother tongue, and may not have sufficient family resources to attenuate the negative effects of the language policy implemented at schools, such as higher dropout rates, repetition rates, higher learning poverty, and lower learning overall.[98]

- Studies have noted that when children are not being taught in their mother tongue, disparities in learning outcomes may emerge or deepen. For instance, a learning assessment measuring the impact of efforts to improve education service delivery in the United Republic of United Republic of Tanzania found that students whose home language was not the language of instruction (Kiswahili) achieved scores consistently below their peers whose home language is Kiswahili.[99] That is, although interventions to improve learning outcomes benefited both groups of children, and those whose home language was not Kiswahili were not excluded from the gains in service delivery, the improvements were not adequate to close the learning gap. This finding, though specific to a single intervention to improve learning outcomes, is worth noting for future reform efforts. That even when raising the water level raises all boats, if equity is not placed at the heart of interventions, these improvements may at best not address existing disparities in learning outcomes, and at worst aggravate them when well-performing students benefit more.[100]

- Beyond disparities in learning outcomes, the intersectionality of language with space to learn, neighbourhood, and race also has deeper implications for children disadvantaged by language. A study conducted in South Africa shows that these children may suffer from various forms of profound social exclusion.[101] The literature also documented practices of punishment,[102] humiliation, restriction, and discrimination by teachers towards children speaking their home language at school, which assuredly affects their social, economic, cognitive, and emotional development. [103]

- About 80% of children in sub-Saharan Africa are not taught in their first language.[104] *Table 4.1* shows that in many countries, including Benin, Burkina Faso, Chad, Niger, Senegal, and Togo, the percentage of students who have their first/home language as the language of instruction is less than 2% in early grades, but increases slightly by the end of primary education. This may be related to the disproportionately higher dropout rates of children whose first/home language is different from the language of instruction.

Table 4.1 Percentage of students who have their first or home language as language of instruction (%)

Country	Early grade	End of primary	Lower secondary
Benin	1,4	4,9	
Botswana			12,6
Burkina Faso	0,4	5,8	
Burundi	93,7	3,0	
Cameroon	15,5	15,7	
Chad	0,9	6,6	
Congo	12,2	20,8	
Côte d'Ivoire	7,0	12,5	
DRC		30,2	
Egypt			76,8
Gambia		3,2	
Ghana		12,6	
Lesotho		36,8	
Morocco	46,7		39,1
Niger	0,5	3,8	
Senegal	1,2	5,8	
Sierra Leone		1,9	
South Africa			30,9
Togo	1,2	3,0	

Data Source: UIS, SDG 4.5.2: "Percentage of students in a) early grades, b) at the end of primary, and c) at the end of lower secondary education who have their first or home language as language of instruction", http://data.uis.unesco.org/
Note: Countries are listed alphabetically
Data is from the following years: Benin (2014), Botswana (2015), Burkina Faso (2014, 2015), Burundi (2014), Cameroon (2014), Chad (2014), Congo (2014), Côte d'Ivoire (2014), DRC (2018), Egypt (2015), Gambia (2018) , Ghana (2018), Lesotho (2018), Morocco (2015), Niger (2014), Senegal (2014), Sierra Leoone (2017), South Africa (2015), Togo (2017)

- Although many countries are advocating for the use of local languages at schools, with a common policy choice being a transition to an international language at Grade 3 or 4 (known as the 'early exit' model), classroom implementation of language policies remains problematic. Barriers include the inadequacy of teacher training, curriculum adaptation, materials in the local language, the cost of developing such materials, and the pervasive belief that mastering an international language is more beneficial to children's academic success.[105] Challenges might be particularly acute in areas with great linguistic diversity, where the number of children speaking a language may not be sufficient to recruit a full-time teacher to teach in the same language.[106]

Examples of ongoing efforts and remaining challenges

The increased focus on learning and the challenges faced by low- and middle-income countries has led to a marked increase in knowledge and evidence on the range of possible interventions to improve learning and how effective they are. A systematic literature review for sub-Saharan Africa shows for example that pedagogical interventions, those employing adaptive instructional techniques and those focused on teacher training, are especially effective.[107] At the same time, the literature also points out that policies that work for 'average' learners will not necessarily be effective in addressing the larger challenges faced by the most vulnerable populations and therefore may not achieve equitable learning.[108]

The following pages synthesize interventions and challenges in three key policy areas: Improving FLN skills; improving transferable skills, STEM, digital skills, and skills for global citizenship; and the role of ICTs in improving learning outcomes and their use during the COVID-19 pandemic.

Improving FLN skills

With policy attention to FLN skills increasing since 2015,[109] several African governments have initiated programmes to enhance learning outcomes related to them. Some of these have focused on the learning processes inside schools. In Kenya, the government scaled up a pilot initiative for early grade reading into the nationwide Tusome (Let's Read) Programme. It aims to improve literacy outcomes for children in Grade 1 to 3 by enhancing classroom instruction, improving access to learning materials, and enhancing collaboration with other literacy actors.[xxxiii] Others have strengthened the role of community schools or community-based initiatives. In Zambia, the government has targeted 2,000 community schools and strengthened their capacity to teach FLN skills to over half a million marginalized children excluded from education, including vulnerable and orphan children.[110] In Benin, the government targeted out-of-school girls by identifying 15 to 24 year olds in remote communities and recruiting them into 'Girls Clubs' where they gained foundational literacy skills as well as transferable skills.[111] In Kenya, the government initiated a back-to-school programme (Wasichana Wote Wasome) that focused on disadvantaged rural and urban communities. It integrated social elements into a catch-up programme, as well as supporting the re-enrolment of child mothers in school.[xxxiv 112] Other remedial education efforts, including the Teaching at the Right Level model implemented in several African countries, are described in more detail in *Policy case study #5*.

Improving transferable skills, STEM and digital skills, skills for global citizenship

Governments' efforts to enhance learning outcomes at primary and secondary education level have not been limited to FLN skills but extend to transferable skills, STEM and digital skills, and global citizenship:

- In Liberia, a project targeting alternative basic education programmes has incorporated values education through sports, social activities, and community services.[113]
- In northern Uganda, UNICEF not only provided computer tablets to schools but also funded a solar-powered computer kiosk at youth centres to reach out-of-school youth and enhance their digital skills.[114]
- Cameroon's Teacher Training Programme (TTP) aims to improve learning outcomes in mathematics in secondary school and to increase the number of girls and boys who pursue STEM education at the tertiary level. To this end, it organizes teacher training programmes that strengthen the delivery of mathematics content at the secondary level across the country, sets up laboratories with state-of-the art features, and runs an e-learning platform.[115]
- In The Gambia, a new pedagogical approach (Progressive Science Initiative and Progressive Mathematics Initiative) incorporating technology directly into standard teaching methods has been piloted. Research suggests that this computer-assisted learning programme can improve student learning outcomes for both subjects in secondary schools.[116]
- Governments and regional and international organizations have undertaken efforts to move forward the global citizenship education agenda. In this respect, continental efforts around developing a

xxxiii. Evaluation studies of the Tusome Programme found a positive impact on early grade literacy in both Kiswahili and English. It focuses on building the capacity of teachers and coaches, and leverages the use of tablets to support this goal.
xxxiv. An evaluation of the Wasichana Wote Wasome (Let all Girls Learn) programme has identified a positive impact on their re-engagement in education and academic achievements in school.

shared vision for global citizenship education (GCED) in Africa are noteworthy.[117] The government of Kenya's education sector policy on peace education is pertinent as a country-level policy effort in this field.[118]

Role of ICTs in improving learning outcomes and their use during the COVID-19 pandemic

The role of ICTs in improving learning outcomes was already receiving growing policy attention before the onset of the COVID-19 pandemic in 2020. Initiatives involving low-cost tablets and educational apps for them proliferated on the continent.[xxxv] Remote schooling interventions using ICTs, such as the radio instruction in Sierra Leone during the Ebola crisis, were already being recognized and applauded.[119] However, since 2020, ICTs have taken an even more central position in policy discussions. They became a vital component of efforts to enhance learning outcomes but also to prevent learning losses as a result of the disruptions to schooling brought on by the pandemic. Many governments, at times in collaboration with non-state actors, turned to ICTs to ensure that children continued learning remotely when schools were closed. In Kenya, the government initiated radio and TV instruction.[120] Edo State in Nigeria leveraged an existing content repository and made it available via audio learning guides and self-study activity packets.[121] In Sierra Leone, the government worked to minimize learning losses through the use of distance learning via the Radio Teaching Programme, which also supported sensitization to prevent the spread of COVID-19, keeping girls engaged in learning, and preventing child pregnancies.[122] In designing and implementing these and similar ICT-based interventions, governments have faced the challenge of delivering equitable quality remote education in contexts where households' (and teachers') access to ICT infrastructure is vastly unequal (see *Chapter 8* for a broader discussion on the significance of ICTs in education).

As schools started to re-open, governments struggled with mitigating the learning losses from prolonged school closures, preventing the time away resulting in disadvantaged children dropping out permanently, remedying the disruptions to essential school-based nutrition and health programmes,[123] and undertaking all such efforts in ways that ensured, through targeted initiatives like accelerated learning or catch-up programmes, that learning losses were alleviated equitably.[124] Among promising efforts in this regard have been remedial education programmes, activities promoting socio-emotional well-being, communication campaigns for re-enrolment, providing school meals, supplies or cash transfers to encourage re-enrolment, and refocusing curriculum objectives on core subjects.[125] In Kenya, the government developed a basic education response plan, reopening guidelines and a training module for staff.[126] In Benin, the government organized a back-to-school campaign featuring community-level mobilization activities, promoted availability of WASH facilities in schools, introduced scholarships for children from low-income households, and organized remedial teaching.

The effects of the COVID-19 pandemic on education policy were certainly not limited to propelling ICTs to the centre of efforts targeting learning outcomes. The pandemic also put the resilience of education systems in the spotlight and highlighted the need to strengthen resilience[xxxvi][127] and institutionalize crisis risk reduction plans. In this respect, ongoing efforts to enhance various components of the education system now face the additional task of preparing for future crises and potential disruptions. More specifically, efforts around ICT-related investments in school facilities, teacher training in digital skills and remote learning, and curriculum revisions to accommodate remote learning, have moved to the forefront of the education policy agenda.

xxxv. Examples of programmes involving low-cost tablets and/or educational apps include, One Laptop Per Child, One Tab/One Billion App, Project Mwabu.

Policy case study #5: Tailored accelerated instruction in Zambia

Rising to the learning challenge

While firm steps have been taken to improve school access and education quality, this has not yet translated with equal force into children's learning.[128] To counter this, programmes have been developed to focus on strengthening the learning of foundational competencies in the region.[129] Some of these use the tailored, accelerated instruction model so that children falling behind the learning process have the opportunity to catch up to their peers.

The tailored, accelerated learning model is a multidimensional approach in which each learner progresses according to his or her specific needs and at his or her own pace. The outcomes often include more efficient learning that is especially beneficial to children who have missed schooling or whose learning was interrupted. [130] One of the tailored and accelerated programmes, Teaching at the Right Level (TaRL), uses a holistic approach to learning foundational reading and mathematics skills especially for learners who may have fallen behind their peers.

TaRL is a programme run by the Abdul Latif Jameel Poverty Action Lab (J-PAL) and the NGO Pratham, in collaboration with local NGOs and governments. Although the model varies across country contexts,[xxxvii] [131] it is based primarily on the Combined Activities for Maximized Learning (CAMaL) pedagogy, which seeks to equip children with foundational skills by focusing on a child's actual level rather than on their grade or age.[132] The programme aims to develop basic reading and arithmetic skills for children between grades 3 and 5 who are below their expected achievement level, according to each country's national curriculum. Students are grouped as per their learning level and frequently evaluated to monitor their progress and revise their learning paths as needed.[133]

TaRL is implemented by government school teachers, NGO staff, volunteers or paid tutors who receive initial training and ongoing mentoring related to the programme's goals. Evaluations show that government school teacher-led TaRL models have the potential to reach a greater number of children and are also more sustainable than those relying on external resources.[134] This is especially the case when teachers are supported with strong mentoring and monitoring systems and can dedicate time to TaRL activities.[135] Programme components associated with better programme outcomes include teacher training on pedagogy; the regular accompaniment, tutoring, monitoring of teachers; and mentoring tools designed for teachers.

The Zambian experience: from a targeted pilot to rapid scale-up

Zambia was one of the first countries in Africa to implement the TaRL programme[xxxviii] as part of its efforts to improve learning outcomes.[xxxix] [136] [137] Since 2015, the Ministry of General Education (MoGE) has collaborated with partners, and a first pilot called 'Catch-Up' was launched in November 2016 in 80 schools across 4 districts in the eastern and southern regions. An evaluation of the pilot phase showed a decrease in absenteeism and an improvement in learning: 83% of beginner level and 29% of intermediate level students improved their reading skills by at least one level after receiving 3 hours of instruction daily for 20 days.[138] Also, the programme provided teachers with relevant training at the beginning of

xxxvi. Resilience refers to the 'ability of education systems to withstand, adapt to and recover from shocks and stresses'.
xxxvii. It was first launched in India, in the early 2000s, and has since been adopted by ten countries in Africa: Botswana, Côte d'Ivoire, Ghana, Kenya, Madagascar, Mozambique, Niger, Nigeria, Uganda and Zambia.
xxxviii. Ghana was the first SSA country to experiment with TaRL officially in 2010.

the intervention, as well as a refresher training after the first term, which were described as 'critical' for ensuring teachers were fulfilling the programme goals.[139] Monitoring was carried out throughout the implementation phase, and included an assessment of learner progress, and the overall success of the implementation.[140] Following the successful completion of the pilot TaRL programme, it was decided to expand it to an additional 1,700 government and community schools in 20 districts, between 2017 and 2021.[xl] The target is to reach 200,000 students from grades 3 to 5, and 6,840 teachers and mentors.[141]

xxxix. In 2007, 48% of the students evaluated in the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SEACMEQ) failed to demonstrate basic reading skills and 72% failed to demonstrate basic numeracy skills. Then in 2014, a national assessment revealed that only about 2% of Grade 2 pupils were reading with comprehension.
xl. Zambia has about 9,000 primary schools, spread over 10 provinces and 106 districts. IPA (Innovations for Poverty Action), Catch up Pilot Using Teaching at the Right Level Methodology: Process Monitoring Report (Innovations for Poverty Action, 2017), p. 7 https://www.unicef.org/zambia/media/591/file/Zambia-catch-up-report.pdf

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Chapter 5

Skills for work:

TVET and tertiary education[i 1]

CHAPTER SUMMARY

This chapter is anchored in the nexus between education/training and employment/economic growth. Key issues and findings highlighted include:

To seize the potential 'demographic dividend' for generating greater productivity and boosting economic growth, many African governments have increasingly turned their efforts to: (i) building skills to help prepare young Africans for a rapidly changing and highly competitive global labour market, and (ii) strengthening the links between education, training, and the labour market to support youth for productive employment.

Governments face multiple challenges in designing and implementing these efforts, including the fact that national labour markets are characterized by widespread informality. Another challenge concerns the mismatch between the skills young people have and those demanded in the labour market. This means moving beyond job-specific skills and focusing also on a broader set of abilities that include digital skills, foundational literacy and numeracy skills, and increasingly, soft skills. To reduce the size of skills mismatch, several governments have undertaken system-level reforms (e.g. competency-based training approach to TVET) and programme-level interventions (e.g. complementary training to strengthen soft skills).

At the tertiary education level, the growing demand for higher education has led to a diversification of providers, which in some cases has resulted in widely varying levels in the quality and relevance of private tertiary education. Increasing policy attention is being paid to this variation in some countries as well as at the continental level. Pertinent policy undertakings include the introduction of regulatory frameworks, accreditation guidelines, and quality assurance mechanisms. Disparities in tertiary education, particularly wealth-related ones, are another challenge. There are growing efforts to build diverse and flexible learning pathways between education, training, and work.

An analysis of the state of youth employment, TVET, and tertiary education against the benchmark indicators highlight the following:

- The proportion of youth (15-24) not in education, employment, or training (NEET) captures the aggregate inefficiencies in the education system and the labour market. Data from the baseline period analysed in this report is limited to 12 countries, and notable differences are observed between them, with around one out of eight youth being NEET in some countries, to one out of three in others. Sizable gender differences also exist. A higher proportion of young women are NEET in all countries, yet the size of the gap between young women and young men varies considerably across countries.

- Young people's access to vocational education is below 1% in more than a third of the countries where data is available. In most countries, young men are enrolled in vocational education at higher rates than young women.

- In the vast majority of countries where data is available, the gross attendance ratio in tertiary education is below 10%. Moreover, wealth-based disparities in accessing tertiary education are sizable and pervasive, though the size of the gap varies across countries. In only a few, both women and men have equal opportunities to attend tertiary education. For most of the remaining countries, the gender disparity appears to favour men.

i. This chapter focuses on skills for work and is anchored on the TVET and tertiary education elements of the SDGs and CESA. However, it must be noted that, while it is not included here, non-vocational, general secondary schooling (i.e., ISCED Level 24 and 34) also constitutes a critical component of the education system directly linked to skills building for life and the labour market. This will become increasingly more relevant as higher percentages of the young people in African countries complete non-vocational, general secondary education and try to transition to the labour market. Relatedly, while primary education (ISCED Level 1) and early childhood education (ISCED Level 0) - also not included in this chapter - are not directly linked to efforts around skills for work, the socio-emotional skills and the foundational literacy-numeracy skills acquired in early years constitute the vital foundations to be built upon in subsequent education levels and through lifelong learning. Although this chapter builds its analysis around the labour market and economic growth, these skills (particularly socio-emotional skills) are significant not only for this market but also for lifelong learning, personal development, individual empowerment, and community engagement.

Background

Investing in skills for work to seize the potential demographic dividend

The working age population is growing across the continent and most countries are entering (or have already entered) the demographic transition of declining dependency ratios,[ii iii 2] which is lessening pressure on the working age population and increasing the potential for economic growth.[3] This potential 'demographic dividend' presents a window of opportunity to generate greater productivity, boost economic growth, and end poverty.[4] To seize it, many African governments have intensified efforts to build the skills of school age children and youth to prepare them for a rapidly changing and highly competitive global workforce,[5] and to strengthen the bridges between education, training, and transition to the labour market.[6]

Skills for work, TVET, and tertiary education in SDGs

In Agenda 2030 and several SDGs, governments commit themselves to targets related to skills for work, technical, vocational, and tertiary education. Technical and vocational training, and tertiary education are among the components for which they undertake to provide inclusive and equitable quality education.[7] More specifically, they commit to ensuring 'equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university' (SDG 4.3), to 'substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship' (SDG 4.4), and to 'substantially reduce the proportion of youth not in employment, education or training' (SDG 8.6).[8]

Skills for work, TVET, and tertiary education in CESA

Similar to Agenda 2030, CESA places an emphasis on the relevance of education and training with a focus on science and technology, and puts forward the need to 'expand TVET opportunities at both secondary and tertiary levels and strengthen linkages between the world of work and education and training systems' (SO 8), and to 'revitalize and expand tertiary education, research and innovation to address continental challenges and promote global competitiveness' (SO 9), among its strategic objectives.[iv] In its overview of sectors, CESA highlights the paradigm shift in TVET promoted by the Continental Strategy for TVET to Foster Youth Employment, which frames it as the preparation for 'youth to become more of job creators than job seekers'.[9] Indeed, the strategy describes support to young people in the acquisition of professional skills through TVET programmes as a key element of many countries' development strategies.[10] In CESA's overview, continental efforts to elevate the status of TVET are contrasted with low enrolment rates, outdated training and facilities with limited relevance, and the prevalence of gender disparities. CESA highlights several challenges in this respect, including high costs of expanding TVET, and calls for transforming it from a simple amalgamation of technical and/or professional institutions to a coherent system for building quality skilled human resources.[11]

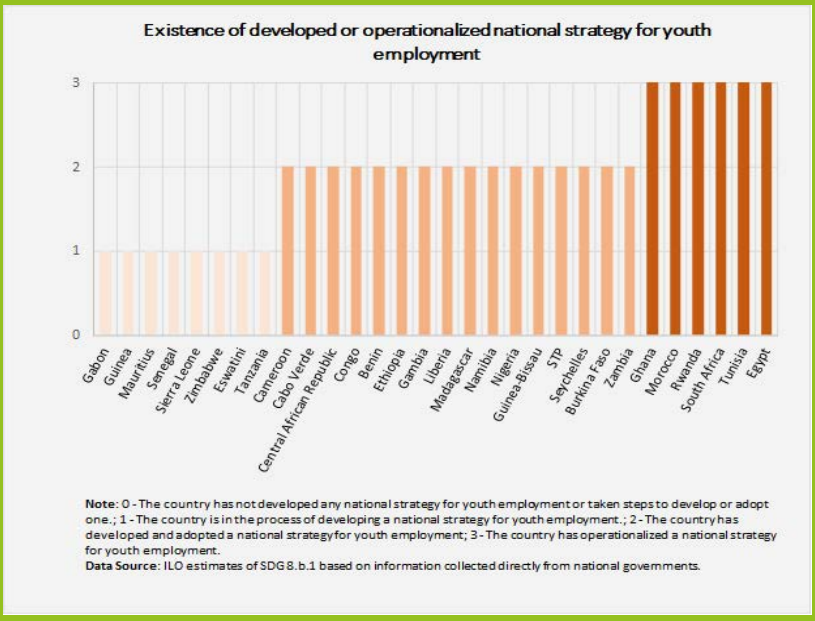
ii. Dependency ratio relates the number of children and older persons to the working age population.
iii. While UN estimates predict that Africa's youth population (15-24 years old) will increase until it reaches about 20% in 2030, this growth will be uneven across the continent, with southern and northern Africa having already completed the demographic transition.
iv. Action areas listed under SO 8 are: establish and strengthen labour market information systems to identify skills and competencies needs, expand and upgrade TVET and polytechnics to attract quality trainees and provide incentives for career opportunities; build win-win partnerships between tertiary and vocational training institutions and enterprises to jointly develop and implement relevant curricula and programmes; institutionalize internships as part of preparation for the world of work; and provide incentives for training institutions and private sectors involved in applying innovative solutions and promoting young entrepreneurs. Action areas listed under SO 9 are: honour national commitment to allocate 1% of GDP to research and innovation; create conducive environments for research and innovation through the provision of adequate infrastructure and resources; link research to the development of priority areas and enhancement of global competitiveness; promote research on education and TVET; consolidate and expand centres of excellence and enhance institutional linkages in the continent; promote international research and development cooperation based on continental interest and ownership; expand competitive grants and awards and other support mechanisms to nurture young academics and accomplished researchers; strengthen quality postgraduate and postdoctoral education to cater for expanding tertiary education, as well as meet demand for high level human capital.

CESA places a similarly significant importance on tertiary education for 'meaningful and sustainable economic growth', and presents it as a 'critical imperative for national development and global competitiveness', along with scientific research and TVET.[12] In its overview, the impressive increase in access to tertiary education over the preceding two decades is celebrated, but concerns are expressed about the enrolment rate still being low compared to other regions, science and technology fields not receiving adequate attention compared to humanities and social sciences, as well as problems with the quality and relevance of university education.[13] Finally, CESA highlights considerable disparities in accessing tertiary education with respect to 'gender, social class, geographic location, minority groups, and disability'[14] and raises alarm over the growing trend in jobless graduates.[15] The centrality of TVET, tertiary education, science and technology, and skills for work in CESA is clearly reflected by the number of clusters working on these issues, including the STEM Education, Higher Education, Life Skills and Career Guidance, and TVET clusters.[v]

Relevant SDG 4 and CESA indicators related to skills for work, TVET and tertiary education are described in *Appendix 3*.

Box 5.1 Enabling legal frameworks for TVET and skills for work

Efforts to expand access to tertiary education and TVET are more effective when backed by policies and enabling legal frameworks. The SDG indicator for the enabling frameworks related to TVET is: SDG 8.b.1 'Existence of developed or operationalized national strategy for youth employment, as distinct strategy or as part of a national employment strategy'. The CESA indicator for the enabling legal frameworks related to TVET is: 8.5 'State of national TVET policies and governance structures.' Data has not been systematically collected for this indicator.

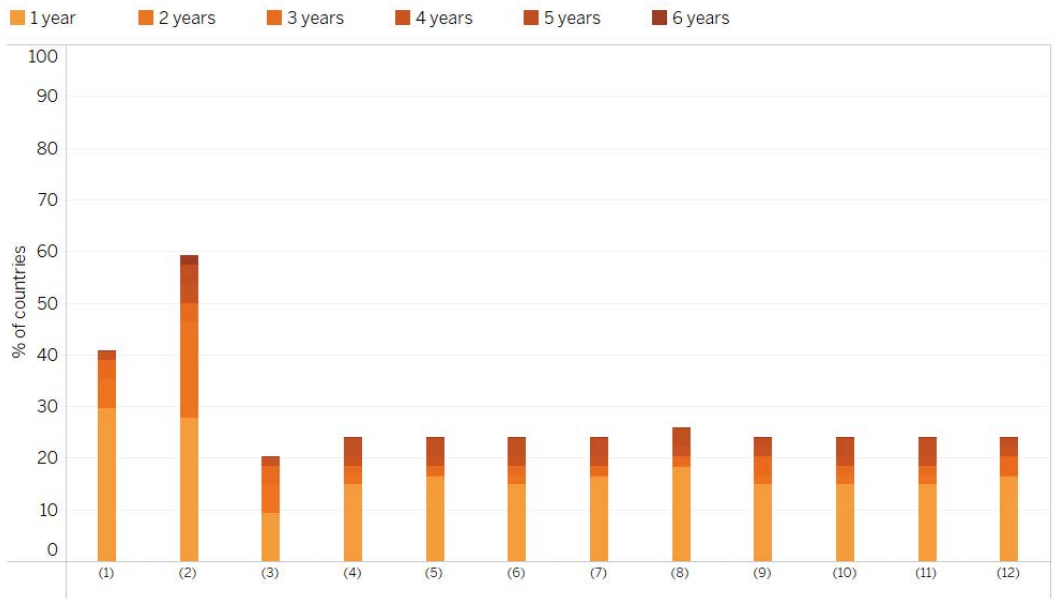


For SDG 8.b.1: As can be seen in the figure, out of the 31 countries for which there is data at endline (2020), a majority of them (22 countries) has developed and adopted a national strategy for youth employment. Six of these (Egypt, Ghana, Morocco, Rwanda, South Africa, Tunisia) have operationalized their strategy. In addition, all countries have taken steps to adopt a national employment strategy. The 9 countries (DRC, Eswatini, Gabon, Guinea, Mauritius, Senegal, Sierra Leone, United Republic of United Republic of Tanzania, Zimbabwe) that still do not have a national youth employment strategy are in the process of developing one. Accelerating processes for developing, adopting, and operationalizing a national youth employment strategy is necessary for reducing youth unemployment and supporting existent efforts for expanding access to technical and vocational skills.

v. Other regional and continental collaboration efforts in this area include, among others, the Platform of Expertise in Vocational Training (Pefop), TVET Strategy and regional framework for cooperation developed by SADC, Better Education for Africa's Rise Project in the SADC, and UNEVOC TVET Leadership Programme for Southern and Eastern Africa, and most recently, the Innovation and Information Lab by the African Development Bank.

Box 5.2 Data availability

Figure 5.1 Proportion of countries with 1, 2, 3, 4, 5, and 6 available data points over the period 2015-2020, for indicators on skills for work, TVET, and tertiary education



(1) Gross expenditure on research and development as a percentage of GDP
(2) Proportion of youth aged 15 -24 years not in education, employment, or training
(3) SDG 4.3.1: Participation rate of youth and adults in formal and non-formal education and training
(4) SDG 4.4.1: Proportion of youth and adults who have connected and installed new devices
(5) SDG 4.4.1: Proportion of youth and adults who have copied or moved a file or folder
(6) SDG 4.4.1: Proportion of youth and adults who have created electronic presentations with presentation software
(7) SDG 4.4.1: Proportion of youth and adults who have found, downloaded, installed, and configured software
(8) SDG 4.4.1: Proportion of youth and adults who have sent e-mails with attached files
(9) SDG 4.4.1: Proportion of youth and adults who have transferred files between a computer and other devices
(10) SDG 4.4.1: Proportion of youth and adults who have used basic arithmetic formulae in a spreadsheet
(11) SDG 4.4.1: Proportion of youth and adults who have used copy and paste tools to duplicate or move information within a document
(12) SDG 4.4.1: Proportion of youth and adults who have written a computer program using a specialised programming language

Data Source: UIS, SDG 4.3.1, and 4.4.1

This shows data availability for benchmark indicators that are related to skills for work, TVET, and tertiary education, collected as part of the SDG monitoring efforts (Bars 1 and 2). It also shows data availability for SDG 4.3 and 4.4 global indicators (Bars 3-12). About 40% of the countries have data on research and development expenditure and about 60% have NEET data. For the first group of countries, about one-fourth have data for two or more years since 2015. For the second group, about half of them do. For the global SDG indicator on digital skills (4.4.1), about a quarter of all African countries have any data available since 2015, and only about one out of ten countries have two or more data points.

Major issues concerning skills for work and TVET

The challenge of investing in skills for work in a highly informal labour market

One of the critical challenges facing African governments, not only to seize the 'demographic dividend' for economic growth by increasing productivity but also to prevent social unrest and lessen income inequalities while economies are growing,[17] is ensuring that all young people can secure employment or create their own livelihood. Tackling this challenge requires ambitious education and training systems that equip them with the relevant knowledge and skills demanded in the labour market.[18] Yet even this may be inadequate given the unique reality facing African economies, where it is mostly informal work in the services sector rather than formal jobs in the manufacturing sector that act as the force pulling labour from agriculture,[19] and the ability of these jobs to absorb highly skilled people is relatively limited. Hence, for most African countries, government efforts around skills building are formulated against the reality of widespread informal employment and the fact that most young people will need to find employment in the informal sector.[20] The majority of employment in Africa (85.8% total, 71.9% excluding agriculture) is informal.[21] While governments continue to push for a transition from a predominantly informal market to a mostly formal market where decent work[vi] [22] is more widely available, they also appear to be increasingly taking into account and capitalizing on the realities of the informal sector in designing appropriate and responsive TVET and school-to-work transition models.[vii] [23]

Building diverse and flexible pathways between education, training, and work

Relevant in this regard is a reframing of the interaction between education, training, and work, not as a linear continuum but as presenting different possible pathways.[24] The dominant pathway is 'the education scenario', when studying leads to knowledge and skills, which then leads to accreditation according to the level of study.[25] A second pathway is 'the training scenario', when work and training leads to technical and vocational skills and knowledge, which then leads to accreditation according to a given level of qualification.[26] And a third pathway is the 'work scenario', when productive activity and training leads to skills and knowledge, which then leads to enhanced production.[27] These or similar ways of reframing the relation between education, training, and work to recognize and incorporate the non-linear interaction between the three could contribute to the identification of alternative processes and mechanisms that are facilitated, regulated, and enhanced by governments. These alternative processes and mechanisms to formal schooling documented by diplomas, could better reflect the dual reality of low completion rates in formal schooling and its limited impact on the acquisition of foundational skills and skills for work. At the tertiary education level, flexible learning pathways for getting into (alternative access), going through (transition), and getting out of tertiary education (graduation and employment) can offer flexible and inclusive options for more equity and efficiency in the provision of tertiary education services.[28]

vi. Decent work involves opportunities that are productive and deliver a fair income, security in the workplace, social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives, and equality of opportunity and treatment for all women and men.

vii. The pertinent literature on informality in the labour market underlines the challenge of defining the terms informal economy and formal economy, and puts forward a productivity definition (i.e., 'non-professionals, unskilled, marginal jobs, the self-employed, domestic and family workers, and workers in small firms with up to five employees'), and a legalistic definition (i.e., 'non-compliance (...) in terms of labour laws and social security systems'). For the purposes of this report, the legalistic definition is considered more relevant.

Overcoming institutional bottlenecks to building new pathways

Recognizing the non-linear nature of the interaction between education, training, and work, and building processes and mechanisms accommodating and strengthening alternative pathways, can transform the 'effectiveness of education and training systems in generating skills demanded by employers' [29] to the extent that institutional bottlenecks are also addressed. Such bottlenecks may concern budget allocation, policy coordination, or information flows. More specifically, budget allocation decisions may continue to be detached from the performance of TVET service providers (as measured by internal efficiency, outputs, and impact on beneficiaries) and aggregate levels of funding may not reflect the importance of TVET for economic growth.[30] In addition, while the complexity of TVET as a policy arena necessitates effective coordination and collaboration not only across ministries but also between public and private sector actors, institutional weaknesses and misaligned incentives may hinder the success of these collaboration attempts.[31] Similarly, a timely and reliable flow of information between these actors, something vital to reducing the skills mismatch problem,[32] may falter, which highlights the importance of strengthening labour market information systems (LMIS). In this regard, IIEP-UNESCO's Platform of Expertise in Vocational Training (Pefop) is worth noting, given its focus on operationalizing reformed vocational training policies that focus on meeting the needs of the economy and the 'endorsement of skills geared to employment and integration'.[33] Pefop helps mobilize and strengthen public-private partnerships engaged in the implementation of these policies by providing them with the resources and tools they need in order to strengthen the governance and functioning of TVET in partner countries.

Understanding and addressing skills mismatch in labour markets

A mismatch between the skills supplied to the labour market by current/potential employees and those demanded by employers can take many forms, including skills shortage, skills surplus, skill gap, and over or underskilling.[34] It can pose a challenge to employers who are constrained in their hiring efforts or disappointed with their employees' performance, to dissatisfied employees who feel that their skills are underutilized, and to frustrated jobseekers who are struggling to find work that fit their skill set. Skills mismatch affects both the formal and the informal labour markets.[35] Particularly in the informal labour markets, issues with limited data availability hinder the development of better-informed TVET and labour market policies and interventions.[viii 36] Available data on the incidence of skill and educational mismatches of employed youth from 10 African countries suggest a high prevalence of undereducation (57%) and underskilling (29%) but also some overeducation (8%) and overskilling (18%). [37]

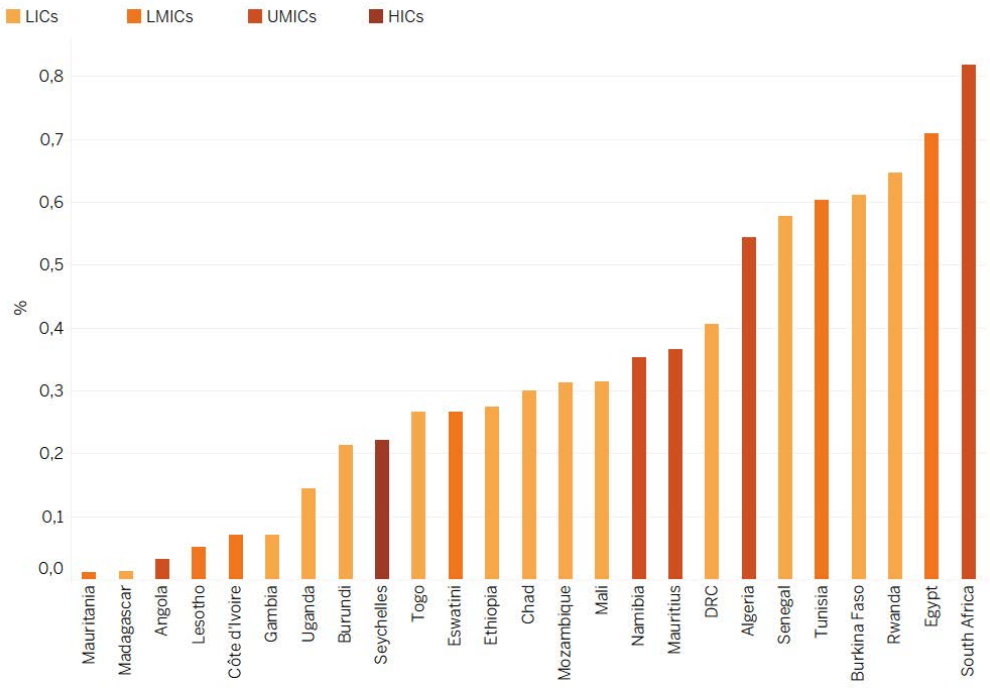
While policy conversations on skills mismatch have focused predominantly on job-specific skills in the past, in recent years digital skills, foundational literacy and numeracy skills, and, increasingly, soft skills[ix 38] have taken a central position.[x 39] With this expansion of the scope of skills considered relevant for the labour market, skills-related learning objectives have also broadened beyond TVET and tertiary education[40] to include secondary, primary, and even pre-primary education. In this regard, the analysis on minimum proficiency in literacy and numeracy presented in *Chapter 4* is pertinent.

viii. Data availability issues stem from a range of reasons, including the technical difficulties of measuring an individual's skills and those demanded in the labour market. The Skills Measurement Program (STEP) targeting low- and middle-income countries (including Ghana and Kenya) to assess the links between educational achievement and skills acquisition, and requirements in labour markets is noteworthy in this respect.

Investing in and regulating tertiary education for effective TVET and research and development

Science, technology, and innovation (STI) is at the core of Agenda 2063 and its vision for sustainable development for Africa. As also put forward in the Science, Technology and Innovation Strategy for Africa 2024 (STISA 2024), research and development (R&D) is vital for advances in this field, and tertiary institutions are seen as critical hubs for this. STISA 2024 also highlights the importance of upgrading science laboratories and the establishment of a world class STI infrastructure.[41] With this in mind, the African Union set a target of 1% of GDP to be invested on R&D, a somewhat ambitious target that is higher than current investment levels in most of the developing world. Yet, as shown in *Figure 5.2*, several African countries, including middle-income countries like Algeria, Egypt, South Africa, and Tunisia, but also low-income countries like Burkina Faso, Rwanda, and Senegal are already above the 0.5% level and continuing to push upwards.

Figure 5.2 Research and development expenditure as a proportion of GDP



Data Source: UIS, SDG 9.5.1 : "Research and development expenditure as a proportion of GDP", http://data.uis.unesco.org/
Note: Countries are listed in order of their R&D expenditure as a proportion of GDP
Data is from the following years: Mauritania (2018), Madagascar (2016), Angola (2016), Lesotho (2015), Côte d'Ivoire (2016), Gambia (2018), Uganda (2014), Burundi (2018), Seychelles (2016),Togo (2014), Eswatini (2015), Ethiopia (2017), Chad (2016), Mozambique (2015), Mali (2015), Namibia (2014), Mauritius (2017), DRC (2015), Algeria (2017), Senegal (2015), Tunisia (2016), Burkina Faso (2017), Rwanda (2016), Egypt (2016), South Africa (2016)

ix. The term 'soft skills' is used to indicate a set of intangible personal qualities, traits, attributes, habits, and attitudes that can be used in many different types of jobs. Examples include empathy, leadership, sense of responsibility, integrity, self-esteem, self-management, motivation, and time management.
x. Different institutions use different categories to capture types of skills. Some examples include: European Commission (basic skills [including literacy, numeracy, foreign languages, science and digital skills], transversal skills, vocational skills); ILO (foundation or basic skills [including literacy and numeracy], personal skills, transferable skills, technical and vocational skills); World Bank (cognitive skills, behavioral skills, technical skills); UNESCO (foundation skills [including literacy and numeracy], transferable skills, technical and vocational skills).

Changing landscape of tertiary education

Low levels of investment in tertiary education institutions are also of concern because of the growing demand for post-secondary education in many countries.[42] In some of these, the growing demand has led to the 'diversification' of the tertiary education landscape. At times, this is marked by 'the elevation of often poorly resourced public institutions to university status',[43] and emergence of a vast number of disparate private tertiary education institutions.[44] Indeed, the number of universities on the continent increased from 784 in 2000 to 1,682 in 2018,[45] and much of this increase has occurred in the private sector.[46] While this has led to a sizable increase in the number of young people attending tertiary education, as discussed in the *General findings* section of this chapter, access to tertiary education continues to be shaped by wealth-based disparities and thus may not include young people from less wealthy households.

The increase in the number of private tertiary education institutions and their 'highly variable quality'[47] has raised some concerns and led to policy attention being paid to regulatory framework, accreditation, and quality assurance mechanisms, and to building enabling operating environments for private providers to accommodate a growing demand from young people. Highly relevant in this regard is the Pan-African Quality Assurance and Accreditation Framework (PAQAF) championed by the African Union Commission. PAQAF's key goal includes the harmonization of higher education programmes so that they can help contribute to 'the creation of a revitalized, distinctive, attractive and globally competitive African higher education space, through intra-African collaboration'.[48] Another notable partnership has been the creation of higher education institution hubs under the Pan African University (PAU), with each hub representing a thematic area in which Africa hopes to expand its STI research and development.[49] Some countries have also intensified their efforts to address the quality issue and its links to youth employability. For example, the Ministry of Higher Education and Scientific Education in Tunisia has undertaken wide-ranging reform since 2016 to improve the employability of future graduates and the governance of higher education. [50]

School-to-work transition in need of more attention

The school-to-work transition[xi] [51] and a young person's first years in the labour market can have consequences for their future employment, earning prospects, and well-being.[52] Immediate factors that shape a person's school-to-work transition include labour market conditions (e.g. availability of jobs for new entrants), skills availability (e.g. match between the demand for a certain combination of skills and a young person's existing skills set), and factors related to the process of search for work (e.g. information availability).[53]

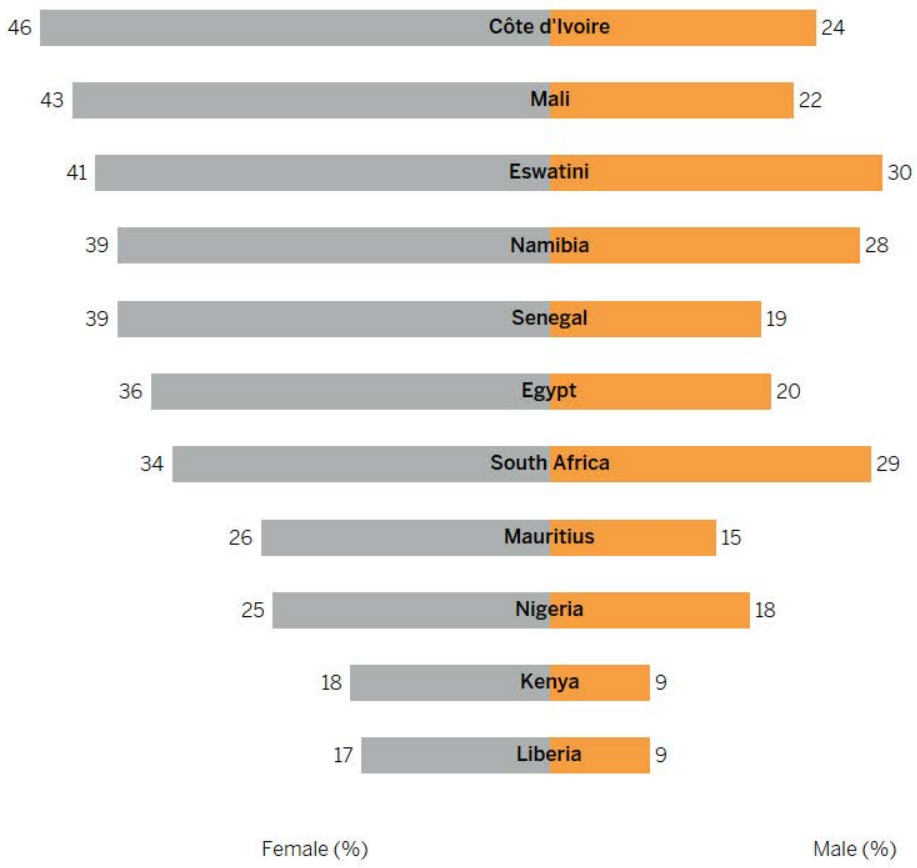
xi. School-to-work transition refers to the process of moving from education, to training, to employment, covering the period in which this change takes place.

General findings

NEET: An indirect way to examine TVET, skills for work, and employability

Measuring skills for work and participation in TVET poses various challenges. This is due to the fact that there has not been agreement on what should be considered 'skills for work' and what constitutes 'TVET'. As a result, it has been difficult to come up with measurable indicators for the two areas. Instead, there exists a rather scattered pool of indicators with limited scope (see *Box 5.2* on data availability). With this in mind, one of benchmark indicators identified by AUC and UIS, 'proportion of youth aged 15-24 years not in education, employment or training' (NEET), has been identified as the most relevant as it indirectly captures the aggregate inefficiencies in the education system and the labour market.[xii] For the baseline period analysed in this report, data for NEET is available for only 11 countries and is shown for young women and young men in *Figure 5.3*. Notable differences emerge when comparing NEET values across them. For example, while in Liberia and Kenya about one in eight young people is not in education, employment, or training, in Côte d'Ivoire, Eswatini, Mali, Namibia, Senegal, and South Africa, this is the case for about one in three.

Figure 5.3 Proportion of youth not in education, employment, or training (NEET)



Data Source: ILO, SDG 8.6.1: "Proportion of youth(aged 15-24 years) not in education, employment or training (%)| Annual". https://ilostat.ilo.org/data/.
Note: Countries are listed in order of the female proportion of youth not in education
Data is from the following years: Côte d'Ivoire (2016), Mali (2016), Eswatini (2016) , Namibia (2016), Senegal (2016), Egypt (2016), South Africa (2016), Mauritius (2016), Nigeria (2016), Kenya (2016), Liberia (2016).

xii. Other pertinent benchmark indicators considered by UIS and AUC are TVET graduates labour force participation rate, public expenditure on TVET, and proportion of students enrolled in STEM-related fields. However, data is not available for these indicators at the time this report was prepared.

Gender disparity in NEET

As also shown in *Figure 5.3*, sizable differences exist in all countries between the proportion of young women versus young men who are not in education, employment or training, but the size of this gap varies across countries. In Côte d'Ivoire, Egypt, Kenya, Liberia, Mali, and Senegal the proportion of young women who are not in education, employment, or training is twice the proportion of young men. In Eswatini, Namibia, Nigeria, and South Africa, the difference is relatively smaller. It is, however, worth noting that the gender disparities in NEET in Africa is well below the global average.[54]

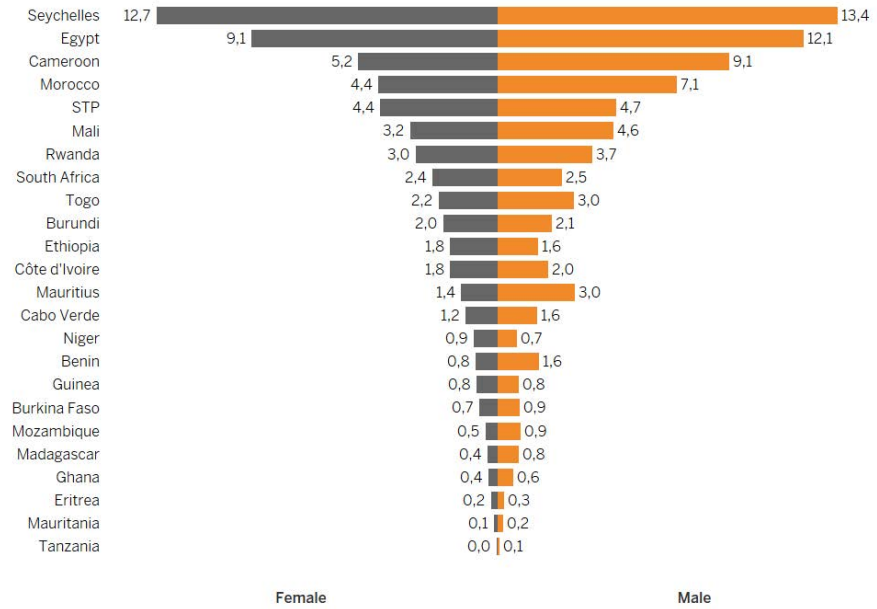
Access to vocational education

With respect to young people's access to vocational education, data is available for 25 countries for the baseline period analysed in this report and is shown in *Figure 5.4*. A comparison between countries reveals sizable differences: less than 1% of young people in Eritrea, Ghana, Guinea, Madagascar, Mauritania, Mozambique, Niger, and the United Republic of United Republic of Tanzania are enrolled in vocational education, in comparison to one in ten in Egypt and one in eight in Seychelles.

Gender disparities in vocational education

With respect to gender, in almost all countries, the proportion of young men enrolled in vocational education is higher than the proportion of young women, with the exception of Ethiopia (1.8 and 1.6%) and Niger (0.9 and 0.7%). However, the size of the difference varies across countries. Some, including Burundi (2.0 and 2.1%), South Africa (2.4 and 2.5%), and the Seychelles (12.7 and 13.4%) are approaching gender parity while others, including Benin (0.8 and 1.6%), Cameroon (5.2 and 9.1%), Madagascar (0.4 and 0.8%), and Mauritius (1.4 and 3.0%) are confronting sizable disparities. Also relevant is the limited scope of the viable analyses with respect to equity in young people's access to vocational education. Available data allows for an equity analysis only for gender, and not for household wealth, location (urban-rural), or the disability status of the young person.

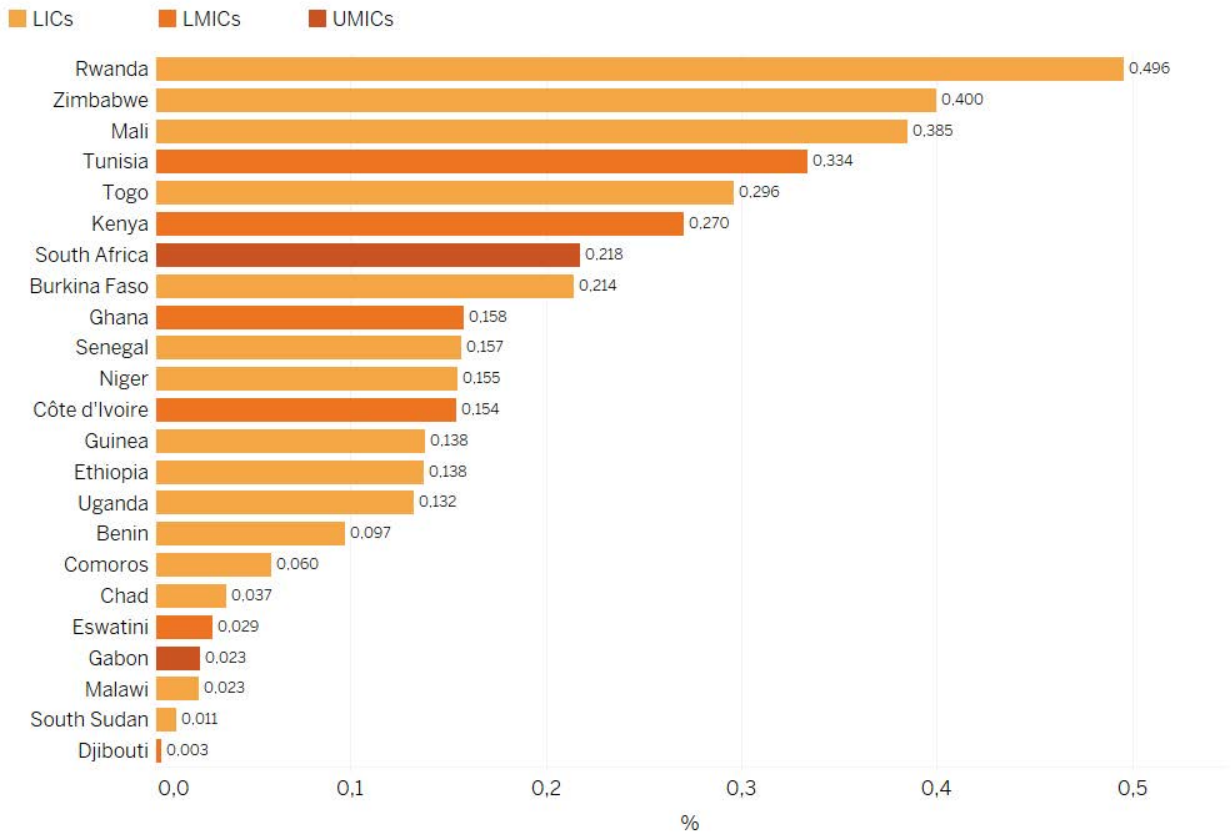
Figure 5.4 Proportion of youth enrolled in vocational education



Data Source: UIS, SDG 4.3.3: "Proportion of 15-24 year-olds enrolled in vocational education, both sexes (%)", http://data.uis.unesco.org/
Note: Countries are listed in order of their female proportion of 15-24 year-olds enrolled in vocational education
Data is from the following years: Seychelles (2016), Egypt (2016), Cameroon (2016), Morocco (2018), STP (2015), Mali (2016), Rwanda (2016, 2017), South Africa (2015), Togo (2017), Burundi (2016), Ethiopia (2015), Côte d'Ivoire (2016), Lesotho (2015), Mauritius (2016), Cabo Verde (2016), Niger (2015), Benin(2016), Guinea (2014), Burkina Faso (2016), Mozambique (2015), Madagascar (2016), Ghana (2016), Eritrea (2016), Mauritania (2016), Tanzania (2016).

These differences in enrolment rates between countries are also partly reflected in the various government's spending on vocational education as a percentage of GDP**,** as shown in *Figure 5.5*.[xiii] Despite limited data availability constraining a complete country-to-country comparison, it appears that those with higher levels of public spending on vocational education also have relatively higher levels of enrolment in this sector (e.g. Mali, Rwanda, Togo). It must also be noted that while in all African countries the government is the main source of funding for TVET, some countries choose to diversify its sources of financing in an effort to increase access and quality of TVET while preserving the low levels of public budget allocation.[55] To do so, these governments may seek contributions from private sector enterprises to finance training programmes, such as dual-type training, a vocational training tax, or the institutionalization of a training fund.[56]

Figure 5.5 Government expenditure on secondary and post-secondary non-tertiary vocational education, as percentage of GDP



Data source: "Government expenditure on secondary and post-secondary non-tertiary vocational education, as a percentage of GDP". Data retrieved from National monitoring database, UIS". http://data.uis.unesco.org/
Note: Countries are listed in order of the government expenditure on secondary and post-secondary non-tertiary vocational education as a percentage of GDP
Data is from the following years: DRC (2015), Gambia (2015), Namibia (2016), STP (2014), Seychelles (2016), Zambia (2015), Djibouti (2015), South Sudan (2016), Malawi (2016), Gabon (2014), Eswatini (2014), Chad (2018), Comoros (2015), Benin (2015), Uganda (2014), Ethiopia (2015), Guinea (2016), Côte d'Ivoire (2016), Niger (2016), Senegal (2015), Ghana (2014), Burkina Faso (2016), South Africa (2016), Kenya (2015), Togo (2016), Tunisia (2014), Mali (2016), Zimbabwe (2014), Rwanda (2016)

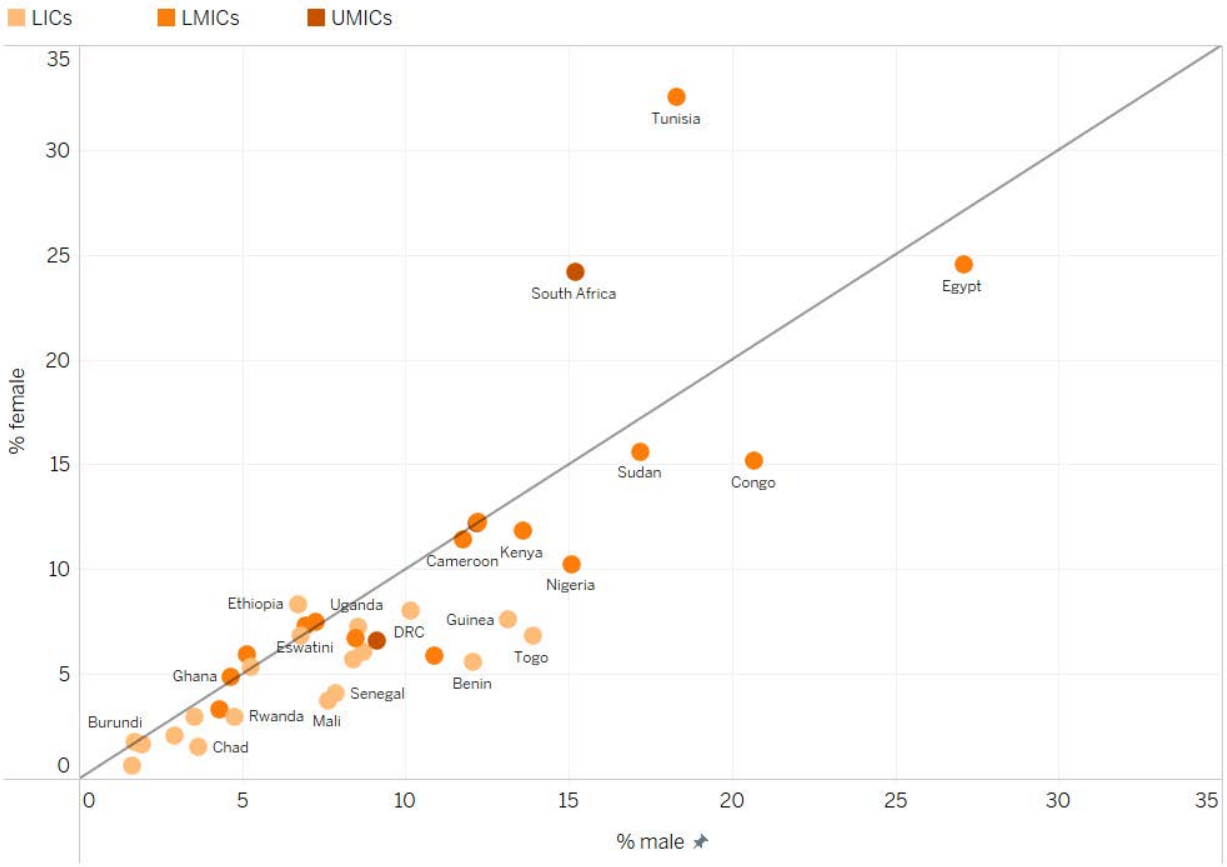
Gender disparities in tertiary education

When compared to young people's access to vocational education, available data on attendance in tertiary education allows an examination of both gender- and wealth-related disparities.[xiv] *Figure 5.6* plots young men's gross attendance ratio against young women's attendance ratio in tertiary education. The diagonal parity line is also marked on the figure. There are only a few countries in Africa, including

xiii. Note that this indicator concerns government spending on vocational education at secondary and post-secondary, non-tertiary vocational education.
xiv. Several other dimensions of exclusion are not reflected in the data currently being collected, including access to tertiary education by refugees, young people from rural areas, and young people with disabilities, among others.

Cameroon, Lesotho, and Madagascar where women and men have equal opportunities to attend tertiary education. For all other countries, we observe gender disparities. For the majority of them, the disparities favour men and these differences are particularly sizable in Benin, Chad, DRC, Guinea, Mali, Mauritania, Senegal, the United Republic of United Republic of Tanzania, and Togo. In a handful of countries, including Ethiopia,[xv] Sao Tomé and Principe, but especially in South Africa and Tunisia, gender disparities in tertiary education attendance favour women. However, even in Tunisia and South Africa, women's labour force participation rates lag behind that of men,[xvi 57 58] although the size of the gap between male-female labour participation rates decreases as the education level increases.[59] Gender differences also exist in the types of career programmes attended by young women and men. An observably higher proportion of women are enrolled in health-welfare, education, arts and humanities, and social sciences, while there is a much higher proportion of men enrolled in engineering-manufacturing and ICT-related programmes.[60]

Figure 5.6 Gross attendance ratio, tertiary education



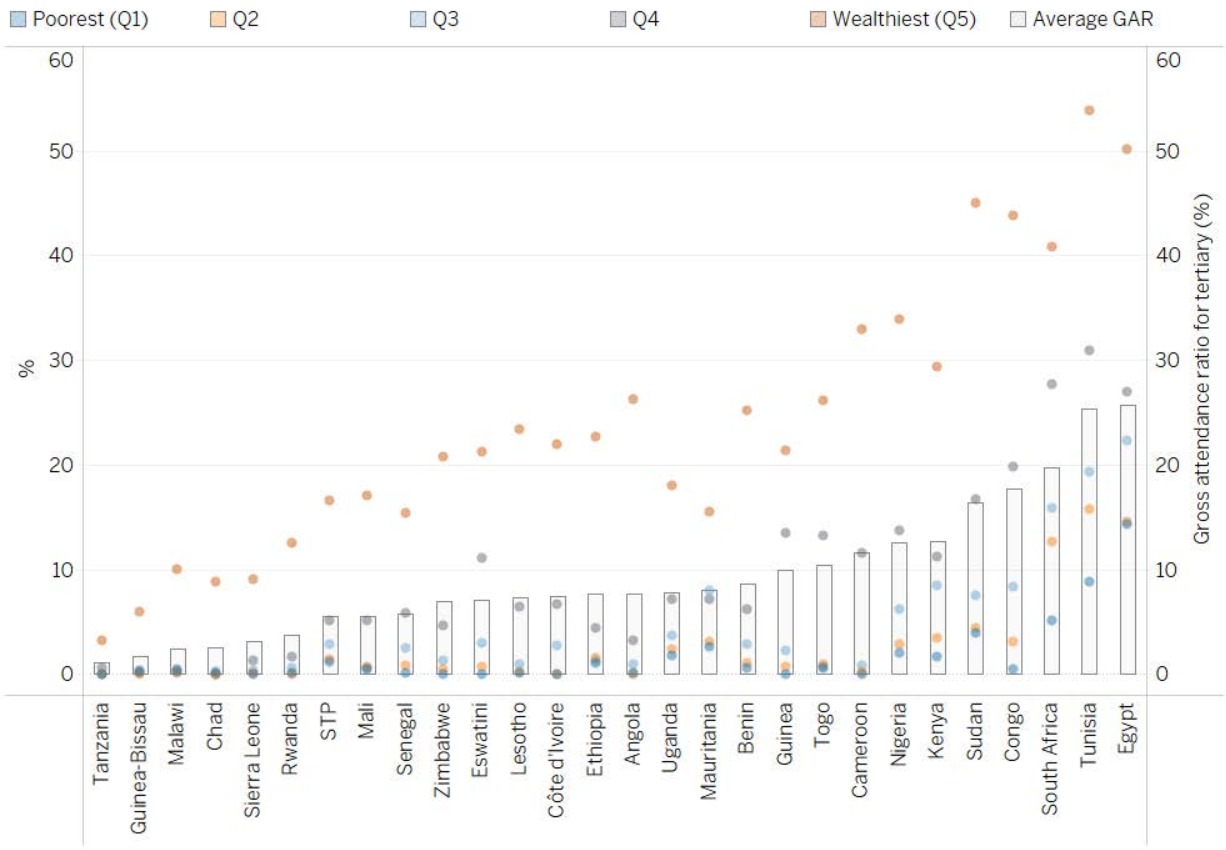
Data Source: UIS, SDG 4.3.2 "Gross attendance ratio for tertiary education", http://data.uis.unesco.../
Data is from the following years: Tanzania (2015), Guinea-Bissau (2014), Burundi (2017), Malawi (2016), Chad (2014), Sierra Leone (2017), Zambia (2018), Rwanda (2015), Ghana (2014), Madagascar (2018), STP (2014), Mali (2015), Senegal (2016), Zimbabwe (2015), Eswatini (2014), Gambia (2018), Lesotho (2014), Côte d'Ivoire (2016), Ethiopia (2016), Angola (2015), Uganda (2016), Mauritania (2015), Benin (2014), DRC (2018), Guinea (2016), Togo (2017), Cameroon (2014), Nigeria (2016), Kenya (2014), Sudan (2014), Congo (2015), South Africa (2016), Tunisia (2018), Egypt (2014)

xv. Note that for Ethiopia, gross enrolment rate in tertiary education (calculated based on administrative data) and gross attendance rate in tertiary education (calculated based on household survey data) are very different.
xvi. The ratio of female to male labour force participation rate (2019) is 79% in South Africa and 36% in Tunisia.

Wealth disparities in accessing tertiary education

An analysis of wealth disparities in accessing tertiary education (see *Figure 5.7*) reveals several notable findings. Firstly, in countries where overall gross attendance ratio (GAR) is lower than 5% (e.g. Chad, Guinea Bissau, Malawi, Rwanda, Sierra Leone, and the United Republic of United Republic of Tanzania), young people who are not from the wealthiest households (i.e., wealth quintiles Q1, Q2, Q3, and Q4) have a close to zero chance of attending tertiary education**.** However, broadly speaking, as the GAR in tertiary education increases, it also does so for young people from upper middle wealth households (Q4) and, to a lesser extent, for those from lower middle wealth households (Q3).

Figure 5.7 Gross attendance ratio in tertiary education, by household wealth



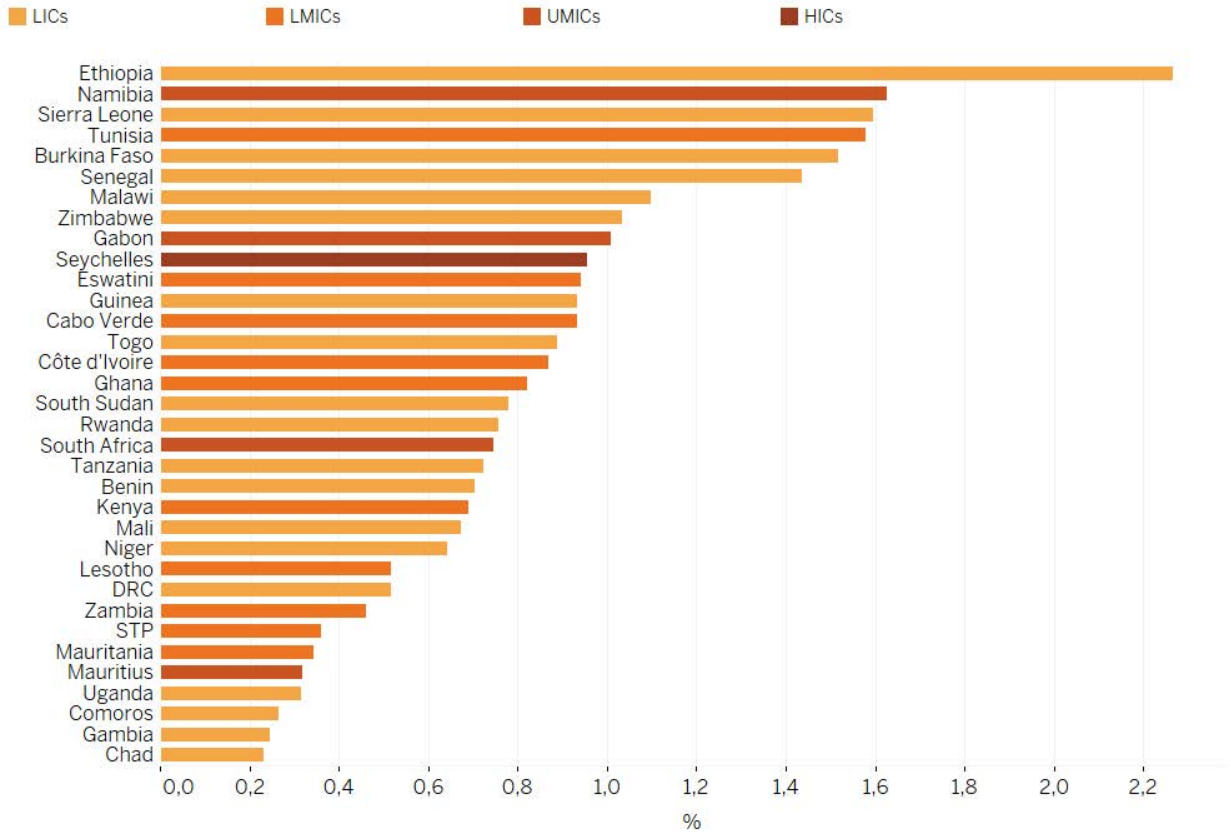
Data Source: UIS, SDG 4.3.2 "Gross attendance ratio for tertiary education", http://data.uis.unesco.org/
Note: Countries are listed in order of their gross attendance ratio for tertiary
Data is from the following years: Tanzania (2015), Guinea-Bissau (2014), Burundi (2017), Malawi (2016), Chad (2014), Sierra Leone (2017), Zambia (2018), Rwanda (2015), Ghana (2014), Madagascar (2018), STP (2014), Mali (2015), Senegal (2016), Zimbabwe (2015), Eswatini (2014), Gambia (2018), Lesotho (2014), Côte d'Ivoire (2016), Ethiopia (2016), Angola (2015), Uganda (2016), Mauritania (2015), Benin (2014), DRC (2018), Guinea (2016), Togo (2017), Cameroon (2014), Nigeria (2016), Kenya (2014), Sudan (2014), Congo (2015), South Africa (2016), Tunisia (2018), Egypt (2014)

It is only in the three countries where the overall GAR is around or above 20%, that the attendance ratio of young people from the poorest households goes above 5%. This is still significantly lower than the GAR for young people from the wealthiest households in these countries (about one-sixth in Tunisia [9% vs 54%]; about one-fourth in Egypt [14% vs 50%]; and about one-eighth in South Africa [5% vs 41%]). Thus, while wealth-based disparities in accessing tertiary education are sizable and pervasive, the size of the wealth gap between young people from the poorest households and the wealthiest household varies across countries, with countries including Mali, Mauritania, Sao Tomé and Principe, Senegal, Sierra Leone, and Uganda characterized by relatively smaller wealth-based disparities when compared to countries including Angola, Benin, Cameroon, Ethiopia, Malawi, and Nigeria, which are characterized by relatively larger wealth-based disparities in tertiary education access.

Understanding wealth disparities in accessing tertiary education

The size of wealth disparities in accessing tertiary education can be related to several supply and demand side factors, including the availability of private provision of tertiary education, the availability of scholarships and loans, and governments' budget allocation decisions. An analysis of government expenditure on tertiary education as a percentage of GDP (see *Figure 5.8*) suggests sizable differences across countries. For instance, Burkina Faso and Togo have similar total government expenditure on education as a percentage of GDP, but they spend 1.5% and 0.9% of their GDPs on tertiary education, respectively. Ethiopia stands out in this respect as a country with very high spending on tertiary education as a percentage of GDP compared to other African nations, yet with an attendance ratio (GAR) that is not much higher than other LICs. the United Republic of United Republic of Tanzania also stands out as the country with the lowest attendance ratio in tertiary studies, while spending 0.7% of its GDP on this level of education.

Figure 5.8 Government expenditure on tertiary education as % of GDP



Data Source: National Monitoring Database: Government expenditure on education as % of GDP http://data.uis.unesco.org/
Note: Countries are listed in order of the government expenditure on tertiary education as % of GDP
Data is from the following years: Ethiopia (2015), Namibia (2014), Sierra Leone (2016), Tunisia (2015), Burkina Faso (2016), Senegal (2016), Malawi (2016), Zimbabwe (2014), Gabon (2014), Seychelles (2016), Eswatini (2014), Guinea (2016), Cabo Verde (2016), Togo (2016), Côte d'Ivoire (2016), Ghana (2014), South Sudan (2016), Rwanda (2015), South Africa (2015), Tanzania (2014), Benin (2015), Kenya (2015), Mali (2016), Niger (2016), Lesotho (2018), DRC (2015), Zambia (2016), STP (2014), Mauritania (2016), Mauritius (2016), Uganda (2014), Comoros (2015), Gambia (2015), Chad (2018), Madagascar (2016)

Skills for work

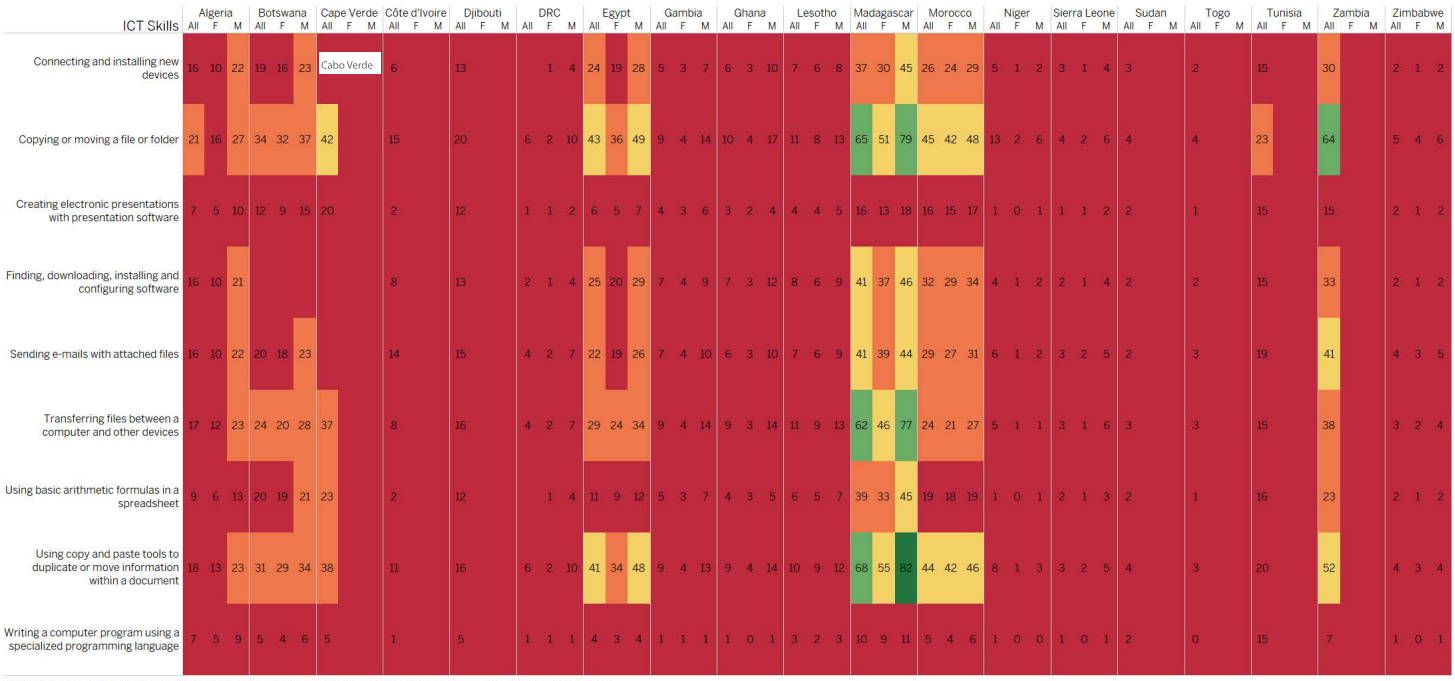
The scope of policy conversations on skills for work has increasingly broadened beyond job-specific ones to include digital skills, foundational literacy and numeracy, and soft skills. While there are no benchmark indicators directly related to these skills, there are some SDG global indicators that aim to capture some of them: the SDG indicator 4.4.1 on ICT skills and the SDG indicator 4.6.1 on functional literacy and numeracy

skills.[xvii 61] Data on SDG indicator 4.4.1 on ICT skills is available for 12 countries in and around 2016 (+/- 2 years). For SDG indicator 4.6.1 on functional literacy and numeracy skills, data is available only for one country (South Africa) for the baseline period. Given limited data availability for 4.6.1, data for a thematic indicator for the same SDG target on literacy (indicator 4.6.2) is analysed instead.[xvii 62]

Figure 5.9 shows the proportion of youth and adults with nine types of ICT skills with varying levels of difficulty.

- For most countries and most types, less than 20% of youth and adults have the particular digital skill.
- Madagascar and Zambia, and to a lesser extent Botswana, Cabo Verde, Egypt, and Morocco stand out for the relatively higher proportions. Efforts to enhance digital skills in these countries deserve closer examination.
- In countries where gender disaggregated data is available, the proportion of women who have a particular digital skill is consistently lower than the proportion of men, which puts a clear spotlight on the digital divide between men and women in these countries. In this regard, the relatively small gender disparity in Botswana and Morocco is worth noting.

Figure 5.9 Proportion of youth and adult with ICT skills, by type of skill and gender



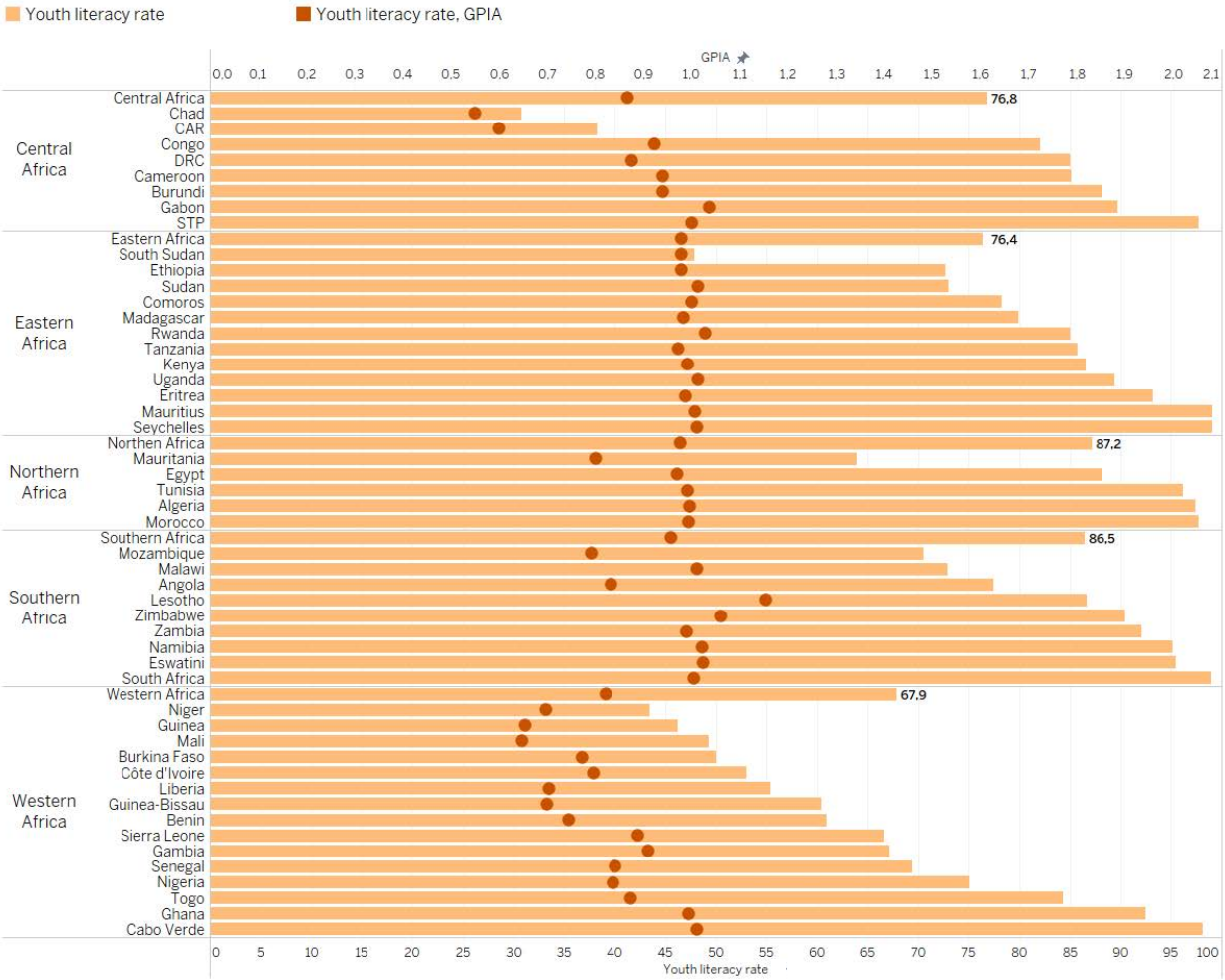
Data source: UIS.SDG 4.4.1: "Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill", http://data.uis.unesco.org/
Note: All values are rounded to the nearest integer
Dark green: >80%; Green: 60-80%; Yellow: 40-60%; Orange: 20-40%; Red: <20%
All data are from 2014-2018 period

xvii. While there are no SDG indicators that directly relate to soft skills, there are promising initiatives in other regions to define and measure these skills, including UNICEF-led efforts around life skills in MENA region.
xviii. Data for indicator 4.6.1 on functional literacy and numeracy is collected via skills assessment surveys of the youth and adult population, whereas data for indicator 4.6.2 is typically collected through self- or household-declaration in household surveys or population censuses.

Figure 5.10 shows youth (15-24 years) literacy rates at both country and regional level, and their GPIA.[xix] Countries are grouped together by region and the value for the regional average is placed at the top of each grouping.

- It is concerning (from both a lifelong learning possibilities and productive labour force participation perspective) that one out of four young people in central and eastern Africa, and one out of three in western Africa, are not literate. Overall, in seven countries (Burkina Faso, Chad, Central African Republic, Guinea, Mali, Niger, and South Sudan), less than half of young people are able to read and write.
- There are sizable variations across countries. Generally speaking, those in western Africa have lower youth literacy rates compared to countries in other regions. Outside of this region, Chad, Central African Republic, Mauritania, and South Sudan stand out as countries with particularly low rates. In western Africa, Ghana, Cabo Verde, Nigeria, and Togo stand out as countries with youth literacy rates that are relatively higher when compared to other countries in the region.
- In terms of gender disparities, countries with youth literacy rates lower than their respective regional average rates tend to have GPIA lower than 1. In other words, illiteracy disproportionately affects young women in countries with low literacy rates.

Figure 5.10 Youth literacy rate and adjusted gender parity index for youth literacy rate



Data source: UIS, SDG 4.6.2 "Youth literacy rate", http://data.uis.unesco.org/ (version September)
Note: Countries and regions are listed in order of their youth literacy rate
Data is from the following years:
Country: Chad (2016), CAR (2018), Niger (2018), Guinea (2014), South Sudan (2018), Mali (2015), Burkina Faso (2014), Côte d'Ivoire (2014), Liberia (2017), Guinea-Bissau (2014), Benin (2018), Mauritania (2017), Sierra Leone (2018), Gambia (2015), Senegal (2017), Mozambique (2015), Ethiopia (2017), Malawi (2015), Sudan (2018), Nigeria (2018), Angola (2014), Comoros (2018), Madagascar (2018), Congo (2018), Togo (2015), DRC (2016), Rwanda (2014), Cameroon (2018), Tanzania (2015), Kenya (2014), Lesotho (2014), Egypt (2017), Burundi (2017), Uganda (2018), Gabon (2018), Zimbabwe (2014), Zambia (2018), Ghana (2018), Eritrea (2018), Namibia (2018), Eswatini (2018), Tunisia (2014), Algeria (2018), Morocco (2018), STP (2018), Cabo Verde (2015), South Africa (2015), Mauritius (2018), Seychelles (2018)
Region: West Africa (2016), East Africa (2016), Central Africa (2016), African Union Commission (2016), All countries (2016), Southern Africa (2016), North Africa (2016)

xix. GPIA values between 0.97 and 1.03 indicate gender parity.

Examples of ongoing efforts and remaining challenges

Promoting flexible learning pathways and skills training for early school dropouts

Several African governments, in recognition of the non-linear interaction between education, training, and work for most young people in countries where completion rates are particularly low, have introduced remedial education and skills training programmes for early school dropouts.

- In Chad, through socio-educational retraining centres, and in Madagascar through the ASAMA programme, governments implement supportive remedial programmes so that young people who drop out of the education system prematurely are still able to enter the labour market with a minimum core set of vocational skills.[63]
- The government in Benin, in collaboration with professional associations, introduced an occupational training and certification programme that provides skills training for out-of-school youth based on the skills standards of specific occupations and complemented with functional literacy training. [64]
- In Niger, vocational training opportunities are offered to young people via Occupational Training Centres, which provide formal, non-formal, and informal training options through collaboration between the central government, local authorities, citizens, and craftsmen. These programmes combine functional literacy education with skills training. [65]
- In Senegal, a public-private partnership financed by the Vocational Training Fund runs training programmes for specific jobs, rather than occupations. The Certificate of Specialisation offers young people a direct route into employment by adapting the training to their level of education and real job opportunities.[66]

Government efforts promoting 'flexible learning pathways' have not been limited to early leavers but also encompass entry points at all ages and levels of education. In South Africa, universities incorporate innovative practices around recognition of prior learning and other forms of alternative admissions, provide supplemental instruction, peer-support and mentoring programmes, organize distance and blended learning in a variety of forms, and offer supportive timetabling.[67] Also in South Africa, the government introduced new pathways between technical and vocational education and university, in an effort to improve the status of TVET. [68]

Competency-based training approach to TVET

In the last two decades or so, several African countries have made structural reforms to their TVET services and shifted to a competency-based training (CBT) approach. CBT focuses on the skills that a learner can demonstrate for a given occupation, and its scope is shaped by the labour market's skill demands and standards.[69] Several African countries, including Ethiopia and Ghana, adopted the CBT approach around the year 2000. Yet the duration of the experimentation phase, its coverage, and implementation effectiveness (including the success of public-private partnerships) have varied across countries.[70] In Ethiopia, the adoption and implementation of the CBT approach for TVET has been relatively successful with occupational competency standards developed through effective public-private partnerships.[71]

Institutional responses to fragmentation in TVET

To address the fragmentation in TVET services, and the resulting information constraints and quality concerns, some governments have formulated institutional responses.

- In Niger, the government created a National Employment and Vocational Training Observatory to monitor the workplace integration of graduates from vocational training centres by building a learner-level database. The observatory and its database are part of broader efforts to manage the supply of skills at the national level and improve the overall governance of TVET services in the country.[72]
- In Tunisia, the government developed a national qualification framework that serves as a reference structure linking diplomas with their corresponding levels of skills. It also set up an information system to operationalize and monitor the implementation of the qualification framework, and created a documentary system that recognizes both formal and informal training streams. [73]
- Similarly, Ghana has developed a national TVET qualifications framework, established a TVET Service Directorate at the Ministry of Education, and arranged for TVET-related examinations to be conducted by the National Board for Professional and Technical Examinations. [74]
- Some countries (e.g. Mauritius and Namibia) introduced systems for Recognition of Prior Learning (RPL) to certify skills and competencies acquired in informal and non-formal contexts, and to facilitate their integration into the national qualifications frameworks.

Strengthening apprenticeships

Several governments have identified apprenticeships as, if not a panacea, then a point of intervention with potentially major benefits in addressing youth employment concerns that include reduction of skills mismatch, facilitation of school-to-work transition, and promotion of collaboration between education and labour market actors.[75] Some of these governments have focused their efforts on reforming traditional apprenticeship practices.[76]

- Ghana introduced various apprenticeship schemes, including subsidized work-based learning for out-of-school youth, reformed apprenticeships involving training centres and businesses,[77] and most recently, a performance-pay scheme for apprenticeship providers.[78]
- Rwanda developed a programme for organizing practical training in enterprises for TVET students. [79]

Other countries have introduced new tools and measures to improve quality and equity in their existing apprenticeships programmes. In South Africa, the government designed and presented digital guidelines to improve stakeholders' knowledge about existing apprenticeship systems.[80] While inclusivity is considered a building block for quality programmes,[81] the reality of informal and formal apprenticeship programmes seems to necessitate targeted policies by governments to address existing disparities. In Zimbabwe, as part of the Informal Sector Training and Resources Network project that links small businesses and their apprentices with centres providing complementary training, efforts to recruit apprentices for new occupations where gender-based exclusion is not inherent, not only set, but also met, targets for the percentage of female apprentices benefiting from the programme.[82]

Crafting policies with 'future of work' in mind

Rapid changes in technology, demographics, and globalization are shaping the future of work and labour markets in unprecedented ways and, as a result, transforming the skills demanded by them.[83] Hence, African governments are finding themselves having to rise to the challenge of building relevant skills and smoothing school-to-work transition for its growing young population, at the same time as labour markets evolve rapidly under dual pressure from 'premature deindustrialization' and the fact that global technological changes are rapidly shaping and reshaping the skills in demand.[84] In order to rise to this challenge in the medium term, Agenda 2063 and the AU Science, Technology and Innovation Strategy for Africa (STISA) position STI at the heart of Africa's growth and development.[85] Building on these policy documents, CESA puts special emphasis on STEM education and learning outcomes. However, in the short term, governments continue to respond to their existing realities by supporting youth to prepare for better work in the informal sector through improved TVET services, and in agriculture by supporting agribusinesses.[86]

Structural factors and external shocks hampering government efforts

For many governments, their efforts to advance TVET services and strengthen the links between education, training, and labour markets are hampered by structural factors and external shocks. These include, instability (characterized by limited investment due to weak rule of law and eroded social capital), credit market failures (characterized by underinvestment in skills training and bottlenecks for entrepreneurship),[87] and as most recently experienced, pandemics (whereby many waged workers in the formal or informal economies have been pushed into self-employment in the informal economy). [88]

In response to the challenges posed by the COVID-19 pandemic, several governments designed and executed laudable interventions to ensure that TVET programmes would continue despite closures of training centres. In Côte d'Ivoire, for example, the government launched operation 'Schools Closed, Books Open' for both schools and TVET training centres. It also created an online platform, 'Ma formation en ligne' (My online training), that provides learners in all TVET programmes with online courses and exercises.[89] In other countries, however, TVET lagged behind general education in terms of its ability to adapt to pandemic conditions,[90] partly due to the hands-on learning required for some occupations, and partly due to TVET training centre's limited infrastructure for e-learning.

Policy case study #6: Centres of excellence in higher education

It is estimated that Africa's youth population will double to more than 830 million by 2050,[91] making the continent a major potential supplier of the world's labour force.[92] Yet, as measured by the Human Capital Index,[xx 93] it has the lowest potential productivity globally.[94] Despite this, the continent exhibits one of the highest returns to education rate, with each additional year of schooling increasing earning potential by 12%, (i.e., two percentage points above the global average).[95] Estimates of the rate of return to tertiary education is particularly high when compared to primary and secondary levels.[xxi 96]

xx. The Human Capital Index (HCI) is a World Bank measure to capture how countries invest in the next generation of workers. According to the 2020 measure, a child born in a sub-Saharan country could expect to achieve only 40% of his or her future productivity if he or she enjoyed a full education and full health (HCI: 0.40). The global average HCI is 0.56.

Tertiary education often plays a crucial role in developing human capital and equipping working-age populations with necessary skills and knowledge. In Africa, enrolment in tertiary education has increased almost tenfold over the last five decades.[xxii 97 98] The supply, however, seems to be still insufficient in meeting demand, a consequence of secondary education expansion[xxii 99] and a growing youth population. At the same time, several priority economic sectors[xxiv] face a shortage of workers with the technical skills needed to increase productivity, especially in the fields of science and technology development.[100]

The African Higher Education Centers of Excellence in (ACE) programme is an initiative implemented across 19 countries to help support the capacity of higher education institutions in three key areas: science, technology, engineering and mathematics (STEM); agriculture; and health. ACE's aim is to train qualified people with competencies tailored to a thematic area that is key for regional development. [101]

The first phase, ACE I, was launched in 2014 and implemented in nine countries in west and central Africa (Benin, Burkina Faso, Cameroon, Ivory Coast, The Gambia, Ghana, Nigeria, Senegal, and Togo), resulting in the development of 22 centres.[102] In four years of operation, the programme achieved enrolment of 16,000 short-term students and 9,000 Masters' students. In addition, 30 programmes achieved international accreditation, with 4,962 students and faculty members participating in internships related to their field of study.[103] The 22 ACE I centres have managed to build 87 partnerships with other institutions and the industry, and generate USD 50.6 million revenue through competitive R&D grants, scholarship competitions, student fees, and testing services.[104] In qualitative terms, several ACE projects highlight the important potential that technical and scientific skills can have for development. A clear example comes from Nigeria's ACE for Genomics of Infectious Diseases, which in 2014 managed to test the country's first Ebola patient just six hours after receiving a blood sample.[105]

Building on initial successes, the second phase of the programme, ACE II, was launched in 2016 to create 24 centres across eight eastern and southern African countries (Ethiopia, Kenya, Malawi, Mozambique, Rwanda, the United Republic of United Republic of Tanzania, Uganda, and Zambia). In 2018, the third phase, ACE Impact, was initiated with the aim of supporting the creation of 25 new and 18 ACE I centres and developing new areas of study.[xxv 106]

Equity as a next frontier

A common challenge facing tertiary education in Africa is that it often benefits students from wealthier, more educated, and urban backgrounds[107] (see *General findings* for a discussion on equitable access to tertiary education). Also, though gender parity has improved in the region, progress has been slow, especially in lower-income countries and in STEM fields where females are still underrepresented.[108] Thus, it is of utmost importance that pan-African efforts like ACE further prioritize equity through need-based cholarships, targeted outreach programmes, and information campaigns in their expansion strategy.

xxi. The figures are: 14% for primary, 11% for secondary, and 21% for tertiary education, respectively.
xxii. The gross enrolment ratio was less than 1% in 1970 and by 2016, increased to 8.9% in sub-Saharan Africa and 32.4% in northern Africa.
xxiii. The adjusted net attendance rate for upper secondary education in sub-Saharan Africa is 25%.
xxiv. Such as energy, extractive industries, sustainable urban planning, transportation, sustainable agriculture, health, environment, and information and communication technologies.
xxv. The expanded thematic areas are STEM, agriculture, health, environment, and applied social sciences/education. New topics include sustainable cities; sustainable electricity and energy; social sciences and education; transportation; health and population policy; herbal medicine development and regulatory sciences; public health; applied informatics and communication; and pastoral production.

Policy case study #7: Work readiness and transition to work

Working poverty hurts youth

The unemployment or low-quality of employment of young people appears to be a challenge across several countries in Africa. Even when youth are employed, it is often in the informal sector, and more so than it is for the rest of the working age population.[109] To help integrate young people into the labour market, several countries are undertaking new policies and introducing new programmes to improve access to quality training programmes.[110]

Rwanda's commitment to strengthening youth skills

Despite sustained growth and a per capita income above the regional average,[xxvi] [111] Rwanda still faces challenges in ensuring productive youth employment.[112] According to new International Labour Organization (ILO) estimates, half of the population between the ages of 15 and 29 is still in the process of transitioning towards stable and satisfactory employment.[xxvii] This reflects low upper secondary completion rates,[xxviii] [113] gaps in skills acquisition through TVET programmes and tertiary education,[xxix] [114] and limited access to decent jobs.[115]

To help improve job opportunities and the economic integration of young people, Rwanda has been working towards developing a comprehensive policy framework since 2015.[xxx] Outcomes of these efforts include: the National Youth Policy,[116] National Transformation Strategy,[117] National Employment Policy, and more recently the National Skills Development and Employment Strategy.[118] These initiatives propose comprehensive and targeted programming for youth through economic empowerment, decentralization of support structures, mechanisms to strengthen synergy with ICTs, and a strategy to improve skills acquisition through TVET training. This includes reforming TVET in pursuit of a competency-based curriculum across all relevant institutions.[119] [xxxi]

xxvi. Rwanda recorded an average real growth rate of 7% for the period 2000-2020 (projected) with a PPP adjusted GDP per capita of USD 2,363 (2019).
xxvii. According to the ILO definition, a youth is in labour transition if he/she is in at least one of the following conditions: (i) is studying and is currently employed or unemployed (in the labour force); (ii) is not studying and is unemployed; (iii) is not studying and is employed in a temporary and unsatisfactory job; and (iv) is not studying and is unemployed.
xxviii. Only 10% of the population over the age of 25 in Rwanda completed at least upper secondary schooling and just 20% of recent TVET graduates being fully employed after graduation.
xxix. Just 20% of recent TVET graduates being fully employed after graduation.
xxx. Although the youth population is defined internationally as those individuals between 15 and 29 years of age, in Rwanda they are defined as individuals between 14 and 35 years old. According to this national definition, 40% of Rwanda's population is young.
xxxi. The prioritized competencies are: critical capacity, creativity, innovation, research, communication in official languages, cooperation, management cooperation, interpersonal management, life skills, and lifelong learning.

From Akazi Kanoze (Work Well Done) to Huguka Dukore Akazi Kanoze (Employment for All)

As a first step to advance the ambitious TVET system reforms, Rwanda's Ministry of Education has been working with Education Development Centre[120] (EDC) to integrate the Work Ready Now! curriculum[xxxii 121] across all general and technical secondary schools, through a programme known as the Akazi Kanoze (AK) II. This initiative was preceded by the AK[xxxiii] Youth Livelihoods Project, a smaller-scale programme that ran between 2008-2016. The aim of this project was to enhance work readiness and entrepreneurship, through market-relevant work and life skills training and support, and practical training opportunities.[122]

The AK programme reached 18,939 Rwandan youth, showing positive results in a sub-sample of 157 students pre-selected for evaluation: 73% passed a competency test satisfactorily[123] and 76% obtained an internship after completing the programme. Two years later, 74% were still employed. Some employers were also surveyed in order to understand their perceptions of the performance of the youth in the programme. The vast majority of them rated both the students' life skills and technical skills as 'excellent' or 'good.'[124]

With the goal of scaling the first phase of the programme, a tailored version was developed in 2016. The aim was to introduce EDC's Work Ready Now! (WRN) model to 40,000 vulnerable youth in 23 districts. Known as 'Huguka Dukore Akazi Kanoze'[xxxiv] (Employment for All), this version also included a gender mainstreaming component to help strengthen women's competencies in traditionally male-dominated sectors, and another for youth with disabilities.[125]

In 2017, the nationwide institutionalization of a curriculum based on the WRN model began. A first impact evaluation conducted in 2018, using a randomized controlled trial (RCT) method, revealed that students in the Akazi Kanoze 2 workforce development programme were eight percentage points more likely to be employed than their peers not participating in the programme. Positive results were also found in terms of gender equity. Young women participating in the programme increased their work readiness scores by an average of five percentage points. Despite starting with a lag of more than 20 percentage points behind male participants, a year later, they were able to narrow the gap.[126]

A new and better equipped workforce

Preliminary results from small and large-scale implementation of a work readiness programme in Rwanda show the effectiveness of applied and flexible curricula tailored to youth with low literacy levels. However, the challenges ahead are great because, as the objective of institutionalized work readiness training and school-to-work transition programming advances, more and better-prepared youth will be looking to enter the labour market through quality jobs. It is key that the country's labour market finds ways to absorb this skilled and expectant workforce and that the efforts of the government and its partners translate into sustained increases in productivity and economic opportunities for all.

xxxii. Work Ready Now! (WRN) is a job readiness curriculum model, which has been implemented at various scales in 26 countries around the world since 2009. It is developed in flexible and easily adaptable modules and includes a variety of contents based on international standards, from personal development, communication, job search, workplace behaviours, civic engagement, digital literacy, health and resilience.
xxxiii. Meaning 'work well done' in Kinyarwanda.
xxxiv. Meaning 'Employment for All' in Kinyarwanda.

The Educate! programme

The Educate![xxxv 127] accelerator, which provides technical assistance to the WRN programme in Rwanda, is the largest skills provider[xxxvi] in East Africa and has also been providing solutions to equip youth with the skills to succeed in life after school in Uganda and Kenya. In Uganda, Educate! has been testing, refining, and strengthening[xxxvii] its skills-based post-primary flagship model in schools across the nation, since 2009. The model consists of three components: training lessons for students,[xxxviii 128] the development of student business clubs, and continuous student-centred assessment activities. Educate! has covered 750 schools in Uganda (25% of secondary schools) so far. It has been working with the government on the reform of the country's national upper secondary level since 2012.[129] In Kenya, Educate! has been collaborating with the government since 2017, to help transform secondary education so that young people are equipped with entrepreneurial and workforce skills.

xxxv. The Goalkeepers Accelerator, whose goal is 'to design skills-based, post-primary education and employment solutions which impact youth life outcomes sustainably and at scale'.
xxxvi. The Educate! curriculum is completely open-source. It copylefts (as opposed to copyright) trying to facilitate the greatest impact possible around the world.
xxxvii. The development of the curriculum in the country is progressive and has been continuously monitored. New units of the national entrepreneurship curriculum were piloted in nine schools and new workshops for teachers were developed and analysed from 2017. Educate! is also working with the national government on the development of a practical assessment tool to influence teachers' adoption of skills-based pedagogy.
xxxviii. Experiential transferable and entrepreneurial skills training lessons to Educate! students weekly (by Educate trained mentors) during the course of a year and a half, using an experiential, student-centered "Skills Lab" pedagogy structure.

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[124] Education Development Center, 'A Study of the WRN! Credential Test's Relationship to Youth Jobs and Employer Satisfaction', 2015. https://www.edc.org/sites/default/files/uploads/WRN%20Credential%20Study%20Akazi%20Kanoze%20Fall%202015.pdf [accessed 18 October 2021].

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[126] Education Development Center, 'Akazi Kanoze Youth Livelihoods Project', EDC, 2016. https://www.edc.org/akazi-kanoze-youth-livelihoods-project [accessed 18 October 2021].

[127] Educate!, 'Goalkeepers Accelerator', Educate! | *Preparing Youth in Africa with the Skills to Succeed in Today's Economy*., 2021. https://www.experienceeducate.org/goalkeepers-accelerator [accessed 18 October 2021].

[128] Educate!, 'School Solutions: Our Direct-to-School Model in Uganda', Educate! | Preparing Youth in Africa with the Skills to Succeed in Today's Economy., n.d. https://www.experienceeducate.org/school-solutions [accessed 18 October 2021]

[129] Educate!, 'Government Engagement Progress', *Educate! | Preparing Youth in Africa with the Skills to Succeed in Today's Economy*., 2017. https://www.experienceeducate.org/government-engagement [accessed 18 October 2021].

Chapter 6

Teachers[i 1]

CHAPTER SUMMARY

This chapter highlights the magnitude of the three-pronged challenge facing governments: expanding the education workforce, increasing the proportion of pedagogically trained and academically qualified teachers, and ensuring that workforce policies enhance equity in education. More specifically, the main issues and findings presented in this chapter include:

Teacher-equity nexus - diversity, allocation, inclusive teaching practices:

- Diversity in the education workforce and equity considerations in teacher allocation may have implications for disadvantaged children's access to and learning in school. While limited data availability constrains the scope of analysis, gender disparities in the teacher workforce, particularly in post-primary levels, are observed in most countries.

- In terms of teacher allocation, teacher shortages are often a problem in rural, remote, difficult-to-access, and conflict-affected areas. These shortages vary by subject expertise and education level. Considerable variation across countries exists with regards to the degree of randomness values, an indicator showing the extent to which teacher allocation is related to factors other than student number.

- Although a teacher's knowledge on and use of inclusive teaching practices is important for the inclusion of children with disabilities in learning processes, there is a shortage of special education educators and only few teachers benefit from in-service training on inclusive education.

Multipronged approach to improving teacher quality: A growing body of research shows teacher quality to be a major determinant of children's learning and well-being. Improving this necessitates a multipronged approach that has education workforce policy at its core. Key elements of effective policies include recruitment, training, motivation, professional development, monitoring, and support. However, these efforts need to consider the interdependence of a teacher's quality on other elements, including curricula, learning materials, and assessment policies.

Analyses of teacher quality in and around 2016, as measured by the SDG indicators related to pedagogically trained teachers show variations across countries:
(i) Some countries in eastern Africa and northern Africa having a remarkably high proportion of pedagogically trained primary school teachers, while others have less than half trained.
(ii) In some countries, there have been observable positive changes in the proportion of pedagogically trained teachers since 2016, while the change is limited in others.

i. The term 'teachers' is used in this report to refer to 'all those persons in schools or other learning sites who are responsible for the education of children or young people in pre-primary, primary, lower secondary and upper secondary education'.

Background

Teachers in Agenda 2030 and Education 2030

In both Agenda 2030 and CESA, governments make clear and consistent commitments to invest in teachers in recognition of their vital role in children's access to quality education. With SDG Target 4.c, they commit to substantially increasing the supply of qualified teachers.[ii] In this regard, the Education 2030 Framework for Action underscores teachers' role as an essential resource for quality education and learning, and includes 'sufficient numbers of teachers and educators of quality using learner-centred, active, and collaborative pedagogical approaches' in its discussion of quality education and learning.[2] More broadly, Education 2030 makes the case for policies and regulations that address teacher empowerment, adequate recruitment and equitable deployment, pre-service and continuous training, a professional qualification framework, remuneration and decent working conditions, motivation, career development, school leadership, and support within well-resourced and gender-sensitive management systems.[3] When compared with the Jomtien Declaration[4](1990) and the Dakar Declaration[5] (2000), Education 2030 Incheon Declaration and Framework for Action stands apart in terms of the breadth of its discussion on teachers' roles and teacher policies, suggesting the growing recognition of the vital part they play in realizing the Education for All agenda.[iii]

Teachers in CESA

CESA positions teachers at the centre of its strategic objectives. With teachers identified amongst the top 10 priority areas in continent-wide consultations on Africa's post-2015 education strategy, to 'revitalize the teaching profession to ensure quality and relevance at all levels' is listed as its first strategic objective.[6] Teachers and teacher training are also taken up as part of other strategies, including SO 3 on harnessing ICT's capacity, SO 4 on knowledge and skills acquisition and completion rates, and SO 10 on the promotion of peace education[7]. In its elaboration on teachers, CESA highlights issues around quality, training, living and working conditions, status, rewards, accountability and assessment.[8] In line with their central position in CESA, its Teacher Development Cluster has been active in implementing advisory and advocacy activities for teacher professional development, the standardization of recruitment, training, and social dialogue.[9]

Relevant SDG 4 and CESA indicators on teachers are described in *Appendix 3*.

Box 6.1 Enabling legal framework for teachers

Efforts to improve teacher quality and development are more effective when backed by policies and enabling legal frameworks. In the absence of indicators related to teacher policies coming from the SDGs, there are two CESA indicators for the enabling legal frameworks related to teachers: 1.3 'existence of operational teacher development policy'; and 4.2 'existence of a National Qualifications Framework.' For neither of these is data being systematically collected yet.

ii. The second part of SDG 4.c concerns international cooperation for teacher training in developing countries with a focus on the least developed countries and small island developing states.
iii. In what may be an indicator of the level of recognition of teachers' vital role, the word 'teacher' appears 64 times in the Incheon Declaration compared to 27 times in the Dakar Declaration and 12 times in the Jomtien Declaration.

Teachers' impact on children's learning, well-being, and life outcomes

The importance assigned to teachers and teacher quality in CESA and SDG 4 may be seen as the global education community's confirmation of a growing body of research showing that teacher quality is a major determinant of children's learning and well-being[10] (and also perhaps a reflection by experts of their personal experiences attesting to the potentially life-changing impact that teachers can have). Indeed, research suggests that the impact teachers have on children's lives goes beyond short-term academic achievement and extends to longer-term social and labour market outcomes.[11] It also suggests that this impact goes much further than just test scores to encompass non-cognitive skills.[12] In contexts where schools serve as contact points for services seen as critical for a child's overall well-being (including nutrition, health, psychosocial support, social assistance), teachers may take on the responsibility of facilitating the delivery of these services. Particularly when teaching children facing multiple disadvantages and adverse experiences, or in crisis situations (such as conflicts, disasters, displacement, the COVID-19 pandemic), teachers may also find themselves supporting an individual child's well-being in ways that go well beyond the learning objectives laid out in curricula.

Education workforce policy at the centre of a multipronged approach to revitalizing the teaching profession

CESA's strategic objective to 'revitalize the teaching profession to ensure quality and relevance at all levels' necessitates a multipronged approach with education workforce policy at its core. It highlights recruitment, training, deployment, professional development, working and living conditions, and the rewarding of dedication and innovation as key elements of effective education workforce policy.[13] Other aspects of this multipronged approach include, curricula, teaching and learning materials, quality assurance, and assessment of learning outcomes.[14] The significance of the approach put forward in CESA is also picked up and underscored by the UNESCO - Teacher Task Force (TTF). While recognizing teacher quality as 'the single most important influence on learning outcomes at the school level', TTF explains the need to take into account the interdependencies between teacher quality and other elements of the education system, including curricula and assessment policies.[15]

Key elements of effective workforce policies

CESA's focus on education workforce policy finds parallels in other global efforts and analyses on teachers, including SDG 4, the Organisation for Economic Co-operation and Development's (OECD) Teaching and Learning International Survey (TALIS),[16] the Systems Approach for Bettering Education Results (SABER),[17] and TTF.[18] The key elements of effective policies are succinctly described in the teacher-related policy goals put forward in SABER, and include: attracting the best into teaching, preparing teachers with useful training and experience, matching teachers' skills with students' needs, setting clear expectations for teachers, leading teachers with strong principals, monitoring teaching and learning, supporting teachers to improve instruction, and motivating teachers to perform.[19] The evolution of the policy choices made across these goals, combined with the need to adapt implementation in challenging contexts, opens up a broad range of possible interventions and reform possibilities regarding education workforce management policies.

Teacher-equity nexus: equity and diversity in the education workforce

While equity is not an explicit focus of the above-mentioned discussions and analyses on education workforce policies, diversity in the education workforce and equity considerations in teacher allocation may have implications for disadvantaged children's access and learning in school. With respect to diversity in the workforce, research suggests that teachers with similar backgrounds to their students can serve as powerful role models and potentially motivate them further;[20] female teachers may contribute to

girl students' learning outcomes and school completion;[21] [22] teachers speaking the same language as their students are generally more effective as they can better support children whose home language is different from the language of instruction;[23] and that teachers born in the district of the school are more likely to show up to work.[24] All of these points highlight the importance of reflecting a country's geographic, cultural, and linguistic diversity in the education workforce. Gender is also a critical dimension of equity and diversity, with implications for recruitment, remuneration, allocation, and promotion policies. The complex patterns of gender equity in the education workforce, with notable differences across countries and education levels, are discussed in the *General findings* section. Government efforts for gender parity in the education workforce are described in the *Examples of ongoing efforts and remaining challenges* section.

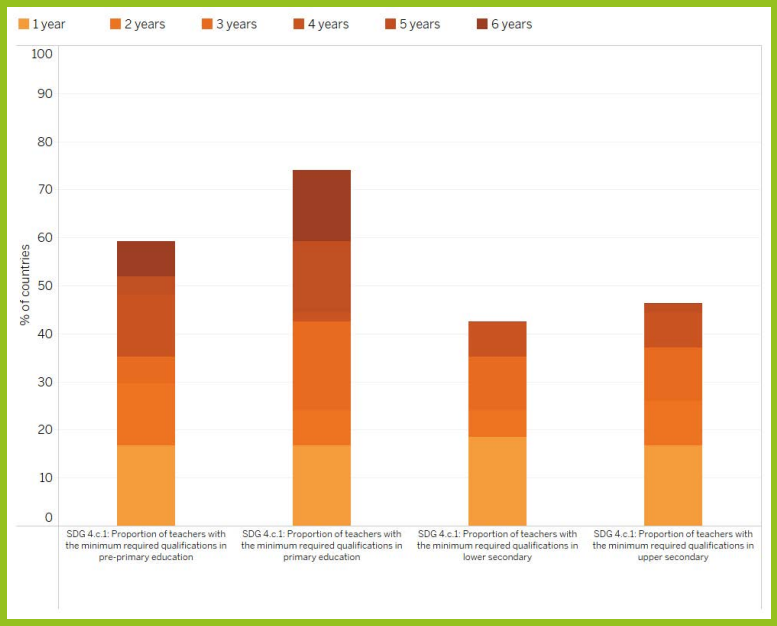
Teacher-equity nexus: inclusive teaching practices

A related aspect of the teacher-equity nexus concerns their knowledge on and use of inclusive teaching practices. The shortage of special education teachers in Africa has been identified as one of the factors that hinder learning and the retention of children with disabilities.[25] PASEC 2014 data suggests that among a dozen categories of in-service training, the lowest coverage rate among teachers is training aimed at promoting inclusive education.[26] This is particularly concerning given that teaching methods and examinations, and teacher knowledge on inclusive teaching practices are among the major supply-side barriers that can potentially impact the ability of children with disabilities to get a high-quality education.[27]

Box 6.2 Data availability

Figure 6.1 Proportion of countries with 1, 2, 3, 4, 5, and 6 available data points over the period 2015-2020, for benchmark indicator (SDG 4.c.1) on teachers, by education level

Figure 6.1 shows that across different education levels, between 43 and 74% of African countries have data available on the benchmark indicator on teachers (the proportion of teachers pedagogically trained) for at least one year. In other words, more than half of the countries do not have data for the benchmark indicator on teachers at the lower and upper secondary levels, and a quarter of countries. do not have data on the benchmark indicator on teachers since 2015.



Data Source: UIS, SDG 4.c.1

It also highlights some variation in the frequency of data availability across education levels. The proportion of countries that have data available for more than one year, ranges from 24% in lower secondary to 57% in primary education. Yearly data availability is limited across all education levels, and it ranges from 0% for secondary education to about 15% for primary.

Teacher-equity nexus: teacher allocation

Another aspect of the teacher-equity nexus concerns teacher allocation.[iv 28] With respect to equity, it is worth noting that in many countries, teacher shortages are often a problem in rural, remote, low-resourced, difficult-to-access areas, and/or conflict-affected areas, and the shortfall varies by subject expertise and education level.[29] Governments encounter difficulties in deploying teachers to remote or conflict-affected areas, and in retaining them there. They also encounter challenges in recruiting and retaining teachers to respond to a growing student population and the rapidly changing skills demanded by the labour market. As a result, for example, while there may be an oversupply of teachers for some subjects in upper secondary education over a five-year period, shortages in other subjects may emerge over that same period.[30] Similarly, while there may be teacher shortages in primary schools in rural and hard-to-reach locations, there may be adequate primary school teachers in the wealthier neighbourhoods of the capital. Systematic literature reviews are available that highlight initiatives to improve teacher recruitment in hard-to-staff schools in low- and middle-income countries.[31] Equity aspects of teacher allocation policies are analysed and efforts to improve allocation processes are described in the next two sections.

General findings

This section first presents the baseline situation analysis for teacher quality, as measured by country-specific minimum pedagogical training requirements, which is the benchmark indicator on teachers (SDG 4.c.1). It also presents a complementary analysis using another SDG indicator on teachers, related to their academic qualifications (SDG 4.c.3). The chapter then analyses and discusses the baseline situation at the equity-teacher nexus, including gender equity in the workforce and teacher allocation. Broadly speaking, the findings highlight the magnitude of the three-pronged challenge facing governments in Africa: expanding the education workforce, increasing the proportion of pedagogically trained and academically qualified teachers, and ensuring that the workforce policies enhance equity in education.

Proportion of pedagogically trained teachers

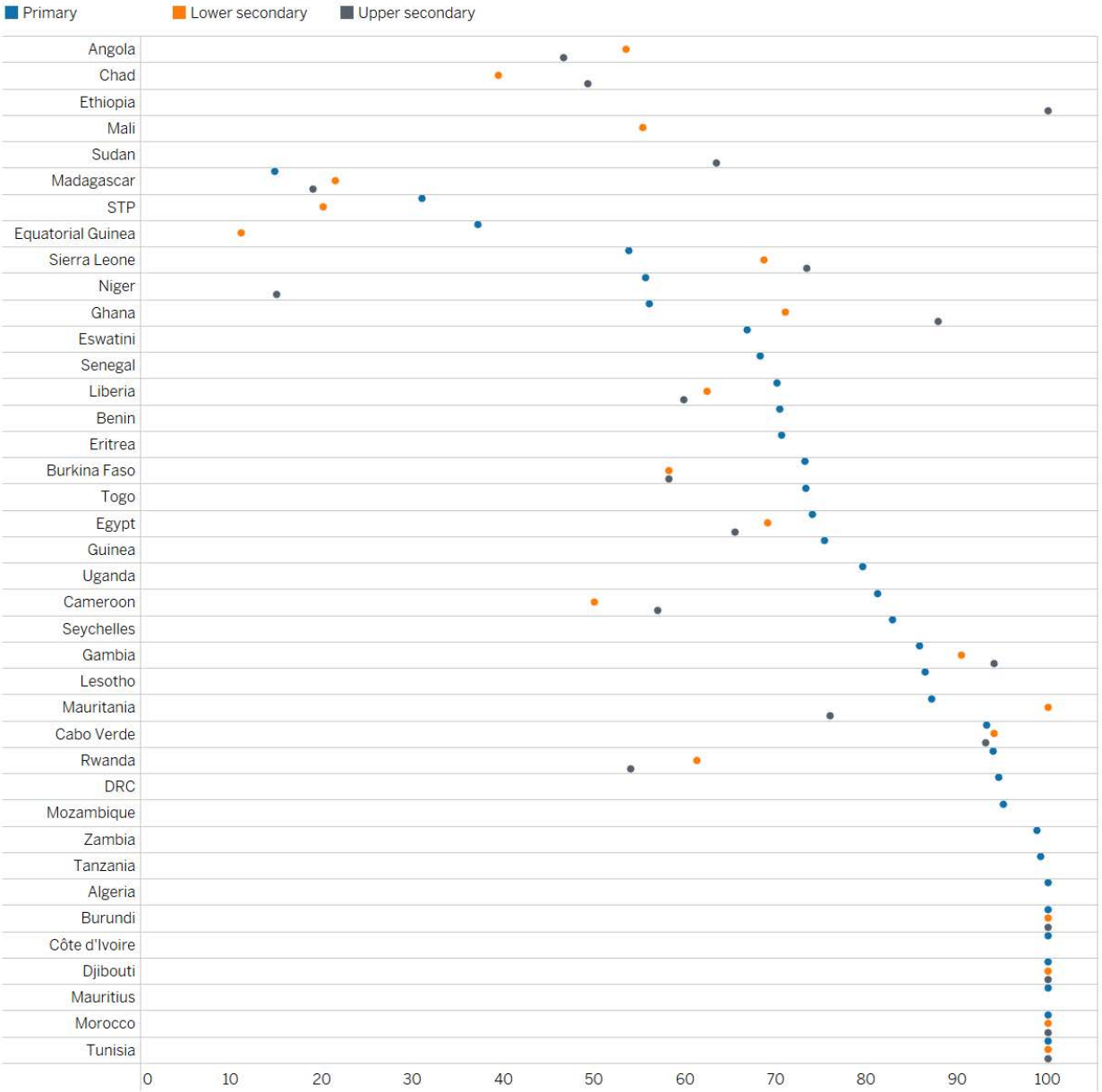
Figure 6.2 shows the proportion of teachers with the minimum required pedagogical training. Note that because the minimum training requirements are country-specific and may change over time, there are limitations to comparisons over periods and across countries.

- At the primary level, *Figure 6.2* highlights remarkably high values for many countries, especially in eastern Africa (including Burundi, Djibouti, Mauritius, Rwanda, the United Republic of United Republic of Tanzania) and northern Africa (including Algeria, Morocco, Tunisia). However, it also puts a spotlight on some of the countries where less than half of the primary school teachers have the minimum required pedagogical training (including Equatorial Guinea, Madagascar, Sao Tomé and Principe). (see *Chapter 3* General findings for an analysis on the proportion of pedagogically trained teachers at the ECE level).
- At the lower secondary and upper secondary education levels, data is available from fewer countries (17 countries). In 9 of them, more than a quarter of the teachers at lower and upper secondary levels do not have the minimum pedagogical training, whereas in 4 countries (Burundi, Djibouti, Morocco, and Tunisia), all secondary school teachers have the minimum training. It is also worth noting that in some countries such as Ghana and Mauritania, the proportion of pedagogically trained teachers varies notably between lower and upper secondary levels.

iv. For more information on teacher allocation and deployment models and systems, see the working paper on 'Teacher Allocation and Utilization in Africa'.

- When the proportion of teachers with the minimum required pedagogical training is compared across education levels within the same country, little variation is observed in several countries, suggesting that their recruitment and training policies are consistent across primary, lower secondary, and upper secondary education. However, in some countries, including Cameroon, DRC, Ghana, Rwanda, Mauritania, and Mauritius, sizable differences exist in the proportion of qualified teachers across education levels. Tunisia and Morocco are the two countries with available data where 100% of teachers have the minimum required pedagogical training in primary, lower secondary, and upper secondary. Madagascar is worth noting with consistently low proportions of qualified teachers across the education levels.

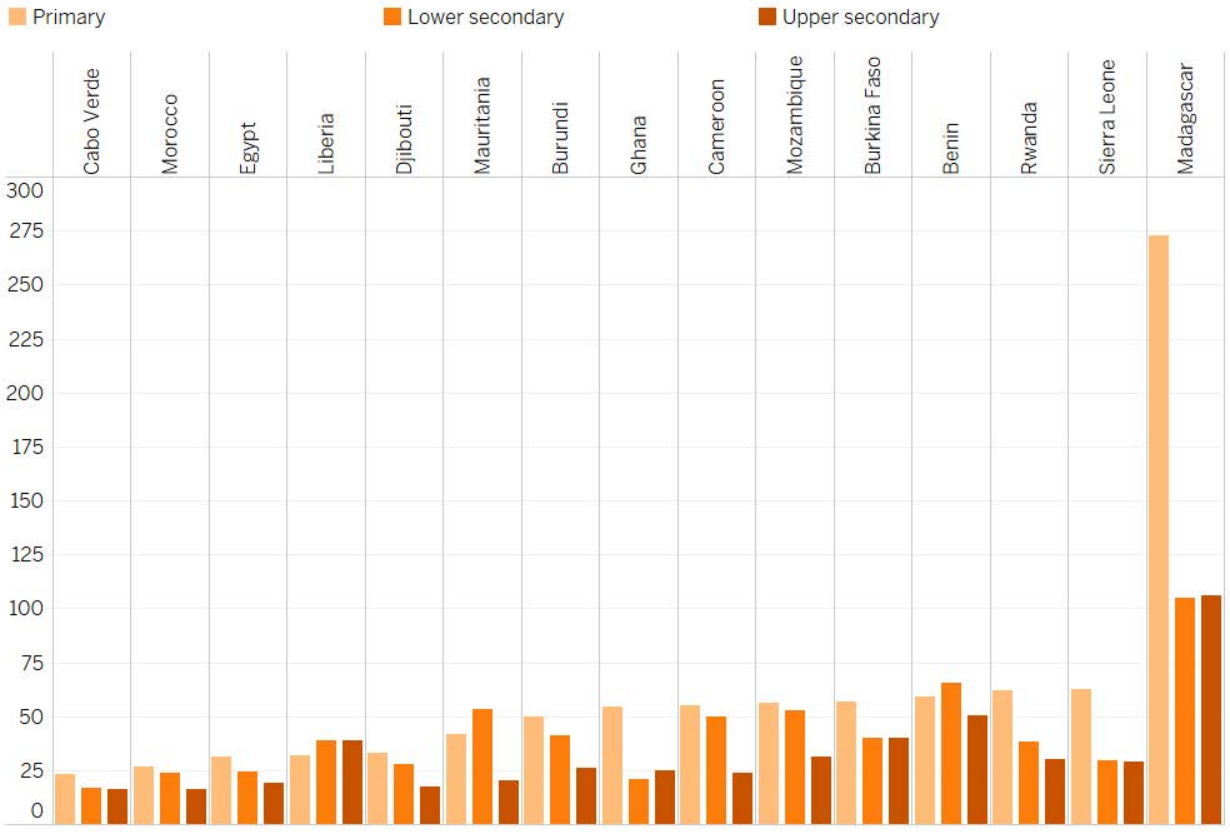
Figure 6.2 Proportion of teachers who received the minimum organized pedagogical teacher training required for teaching at their level, by education level



Data Source: UIS, SDG 4.c.1: "Percentage of teachers by level of education taught who have received at least the minimum organized pedagogical teacher training pre-service and in-service required for teaching at the relevant level in a given country, in a given academic year", http://data.uis.unesco.org
Note: Countries are listed in order of their percentage of teachers in primary taught who have received at least the minimum organized pedagogical teacher training pre-service and in-service required for teaching at the relevant level in a given country, in a given academic year
Data is from the following years:
Primary: Madagascar (2016), Sierra Leone (2015), Ghana (2016), Liberia (2017), Burkina Faso (2016), Egypt (2016) , Cameroon (2017), Gambia (2015), Mauritania (2017), Cabo Verde (2016), Rwanda (2015), Burundi (2016), Djibouti (2015), Morocco (2016), Tunisia (2016)
Lower secondary: Madagascar (2017), Sierra Leone (2015), Ghana (2016), Liberia (2015), Burkina Faso (2017), Egypt (2016), Cameroon (2015), Gambia (2015), Mauritania (2015), Cabo Verde (2017), Rwanda (2017), Burundi (2015), Djibouti (2015), Morocco (2017), Tunisia (2017)
Upper secondary: Madagascar (2017), Sierra Leone (2015), Ghana (2016), Liberia (2015), Burkina Faso (2017), Egypt (2016), Cameroon (2015), Gambia (2015), Mauritania (2016), Cabo Verde (2017), Rwanda (2017), Burundi (2015), Djibouti (2015), Morocco (2017), Tunisia (2017)

Directly related to the benchmark indicator SDG 4.c.1 analysed above, is the indicator SDG 4.c.2 that captures the average number of pupils per pedagogically trained teacher. *Figure 6.3* shows a comparison between countries of this pupil to pedagogically trained teacher ratio across the 15 countries where data is available at all three levels of education. At the lower end, Cabo Verde, Egypt, and Morocco stand out with around (or less) than 25 pupils per pedagogically trained teacher at all three levels of education. At the higher end, Madagascar stands out with a ratio of above 100 for lower and upper secondary levels, and higher than 250 at primary level.

Figure 6.3 Pupil to pedagogically trained teacher ratio, by education level



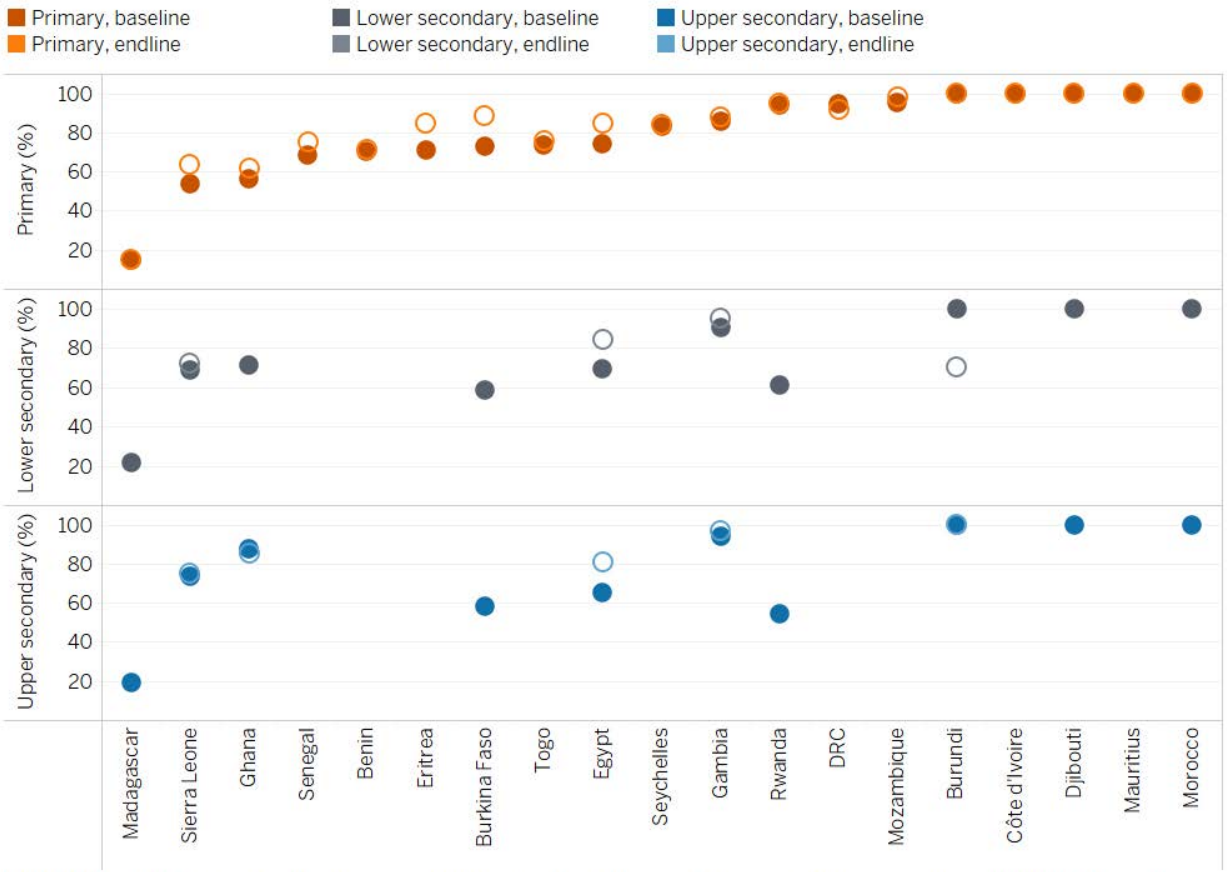
Data source: SDG 4.c.2: "Average number of pupils per trained teacher", http://data.uis.unesco.org/
Note: Countries are listed in order of their primary's pupil-trained teachers ratio
Data is from the following years:
Primary: Cabo Verde (2016), Morocco (2016), Egypt (2016), Liberia (2017), Djibouti (2015), Mauritania (2017),Burundi (2016), Ghana (2016), Cameroon (2017), Mozambique (2016), Burkina Faso (2016), Benin (2016), Rwanda (2015), Sierra Leone (2015), Madagascar (2016)
Lower secondary: Cabo Verde (2017), Morocco (2017), Egypt (2016), Liberia (2016), Djibouti (2015), Mauritania (2015), Burundi (2015), Ghana (2016), Cameroon (2015), Mozambique (2014), Burkina Faso (2017), Benin (2016), Rwanda (2017), Sierra Leone (2015), Madagascar (2016)..

Change in the proportion of pedagogically trained teachers

Figure 6.4 captures changes over the last five years in the proportion of teachers with the minimum required pedagogical training:

- At primary level, an increase is observed in some countries, including Burkina Faso (15 percentage points [pp]), Egypt (11 pp), Eritrea (13 pp), Ghana (6 pp), Senegal (7 pp) and Sierra Leone (10 pp), while there has not been a sizable change in the remaining countries.
- At the lower and upper secondary level, very few countries have adequate data. Among those that do, a generally positive trend is observed. The exception is Burundi where the proportion of qualified teachers for lower secondary education fell by about 25 percentage points.

Figure 6.4 Change in the proportion of teachers who received the minimum organized pedagogical teacher training required for teaching at their level



Data source: UIS, SDG 4.c.1 "Percentage of teachers by level of education taught (pre-primary, primary, lower secondary and upper secondary education) who have received at least the minimum organized pedagogical teacher training pre-service and in-service required for teaching at the relevant level in a given country, in a given academic year", http://data.uis.unesco.org/

Baseline and enline data is from the following years:

Primary: Madagascar (2016 and 2019), Sierra Leone (2015 and 2019), Ghana (2016 and 2019), Senegal (2015 and 2019), Benin (2016 and 2019), Eritrea (2014 and 2018), Burkina Faso (2016 and 2019), Togo (2015 and 2020), Egypt (2016 and 2019), Seychelles (2016 and 2019), Gambia (2015 and 2019), Rwanda (2015 and 2019), DRC (2014 and 2018), Mozambique (2016 and 2019), Burundi (2016 and 2019), Côte d'Ivoire (2016 and 2019), Djibouti (2015 and 2018), Morocco (2016 and 2019), Mauritius (2016 and 2019)

Lower secondary: Madagascar (2017 and 2019), Sierra Leone (2015 and 2019), Ghana (2016 and 2018), Burkina Faso (2017 and 2019), Egypt (2016 and 2019), Gambia (2015 and 2019), Rwanda (2017 and 2018), Burundi (2015 and 2019), Morocco (2017 and 2019)

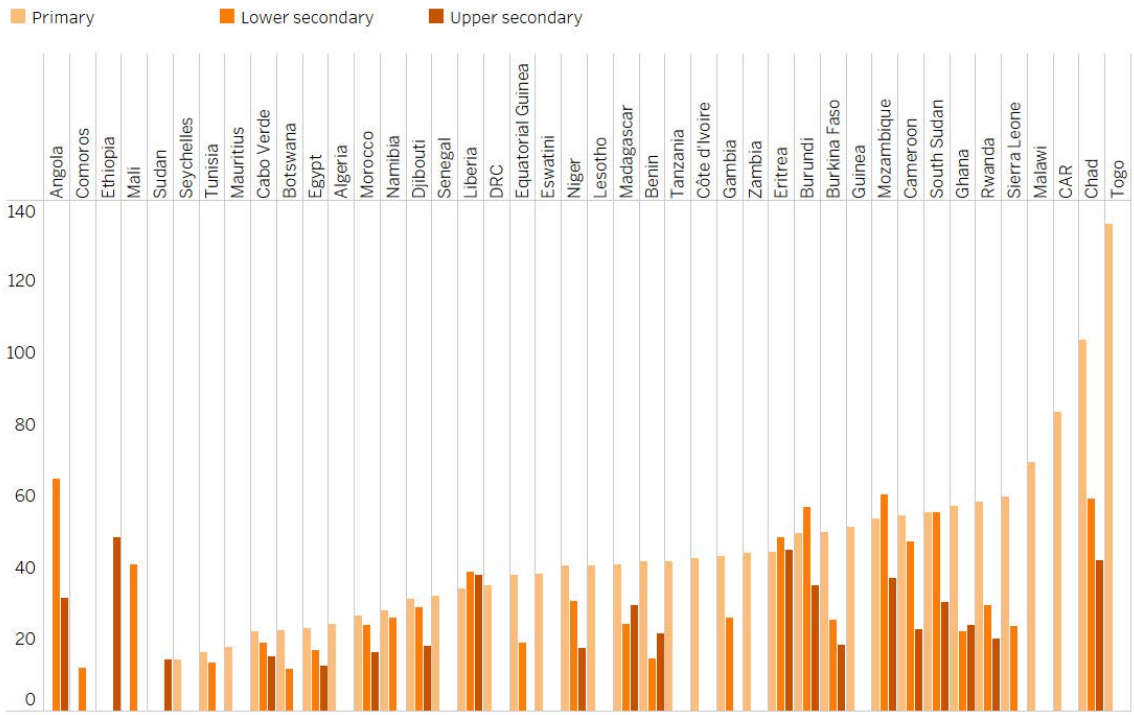
Upper secondary: Madagascar (2017 and 2019), Sierra Leone (2015 and 2019), Ghana (2016 and 2019), Burkina Faso (2017 and 2019), Egypt (2016 and 2019), Gambia (2015 and 2019), Rwanda (2017 and 2019), Burundi (2015 and 2018), Morocco (2017 and 2019)

Proportion of academically qualified teachers

Having the minimum academic qualifications required (SDG indicator 4.c.3) is another indicator related to teacher quality. Because the minimum academic requirements are country-specific and may change over time, comparisons across time and countries are limited. *Figure 6.5* presents pupil to academically qualified teacher ratio (i.e., teachers with the minimum academic qualifications required) across education levels. Data availability across primary, lower, and upper secondary is not consistent, yet there are some observations worth noting. At the primary level, some clustering of countries in the 30-60 range can be observed, with northern African countries, Botswana, Cabo Verde, Mauritius, Namibia, and Seychelles as outliers at the lower end, and Chad and Togo as outliers at the higher end. While the outliers at the higher end are of concern, their progress since 2015 (see *Figure 6.6*) during which time the pupil to qualified teacher ratio fell (from 136 to 91 in Togo and from 104 to 69 in Chad), is to be applauded.[v]

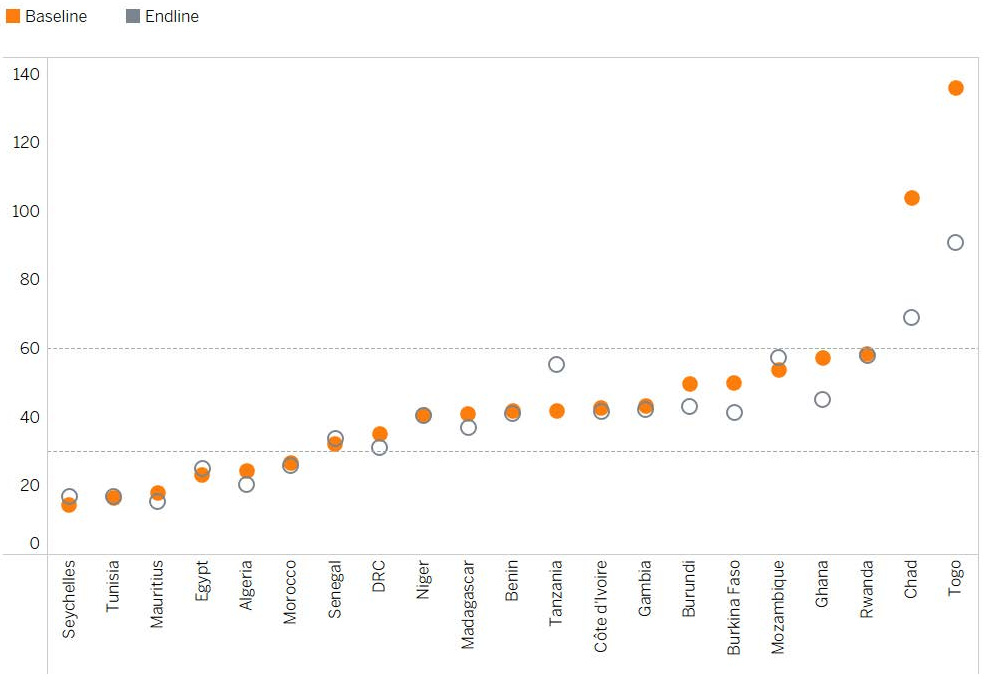
v. The GER at primary level for Togo and Chad over the same period went from 128 to 126, and 92 to 89, respectively. Although there has been a slight decrease in GER in both countries, the size of the decline is not large enough to explain the reduction in the pupil-qualified teacher ratio.

Figure 6.5 Pupil to academically qualified teacher ratio, by education level



Data source: UIS, SDG 4.c.4: "Average number of pupils per qualified teacher", http://data.uis.unesco.org/
Note: Countries are listed in order of their primary's pupil-qualified teacher ratio
Data is from the following years:
Primary: Seychelles (2016), Tunisia (2015, Mauritius (2016), Cabo Verde (2016), Botswana (2014), Egypt (2016), Algeria (2016), Morocco (2016), Namibia (2018), Djibouti (2016), Senegal (2015), Liberia (2016), DRC (2015), Equatorial Guinea (2015), Eswatini (2016), Niger (2016), Lesotho (2016), Madagascar (2016), Benin (2016), Tanzania (2016), Côte d'Ivoire (2016), Gambia (2016), Zambia (2016), Eritrea (2017), Burundi (2016), Burkina Faso (2016), Guinea (2016), Mozambique (2016), Cameroon (2015), South Sudan (2015), Ghana (2015), Rwanda (2015), Sierra Leone (2018), Malawi (2016), CAR (2016), Chad (2016), Togo (2015)
Lower secondary: Botswana (2014), Comoros (2014), Tunisia (2017), Benin (2016), Egypt (2016), Equatorial Guinea (2015), Cabo Verde (2017), Ghana (2015), Sierra Leone (2018), Morocco (2017), Madagascar (2016), Burkina Faso (2016), Namibia (2017), Gambia (2016), Djibouti (2016), Rwanda (2017), Niger (2016), Liberia (2016), Mali (2018), Cameroon (2016), Eritrea (2015), South Sudan (2015), Burundi (2015), Chad (2016), Mozambique (2014), Angola (2016)
Upper secondary: Egypt (2016), Sudan (2016), Cabo Verde (2017), Morocco (2017), Niger (2016), Djibouti (2016), Burkina Faso (2016), Rwanda (2017), Benin (2016), Cameroon (2016), Ghana (2015), Madagascar (2016), South Sudan (2015), Angola (2016), Burundi (2014), Mozambique (2014), Liberia (2015), Chad (2016), Eritrea (2015), Ethiopia (2015)

Figure 6.6 Change in pupil to academically qualified teacher ratio in primary education



Data source: UIS, SDG 4.c.4: "Average number of pupils per qualified teacher at each level of education in a given academic year", http://data.uis.unesco.org/
Note: Countries are listed in order of their baseline pupil-qualified teacher ratio
Baseline and endline data are from the following years: Seychelles (2016 and 2019), Tunisia (2015 and 2018), Mauritius (2016 and 2019), Egypt (2016 and 2019), Algeria (2016 and 2019), Morocco (2016 and 2019), Senegal (2015 and 2019), DRC (2015 and 2018), Niger (2016 and 2019), Madagascar (2016 and 2019), Benin (2016 and 2019), Tanzania (2016 and 2019), Côte d'Ivoire (2016 and 2019), Gambia (2016 and 2019), Burundi (2016 and 2019), Burkina Faso (2016 and 2019), Mozambique (2016 and 2019), Ghana (2015 and 2018), Rwanda (2015 and 2019), Chad (2016 and 2019, Togo (2015 and 2020)

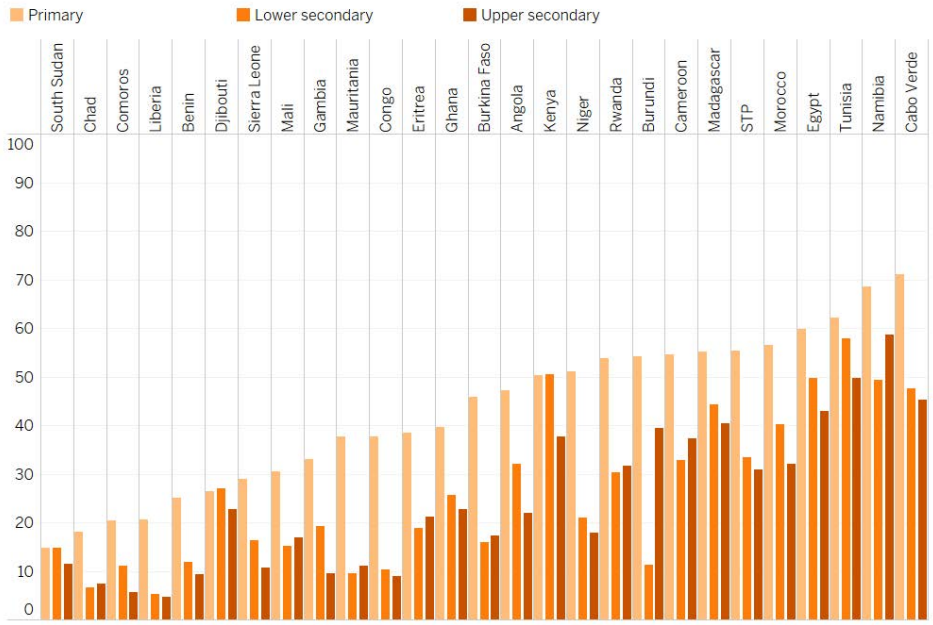
State of education policies at the equity-teacher nexus

The equitable allocation of teachers is a central feature of an equitable education workforce management system. The main indicator used by UNESCO-IIEP and the Global Partnership for Education (GPE) to analyse and monitor this is the degree of randomness. It measures the relationship between the number of teachers and the number of students, and shows the extent to which teacher allocation is related to factors other than student numbers.[32] A comparative analysis of degree of randomness values from 16 African countries[vi] suggests considerable variations, ranging from 0.08 in Zimbabwe (meaning only 8% of the teacher postings are explained by factors other than the number of students in a school) to 0.73 in Benin.[33] GPE specifies 0.20 and below as an acceptable value for equitable allocation. However, only 3 of the 16 countries surveyed (Guinea, Lesotho, and Zimbabwe) had a degree of randomness that was below this value.[34]

The data underlying the degree of randomness focus primarily on the number of teachers and does not incorporate their training or qualification status. In other words, the analysis appears to assume all teachers to be equal in their effectiveness. Research suggests that higher qualified teachers work disproportionately more with advantaged schools, have smaller class sizes, and focus on later grades.[35] Disadvantaged schools are less likely to have access to high quality teachers despite effective teaching being particularly helpful for lower performers.[36] Findings from a study in Malawi, for example, suggest that teachers with more years of schooling teach in schools with better students.[37] This underscores the importance of ongoing efforts to improve workforce management policies, such as computerizing certain aspects of workforce management for more equitable allocation decisions (see *Policy case study #8* for an analysis of efforts by Senegal to this end).

State of gender equity in the education workforce

Figure 6.7 Percentage of female teachers, by level of education



Data source: "Percentage of female teachers by teaching level of education", Data retrieved from National Monitoring, UIS", http://data.uis.unesco.org/
Note: Countries are listed in order of their percentage of female teachers in primary
Data is from the following years:
Primary : South Sudan (2015), Chad (2016) , Comoros (2017) , Liberia (2016), Benin (2016), Djibouti (2016), Sierra Leone (2016), Mali (2016), Gambia (2015), Mauritania (2016) , Congo (2018) , Eritrea (2016), Ghana (2016), Burkina Faso (2016), Angola (2016), Kenya (2015),Niger (2016) , Rwanda (2016), Burundi (2016) , Cameroon (2016), Madagascar (2016),STP (2016) , Morocco (2016), Egypt (2016), Tunisia (2016), Namibia (2018) , Cabo Verde (2016)
Lower secondary: South Sudan (2015), Chad (2016), Comoros (2017), Liberia (2015), Benin (2014), Djibouti (2016), Sierra Leone (2016), Mali (2016), Gambia (2015), Mauritania (2016), Congo (2018), Eritrea (2016), Ghana (2016), Burkina Faso (2016), Angola (2016) , Kenya (2015), Niger (2016), Rwanda (2017), Burundi (2015), Cameroon (2016), Madagascar (2017), STP (2016), Morocco (2017), Egypt (2016), Tunisia (2017), Namibia (2017), Cabo Verde (2017)
Upper secondary: South Sudan (2015), Chad (2016), Comoros (2017), Liberia (2015), Benin (2014), Djibouti (2016), Sierra Leone (2016), Mali (2016), Gambia (2015), Mauritania (2016), Congo (2018), Eritrea (2016), Ghana (2016), Burkina Faso (2016), Angola (2016), Kenya (2016), Niger (2016), Rwanda (2017), Burundi (2015), Cameroon (2016), Madagascar (2017), STP (2016), Morocco (2017), Egypt (2016), Tunisia (2017), Namibia (2017), Cabo Verde (2017)

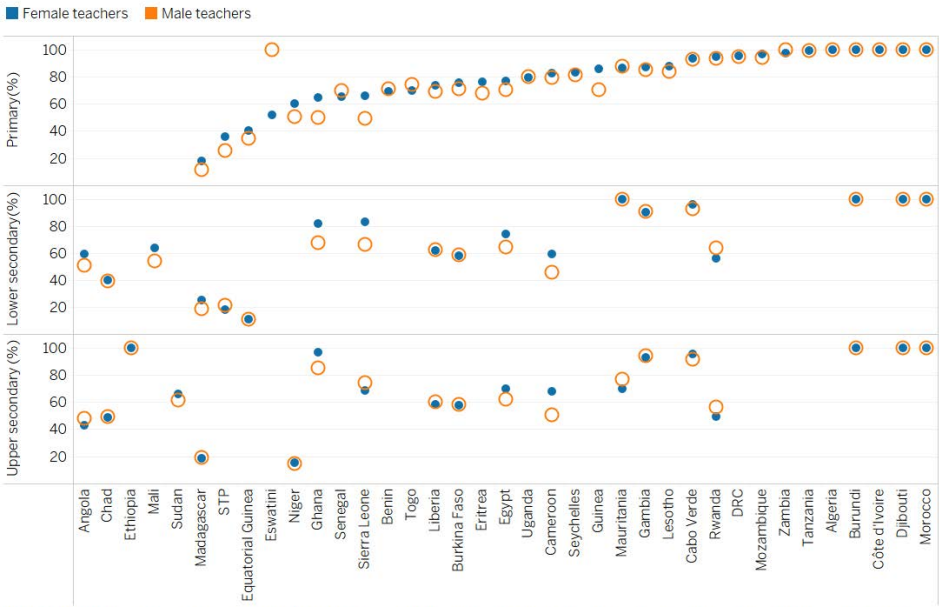
vi. Note that the data used in the degree of randomness analysis is from 2013, 2014, and 2015.

A comparative analysis of gender equity in the education workforce reveals several noteworthy findings. *Figure 6.7* shows the percentage of female teachers at primary, lower secondary, and upper secondary levels.

- This percentage varies greatly across countries. At the primary level, about 20% of teachers in Liberia are women compared to over 70% in Cabo Verde. At the lower secondary level, around 10% of teachers in Burundi, Congo, Liberia, and Mauritania are women compared to more than 40% in Cabo Verde, Egypt, Kenya, Madagascar, Namibia, and Tunisia. At the upper secondary level, around 10% of teachers in Liberia, Mauritania, Sierra Leone, and The Gambia are women compared to more than 40% in Burundi, Cabo Verde, Egypt, Madagascar, and Tunisia.
- What is consistent across all countries, however, is the fact that the percentage of female teachers at the secondary level, which generally holds higher prestige and pays higher salaries, are notably lower than the primary level. In about half of the countries where data is available (13 out of 27), female teachers constitute less than a quarter of the teacher workforce at both lower and upper secondary education levels.

Gender equity in the workforce goes beyond sheer numbers, and extends to recruitment, remuneration, in-service training, and promotion policies. Among these, quality pedagogical training is one element where country-level data is available for analysis. To examine gender equity in the education workforce with a focus on qualifications related to pedagogical training, *Figure 6.8* compares the proportion of pedagogically trained female teachers with the proportion of pedagogically trained male teachers. At primary, lower secondary, and upper secondary levels, the female versus male proportions are near equal when the overall proportion of qualifications is high. In many countries where the average proportion of pedagogically trained teachers is less than 80%, the number of qualified female teachers is slightly higher in primary and lower secondary education. The picture is less clear in upper secondary education. While this analysis on its own does not allow for an in-depth examination of the reasons for the observed differences in the female and male teachers' qualification rates, it is still worth underlining the importance of going beyond pure numbers in examining gender equity in the workforce, and the need for research to better understand the factors shaping gender differences in recruitment, qualification, remuneration, training, and promotion.

Figure 6.8 Proportion of pedagogically trained teachers, by education level and gender



Data source: UIS, SDG 4.c.1 "Percentage of female teachers by level of education taught (pre-primary, primary, lower secondary and upper secondary education) who have received at least the minimum organized pedagogical teacher training pre-service and in-service required for teaching per level in a given country, in a given academic year". http://data.uis.unesco.org/
Note: Countries are listed in order of the female proportion of qualified teachers
Data is from the following years:
Primary: Madagascar (2016), STP (2016), Equatorial Guinea (2015), Eswatini (2016), Niger (2016), Ghana (2016), Senegal (2015), Sierra Leone (2015), Benin (2016), Togo (2015), Liberia (2017), Burkina Faso (2016), Eritrea (2014), Egypt (2016), Uganda (2017), Cameroon (2017), Seychelles (2016), Guinea (2016), Mauritania (2017), Gambia (2015), Lesotho (2016), Cabo Verde (2016), Rwanda (2015), DRC (2014), Mozambique (2016), Zambia (2017), Tanzania (2016), Algeria (2015), Burundi (2016), Côte d'Ivoire (2016), Djibouti (2015), Morocco (2016)
Lower secondary: Angola (2015), Chad (2016), Mali (2018),Madagascar (2017), STP (2016), Equatorial Guinea (2015), Ghana (2016), Sierra Leone (2015), Liberia (2015), Burkina Faso (2017), Egypt (2016), Cameroon (2015), Mauritania (2015), Gambia (2015), Cabo Verde (2017), Rwanda (2017)? Burundi (2015), Djibouti (2015), Morocco (2017)
Upper secondary: Angola (2015), Chad (2016), Ethiopia (2015), Sudan (2016), Madagascar (2017), Niger (2015), Ghana (2016), Sierra Leone (2015), Liberia (2015), Burkina Faso (2017), Egypt (2016), Cameroon (2015), Mauritania (2016), Gambia (2015), Cabo Verde (2017), Rwanda (2017), Burundi (2015), Djibouti (2015), Morocco (2017)

Examples of ongoing efforts and remaining challenges

Recognizing the vital role teachers play in learning outcomes, and responding to the need to revitalize the teaching profession, several African governments have introduced various changes to their education workforce management policies and systems.

For instance, to encourage teachers to work at disadvantaged schools in areas where suitable housing and accessible transportation are scarce, governments introduced a range of incentives, including but not limited to hardship allowances and housing:

- In The Gambia, teachers serving in target disadvantaged schools were given a 30-40% salary bonus. [38]
- In Zambia, female teachers working at remote schools were offered a special loan to purchase solar panels to supply electricity to their homes. [39]

Some governments have used teacher compensation to improve their motivation by introducing performance pay, increasing base salaries, or formulating detailed incentives frameworks:

- In Kenya, following the introduction of the Public Sector Remuneration and Benefits Policy in 2015, the government introduced performance contracting for teachers, and the associated Teacher Performance Appraisal and Development tool, to systematically monitor them.[40]
- In Rwanda, the government has piloted and evaluated the impact of performance-based bonuses at upper primary schools, with a view to fine-tune incentives and improve teacher recruitment and retention efforts.[41]

Some governments have also focused on finding ways to enhance teachers' intrinsic motivation with non-pecuniary motivators:

- In Uganda, the government, in collaboration with an international NGO, aims to strengthen teachers' intrinsic motivation by establishing local peer networks (within and across a group of local schools), along with opportunities to reflect on their experiences, practice new teaching strategies, and receive feedback for further improvement. [42]
- In Ghana, Liberia, Morocco, Nigeria, and Uganda, Teach for All and its partners work to inspire recent university graduates to commit to at least two years teaching in schools where they are needed most, and support and motivate them through ongoing training to become strong classroom teachers and advocates for education for all.[43]

Several governments' efforts to improve their education workforce management policies have focused on teacher recruitment and allocation policies. In addition to tinkering with the academic qualifications required for teaching, increasing teacher versatility in secondary education, and introducing new status categories such as contract and community teachers,[44] the governments have also been revising their recruitment and allocation modalities with a view to advancing equity and diversity:

- In Sierra Leone, in an effort to address gender disparities in the teacher workforce, the government introduced a bridging programme for women by combining working as learning assistants in primary schools with a distance learning programme that leads to the acquisition of teaching qualifications.[45]
- In Ethiopia, a Women's Affairs Department was established inside the Ministry of Education, which developed an education sector gender policy that includes efforts to improve recruitment of female teachers.[46]

- In Mozambique, community-based teacher training colleges offer teacher education programmes for visually impaired graduates from mainstream schools who are given scholarships and opportunities to practice in nearby schools as student teachers.[47]
- In both Malawi and the United Republic of United Republic of Tanzania, teachers from underserved areas were targeted for recruitment and provided paper-based distance teacher training.[48]
- Several governments have also explored data-informed approaches to tackling sub-national disparities in pupil-teacher ratios, including geospatial analysis (e.g. Sierra Leone[49]) and computerized workforce management systems. (see *Policy case study #8* on Senegal's efforts in using computerized workforce management systems)

Teacher training is another area where many governments have explored and introduced new models as part of their efforts to prepare and support teachers for fulfilling their vital role in the delivery of quality, inclusive education.

- In The Gambia, Kenya, Namibia, Rwanda, Senegal, and the United Republic of United Republic of Tanzania, FAWE centres of excellence provide in-service training to teachers on gender-responsive pedagogy,[vii 50] and to school managers on gender responsiveness.[51]
- In Ghana, the Transforming Teacher Education and Learning programme has revised the initial teacher education model in terms of its content and pedagogy (including interactive student-focused and gender-sensitive instructional methods) and introduced classroom experiences through supported teaching for teacher candidates.[52]
- A recently launched multipronged World Bank initiative (Teach, Coach, and Technology for Teaching) is particularly worth noting. Teach is an observation tool developed to help countries measure teaching practices in the classroom. Coach focuses on improving in-service teacher professional development by helping countries develop tailored, practical, and ongoing teacher training programmes. Technology for Teaching is a recently launched programme aiming to scale-up teacher professional development opportunities using tech-based solutions.[53]
- In Rwanda, the government first piloted and later scaled up a school-based mentorship programme where mentor trainers train school-based mentors who then support teachers to enhance their pedagogical capabilities in the transition to a competency-based curriculum.[54] This model of school and cluster-based communities of practice (CoP), where teachers share experiences and support each other to improve their teaching practices, has been implemented in Rwanda, Kenya[55], and United Republic of Tanzania.[56]
- With the onset of the COVID-19 pandemic, digital skills moved to the centre of teacher training efforts. In the Digital Transformation Strategy for Africa (2020-2030), for example, teacher training programmes are promoted and their multiplier effect on students' digital skills via teachers' improved digital skills is discussed. In addition, equipping teachers with the knowledge, skills, and confidence to use technology is highlighted as a way to overcome barriers to the spread of technology in education.[57] Even more directly linked to the pandemic has been the African Union's Policy Guidelines on Digitizing Teaching and Learning in Africa, which underscores the importance of upskilling teachers to 'live the new reality of virtual and distance teaching'. [58]

vii. 'Gender-responsive pedagogy refers to teaching and learning processes that pay attention to the specific learning needs of girls and boys. [It] calls for teachers to take an inclusive gender approach in the processes of lesson planning, teaching practices, classroom management, and performance evaluation.'

A growing body of evidence and experience from the provision of education services in emergency/humanitarian settings confirms the role of teachers as the 'most important school-based factor in determining the quality of education', particularly where children face increased vulnerabilities associated with conflict and displacement.[59] Experiences across different countries and emergency contexts underline the importance of the training and support provided to teachers.

- Teachers for Teachers in Kakuma Refugee Camp in Kenya is an innovative professional development initiative with teacher training, peer coaching, and mobile mentoring as its key components.[60]
- The Little Ripples initiative in Chad trains refugee women as early childhood teachers in refugee camps and supports them in running home-based ECE programmes.[61]
- Chad's Ministry of Education organizes a two-year teacher training programme in a bilingual teacher training college for Sudanese teachers, supporting them to gain literacy skills in both languages and equipping them to teach the Chadian curriculum.[62]

Among the broader dynamics shaping African governments' ongoing efforts to revitalize the teaching workforce are the growing demand for schooling, financing constraints, and the increasing frequency and impact of external shocks. In 2015, it was estimated that achieving universal primary and secondary education by 2030 would require recruiting around 17 million teachers in sub-Saharan Africa.[63] [viii] This is both an immense challenge and a tremendous opportunity. If governments are able to improve initial teacher education programmes,[64] and introduce more effective and equitable recruitment and allocation policies, the insertion of these new cohorts of qualified and highly motivated teachers into the education workforce could serve as a real boost for revitalizing the teaching workforce. However, seizing this opportunity may require changes to the financing status quo. Teacher salaries already represent a significant share of recurrent education budgets in most countries[65] and, in some African countries, teacher salary costs across primary and secondary schools exceed the amount of government spending on all education levels.[66] Hence, the ongoing expansion of the education workforce will require broader conversations about the financing priorities of both governments and development partners.

Further complicating African governments' ongoing efforts to revitalize the teaching profession, while addressing a massive recruitment need with severe financing constraints, are external shocks to the system as a result of conflicts, natural disasters, displacement, and pandemics. As witnessed during the COVID-19 pandemic, sudden school closures meant that teachers had to redefine their roles, learn to use technology more effectively to communicate and teach, and prepare for the challenges they will face when school reopen.[67] These challenges facing teachers specifically, and education systems more broadly, have raised the stakes for 'building back better',[68] and the urgency of investing in teachers by developing holistic policies, recruiting more teachers, and providing them with better access to continuing professional development and resources to facilitate blended learning.[69]

Policy case study #8: Information systems to address teacher resource optimization challenges

Education systems face major efficiency challenges, with human resource allocation being an area with great potential for improvement. Personnel costs make up the largest share of total public spending on education, accounting for up to 90% in some cases.[70] In addition, several African countries are experiencing a sharp increase in the school age population without having enough teachers to respond effectively to the increase in educational demand.[ix] [71] This makes it crucial that processes be considered to optimize the utilization of the workforce while ensuring the equitable allocation of teachers.[72]

One of the reasons for the inefficient allocation of teachers is the lack of adequate information tools to better characterize the staff and their needs and better align them with the education system. To improve staff management, including the deployment of teachers, several countries have undertaken endeavours to address this issue. In particular, Burkina Faso, Côte d'Ivoire, Senegal, and Uganda have

viii. Note that this figure includes an estimated 7.5 million teachers who will need to be recruited to replace those who are expected to leave the workforce.

recently developed Human Resources Management Systems (HRMSs).[x 73] These are data systems storing information about various aspects of the teaching staff, (e.g. qualifications, professional experience, evaluation results, training goals, and professional development objectives), which can be used for a wide range of human resources management and planning purposes (e.g. recruitment, deployment, etc.).[74]

HRMS to improve teacher deployment: the case of MIRADOR

MIRADOR is the acronym for the system implemented in Senegal, which stands for 'Management Intégré des Ressources Axé sur une Dotation Rationnelle' (Integrated Management of Resources Based on Rational Allocations). Launched in 2013, it is a user-friendly platform, computerized database, and workforce management system developed by the government, with the agreement of national labour unions. The system provides government with information on teachers' characteristics, but also allowing teachers to manage their administrative affairs (e.g. requests for transfers and training). Stakeholders interviewed say that, thanks to the incorporation of algorithms[xi] into the teacher assignment and transfer process, MIRADOR is seen as having contributed to improving the distribution of teachers across Senegal, thus better serving rural and previously underserved areas. In addition, stakeholders also believe it has helped to simplify and make human resources management more transparent.[75] For instance, it monitors teachers´ performance and absenteeism through a module that registers merit and disciplinary acts. Finally, it aims to strengthen teachers' motivation through modules created for their professional and personal development. Statistics show that there are about 4,000 daily connections to the platform, mostly from smartphones (90%), with average sessions of three minutes, and most of which are in areas related to teacher/pupil resources.[76] Despite these encouraging outputs, a formal evaluation of the impact of MIRADOR or other similar systems recently developed in the region is yet to be conducted.

ix. Seventy per cent of countries in the region have a shortage of teachers at the primary level and 90% at the secondary level.
x. Also known as Teacher Management Information System (TMIS).
xi. This algorithm tracks teacher positions and postings in real time, processes the information to determine deficits and surpluses at school level, and creates alerts for administrators in each information cycle.

Ensuring alignment, sustainability, and responsible use

While information systems are a fundamental part of optimizing resources in education, it is essential that they are aligned with the education systems' policies, structures, and processes. They also need to complement other information systems (e.g. EMIS). HRMSs like MIRADOR are being increasingly recognized as a potentially valuable part of the decision-making process in the education sector. For them to achieve this potential, they need to be reliable and sustainable, ensuring their effective maintenance and ability to produce accurate data in a timely manner. Finally, since HRMSs are information systems containing personal data, it is critical to monitor and promote their responsible use, including ethical dimensions (e.g. security, privacy, etc.) and limitations.

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Chapter 7

Education facilities

CHAPTER SUMMARY

This chapter presents the state of education facilities in and around 2016 against the relevant benchmark and other SDG 4.a indicators. The main issues highlighted and findings presented include:

Building and upgrading schools: School availability and class size continue to hinder efforts to improve access and learning. Particularly in rural areas, teachers and students tend to face terrain- and climate-related barriers in accessing school, which are aggravated by the growing trend of more destructive climate events. Thus, investing in preparedness and early response, and strengthening school infrastructure against disasters is more urgent than ever.

***S*chool environment and children's health:** School environment is linked to children's and teachers' well-being via multiple channels, including their health. WASH facilities are particularly relevant in this respect. Yet: (i) in about half of the countries where data is available, more than 50% of primary schools do not have access to basic WASH facilities; (ii) major differences exist across countries in terms of availability of WASH facilities in schools; (iii) in most countries where disaggregated data is available, higher proportions of urban schools have access to WASH facilities than rural schools.

School environment and children with disabilities: Infrastructure and learning materials adapted to the needs of children with disabilities is essential to an inclusive school environment. In the nine countries where data is available, sizable differences exist, pointing to a concerning situation characterized by limitations in the provision of a nurturing learning environment for children with disabilities in many countries. However, data from some low-income countries highlights the viability of progress when inclusion is prioritized in investment decisions, even in resource-constrained environments.

School environment and children's safety: Data is particularly limited with respect to children's safety in the school environment, as captured by the prevalence of bullying, school-related gender-based violence, and attacks on schools. Available data suggests a disconcerting situation, especially in areas affected by armed conflict.

ICT infrastructure in schools: This is important both for its potential contribution to learning outcomes through ICT-supported pedagogical practices and for the acquisition of digital skills. The lack of ICT infrastructure limits the possibility of learning digital skills at schools and of narrowing the vast digital divide within and across countries. Large differences are observed between countries with regards to the proportion of schools with access to electricity, computers, and the internet. For example, at the primary education level, in 25 of the 38 countries where data is available, less than half of the schools have access to electricity while in 7 countries more than 90% of schools do. In a few countries, availability of ICT-related infrastructure is particularly concerning where most children complete primary and secondary education without accessing a computer or the internet at their school.

Background

Education facilities in Agenda 2030

Agenda 2030 identifies education facilities as one of the means of implementation for SDG 4. With SDG 4.a, governments commit to 'build and upgrade education facilities that are child, disability and gender sensitive, and provide safe, non-violent, inclusive and effective learning environments for all'.[1] In fact, SDG 4.a can be viewed as the recapitulation of Agenda 2030's vision for our schools which includes: a school free of fear and violence, where physical, mental and social well-being are assured, where the human right to safe drinking water and sanitation is protected, where there is improved hygiene, and access to electricity.[2] Similarly, Agenda 2030's recognition of the importance of gender equality and the need to empower those who are vulnerable, including persons with disabilities, is directly reflected in SDG 4.a's focus on disability and gender inclusive learning environments.

Education facilities in CESA

CESA identifies education facilities as one of its strategic objective topics. CESA's SO 2 is to 'build, rehabilitate, preserve education infrastructure and develop policies that ensure a permanent, healthy and conducive learning environment in all sub-sectors and for all, so as to expand access to quality education.' In framing this objective, CESA recognizes the significance of the learning environment in expanding access to quality education. CESA SO 3 aims to 'harness the capacity of ICT to improve access, quality and management of education and training systems' which partly concerns education facilities. The action areas put forward under SO 2 underscore several issues pertinent for the continent, including the state of facilities in rural areas, challenges with the preservation of school infrastructure, the role of school feeding, and school health policies among others.[i] Similarly, action areas listed under SO 3 highlight the development of online content, taking into account African and local specificities and the creation of mobile and online platforms that ensure accessibility to all students regardless of their circumstances. [3 ii]

In its analysis of the current state of affairs, CESA underscores disparities in the availability and quality of facilities across rich/poor and urban/rural divides.[4] It highlights as a key challenge the need to invest in education facilities in hard-to-reach and marginalized areas.[5] It also laments attacks in which the few available school infrastructures are damaged and destroyed.[6] CESA also highlights the role of education facilities with regards to tertiary education, where additional modern infrastructure would be needed to absorb secondary education graduates, provide innovative delivery using ICTs, and provide conducive environments for research and innovation.[7] In its analysis of challenges in the provision of secondary education, CESA identifies ICTs as holding the potential of effective and lasting solutions to some of them.[8] The Nairobi Declaration builds on CESA by further emphasizing safety, whereby governments and other stakeholders commit to 'making the learning and teaching environment more healthy, inclusive and safe through adequate responses to school-related violence and discrimination based on gender, disability, origin, race, ethnicity, religion or any other factor'.[9]

Relevant SDG 4 and CESA indicators on education facilities are described in *Appendix 3*.

i. Action areas listed under SO 2 are: (a). Expand and consolidate infrastructure, learning, and training facilities, especially in rural and other underserved areas; (b). Develop administrative and legislative mechanisms to ensure the preservation and protection of school infrastructure; (c). Ensure harmonious development of the body, taking into account a voluntary feeding and school health policy; (d). Ensure free access to textbooks and teaching tools; (e). Formulate appropriate policies conducive to expansion of education with special focus on early childhood care and education, TVET, and general secondary education, as well as tertiary education; (f). Address access constraints imposed by poverty, lifestyle, culture, and location among others; (g). Integrate mapping of education facilities and infrastructure into urban and rural planning.

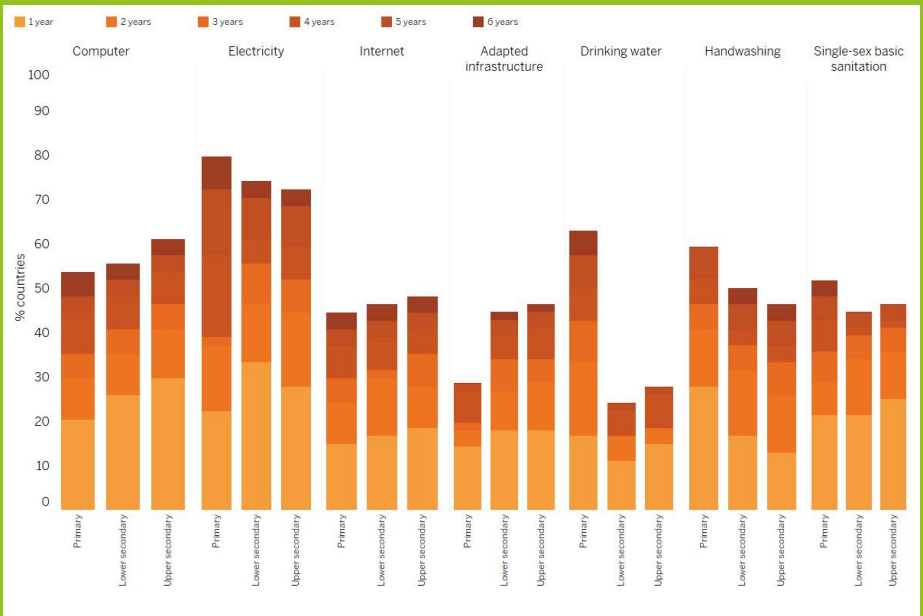
ii. Action areas listed under SO 3 are: (a) Formulate policies for ICT integration in education and training; (b) Build ICT capacity of learners and teachers to take full advantage of the potential of technologies; (c) Build capacity of education managers and administrators on use of ICTs in planning, implementation, monitoring, strategies and programmes; (d) Promote the development of online content, taking into account African and local specificities; (e) Capitalize on existing and successful ICT-driven initiatives that enhance access including the Pan African Virtual and E-University; (f) Provide appropriate and sufficient equipment facilities (e.g. connectivity, power) and services; (g) Create mobile and online education and training platforms that are accessible to all students regardless of their circumstances.

Box 7.1 Enabling legal frameworks for education facilities

Efforts to improve the state of education facilities are more effective when backed by policies and enabling legal frameworks. In the absence of SDG indicators on policies related to facilities, the report highlights three CESA indicators for enabling legal frameworks related to education facilities, although currently there is no systematic data collection for these indicators: (2.3) 'existence of a National Safe Schools Policy'; (10.1) 'existence of National Strategies to ensure the continuation of education during humanitarian situations, emergency situations such as armed conflict and support the reestablishment of educational facilities'; (10.2) 'existence of National education policies to address psychosocial support, disaster risk reduction and other systems/mechanisms to protect education from attacks and support for rehabilitation of school infrastructure'.

Box 7.2 Data availability

Figure 7.1 Proportion of countries with 1, 2, 3, 4, 5, and 6 available data points over the period 2015-2020, for indicators on education facilities



Data source: UIS, SDG 4.a.1

Data availability for the types of facilities varies. The number of countries that have one or more points of data between 2015 and 2020 is highest for electricity access, and lowest for drinking water access.

School availability and class size as persistent constraints

With both SDG and CESA indicators focusing exclusively on the quality of the learning environment, as measured by the availability of physical facilities, safety and security, the 'build' component of both SDG 4.a and CESA SO 2, receives limited attention. Yet evidence from studies in Africa suggests that where school availability is a constraint, building schools is associated with increased access and completion rates, and improved learning.[10] Hence, when there are not enough schools, building new ones becomes an important factor that enables other interventions to work.[11] While classroom size is not monitored

as part of SDG 4.a and CESA SO 2, insufficient availability of schools may be observed as overcrowded classrooms and double shift schools, both of which are associated with lower learning outcomes and higher dropout rates.[12] Particularly, large class sizes in early grades, as a result of the 'early grade bulge', may pose a significant challenge to the acquisition of foundational reading and numeracy, and potentially limit the instructional practices teachers can employ to improve learning outcomes.[13]

Building and upgrading schools with difficult terrain and climate-related hazards in mind

Particularly in rural areas, both teachers and students face terrain- and climate-related barriers in their day-to-day journeys to and from the school, including unsafe paths and roads,[14] excessive rain, heat, and other climate-related hazards. The growing trend of more destructive climate events, including droughts and flooding, is expected to further aggravate the safety challenges children face travelling to and from school. [15] [16] [17] [iii] [18] When communities are faced with climate disasters, schools have a critical role to play by providing a safe place where children can access life-saving services. [19] Thus, investments in preparedness and early response[20] by strengthening school infrastructure against disasters[21] and, more broadly, making them more resilient, seem more urgent than ever. [22]

School environment central to children's and teacher's well-being

A school environment is often linked to children's and teachers' well-being, regular attendance, and engagement in learning processes via multiple channels.

- Having spaces and resources adapted to the needs and educational processes of children has proven to be a determining element in the learning process. Play-based learning programmes, implemented through new infrastructure or the improvement of existing facilities, have shown positive results in the cognitive and socio-emotional development, health outcomes, and school readiness of the youngest learners in rural Ghana[23], Liberia[24] and Uganda[25], among other countries.
- The social and physical safety of the environment 'affects some learners more than others',[26] such as children from marginalized communities, adolescent girls, and children with disabilities or albinism. When children and teachers do not feel safe in the learning environment, learning outcomes are likely to suffer, rates of absenteeism are likely to increase, and more children are likely to drop out.[27] (see *General findings* for a more detailed discussion on safety in schools)
- The school environment is also directly linked to children's health. Access to WASH facilities is particularly crucial in this respect. Decreasing the spread of disease in school settings can also improve nutritional status, and both can improve attendance.[28]
- Availability of disability-sensitive facilities can also play a role in addressing disparities and promoting inclusion.[29] Physical accessibility of school buildings, classrooms and toilets, and accessibility of learning materials are among the barriers posed to children with certain types of disabilities.[30] Lack of accessible infrastructure is identified as one of the reasons children with disabilities drop out of education. [31]

iii. The effects of more destructive climate events will not be limited to safety, but will include disruptions to education (as demonstrated by Cyclone Enawo in 2017 which saw over 80,00 children unable to attend school in Madagascar) and will likely lead to more children dropping out as a result of deepening and widening poverty induced by climate disasters (as demonstrated by the prolonged drought in East Africa in 2018).

- Limited availability of gender-sensitive facilities[iv] is identified as one of the reasons for absenteeism especially among teenage girls.[32] Research suggests that the construction of latrines will reduce absenteeism and dropout rates for all children, and that it is pubescent-age girls who benefit most from single-sex toilets.[33] Even at older ages, sex-specific latrines can help reduce gender disparities, while unisex latrines exacerbate them to the disadvantage of girls. [34]

ICT infrastructure as key to building resilient schools ready for tomorrow

ICT infrastructure, and more broadly the use of ICT in learning processes, has the potential to improve learning outcomes by either complementing existing pedagogical practices or by substituting for less effective practices.[35] However, realizing the potential of ICT and computer-assisted learning requires careful design and implementation[36] that takes into account teachers' perspectives, infrastructure limitations, and maintenance challenges. However, the importance of ICT infrastructure is not limited to ICT's potential contribution to learning outcomes. The growing role of digital technologies in the labour market gives an urgency to the acquisition by young people of digital skills. The lack of ICT infrastructure in schools excludes the possibility of learning digital skills while there and increases the vast digital divide within and across countries.[37] However, for most countries in Africa, infrastructure investments for bridging the digital divide will need to start with the electrification of the large proportion of schools that do not have access to electricity. (see *Policy case study #9* on off-grid electrification)

General findings

This section first presents the baseline situation analysis for education facilities as captured by SDG global indicator on education facilities, 4.a.1 which focuses on physical infrastructure. The multiple dimensions of this indicator present a challenge for capturing succinctly the state of education facilities in a given country,[38] and are analysed here in three categories. In the first, the three elements of WASH infrastructure are analysed together. In the second, the SDG 4.a.1's dimension on adapted infrastructure and learning materials, and some additional analysis on safety, bullying, and school-related gender-based violence are examined. In the third category of analysis, access to electricity, computers, and the internet are discussed together, given their interdependence for the provision of ICT-supported pedagogical practices.

The persistent challenge of getting basic WASH facilities in schools

Figure 7.2, *Figure 7.3*, and *Figure 7.4* show the proportion of schools with access to drinking water, basic handwashing facilities, and single-sex sanitation facilities.

- At the primary level (see *Figure 7.2*), in about half of the countries where data is available,[v] more than 50% of the primary schools do not have access to single-sex sanitation facilities, to basic handwashing facilities, and to basic drinking water facilities.

v. For single-sex sanitation facilities it is 10 out of 25 countries, for basic handwashing facilities it is 13 out of 25 countries, and for basic drinking water facilities it is 13 out of 28 countries.

- Broadly speaking, for most countries where data is available, access to WASH facilities increases with the level of education. More specifically:

    1. Access to single-sex sanitation facilities increases with education level, with some exceptions (Cabo Verde, Malawi).[vi 39]

    2. Access to basic drinking water facilities increases with education level for all countries, with the exception of Burkina Faso.

    3. Access to basic handwashing facilities increases with education level for some of the countries where data is available. For several countries, the relation between access to handwashing facilities and education level is less clear (Burundi, Ghana, Mauritius, Sierra Leone).vii

- Looking across countries at all education levels, major differences are observed in terms of the proportion of schools with access to various WASH facilities. At the one end are countries like Seychelles and Tunisia where access to all three types of WASH facilities is universal or approaching universal. At the other end are countries like Mali and Niger where most of the schools lack one or more of the three types of WASH facilities.

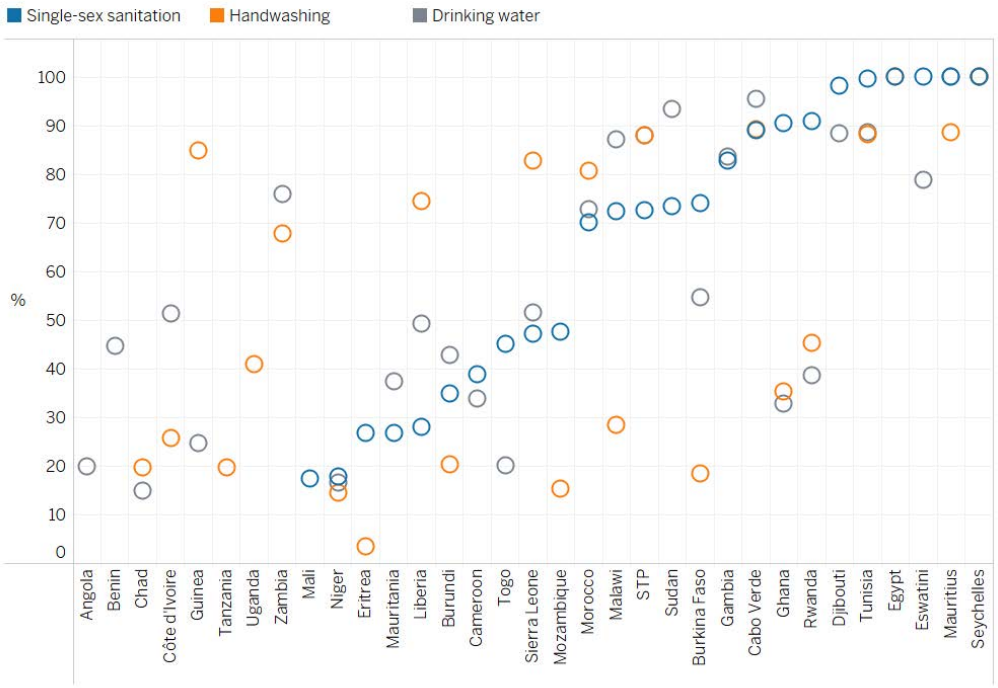
- In terms of the relationship between the availability of different types of WASH facilities in primary schools (see *Figure 7.2*):

    1. Broadly speaking, access to single-sex sanitation facilities and basic drinking water are similar. Some exceptions include Ghana, Rwanda, and Togo with disproportionately high rates of access to single-sex sanitation facilities (91% versus 39% for water in Rwanda, and 45% versus 20% in Togo) and Sudan with relatively high rates of access to basic drinking water facilities (93% versus 73% for single-sex toilets).

    2. The relationship between access to handwashing facilities and access to other types of facilities can be complicated by period-specific intensification of investments in handwashing facilities in response to disease outbreaks. This can be seen in three countries that were at the centre of the 2014 Ebola outbreak, Guinea, Liberia, and Sierra Leone, where access to handwashing facilities is relatively high compared to access to single-sex sanitation and basic drinking water facilities. Other outliers include Burkina Faso, DRC, Eritrea, and Malawi, which are characterized by disproportionately low rates for access to handwashing facilities.

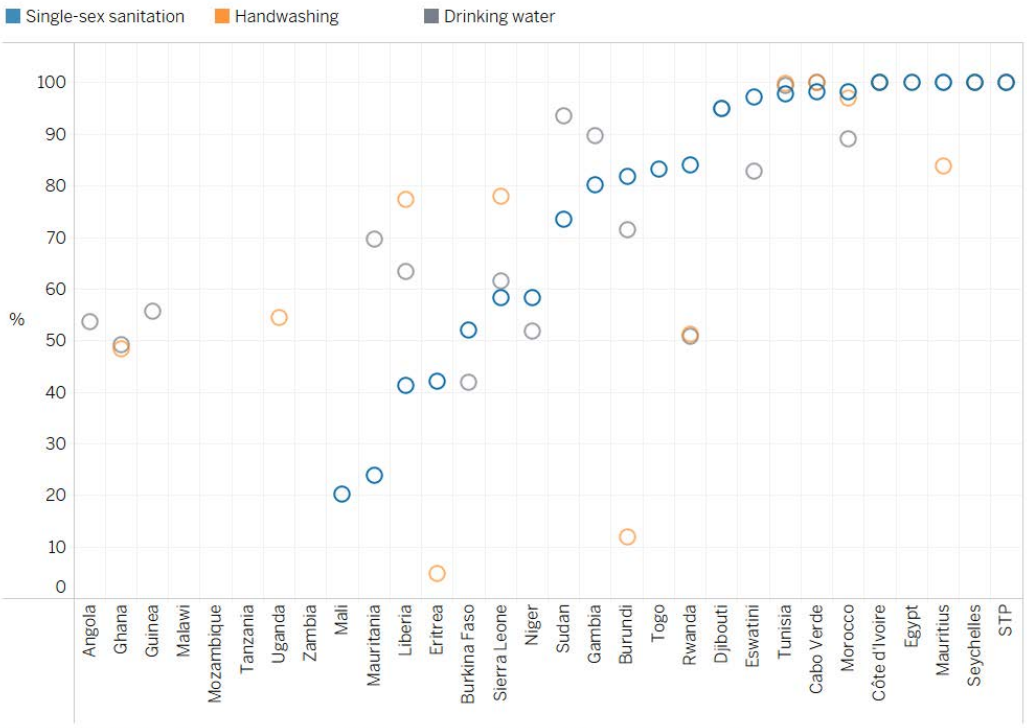
vi. It is worth noting that the data captures single-sex sanitation facilities and not unisex ones, which is relevant especially given evidence of the differential effects of single-sex and unisex sanitation facilities on girls and boys, as well as on different age groups, as noted later in the chapter.
vii. The data on handwashing facilities pre-dates the COVID-19 pandemic that led to the intensification of efforts to make them available, thus making the information outdated.

Figure 7.2 Proportion of primary schools with access to basic drinking water, single-sex basic sanitation facilities, basic handwashing facilities



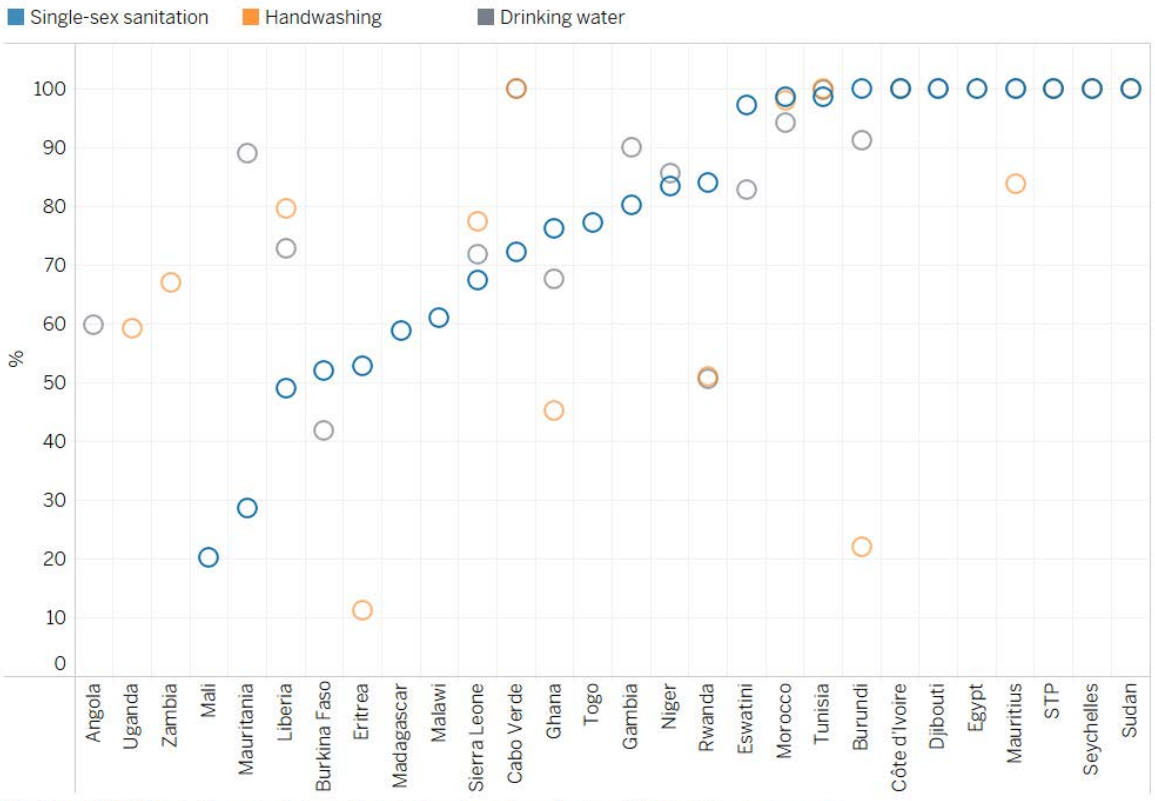
Data Source: UIS. SDG 4.a.1 : "Proportion of schools offering basic services, by type of services (%)", http://data.uis.unesco.org/
Note: Countries are listed in order of the proportion of primary schools with access to single-sex basic sanitation
Data is from the following years: Angola (2016), Benin (2016), Chad (2018), Côte d'Ivoire (2016), Guinea (2016), Tanzania (2016), Uganda (2017), Zambia (2016), Mali (2016), Niger (2016,2017), Eritrea (2017), Mauritania (2016), Liberia (2016), Burundi (2016), Cameroon (2016), Togo (2017), Sierra Leone (2017), Mozambique (2016), Morocco (2016), Malawi (2016, 2017), STP (2017), Sudan (2016), Burkina Faso (2016), Gambia (2017), Cape Verde (2016), Ghana (2017, 2018), Rwanda (2016), Djibouti (2017), Tunisia (2016, 2017), Egypt (2016), Eswatini (2016), Mauritius (2016), Seychelles (2016).

Figure 7.3 Proportion of lower secondary schools with access to basic drinking water, single-sex basic sanitation facilities, basic handwashing facilities



Data Source: UIS. SDG 4.a.1 : "Proportion of schools offering basic services, by type of services (%)", http://data.uis.unesco.org/
Note: Countries are listed in order of the proportion of lower secondary schools with access to single-sex basic sanitation
Data is from the following years: Angola (2016), Ghana (2018), Guinea (2016), Uganda (2017), Mali (2016), Mauritania (2016), Liberia (2016), Eritrea (2017), Madagascar (2016), Burkina Faso (2016), Sierra Leone (2017), Niger (2016), Sudan (2016), Gambia (2016, 2017),Burundi (2016), Togo (2017), Rwanda (2016), Djibouti (2017), Eswatini (2016), Tunisia (2016, 2017), Cape Verde (2016, 2017), Morocco (2016), Côte d'Ivoire (2016), Egypt (2016), Mauritius (2016), Seychelles (2016), STP (2017).

Figure 7.4 Proportion of upper secondary schools with access to basic drinking water, single-sex basic sanitation facilities, basic handwashing facilities

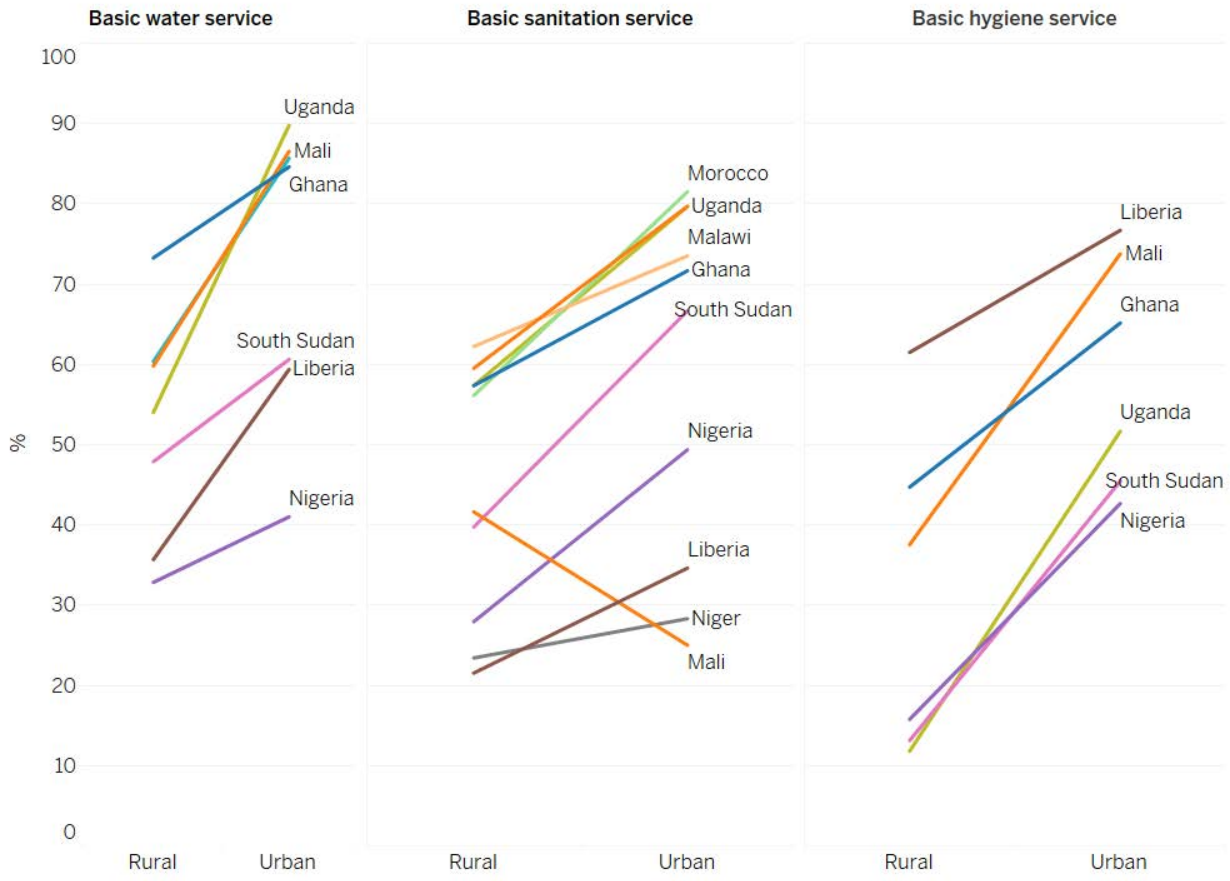


Data Source: UIS, SDG 4.a.1 : "Proportion of schools offering basic services, by type of services (%)", http://data.uis.unesco.org/
Note: Countries are listed in order of the proportion of upper secondary schools with access to single-sex basic sanitation
Data is from the following years: Angola (2016), Uganda (2017), Zambia (2016), Mali (2016), Mauritania (2016), Liberia (2016), Burkina Faso (2016), Eritrea (2017), Madagascar (2016), Malawi (2016), Sierra Leone (2017), Cape Verde (2016, 2017), Ghana (2017, 2018), Togo (2018), Gambia (2016, 2017), Niger (2016), Rwanda (2016), Eswatini (2016), Morocco (2016, 2017), Tunisia (2017), Burundi (2016), Côte d'Ivoire (2016, 2018), Djibouti (2017),Egypt (2016), Mauritius (2016), Seychelles (2016), STP (2016, 2017), Sudan (2016).

Figure 7.5 shows the proportion of all schools with access to WASH facilities disaggregated by the location of the school (rural and urban), and highlights the location-based disparities in availability facilities in schools. In all countries, a significantly higher proportion of urban schools have WASH facilities compared to rural schools, with the exception of Mali. The size of the difference between urban and rural schools, however, varies across countries. Gaps between urban and rural schools are as high as 40 percentage points in some countries (for basic water in Uganda, for basic sanitation in South Sudan, and for basic hygiene in Mali, Nigeria, South Sudan, Uganda), and as low as 10 percentage points in other countries (for basic water in Nigeria, for basic sanitation in Niger and Malawi).[viii]

viii. Note that the data underlying this figure is from the WHO and UNICEF's Joint Monitoring Programme (JMP) for Water Supply and Sanitation, which is the official mechanism tasked with monitoring progress towards SDG 6.

Figure 7.5 Proportion of rural versus urban schools with basic drinking water services, basic sanitation services, basic hygiene services



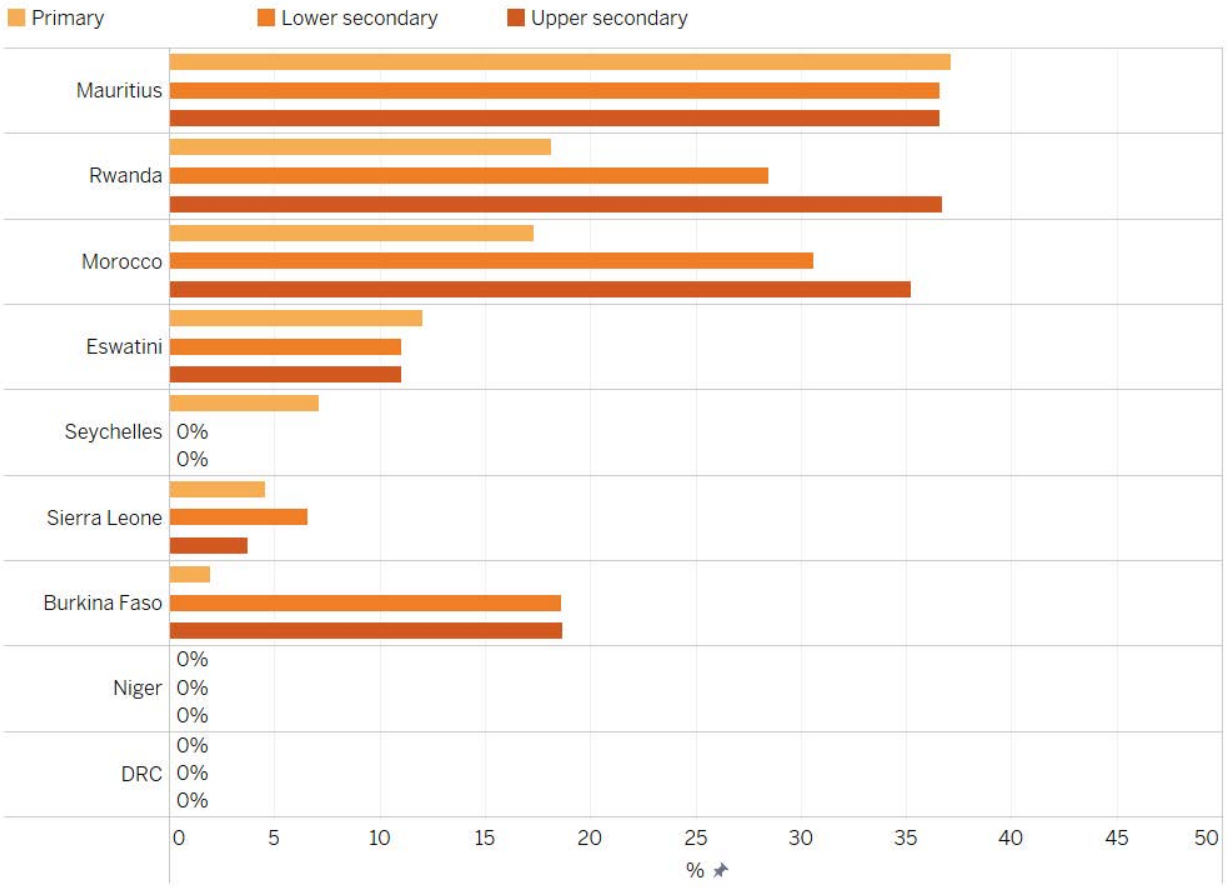
Data Source: JMP. Estimates on water, sanitation and hygiene in schools by country. https://washdata.org/data
All data is from 2019

The long journey to getting school infrastructure ready for students with disabilities

With regards to schools with access to adapted infrastructure and materials for students with disabilities, data from the period of concern for this report is available for only nine countries.[ix 40] These figures reveal sizable differences between countries and a generally concerning picture. Those with the highest proportion of schools with access to adapted infrastructure and materials are Mauritius, Morocco, and Rwanda, yet even in these countries about two-thirds of the schools lack adapted infrastructure and materials. In this respect, Burkina Faso and Rwanda are worth highlighting as two low-income countries that have achieved some progress in increasing access in this area. Note that while the DRC and Niger have available data, none of the schools have access to adapted infrastructure and materials for students with disabilities. Similarly, none of the lower and upper secondary schools in Seychelles have access to adapted infrastructure.

ix. This indicator has limitations as there are many ways in which infrastructure can be adapted, and there is no one unique definition of what it means for a school to be considered as having 'adapted'. It is not clear, for example, how to define a school that has Braille signposting but not no ramps for wheelchairs. It is also not clear how accurate the reporting of any adaptation might be.

Figure 7.6 Proportion of schools with access to adapted infrastructure and materials for students with disabilities, by education level (%)



Data Source: UIS, CESA/SO 2.2 : "Proportion of schools with access to adapted infrastructure and materials for students with disabilities", http://data.uis.unesco.org/
Note: Countries are listed in order of the proportion of primary schools with access to adapted infrastructure and materials for students with disabilities
Data is from the following years: Mauritius (2016), Rwanda (2017), Morocco (2017), Eswatini (2016), Seychelles (2016), Sierra Leone (2017), Burkina Faso (2016), Niger (2016), DRC (2015)

Schools as places where students should feel safe and secure

Safety in the school environment has multiple dimensions, some of which are captured in the SDG indicators (bullying and attacks on schools) while others are not (corporal punishment, school-related gender-based violence). Broadly speaking, data availability is a constraint to better understanding students' experiences in schools from a safety perspective.

- Data on bullying prevalence (SDG 4.a.2) is available for only four countries and dates from 2014. Bullying prevalence levels in these countries are Algeria (low), Ethiopia (medium), Namibia (high) and South Africa (high).[41]

- There are no SDG indicators on school-related gender-based violence (SRGBV).[x 42] Many countries collect little or no data on this topic, and in countries where efforts are made, the problem tends to be under-reported. [xi 43 44 45 46] Preventing SRGBV requires a multidimensional approach, including effective laws and policies, appropriate curricular content and learning materials, teacher training programmes, and mechanisms for confidential reporting.[47] Such efforts are particularly vital during crises and emergencies which tend to accentuate existing forms of gender-based violence, including SRGBV.[48]

x. School-related gender-based violence involves 'acts or threats of sexual, physical, or psychological violence occurring within and around school, perpetrated because of gender norms and stereotypes, and enforced by unequal power dynamics'.
xi. Reasons for under-reporting may include shame and stigma, financial barriers, perceived impunity for perpetrators, lack of awareness of available services, fear of retaliation, lack of trust in police or judicial services, among others.

Comparative studies on SRGBV in Côte d'Ivoire, Ethiopia, Togo, and Zambia found that specific groups of children were particularly vulnerable to different forms of SRGBV (e.g. poorest girls being exposed to sexual coercion, poorest boys being exposed to harsh physical punishments).[49] Other studies have shown the heightened vulnerability to GBV of girls with disabilities,[50] which most likely extends to SRGBV.

- It is fundamental to ensure that schools serve as a safe haven where children can be protected from abuse, exploitation, and recruitment by armed forces.[51] Data on the number of attacks on education in 2018 (SDG 4.a.3) from the Global Coalition to Protect Education From Attack (GCPEA)[xii] puts the spotlight on Cameroon and the DRC. Between 2015 and 2019, the DRC was the most heavily affected by attacks on schools with more than 1,500 incidents reported in which schools were damaged and destroyed.[53] Cameroon was the country in Africa with the highest recorded number of teachers and students harmed by direct attacks. Students were threatened, abducted, beaten, and in some instances, killed by a separatist armed group.[54] GCPEA's study on the impacts of attacks on the education of girls in Nigeria and DRC suggests that long periods of absenteeism as a result of the violence may lead to some dropping out permanently, and that girls are less likely than boys to return to school in the aftermath of a conflict.[55] (see *Chapter 2* for a broader discussion on the effects of conflict and displacement on equitable education equity).

The great digital divide: electricity, computer, and internet infrastructure at schools

Figure 7.7, *Figure 7.8*, and *Figure 7.9* show the proportion of schools with access to electricity, computers, and the internet, at primary, lower secondary, and upper secondary levels, respectively.

- Looking across education levels, for most countries where data is available, access to electricity, computers, and the internet increases with the level of education. Some exceptions include: (1) countries with universal access to electricity, computers, and internet at both lower secondary and upper secondary levels (Cabo Verde, Mauritius, Seychelles, Tunisia); (2) countries where almost no schools have access to computers or the internet at primary, lower, or upper secondary levels (Burkina Faso and the DRC in all three levels, Burundi and Guinea in primary and lower secondary levels). In fact, almost all students in Burkina Faso and the DRC go through primary, lower secondary, and upper secondary levels without having access to a computer or internet at school.

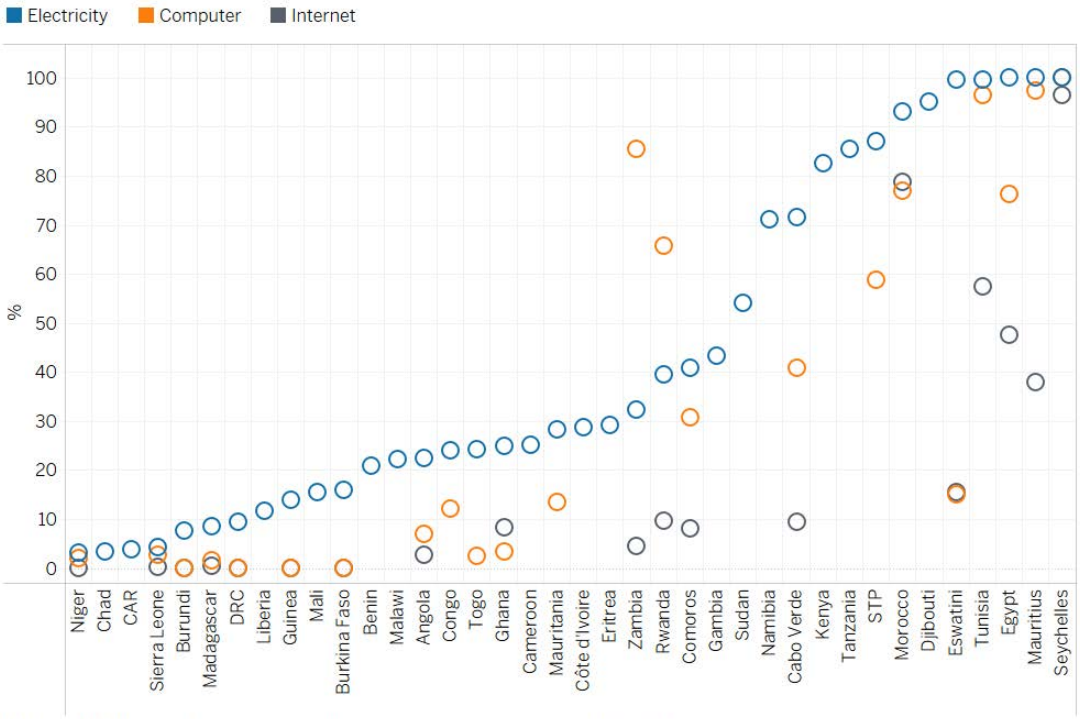
- Looking across countries at the primary level in *Figure 7.7*, sizable differences can be observed in access to electricity. In 25 of the 38 countries where data is available, less than half of the schools have access to electricity, while in 7 of them, less than 10% of schools have access to electricity (Burundi, Chad, Central African Republic, the DRC, Madagascar, Niger, Sierra Leone). In 7 of the 38 countries, more than 90% of the schools have access to electricity (Djibouti, Egypt, Eswatini, Mauritius, Morocco, Seychelles, Tunisia).

- Generally, schools seem to gain sequential access to ICT facilities, starting with electricity, followed by computers, and then the internet. Some exceptions include: (i) primary schools in Zambia and schools at all three levels in Rwanda (where computer access appears to precede electricity access); (ii) primary schools in Eswatini (where despite widespread access to electricity, access to computers and the internet are relatively low), (iii) lower and upper secondary schools in Burundi (where despite many schools having access to electricity, access to computers and internet is very low at the upper secondary level and appears non-existent at the lower secondary level).

xii. The data includes various types of incidents including attacks on schools, students, and teachers; military use of schools and universities; child recruitment at or on the way to or from school; sexual violence at or on the way to or from school or university; attacks on higher education.

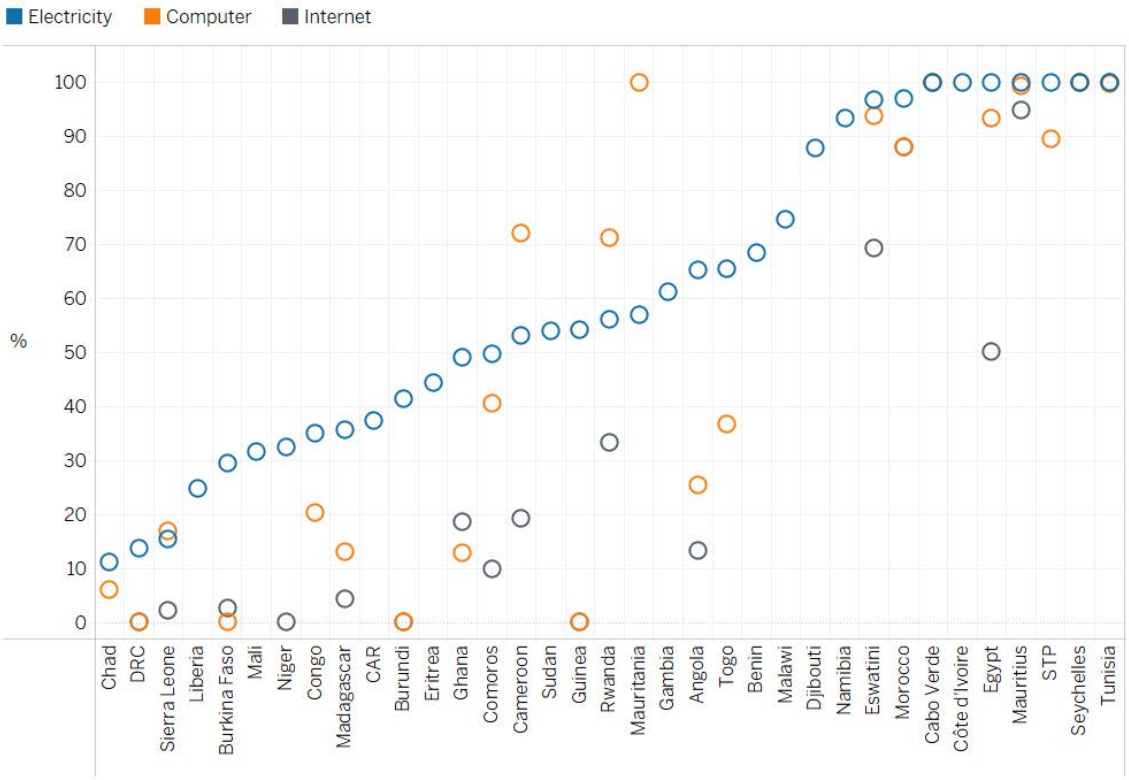
- With regards to the digital divide across countries, looking at the 20 countries where data is available for access to the internet at secondary schools (see *Figure 7.8* and *Figure 7.9*), in 8 of them, less than 20% of the schools have access to the internet, while in 5 of the countries, more than 80% of schools do.
- Available data does not allow for the analysing of digital divides and disparities in access to electricity within countries, nor does it reflect the reliability of access to electricity and the internet, or the sustainability of access to computers due to maintenance and replacement delays.

Figure 7.7 Proportion of primary schools with access to electricity, computer, and internet



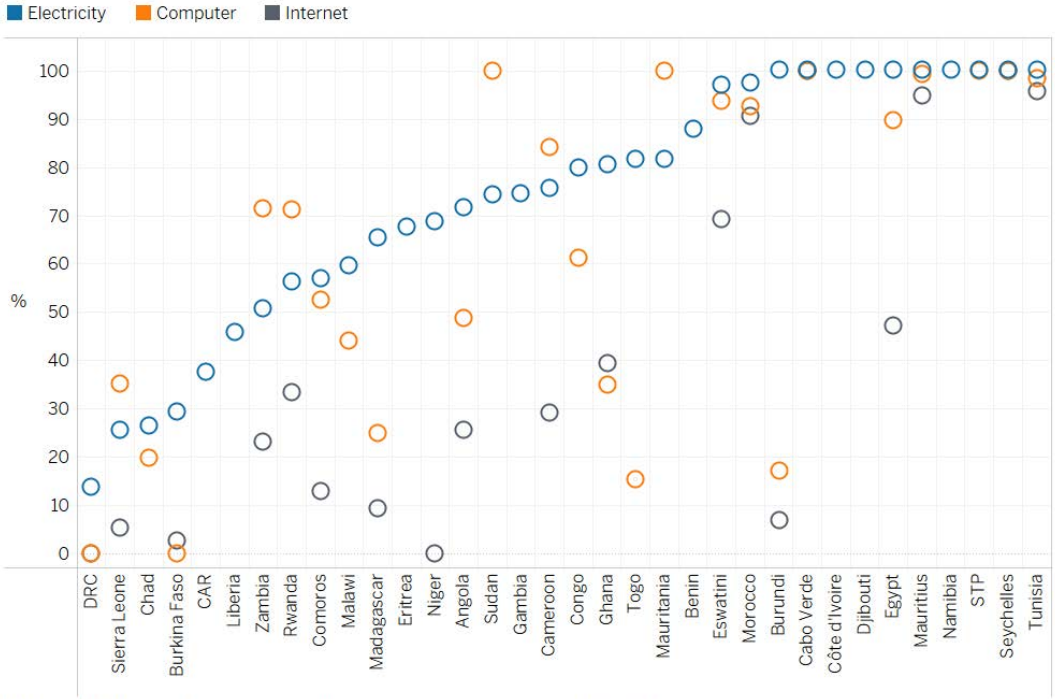
Data Source: UIS, SDG 4.a.1: "Proportion of schools offering basic services, by type of services (%)", http://data.uis.unesco.org/
Note: Countries are listed in order of their proportion of primary schools with access to electricity
Data is from the following years: Niger (2016), Chad (2017), CAR (2016), Sierra Leone (2017), Burundi (2016), Madagascar (2016, 2018), DRC (2015), Liberia (2016), Guinea (2016), Mali (2017), Burkina Faso (2016), Benin (2016), Malawi (2017), Angola (2016), Congo (2018), Togo (2018), Ghana (2018), Cameroon (2016), Mauritania (2016), Côte d'Ivoire (2016), Eritrea (2017), Zambia (2016, 2017), Rwanda (2016), Comoros (2017), Gambia (2016), Sudan (2016), Namibia (2017), Cabo Verde (2016), Kenya (2016), Tanzania (2016), STP (2017), Morocco (2017), Djibouti (2017), Eswatini (2016), Tunisia (2017), Egypt (2016), Mauritius (2016), Seychelles (2016).

Figure 7.8 Proportion of lower secondary schools with access to electricity, computer, and internet



Data Source: UIS, SDG 4.a.1: "Proportion of schools offering basic services, by type of services (%)", http://data.uis.unesco.org/
Note: Countries are listed in order of their proportion of lower secondary schools with access to electricity
Data is from the following years: Chad (2017), DRC (2015), Sierra Leone (2017), Liberia (2016),Burkina Faso (2016),Mali (2017), Niger(2016), Congo (2018), Madagascar(2018), CAR (2016), Burundi (2016), Eritrea (2017), Ghana (2018), Comoros (2017), Cameroon (2016), Sudan (2016), Guinea (2016), Rwanda (2016), Mauritania (2016), Gambia (2016), Angola (2016), Togo (2018), Benin (2016), Malawi (2017), Djibouti (2017), Namibia (2017), Eswatini (2016), Morocco (2017), Cabo Verde (2016), Côte d'Ivoire (2016), Egypt(2016), Mauritius(2016), Seychelles (2016), STP (2017), Tunisia (2017).

Figure 7.9 Proportion of upper secondary schools with access to electricity, computer, and internet



Data Source: UIS, SDG 4.a.1: "Proportion of schools offering basic services, by type of services (%)", http://data.uis.unesco.org/
Note: Countries are listed in order of their proportion of upper secondary schools with access to electricity
Data is from the following years: Guinea (2016), DRC (2015), Sierra Leone (2017), Chad (2017), Burkina Faso (2016), CAR (2016), Liberia (2016), Zambia (2016, 2017), Rwanda (2016), Comoros (2017), Malawi (2017), Madagascar (2018), Eritrea (2017) , Niger (2016), Angola (2016), Sudan (2016), Gambia (2016), Cameroon (2016), Congo (2018), Ghana (2018), Togo (2018), Mauritania (2016), Benin(2016), Eswatini (2016), Morocco (2017), Burundi (2016), Cabo Verde (2016), Côte d'Ivoire (2016), Djibouti (2017), Egypt (2016), Mauritius (2016), Namibia (2017), Seychelles (2016), STP (2017), Tanzania (2016), Tunisia (2017).

Examples of ongoing efforts and remaining challenges

In an effort to build and upgrade education facilities, governments have initiated various innovative approaches to overcome constraints in the existing infrastructure for water, electricity, and broadband internet, and to adapt education facilities to community needs.

- In the DRC, Kenya, South Sudan, and the United Republic of United Republic of Tanzania, 'digital boxes' are distributed to selected schools and community centres. These include a set of computer tablets, solar powered batteries, access to a satellite or mobile network, and a suite of content and online learning materials. Teachers receive training in using these boxes effectively in the classroom.[56]
- Some countries are exploring open learning models, especially for upper secondary education (e.g. Namibia's NAMCOL).
- In Ghana, the Train for Tomorrow programme organizes online teacher training in hub schools using a satellite dish on the roof, a projector mounted in the classroom, and a solar-powered computer connected to a webcam and microphone that establish a two-way link.[57]
- The COVID-19 pandemic has certainly put a spotlight on the need to invest in infrastructure for inclusive learning via ICTs. [58]

In many countries, significant efforts are also underway to improve the safety of education facilities.

- In Somalia, the Schools as Zones of Peace Project forms child-to-child clubs in schools to discuss peace and conflict issues in the community, and train children and youth in non-violent dispute resolution skills. [59]
- In Mozambique, drawing from experiences in 2012 with cyclones and tropical storms, the government has initiated a major project to reduce the risk of damage to school infrastructure and ensure that education facilities remain functional post-disaster. To this end, risk assessments are conducted, followed by the development of a 'catalogue of hazard-resistant construction types and architectural models with adaptive measures for both traditional and conventional materials'. [60]
- From among regional and global efforts to improve the safety of education facilities, the Safe Schools Declaration of 2015 endorsed by 32 African governments that promises to take measures to prevent attacks on education and the military use of schools, and the ECOWAS heads of state and government's Declaration on Zero Tolerance to Sexual and Gender-Based Violence calling for mainstreaming of child protection, are noteworthy.

Some governments have also initiated new policies and efforts for more disability-sensitive education facilities.

- Uganda's 2016 gender in education sector policy demanded the provision of an adequate budget to build disability-responsive infrastructure and facilities.[61]
- South Africa's Department of Basic Education developed a legally binding set of norms and standards for all public schools, based on the principles of Universal Design.[62]
- In Ghana, the government developed standards and guidelines to ensure physical accessibility to which all educational institutions must adhere. [63]
- In the United Republic of United Republic of Tanzania, the itinerant teachers assist local teachers to adapt and prepare material for visually impaired learners.[64] [xiii]

xiii. These teachers are trained by United Republic of Tanzania Society for the Blind and employed by the government. They are provided with a motorbike and given money for other expenses such as petrol and maintenance. They also perform vision screening, refer children to medical facilities, and organize community sensitization programmes.

Many African governments are faced with a multitude of challenges in their efforts to build and upgrade facilities to accommodate the growing demand for education, especially at the secondary level, and to ensure that all education facilities are safe and conducive to learning for all children.

- Limited data on the current state of facilities hinders data-informed investment decisions and, in many cases, there are complete holes in data collection for certain educational facilities, such as living conditions in boarding schools. Part of ongoing efforts to build and upgrade education facilities has focused on assessing the current state of play. Some of these have been technology-based interventions.
  - VISUS is a multi-hazard school safety assessment methodology, which has been used in Mozambique. It provides decision-makers with tools and information that allow them to make data-informed decisions on where to invest to enhance school safety and disaster-resilience.
  - School Today! is a citizen monitoring effort whereby students and communities can geo-reference their schools and education facilities in Africa to collect timely information which is matched with data on population, in order to assess the physical distance to them.
- Broadly speaking, the importance of classroom and school maintenance is often overlooked by both governments and multilateral organizations and, as a result, the necessary resources are not budgeted for. This leads to the shortening of a school building's life expectancy and leaves children learning in decrepit and non-functional facilities. Most importantly, however, the shifting attention from the hardware of education to software elements like curriculum, pedagogy, and learning assessments seems to have led to a growing gap between the ever-increasing need for building and upgrading education facilities and the policy attention to this challenge.

Policy case study #9: Off-grid electrification of rural schools in Mozambique, the United Republic of United Republic of Tanzania, Ghana, and Nigeria

Unreliable electricity supply in schools remains a widespread challenge in Africa, where two-thirds of the population lack access, and approximately 1.75 million public schools and health centres lack reliable energy provision.[69] On average only 40% of primary schools have access to electricity and there are sizable differences between regions and countries.[xiv 70] (see *General findings* for a more detailed analysis of availability of electricity in schools.)

Given the challenges of extending the power grid to rural and remote areas, state and non-state actors in different countries have initiated off-grid electrification solutions for rural schools. This case study highlights several initiatives in this space to demonstrate the possibilities for innovation and scale-up. It must be noted that, going forward, these initiatives may benefit from rigorous, medium-term evaluations to assess their sustainability and impact on access and learning.

xiv. In 2019, an average of 14% of primary schools in central African countries had access to electricity. In the same year, the average for northern African countries was 70%. In southern Africa, only 25% of primary schools had access to electricity in 2019. This figure was around 68% in eastern Africa, and 25% in western Africa.

Mozambique

The government has been working on extending the power grid to rural and remote areas for the last few decades. Since 2005, off-grid electrification solutions have also been implemented as a strategy for faster, cost-effective, and sustainable energy supply.[71] These address the infrastructure challenges to electricity access and grid stability in rural areas, where there is an access deficit of 97%[72] and is where 63% of the population live.[73] The earliest efforts around off-grid electrification were public sector initiatives implemented through FUNAE, a government-owned and operated energy fund mandated to advance energy access.[74] Between 2005 and 2014, it succeeded in providing 11 cities, 669 schools, and 1,500 solar homes, with off-grid photovoltaic (PV) installations.[75]

Despite these positive results, limited funding threatens the expansion and sustainability of off-grid electricity provision in rural Mozambique. In response, the government has designed the National Electrification Strategy, a regulatory framework to encourage private sector participation.[76] Through this, it aims to mobilize the necessary investment to implement off-grid solutions in more regions, improve the programme planning and efficiency, and achieve access to electricity by 2030.

The United Republic of United Republic of Tanzania

In the United Republic of United Republic of Tanzania, a non-profit initiative (supported by Istituto

Oikos Onlus and supplied by the social enterprise Solar Wave) successfully piloted the installation of PV systems in 20 secondary schools[77] in the Arusha region, one of the poorest in the country.[78] The operation and maintenance of systems was guaranteed by a local self-sustainable social entity.[79]

Ghana

Different stakeholders have initiated solar-powered electrification initiatives for education in rural Ghana. A joint collaboration between the government, Samsung Electronics, and the Korean Education and Research Information Service resulted in the designing and installation of solar-powered internet in schools in remote rural areas with little or no grid electricity infrastructure.[80] Empower Playgrounds harnesses the play energy of children through merry-go-rounds to power light sources.[81] Making Ghanaian Girls Great! project aims to equip young girls and boys in rural areas with life skills using solar-powered and satellite-enabled distance learning infrastructure to deliver interactive learning sessions to students and teachers.[82]

Nigeria

In Nigeria, where approximately 80 million people lack access to electricity, the Solar Nigeria Programme, implemented by the federal and state governments, involved the solar power electrification of public institutions including schools. It achieved the electrification of 720 schools in Lagos,[83] mainly in underserved communities.[84]

Solar Media Bag

A project piloted in Uganda, Ethiopia, and Mozambique, the Solar Media Bag, is a joint initiative of Plan International (an international NGO) and Tespack (a Finland-based start-up). The solar-powered backpack is designed to 'turn any space into a classroom'. It can charge laptops and phones, and includes projectors and speakers.[85]

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Chapter 8

Means of policy implementation at the system level

CHAPTER SUMMARY

This chapter presents the main findings and issues regarding the means of policy implementation at a national level, with a focus on education planning and financing. It also presents a synthesis of three cross-cutting issues discussed across several chapters: data availability, ICTs, and enabling legal frameworks. The main findings highlighted in the chapter are:

Policy planning: Data-informed policy planning can play a significant role in government efforts for inclusive and equitable education. The path to sizable progress towards parity in education often does not go through the aggregation of single, discrete interventions. It requires system-wide reforms laid out in sector plans. Many African governments' ongoing efforts in formulating medium- and long-term sectoral plans are commendable.

Education financing: Securing adequate and sustainable financing for equitable, quality education remains arguably the greatest bottleneck, particularly for low-income countries. Without additional financial resources, countries, especially those that are furthest left behind, are unlikely to achieve the education targets set forward in Agenda 2030. And the COVID-19 pandemic has further exacerbated the situation. In addition, international aid is not a stable source of funding because of its fluctuating nature, at times politicized motives, and uneven distribution across education levels.

African governments face growing pressure to increase funding to deliver higher quality education across all levels, with a surging demand particularly for post-primary education. In response, some of them have intensified their efforts to diversify funding sources, mobilize resources domestically, and explore innovative financing mechanisms. However, sizable differences exist between countries in terms of public spending on education as a share of GDP and total government expenditure. Similarly, countries differ in terms of allocation across education levels and preferences regarding private sector engagement. This variation is most notable for early childhood education and tertiary education.

Data: Data is central to both a sound sector analysis for policy planning and to effective policy implementation. In particular, a functional EMIS is critical for the collection and dissemination of data, and for facilitating its conversion into policy-relevant statistics. Many countries in Africa now have EMIS in place, yet additional efforts are needed to achieve modernized EMIS to improve data quality and production time.

At the same time, many African countries are yet to build their administrative capabilities in the education sector and to strengthen their data collection institutions for producing the type of data required by the benchmark indicators selected to monitor national progress towards SDG targets and CESA strategic objectives. Data for even the selected few benchmark indicators is sparse and infrequent, and in some cases lacks the types of disaggregation needed to facilitate equity-centred diagnosis and planning. Collecting data with an explicit focus on disparities in the education system may be a powerful tool for identifying and addressing inequalities in education. In this respect, the ability of EMIS' to match data on access and learning with data on child and school characteristics is invaluable.

ICTs: ICTs may impact many components of the education system, including classroom pedagogy, teaching digital skills, education infrastructure, and a functioning EMIS. ICTs in education are linked closely to the continent's ambitions regarding science, technology, and innovation-based development.

Enabling legal frameworks: Many African countries have enabling legal frameworks in place related to access to education and learning outcomes. Apart from the need to expand the scope of existing legal frameworks, there is also a need to expand the number of countries with legal frameworks pertaining to early childhood education and equity. This comes in the context of an overall lack of indicators and data on legal frameworks related to teacher development, TVET, and education facilities.

This report has so far analysed key elements of education policy and services, as framed by CESA and SDG 4, to establish the state of affairs as measured by the benchmark indicators selected by UIS and AUC. This chapter shifts from an analysis focused on inputs, outputs, and outcomes to a discussion on the means of implementation, which is a core element of both Agenda 2030 and CESA. Its vast scope, encompassing various elements of education governance[i] [1] from planning and budgeting to service delivery and implementation arrangements, at national, regional, continental, and global levels, makes the task of this chapter unfeasible in the absence of a narrow focus. For this reason, it examines means of implementation mainly at the national level (except for an analysis of official development assistance for education), with a focus on education policy planning, data, education financing, and enabling legal frameworks. The chapter begins with a comparative description of means of implementation put forward in Agenda 2030 and CESA. It then lays out the key issues around policy planning, financing, and legal frameworks, against an analysis of the state of affairs since 2015, with examples from a wide array of government efforts.

Background

Means of policy implementation in Agenda 2030 and Education 2030

Governments committing to Agenda 2030 recognize its 'scale and ambition' and tackle, as a core issue, 'the means required for implementation of the goals and targets'. Targets are set for these 'means of implementation', not only under each SDG but also under a separate goal, SDG 17.[2] Mobilization of financial resources, enactment of necessary legislation, strengthening of partnerships, capacity building, and transfer of technology are among the means of implementation highlighted in Agenda 2030. Specifically for SDG 4, this concerns government spending on education, various national education policies (e.g. number of years of compulsory primary and secondary education guaranteed in legal frameworks), funding mechanisms (e.g. existence of funding mechanisms to reallocate education resources to disadvantaged populations), and scholarships being available to developing countries for enrolment in higher education, among others.[3]

The Education 2030 Framework for Action lays out details about the means of implementation put forward in Agenda 2030, particularly regarding global and regional collaboration and monitoring, and financing. It calls for 'strong global and regional collaboration [...] and monitoring of the implementation of the education agenda based on data collection, analysis and reporting at the country level, within the framework of regional entities [...]'.[4] For monitoring, it expresses 'resolve to develop comprehensive national monitoring and evaluation systems' for evidence-informed policy formulation, education system management, and accountability.[5] The declaration also expresses determination to increase public spending, and mentions the target of allocating at least 4-6% of GDP and/or at least 15-20% of total public expenditure to education.[6] In addition, it calls on donors to increase their funding of education to reach the 0.7% of GDP target for official development assistance (ODA), to prioritize low-income countries, and improve aid effectiveness.[7]

Means of implementation in CESA

CESA also places significant emphasis on implementation and puts forward 'communication, governance, and implementation frameworks for its delivery at the national, sub-regional and continental levels'.[8] These frameworks are included as part of each strategic objective.[ii] [9] They are also put forward as distinct

i. Education governance concerns 'how the funding, provision, ownership, and regulation of education and training systems is coordinated, and at what level'.
ii. Examples of SOs and their implementation-focused action areas are: SO 1 – 'enhance quality assurance and assessment mechanisms for learning outcomes' (p.22); SO 2 – 'develop administrative and legislative mechanisms to ensure the preservation and the protection of school infrastructure' (p.23); SO 3 – 'formulate policies for ICT integration in education and training' (p.23); SO 4 – 'develop continental qualifications framework linked to regional qualifications and national qualification frameworks(...)' (p.24); SO 8 – 'establish and strengthen Labor Market Information Systems to identify skills and competencies needs' (p.25).

strategic objectives under SO 11, to 'build and enhance capacity for data collection, management, analysis, and communication', and SO 12, to 'set up a coalition of all education stakeholders to facilitate and support initiatives arising from the implementation of CESA'. Furthermore, CESA spells out a detailed communication and advocacy strategy, lays out governance frameworks at continental, regional, and national levels, and describes the institutional arrangements to implement these frameworks.

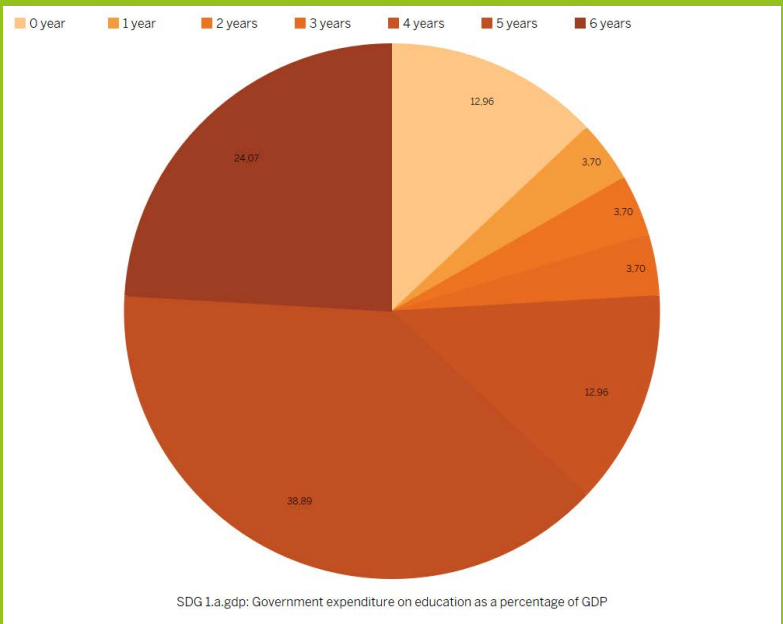
Relevant SDG 4 and CESA indicators on means of policy implementation are described in *Appendix 3*.

Box 8.1 Enabling legal frameworks for means of policy implementation

Efforts to strengthen means of implementation in education at a national level are more effective when backed by policies and enabling legal frameworks. In the absence of indicators coming from the SDGs, there are several CESA indicators for the enabling legal frameworks related to means of implementation: (11.1) 'funds allocated to EMIS (a) are used specifically for EMIS activities and (b) absorption capacity is optimal'; (11.2) 'your government produces an annual school census report: last year available'; (11.4) 'your government conducts EMIS Assessments: last year conducted'; (11.5) 'education sector plan includes a chapter on EMIS'; (12.1) 'existence of school management committee policy'; (12.2) 'existence of national education cluster'; (12.3) 'does your government provide financial or political support to the CESA implementation cluster on education planning?'. However, data is not yet being systematically collected on these indicators.

Box 8.2 Data availability

Figure 8.1 Proportion of countries with 1, 2, 3, 4, 5, and 6 available data points over the period 2015-2020, for benchmark indicator on education financing



Data source: UIS, SDG 1.a.gdp

A large majority of countries (83%) collected data on government expenditure on education for at least two years since 2015. In fact, more than half the countries with available data have data for five or six years since 2015.

The main elements of the means of policy implementation put forward in Agenda 2030 and CESA suggest a shared understanding about the key ingredients of effective governance. This includes the need for institutional capacity and resources to develop and implement data-informed policies, effective management at all levels, and accountability.[10] These key ingredients are the background for the analysis presented in the next section.

Key issues and general findings

Laying the foundations for equitable education with data-informed policy planning

The significance of education planning for educational outcomes goes well beyond what would be expected from such a technical and mechanical process.[11] Education planning is both a visionary and pragmatic exercise and constitutes a first step in transforming ambitions into reality.[12] Ambitions about quality education, about education and training that build relevant skills for pursuing a productive and fulfilling work life, and ambitions about inclusive and equitable education. This report, with equity in education as its thematic focus, is particularly concerned with the impact education planning can have on inclusive and equitable education.

As also discussed in the chapter on equity, the Nairobi Declaration is highly pertinent given its position on equity and its links with education sector planning. In the declaration, African governments and other stakeholders commit both to ensuring that education sector planning effectively addresses all forms of exclusion[13], and to implementing and adequately resourcing diversified and appropriate learning policies.[14] In this respect, many African governments' continuing efforts in formulating data-informed education sector plans are commendable.[iii] Indeed, the path to sizable progress towards parity in education is often not through the aggregation of single, discrete interventions, but through system-wide reforms laid out in medium- and long-term sector plans.

- Inclusive education, arguably more than other aspects of equitable education, necessitates 'designing and implementing transformative public policies' in an effort to respond to the diversity and needs of learners.[15] Yet such transformation, if poorly-prepared or under-equipped to facilitate inclusion, may jeopardize educational outcomes and harm already disadvantaged children.[16] The pragmatism of education planning that takes into account the constraints of the education system at all levels is therefore critical to a non-harmful, progressive transition to inclusive education. In addition, guidelines and standards building on inclusive education plans may be important for their effective operationalization.[iv]

- Adopting a human rights lens in formulating education sector plans could facilitate equitable education policies and investments. In this regard, UNESCO-IIEP's soon to be published guidelines and toolkit for aligning educational planning documents with human rights law are highly pertinent.[v] [17] In planning for equitable education, it is also important to include gender-responsive considerations at the national level. In this respect, continental and regional efforts, such as the Gender Equality Strategy for CESA (GES4CESA)[vi] [18] and the Gender at the Centre Initiative (GCI)[vii], are noteworthy.

iii. To access current education sector plans, see Planipolis (a portal of national education plans and policies) at https://planipolis.iiep.unesco.org/.
iv. In this respect, the recently launched 'standards for inclusive education' in Eswatini (2019), Ghana's inclusive education policy implementation plan (2015), and implementation guidelines for the sector policy for learners and trainees with disabilities in Kenya (2018), are noteworthy.
v. These guidelines and toolkit are produced as part of the project 'Planning to Fulfil the Right to Education: Aligning Education Planning and Programming Documents with Human Rights Law'. The objective is to support education planners, managers, and decision-makers to systematically collect and analyse information about efforts on the right to education in their country's education planning documents.

- In this regard, the Global Partnership for Education's assessments of education sector plans (ESPs) are also relevant. One of the seven quality standards for the assessment concerns being 'attentive to disparities'. This is linked to an indicator that measures the proportion of ESPs that have a strategy to respond to marginalized groups (including gender, disability, and other context-relevant dimensions) which meets quality standards, including being evidence-based, relevant, coherent, measurable, and implementable.[19] The overwhelmingly positive performance of the 26 country ESPs evaluated on this equitable planning-related indicator is noteworthy. [20]

Data as an essential input for effective policy planning and implementation

Reliable, relevant, comprehensive, and timely data constitutes an important element of effective education sector planning. It is central to both a sound sector analysis which is a critical component of planning, and to policy implementation. With respect to implementation, data plays a dual role. It is a key element of monitoring efforts, review processes and revision considerations, and decisions around intensifying and tailoring efforts. It is also imperative for the accountability of all implementers, including the national government.[21] In this respect, an effective education management information system (EMIS) is pertinent for the collection, maintenance, and dissemination of data, as well as for facilitating its conversion into policy-relevant statistics. [22]

Data at the forefront in CESA and Education 2030

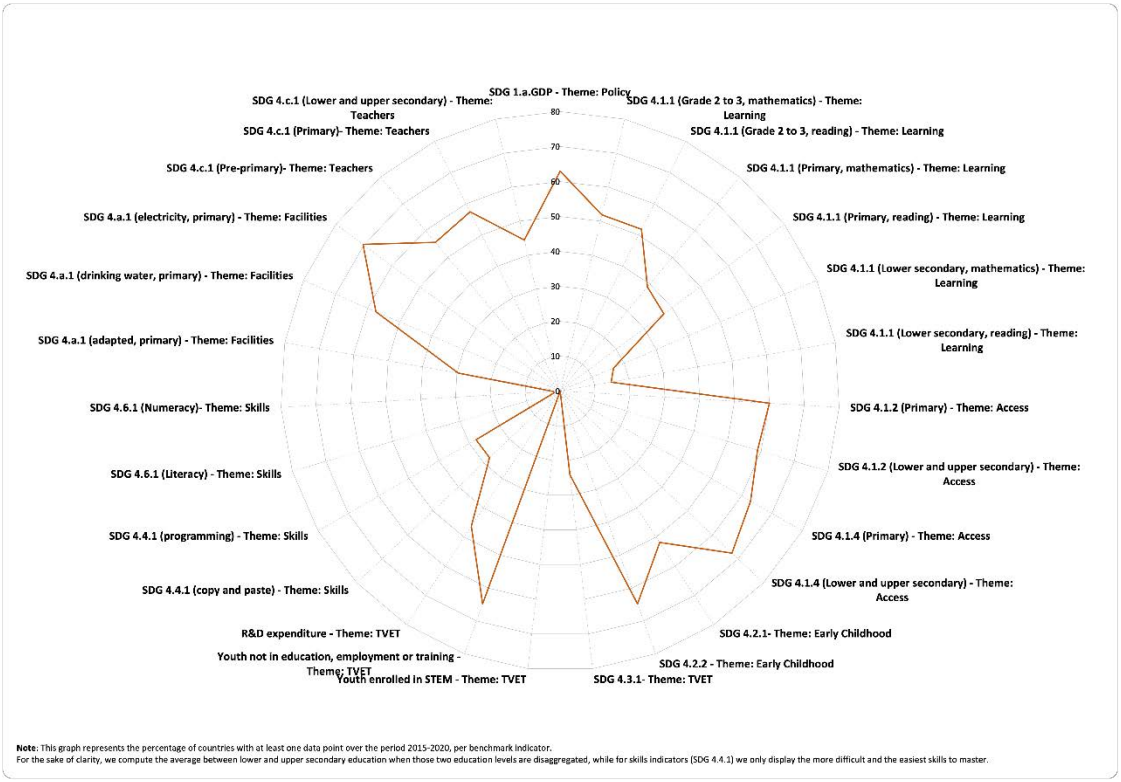
Both CESA and the Education 2030 Framework for Action recognize the significance of quality data for progress towards education goals. CESA identifies data-related efforts as a strategic area, and SO 11 concerns building and enhancing 'capacity for data collection, management, analysis, communication, and (the improvement of) the management of education systems, as well as the statistical tool'.[viii 23] The Education 2030 Framework for Action calls for monitoring of the education agenda based on data collection, analysis, and reporting at country and regional levels.[24] It also underscores the role of disaggregated data in measuring progress towards reducing inequalities.[25] Indeed, collecting data with an explicit focus on disparities in the education system may be a powerful tool for identifying and addressing inequalities in education inputs and outcomes. [26] In this respect, the ability of EMISs to match data on access and learning with data on child and school characteristics is invaluable. Other examples for collecting and using data to address inequalities include, school profile cards with resource and performance data; formulating school-level equity indices to identify disparities and target resources; and teacher hardship indices to determine hardship allowances for teachers serving in disadvantaged schools.[27]

vi. The AU's Forum for African Women Educationalists (FAWE) and the International Centre for Girls' and Women's Education in Africa (CIEFFA), in collaboration with UNGEI, formulated GES4CESA in 2018. The strategy complements CESA and encourages a strategic approach to addressing gender inequalities.
vii. Launched in 2019, GCI aims to advance gender equality in education in Burkina Faso, Mali, Mauritania, Mozambique, Niger, Nigeria, Sierra Leone, and Chad. This multi-stakeholder initiative supports the integration of gender issues into education sector analysis and planning.
viii. Action areas identified under SO 11 include: (a) establish regional and continental EMIS and education observatories; (b) produce and disseminate regular publications, such as digests and outlooks; (c) identify and provide support to educational think tanks, (d) support educational research, dissemination, and communication.

Availability of data for benchmark indicators and global indicators[ix]

In conducting the quantitative data analysis used in this report, the availability of data since 2015 for benchmark indicators (identified by UIS and AUC to monitor progress towards SDG 4 targets and CESA strategic objectives) and SDG 4 global indicators was also analysed. In the preceding chapters, data availability and frequency for pertinent benchmark and global indicators is described in data availability boxes, and the extent of disaggregation viable for each indicator is discussed as part of the equity analyses for each indicator. *Figure 8.2* summarizes these analyses in a single graph.[x]

Figure 8.2 Availability of data for benchmark indicators and SDG global indicators (2015-2020), by indicator



Note: This graph represents the percentage of countries with at least one data point over the period 2015-2020, per benchmark indicator.
For the sake of clarity, we compute the average between lower and upper secondary education when those two education levels are disaggregated, while for skills indicators (SDG 4.4.1) we only display the more difficult and the easiest skills to master.

- Broadly speaking, the type of data required for many benchmark indicators and SDG global indicators selected to monitor national progress comes from household surveys, which have the disadvantage of being scarce, rely on samples that do not allow representativeness at all the necessary levels of disaggregation, and are carried out infrequently (annually or rarely). However, when data is collected,

ix. As the geographic focus of this report is Africa, comparisons between countries are included only for African countries. For global comparisons on data availability, the situation since 2015, and trends (1970-2015), see SDG Tracker webpage for SDG 4: https://sdg-tracker.org/quality-education.
x. Note that for those indicators with multiple sub-indicators (e.g. 4.a.1 and 4.4.1), the sub-indicator with the most available data was included.

it often avails itself to several types of disaggregation that facilitate equity-centred diagnosis and planning. More specifically:

- Data on the UIS SDG database for indicators related to access to education, including completion rate, out-of-school rate, pre-primary participation rate, tertiary education attendance rate, are collected via household surveys and therefore avails itself to disaggregation by gender, location (rural-urban), and household wealth. For instance, in about half the countries (56%), disaggregated data along these three dimensions was available for primary completion rate between 2015 and 2020. However, for these indicators on access to education, data (partly due to sampling decisions) does not avail itself to analysing the situation of groups of children with certain vulnerabilities, including children with disability (for which data is available in only one country), children affected by crises, refugee children, or internally displaced children.

- Data on the UIS SDG database for indicators related to reading and mathematics learning outcomes (SDG 4.1.1) are collected through nationally representative assessment tests that, in most cases, also collect data on individual students and enable disaggregation. However, such tests are not conducted in most of the countries. For instance, for the period between 2015 and 2020, in about a third of the countries, gender disaggregation is possible for tests conducted at the end of primary (33% for mathematics); and in about a quarter of them, wealth disaggregation and school location disaggregation (rural-urban) is possible (26% for wealth disaggregation and 28% for location disaggregation in mathematics). However, data is available in only one country to analyse learning outcome data according to language spoken at home. (see *Appendix 2* on 'Proportion of countries with 1, 2, 3, 4, 5, and 6 years available, by indicator disaggregation' for details on the availability of disaggregated data for equity analysis)

- In contrast, data on the UIS SDG database for indicators related to the inputs of education services (e.g. education facilities, qualified teachers, education spending) comes from administrative data and is limited in terms of its scope for disaggregation by location (urban-rural, sub-national regions, socio-economic characteristics of a geographic area). As a result, analysis of resource and investment allocation with an equity lens is very limited in its scope and coverage.

- More broadly, for most other benchmark indicators and global SDG indicators that use administrative data or other survey methodologies (e.g. SDG 4.4.1), disaggregation is possible only for gender, and not for household wealth, location, or particular types of vulnerabilities.

- There are three benchmark indicators that have been selected specifically for Africa, which are not SDG indicators. These are 'proportion of students enrolled in STEM-related fields by level of education', 'public expenditure on TVET', and 'labour force participation rate of TVET graduates'. Efforts are underway to initiate systematic data collection for these three benchmark indicators.

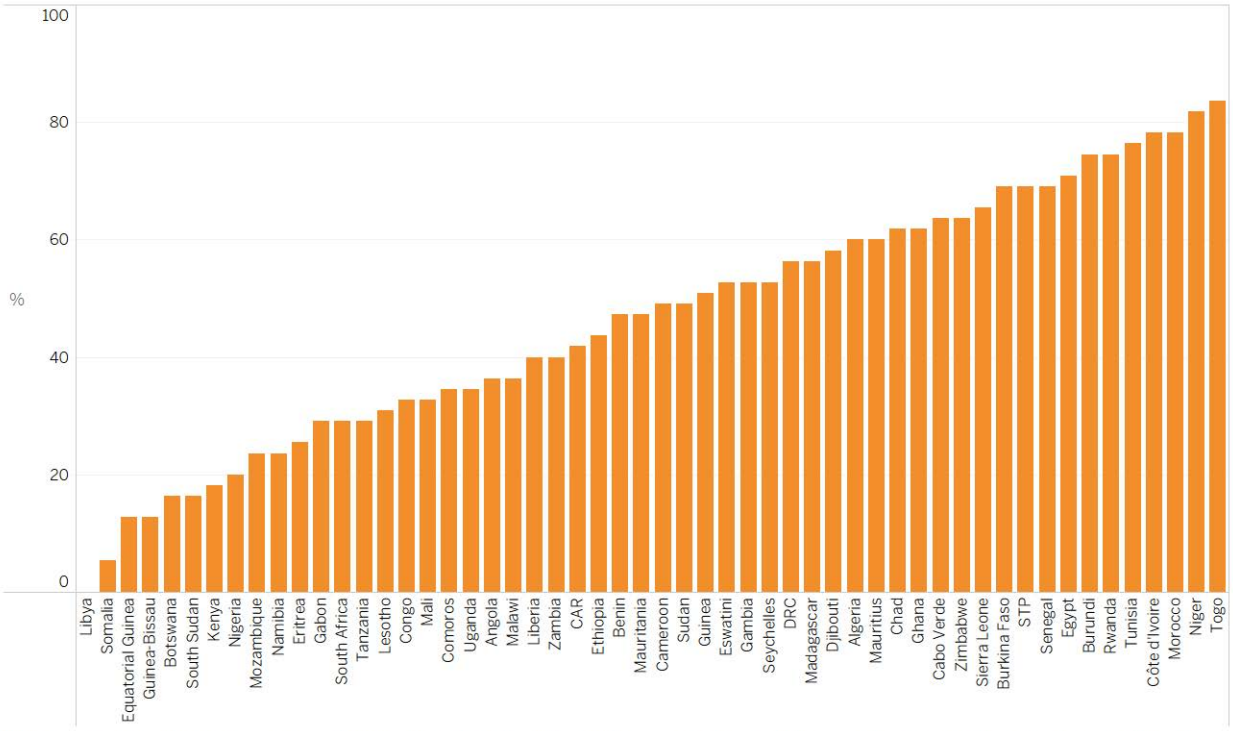
- To identify countries that are 'data deserts' and 'data oases' with respect to benchmark indicators and global SDG indicators, the proportion of indicators with at least one data point from 2015 to 2020 is calculated for each country (see *Figure 8.3*).

  - Two countries, Libya and Somalia, stand out as 'data deserts'. Libya does not have data for any of the benchmark or global SDG indicators. Somalia has a value only for the indicator on completion rate, but the value comes from an estimation based on data collected in 2006.[xi] [28] Four other countries, South Sudan, Guinea-Bissau, Equatorial Guinea, and Kenya, are 'near data deserts' with limited data for some SDG targets and none in others. Additional investments for institutional capacity building and innovative approaches to data collection in fragile contexts may be needed in these countries.

xi. In the September 2021 release of the SDG 4 data, UIS has included estimated values for completion rates using an 'adjusted completion rates estimation model'. As a result, these values are now available for several countries where no data was collected between 2015 and 2020. This leads to an overestimation of data availability for the completion rate indicator (SDG 4.1.1).

- At the other end of the spectrum, three countries stand out as 'data oases': Côte d'Ivoire, Togo, and Tunisia. They collect data for more than three-quarters of indicators and in all target areas. A second group of countries are 'near data oases' with data available for more than two-thirds of the indicators: Niger, Morocco, Rwanda, Sao Tomé and Principe, Senegal, Rwanda, and Zimbabwe.[xii] Policy efforts and institutions in these countries deserve to be further studied to identify the factors leading to their success.

Figure 8.3 Availability of data for benchmark indicators and global SDG indicators (2015-2030), by country



Note: In this visual, we computed the percentage of indicators for which there is at least one data point between 2015 and 2020. For instance in Angola, there is data (at least one year) for 36% of the indicators studied in this report.

- More broadly speaking, for many African countries, the type of data required for the benchmark indicators and several global SDG indicators may bring about a dependence on internationally-sponsored household surveys such as MICS and DHS.[29] On a related point, due to data collection costs and processes, these surveys are not conducted on an annual or bi-annual basis, thus limiting their relevance to inform national education policy processes.[30]

Ongoing efforts to build and upgrade EMIS

Most governments in Africa, in collaboration with continental and global partners, have invested significant resources in producing education data to support sector planning and inform education policies.[31] Many countries now have EMIS in place, but significant efforts are still needed to modernize the system to improve data quality and production time, and to build strong data production structures.[32] As suggested by the various evaluations conducted by the Association for the Development of Education in Africa (ADEA) and other organizations, significant gaps remain and governments continue to face

xii. In Morocco and Niger, data is available for more than three-quarters of the indicators. However, there is no data available from 2015 to 2020 on any of the early childhood education indicators. Therefore, they are categorized as 'near data oases'.

challenges in producing reliable, comprehensive, and timely education statistics.[33] Efforts by the ADEA Task Force on Education Management and Policy Support (TFEMPS) to strengthen national capacities for informed decision-making is noteworthy in this respect, as it goes beyond the production of data and statistics to focus on institutions and capabilities for data-informed policy-making and management.[43 xiii 35]

ICTs in education: a synthesis

Information and Communication Technology (ICT) impacts almost every aspect of the education system, including classroom pedagogy, teaching digital skills, infrastructure, and Educational Management Information Systems (EMIS). It is integral to fostering digital skills, opportunities for innovation and creativity, and entrepreneurship, especially for the younger generation.[36] Throughout this report, various links between ICTs and the education system have been examined, and are brought together and expanded upon in this information box.

Positioned at the core of CESA 16-25's SO 3, ICT is described as improving 'access, quality and management of education and training systems'.[37] Science, technology, and innovation (STI) are central to Agenda 2063. They are also integral to initiatives such as STISA 2024,[38] which sees STI as a multifunctional tool to achieve continental development goals across all spheres, but particularly education, the Continental Strategy for TVET to Foster Youth Employment,[39] and the Digital Transformation Strategy for Africa (2020-2030).[40]

ICTs and digital pedagogy

Pedagogy in the classroom represents the relationship between knowledge and practice, demonstrating that 'teaching is an art as well as a science'.[41] Digital pedagogy has the potential to intertwine and strengthen other pedagogical practices, such as blended learning, gamification, computational thinking, experiential learning, embodied learning, and discussion-based teaching.[42] In Angola for example, digital learning in the classroom has had a positive effect on student motivation, peer interaction, technological familiarity for both students and teachers, and teacher attendance.[43] During the COVID-19 pandemic, teachers were essential in implementing a digital pedagogy for their students, in addition to utilizing their technological skills for inclusive and learner-centred teaching.[44] (see *Chapter 4* for further discussion on the role of ICTs during the COVID-19 pandemic)

Investing in teachers' skills

To implement a digital pedagogy, teachers are often responsible for teaching themselves how to use the technology, how to integrate it into their teaching methods, and how to use data to facilitate student learning.[45] In addition, the COVID-19 pandemic revealed the resilience of teachers, many of whom used their ICT skills for distance learning, socio-emotional connection, classroom management, and connecting to the needs of their students.[46] However, teachers need support from their governments to achieve these goals, such as the provision of lessons on the radio, television, and digital platforms.[47] During the COVID-19 pandemic, roughly 50% of teachers in northern Africa and only 27% of teachers in sub-Saharan Africa were instructed by their governments on how to use digital technologies.[48] (see *Chapter 6* for further discussion on teacher training and digital skills)

xiii. TFEMPS' work builds on that of the Working Group on Education Management and Policy Support (WGEMPS). WGEMPS developed EMIS capacity building strategies within regional economic communities (RECs). RECs then customized the set of EMIS standards and used them to conduct peer country reviews.

Investing in learners' digital skills

For digital learning, students not only have to have access to technology, but also to the knowledge and skills needed to use it effectively and creatively.[49] While digital skills and literacy positively impact academic performance,[50] they also have the potential to prepare students for both foundational and transferable skills used in the workplace.[51] (see *Chapter 5* on TVET for more information on the nexus between the workforce and digital technology, and *Chapter 4*'s section on Examples of ongoing efforts and remaining challenges for more information about the role of ICTs in improving learning outcomes). In a UNICEF Mass Media and ICT module, students in upper secondary education were 28 to 50 times more likely to use ICT than peers with lower levels of education.[52] As seen in *Chapter 2* on equity and *Chapter 4* on primary and secondary education, academic retention is often influenced by structural inequalities, which also impacts the likelihood that certain students will learn ICT skills more than others. Gender norms and discrimination often hinder girls' access and potential to acquire digital skills and literacy. Consequently, fewer girls than boys have ICT skills, and they also benefit less than their male peers from a computer at home[53] (see *Chapter 5* for further discussion on youth and adults with ICT skills)

COVID-19 and digital learning

The COVID-19 pandemic revealed the resilience and adaptability of African Union Member States to implement digital learning through radio, television, and online platforms.[54] However, the limited availability of devices, internet connections,[xiv 55] power supply,[56] and distance learning programmes hindered the learning potential for students, especially in rural areas.[xv 57 58] While 73% of African countries reported using ICT learning strategies, students with disabilities were supported in 39% and students in rural areas in 24% of countries.[59] Infrastructure investments by ministries of education may be crucial to support access and connectivity for students,[60] especially because ICT skills are more likely to be learned at school.[61] Innovative reforms, such as collaborating with mobile phone companies[62] and broadband services[63] to expand infrastructure, or installing solar panels on schools in rural areas,[64] can help offset the digital divide and allow students to learn both at home and at school. (see *Chapter 7* for further discussion on ICT infrastructure at schools)

ICTs and data-informed policy-making and implementation

CESA 16-25 focuses on EMIS to help monitor and evaluate progress toward CESA's strategic objectives and SDG 4.[65] Historically, data has been difficult to collect for teacher and student attendance, learning outcomes, out-of-school rates, non-formal education, students with refugee status, and students with disabilities, especially in contexts compounded by crisis and conflict.[66] To address these challenges, ADEA's Task Force on Education Management and Policy Support (TFEMPS) has collaborated with the AU, RECs, and country-level EMIS offices to help analyse data collection and progress toward benchmark indicators. (see *Key issues and general findings* in this chapter for further discussion on the role of EMIS in data collection and ongoing efforts to build and upgrade EMIS systems).

xiv. Roughly 34 % of households across the continent do not have internet access, and roughly 89 % of students do not have computers at home to use.
xv. Roughly 54 million students, or 48% of learners were impacted by these infrastructure challenges during the COVID-19 pandemic in Western and Central Africa.

Securing adequate and sustainable funding for equitable, quality education

In July 2021, a call to action on education finance by heads of state, led by Kenyan President, Uhuru Kenyatta, and endorsed by 16 African governments, described domestic financing as the 'most significant and sustainable form of funding for education', and committed to making education more equitable by ensuring resources reach the most marginalized children.[67] This call to action came on the heels of an unprecedented shock to education systems across the continent, the COVID-19 pandemic. The Global Education Monitoring Report's sombre analysis that predated the onset of the pandemic and warned that SDG education targets would not be achieved in time without additional financial resources, especially in countries furthest left behind, has now become an even more urgent call to action.[68]

African governments face growing pressure to increase funding in order to deliver higher quality education at all levels, while facing a surging demand, particularly for post-primary education.[69] This has increased the importance of quality financing data to calculate actual costs and assess resource allocation decisions in the education sector[70] to achieve additional gains in efficiency and effectiveness.[71] It has also intensified government's efforts to diversify funding sources and mobilize resources domestically, a priority clearly reflected in CESA. For many African countries, high debt ratios, weak tax administration, and large informal sectors make public revenue collection particularly challenging.[72] For several countries, domestically-generated revenue is less than 20% of GDP[73] and it is estimated that LICs and LMICs would need to allocate at least 6% of GDP to education on a recurrent basis to achieve the targets set by SDG 4.[74] This is higher than the average figure of 5% spent by Organisation for Economic Co-operation and Development (OECD) countries, but in LICs and LMICs, the tax to GDP ratios are lower and there are more children per tax paying adult,[75] which adds to the complexities of the financing dilemma facing African governments.

Consequently, many African countries face difficult trade-offs between spending on social welfare, increasing taxes, and maintaining debt sustainability.[76] It is against this background that CESA emphasizes the importance of national resource mobilization,[xvi] while underscoring the importance of innovative financing mechanisms 'to mitigate the burden on the public',[77] and the development of 'sustainable business models' that diversify and increase funding sources (e.g. south-south cooperation, private investments, foreign direct investment, diaspora), share costs with different stakeholders including tuition fees, and expand private education and training providers.[78]

xvi. Unlike Agenda 2030, CESA does not make or call for any commitments for allocation to education with the exception of a "national commitment to allocate 1% of GDP to research and innovation" (p. 25)

State of public spending on education

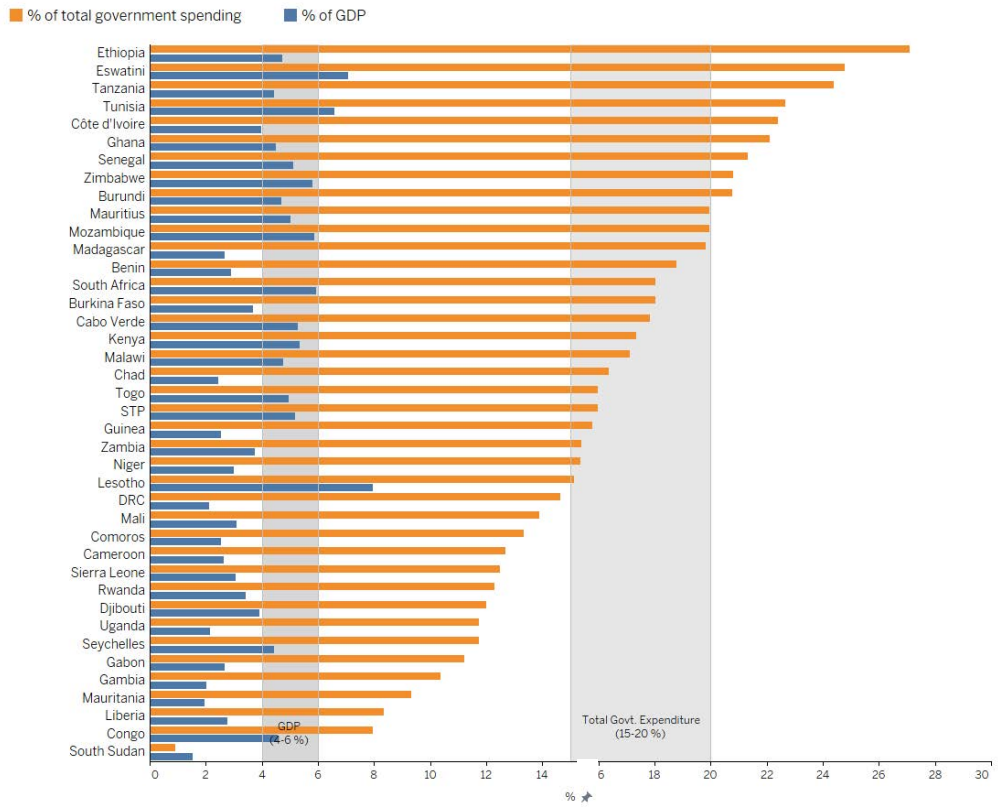
Figure 8.4 shows expenditure on education both as a percentage of total government expenditure (orange bars) and as a percentage of GDP (blue bar). The grey areas mark the respective spending targets set in the Education 2030 Framework for Action (4-6% of GDP and/or 15-20% of total government expenditure).

- An analysis of public spending at all levels of education against these targets shows sizable differences across countries. At one end of the distribution is South Sudan, Congo, Liberia, and Mauritania where the government spends less than 10% of its total expenditure on education. At the other end are Ethiopia, Eswatini, the United Republic of United Republic of Tanzania, Tunisia, Côte d'Ivoire, Ghana, Senegal, Zimbabwe, and Burundi which spend more than 20%.

- Overall, about half of the 40 countries where data is available meet the minimum target of 4% of GDP, 25 countries meet the minimum target of 15% of total government expenditure, and 9 countries meet the target of 20%. Due to limited data availability, change in public spending on education over the period that is of interest for this report cannot be analysed.

- These figures would benefit from being discussed as part of broader debates on increasing national tax revenue and expanding the fiscal space for education spending. The debate on increasing tax revenue highlights measures to build up a progressive tax system, fairer taxation of corporations, reducing ineffective tax exemptions and incentives, and reducing tax avoidance.[79] The debate on fiscal space concerns the availability of financial resources within the government budget and is directly related to the debt burden, debt sustainability, and debt vulnerability for African countries.[80] It must be noted that the rapidly expanding debt-to-GDP ratio since the COVID-19 pandemic has raised further concerns about the shrinking fiscal space (with potentially devastating impacts on these economies and for education spending), and increased the calls for expanded debt suspension and debt restructuring.[81]

Figure 8.4 Government spending on education as percentage of total government expenditure, and as percentage of GDP

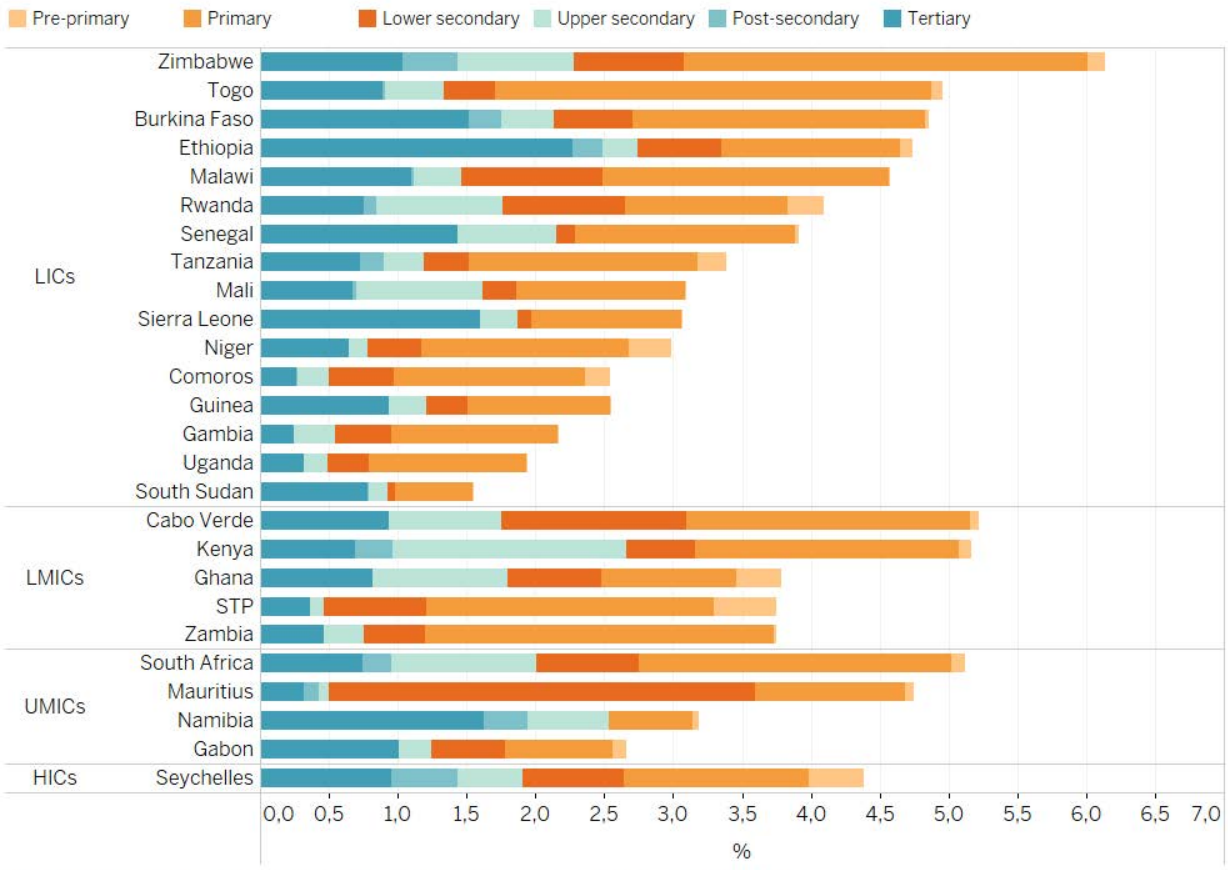


Data Source: UIS, "Government expenditure on education as (i) percentage of total government expenditure, and (ii) percentage of GDP", http://data.uis.unesco.org/
Note: Countries are listed in the order of the government expenditure on education as percentage of total government expenditure
Data is from the following years: Ethiopia (2015), Eswatini (2014), Tanzania (2017), Côte d'Ivoire (2016), Ghana (2016), Senegal (2016), Zimbabwe (2017), Burundi (2016), Mauritius (2016), Mozambique (2016), Madagascar (2016), Benin (2016), South Africa (2016), Burkina Faso (2015), Cabo Verde (2015), Kenya (2016), Malawi (2016), Chad (2017),Togo (2016), STP (2016), Guinea (2016), Zambia (2016), Niger (2016), Lesotho (2017), DRC (2016), Mali (2016), Comoros (2015), Cameroon (2016), Sierra Leone (2016), Rwanda (2016), Djibouti (2016), Uganda (2016), Seychelles (2016), Gabon (2014), Gambia (2016), Mauritania (2016), Liberia (2017), Congo (2015), South Sudan (2016)

Allocation of the education budget across education levels

An analysis of spending on education by level of education, as shown in *Figure 8.5*, highlights observable variation across governments' allocation decisions, as well as preferences regarding private sector engagement. This variation is particularly sizable for both tertiary and pre-primary education. A comparison between Mauritius and Ethiopia, two countries where governments spend a similar percentage of their respective GDPs on education, is illuminating in this regard. While Ethiopia spends about half of its education budget on tertiary education, Mauritius spends only about 5% of its budget on tertiary education. And while Mauritius spends about two-thirds of its budget on lower secondary schooling, Ethiopia spends less than 15%. Also worth noting is governments' spending on pre-primary education with eight countries allocating almost none of their public education budget to this level. This is particularly concerning given the significant short- and medium-term returns of ECE, and its potential for narrowing the gap for disadvantaged children's school readiness (see *Chapter 3* for a discussion on the relation between ECE and school readiness).

Figure 8.5 Government expenditure on education as % of GDP, by education level



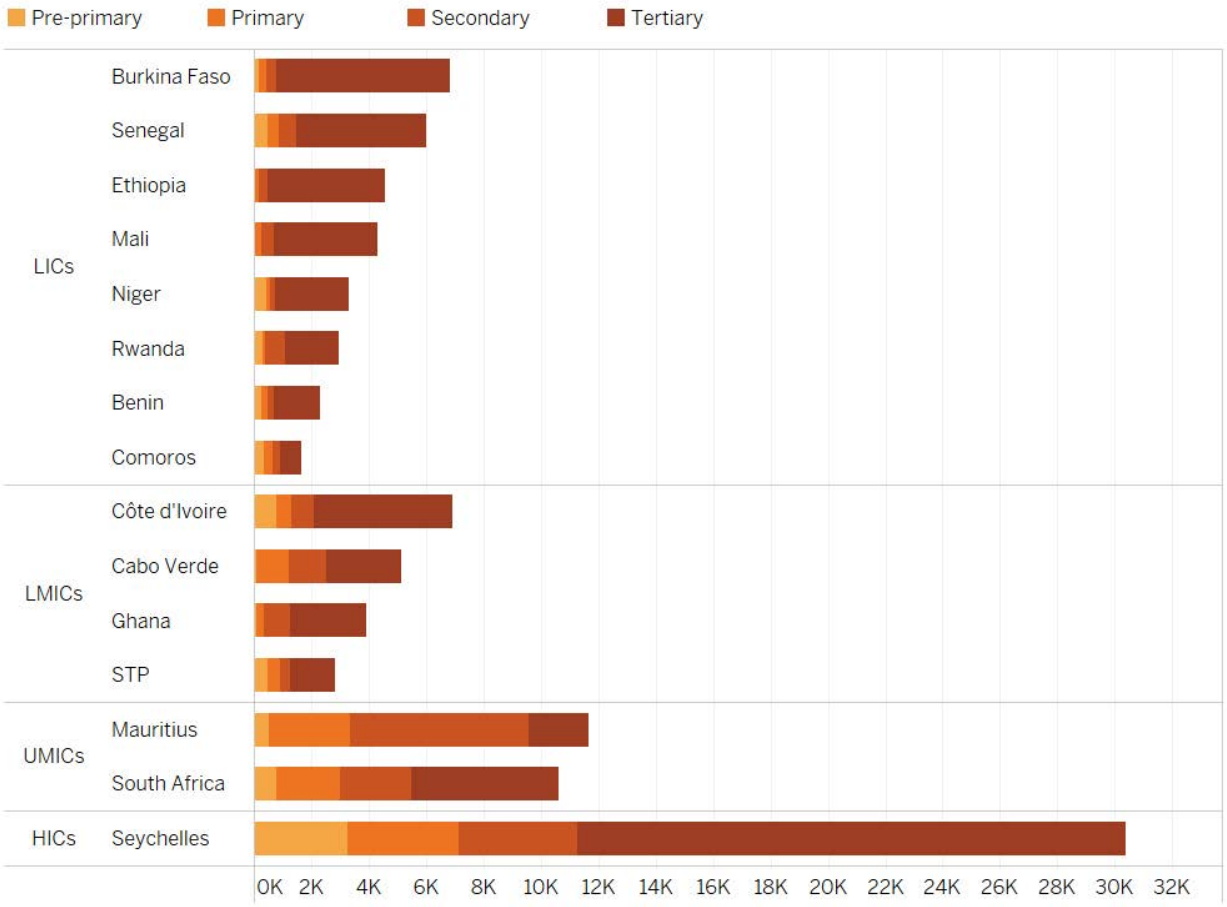
Data Source: National Monitoring Database: Government expenditure on education as % of GDP http://data.uis.unesco.org/
Note: Countries are listed in order of their government expenditure on education as % of GDP
Data is from the following years: Zimbabwe (2014), Cabo Verde (2016), Kenya (2015), South Africa (2015), Togo (2016), Burkina Faso (2016), Mauritius (2016, 2017), Ethiopia (2015), Malawi (2016), Seychelles (2016), Rwanda (2015, 2016), Senegal (2015,2016), Ghana (2014), STP (2014), Zambia (2016), Namibia (2014,2016), Tanzania (2014),Mali (2016), Sierra Leone (2016), Niger (2016), Gabon (2014), Comoros (2015), Guinea (2016), Gambia (2015), Uganda (2014), South Sudan (2016)

Figure 8.6 shows government spending per student by education level. The figure highlights several patterns both within and between countries. Looking across countries, government spending per student at the same education level varies considerably. These differences are particularly sizable at the tertiary level (for example comparing Seychelles and Mauritius, or Burkina Faso and Benin). Also looking across countries, the ratio of per student spending across education levels varies (e.g. comparing tertiary-to-

secondary level spending in South Africa and Mauritius, or comparing pre-primary plus primary spending with post-primary spending in Senegal and Ethiopia). To put it differently, the amount that governments spend on the lifetime education[xvii] of a student graduating from tertiary level varies tremendously, with Seychelles at one end of the distribution spending 127,700 constant PPP$, and the Comoros at the other end with the government spending 6,700 constant PPP$ per student. In Côte d'Ivoire, for instance, the government spends about three times as much as the government of Benin (28,000 versus 9,300 constant PPP$).

Analysed in combination with the wealth-based disparity analysis in accessing tertiary education in *Chapter 5* (which shows that children from the wealthiest households are greatly favoured, especially in countries where GAR to tertiary education is below 5%), this figure on government spending per student underlines the potentially regressive nature of allocation decisions that are skewed away from pre-primary and primary towards tertiary level.

Figure 8.6 Government spending per student, by education level (constant PPP$)



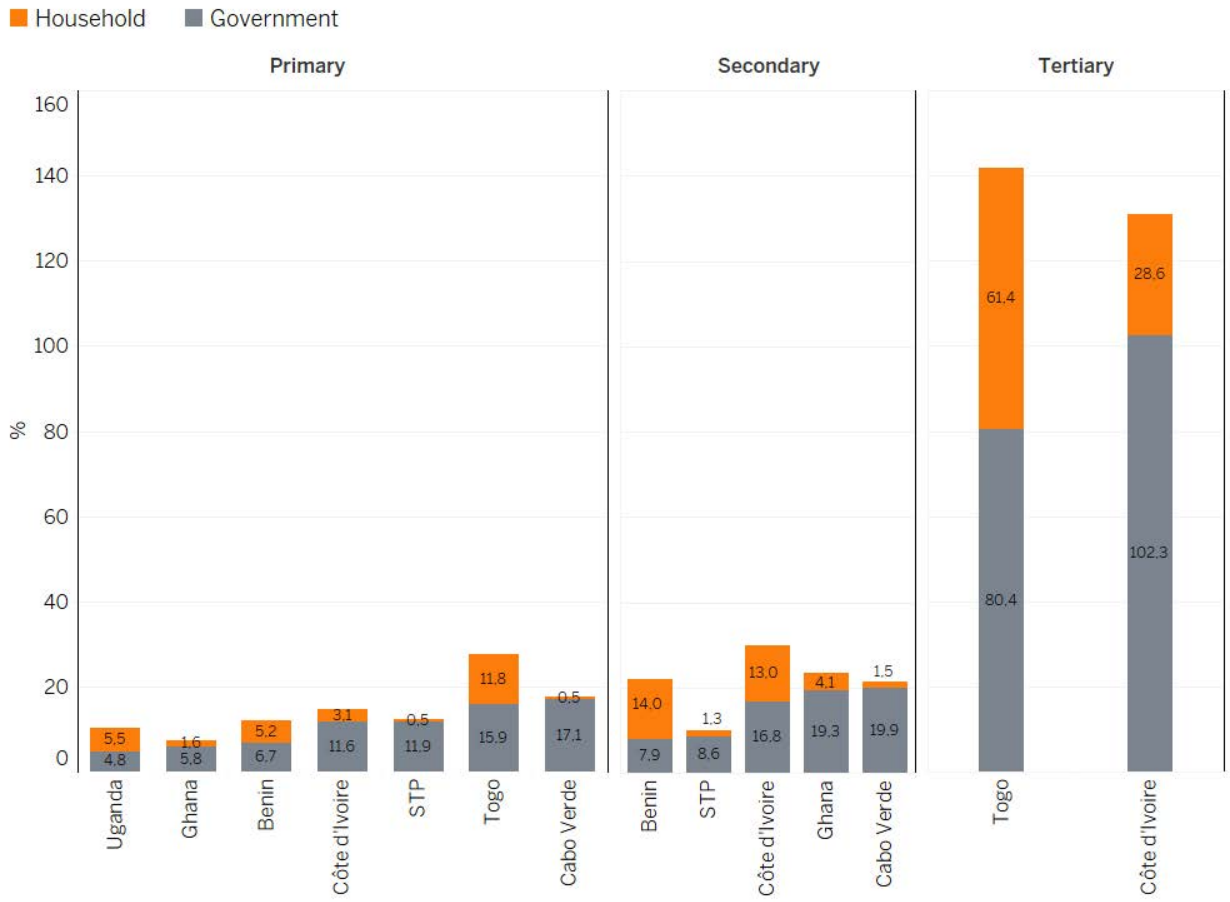
Data source: UIS, SDG 4.5.4: "Education expenditure per student by level of education and source of funding". http://data.uis.unesco.org/
Note: Countries are listed in order of their initial government funding per student (constant PPP$)
All data from 2014-2016 period

xvii. The calculation assumes one year of pre-primary, six years of primary, six years of secondary, and four years of tertiary education.

Household spending on education

Household spending on education is another critical piece of the education financing puzzle. It has implications for equity with regards to access and learning outcomes. Data availability for the period that is of concern for this report is particularly limited for household spending on education. For primary education, comparing household and government spending per student as a percentage of GDP per capita, sizable differences emerge across countries. For example, in Benin and Sao Tomé and Principe, the total per student spending (household plus government) as a percentage of GDP per capita are similar. However, households in Benin spend about ten times more than households in Sao Tomé and Principe (5.2% and 0.5% respectively).[xviii] Countries like Togo, Benin, Uganda, and to a lesser extent Côte d'Ivoire, are characterized by higher spending by households in total education spending at primary and lower secondary levels. Countries like Cabo Verde and Sao Tomé and Principe, and to a lesser extent Ghana, are characterized by lower proportions of household spending in total education spending. These differences observed are in line with the sizable variations across countries identified in the proportion of household spending in an analysis using data from a longer period.[82]

Figure 8.7 Education expenditure per student as % of GDP per capita, by level of education and source of funding



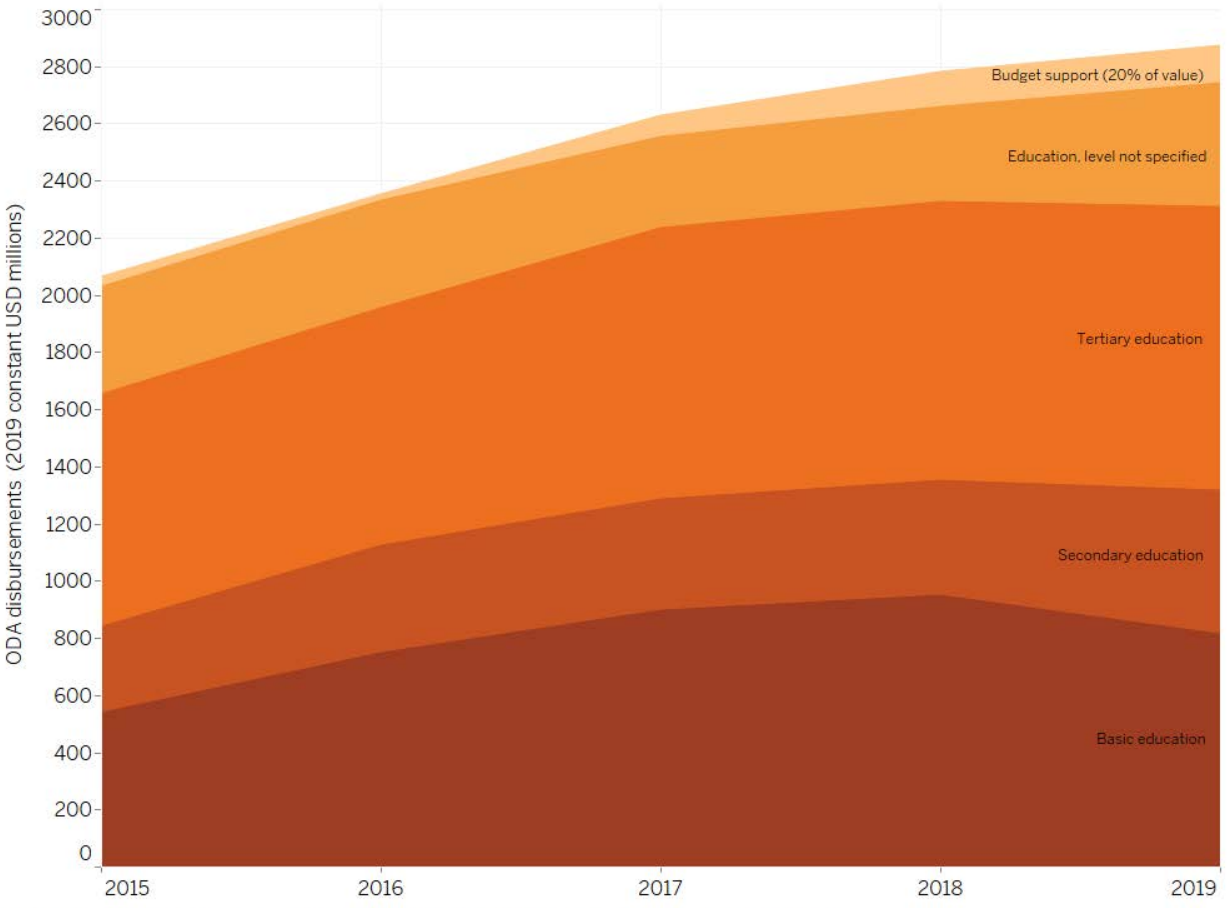
Data source: UIS, SDG 4.5.4: "Education expenditure per student by level of education and source of funding", http://data.uis.unesco.org/
Note: Countries are listed in order of their government education expenditure per student as % of GDP per capita
Data is from the following years: Uganda (2014), Ghana (2014),Benin (2014, 2015), Côte d'Ivoire (2015, 2015), STP (2014),Togo (2015, 2016), Cabo Verde (2016)

xviii. Note that these figures are not in absolute terms, but as a percentage of GDP per capita.

International education financing

International financing is another critical piece of the education financing puzzle,[xix 83] but it is rife with problems for many recipient countries. Fluctuations in international aid[84] may result in steep declines when funds are most needed (e.g. during the COVID-19 pandemic). Allocations across levels of education and types of investments can be driven not only by recipient countries' needs, but also by donor countries' economic and political interests.[85] *Figure 8.8* shows official development assistance (ODA)[XX] to the education sector[xxi] by the top five donor countries/organizations (France, Germany, United Kingdom, United States, and the World Bank [IDA])[xxii] from 2015 to 2019. Over this period, ODA aid made available to Africa for tertiary education (including post-secondary scholarships, according to the Development Assistance Committee [DAC] definition) totalled more than basic and secondary education aid received together. Overall, the total amount of ODA to education by these top donors has gradually increased since 2015. However, it is worth noting the sharp decline for basic education in 2019, before the COVID-19 pandemic.

Figure 8.8 ODA to education by top donors (2015-2019), by education level

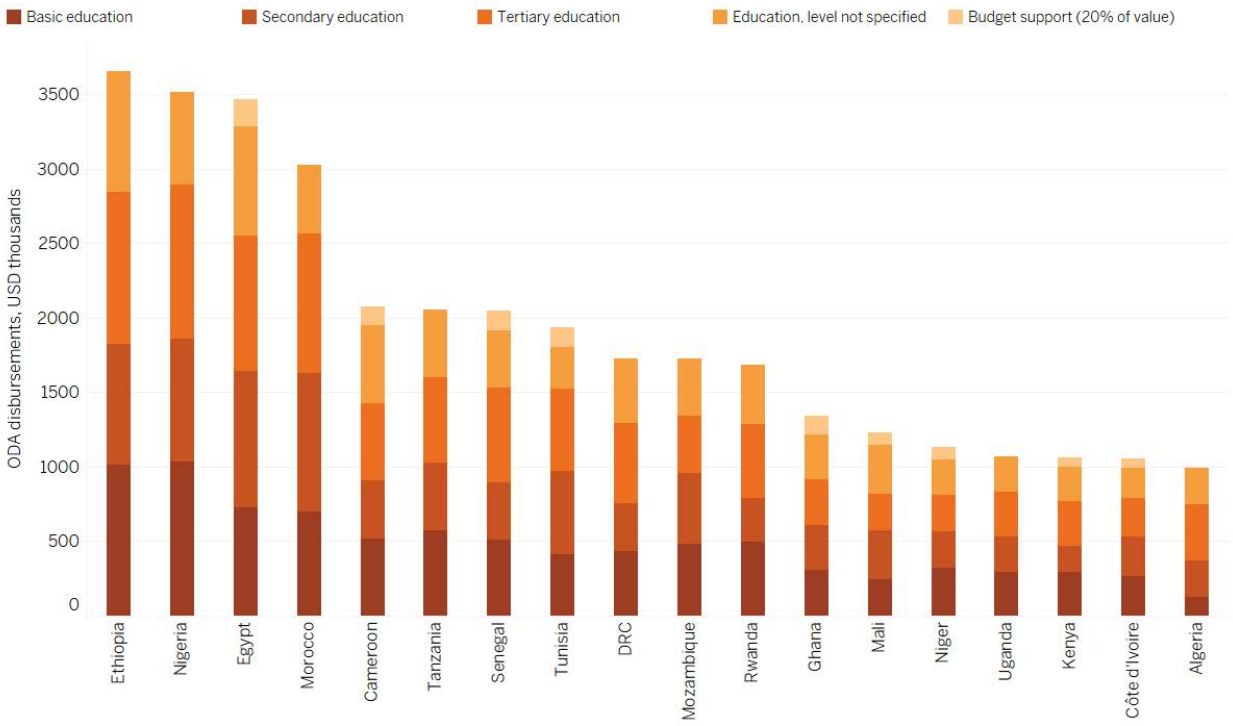


Data source: Creditor Reporting System (CRS) - OECD Statistics, https://stats.oecd.org/Index.aspx?DataSetCode=crs1
Note: This graph represents ODA disbursements (USD Deflated) in education (basic education, secondary education, tertiary education, unspecified education, and 20% of budget support) to all African countries from the following donors: World Bank (IDA), Germany, France, EU institutions, United Kingdom and United States.

xix. In this regard, ongoing changes in the monitoring of development finance under the Total Official Support for Sustainable Development (TOSSD) is worth noting. These efforts will revise the treatment of concessional loans and better capture diverse development cooperation partners, including GPE.
xx. Note that deflated ODA disbursement amounts (variable 'USD Disbursement Def' from the OECD CRS dataset) are used to calculate the values in Figure 8.8.
xxi. This figure also includes 20% of general budget support.
xxii. These countries and organizations were the top five DAC donors to the education sector in Africa in 2017.

Figure 8.9 shows ODA to individual recipient countries from the same five donor countries/organizations. Note that only those countries that received more than USD 50 million for the education sector are included in this figure. Ethiopia, Nigeria, Egypt, and Morocco stand out as larger recipient countries. The allocation of ODA for different education levels varies across countries. For example, while Ghana and Rwanda receive similar amounts of ODA for secondary education, Rwanda receives larger amounts than Ghana for basic and tertiary education. While the total amount of education ODA received by the DRC and Mozambique are similar, tertiary education constitutes a significant percentage of this total amount for the DRC and not for Mozambique.

Figure 8.9 ODA to education in 2019, by country and education level



Data source: Creditor Reporting System (CRS) - OECD Statistics, https://stats.oecd.org/Index.aspx?DataSetCode=crs1
Note: This graph represent ODA disbursements (in current USD) to the 18 top recipients in Africa by sector (basic education, secondary education, tertiary education, unspecified education, and 20% of budget support from the following donors: World Bank (IDA), Germany, France, EU institutions, United Kingdom and United States.
All data are from 2019

Role of non-state actors in education financing and beyond

Another piece of the education financing puzzle is non-state actors. The private sector and philanthropic organizations have the potential to contribute to financing education services, both through paying fair taxes and through mobilizing additional funding for public education.[86] Yet non-state actors' activities in education often go well beyond financing, extending to the provision of education, and influencing policies and service models through innovations.[87] It is with this recognition that CESA pays particular attention to the mobilization of public-private partnerships via the private sector's involvement in financially supporting public institutions, granting scholarships, providing internship opportunities, and contributing to special funds for education and training.[88] However, limited availability of data on the role of non-state actors' financing flow to education continues to raise concerns about their role as providers of compulsory education, and the equity implications of their engagement, especially when motivated by commercial or profit-oriented interests.[89] Therefore, growing attention is being paid to the 'how' of effective and equitable public-private partnerships.[90]

New delivery approaches for more effective implementation

As mentioned earlier in this chapter, part of governments' efforts to tackle the challenge of education financing, with an ever-growing need for additional funds, have focused on gains in efficiency and effectiveness with regards to access, quality, and equity. Some African governments have experimented with 'delivery approaches'.[91] Delivery approaches (DA) are structures and processes dedicated to support the implementation of priority policies. They combine novel institutional forms and managerial tools to improve the functioning and performance of government bureaucracies, like accountability- and incentive-driven mechanisms, and 'top-down' processes to monitor performance.[92] Examples of 'delivery approaches' in education include Ethiopia's Education Sector Delivery Unit,[93] Morocco's Linking Education and Accountability for Development,[94] Liberia's Education Delivery in the Ministry of Education,[95] and the Big Results Now in Education programme in the United Republic of United Republic of Tanzania.[96] Some governments have explored results-based financing (RBF) in its various forms by providing rewards to institutions or individuals after agreed-upon results are achieved and verified.[97] RBF interventions have included incentives to children and parents (e.g. conditional cash transfers in Mozambique),[98] to teachers (pecuniary and non-pecuniary rewards for performance, for example in the United Republic of United Republic of Tanzania[99] and Rwanda[100]), and to schools (additional funds for improved school performance or for enrolling orphans and vulnerable children, for example in Malawi).[101]

Policy case study #10: Unlocking the potential of data for educational planning

Over the past two decades, many global and national education stakeholders have dedicated efforts to promoting education data. UNICEF's Data Must Speak (DMS) is one noteworthy multi-country initiative. Launched in 2014, some of its key goals are to enhance the use of data for improved equity and learning, empower communities by increasing their accountability capacity, and improve knowledge generation.[102] Recognizing the positive impact that increased transparency, community engagement, and accountability can have on student retention and learning, DMS helps in the development of promising solutions 'that facilitate data-driven decision-making and empower communities'.[103] It has been implemented in eight countries since its launch, with Togo being among the first to join.[xxiii 104]

Data Must Speak in Togo: school profile cards

The implementation of DMS in Togo[xxiv] started with the appraisal of existing tools and processes for data collection, including a review of the report cards the government had introduced in primary schools in 2012.[105] Although these were mainly used by schools and education authorities for planning and monitoring, the information gathered was found to be 'questionable'. Thus, improving data reliability, communication and dissemination (including making it accessible to members of the community who were illiterate), and quality assurance, were prioritized.[106] To meet these goals, three types of report cards were developed: (i) a simplified profile card for communities, (ii) a school profile card (SPC) for headteachers, (iii) an inspectorate profile card for inspectors and education advisers. The school and inspectorate profile cards were supported by user guidelines explaining their purpose and making it easy to understand and interpret the indicators used.

Three types of information are found in school and inspectorate profile cards: (i) school context (e.g. location, facilities), (ii) financial, material, and human resources (e.g. sources of funding, textbook availability, teachers by type), (iii) outputs and performance (e.g. repetition rate, gender parity, primary school certificate completion, efficiency index). Profile cards also facilitate comparisons with district, regional, and national average indicators. It is worth noting that a section on data gaps will alert inspectors and district authorities to potentially erroneous or incomplete information and result in particular attention being paid to the concerned school the following year.[107] In addition, inspectorate profile cards

xxiii. Participating countries are Chad, Madagascar, Namibia, Nepal, Niger, the Philippines, Togo, and Zambia.
xxiv. The project is run by the government with support from UNICEF.

contain a bottleneck analysis that highlights overall performance and potential gaps with other schools, the funds they may have received, and whether or not they may require additional monitoring.

Profile cards serve specific purposes. The simplified version can help school committees (COGEPs) [xxv] identify problems and discuss solutions to improve school performance. For this reason, efforts were made to make the information intelligible to communities, for example through the use of emoticons. With the information provided, education and school authorities can identify underperforming or under-resourced schools, guide resource allocation accordingly, and monitor school performance and the implementation of improvement plans.[108] At the local level, two campaigns in 2017 and 2019 aimed at ensuring the uptake of the profile cards. They consisted of a nationwide distribution[xxvi] of school profile cards and training for inspectors on their use. Inspectors were in turn responsible for training headteachers.[109]

DMS alignment with the government's pre-existing commitment to evidence-based policies and community mobilization offered a favourable context for the programme implementation. After five years, it was fully integrated into the Ministry of Education's planning operations (in particular EMIS), and school-level profile cards/dashboards have now been automated with up-to-date information made available every year for primary education.[xxvii] [110] The DMS programme contributed to improving the quality and coverage of national statistical systems, thereby enhancing their credibility, including among development partners and NGOs who have utilized DMS indicators to reorient their support.[111] [xxviii]

Capitalizing on data availability: the next step

Although the DMS initiative has led to important improvements in data availability and harmonization, its impact remains relatively modest as only limited steps have been taken thus far to capitalize on the data available.[112] Despite school profile cards' potential to advocate for equity, their use in school development plans remains low.[113] Furthermore, while school information has helped communities better understand school-related issues, raised their awareness of low learning achievements, and stimulated their participation in decision-making in some districts,[114] it has had limited impact on their ability to hold local education and school managers accountable for the school's performance or to secure additional funding.[115]

Reasons for this may relate to the inconsistencies in the dissemination of profile cards and limited end-user training.[116] Delays in delivering the cards have led some inspectors to use alternative data sources, marginalizing the use of and interest in profile cards.[117] At the same time, though the ministry's planning unit often expresses ownership and engagement with DMS, this has not been observed for other directorates at the central level and among decentralized authorities.[118] It seems that underlying institutional and political[xxix] issues have hindered DMS achieving its full potential. Improving collaboration among education stakeholders for systemic and constructive use of available data in educational planning may play an important role in the improvement of school-level practices.

xxv. Comité de Gestion des Ecoles Primaires (COGEP) are committees consisting of parents, community representatives, headteachers, and teachers, that are responsible for the management of schools (infrastructure projects, funding, textbook, equipment, etc.).
xxvi. Distribution was delayed, hence school profile cards distributed in 2017 are from 2014-15 data.
xxvii. Profile cards are produced using questionnaires completed by headteachers and integrated into EMIS to fed into the education statistical yearbook. Then they are disseminated to the schools, and regional authorities, enabling to close the feedback loop. Pre-primary and secondary profile cards have been designed but have not yet been implemented.
xxviii. For instance, NGO Aide et Action used DMS indicators in activities to promote community involvement in schooling. School profile cards are also a decision tool for grant allocation to schools as part of the PERI project, a GPE-funded project that supports the implementation of the education sector plan.
xxix. For instance, the DMS 2019 formative evaluation highlights a disconnect between the planning directorate and other directorates responsible for primary and secondary education.

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Chapter 9

Conclusion

This chapter highlights five key messages based on the findings put forward in the report's seven thematic chapters. Rather than providing context-specific policy recommendations, these aim instead to frame and facilitate policy discussions at national and regional levels.

Key message #1: The findings presented in the report highlight the scope of the challenge governments face in ensuring all children have access to inclusive and equitable quality education. They also show that African countries are at very different points in their journeys towards meeting the targets set out in SDG 4. The report highlights some countries that have made impressive progress in certain areas and puts the spotlight on their achievements to set an example to others.

This variation across countries is associated with a wealth of experiences and tried-out policies, which present a potential learning opportunity. The report lists several ongoing efforts, and describes a smaller set of policies and programmes in more detail. These examples are not meant to be models copied and implemented without any adaptation. Instead, they aim to be guidelines, an inspiration for workable solutions, and at the same time provide valuable advice about how to tackle implementation challenges. Ongoing efforts at both the regional and continental level could further strengthen the mechanisms that make it easier for countries to learn from and build on one another's experiences in addressing similar challenges. Similarly, pan-African efforts to facilitate education stakeholders joining forces across borders to overcome shared challenges together deserves further attention and investment.

Key message #2: Observations and analysis about the state of education provision and outcomes in African countries is at best an incomplete version of what is happening on the ground. There are several countries where there has been hardly any data on education indicators since 2015. In many others, data is available for only some of them, and their low collection frequency limits efforts to track progress. At the same time, with the exception of gender, much of the data collected does not cover all the issues associated with equity. As a result, available data, in most cases falls short of fully revealing existing disparities, such as those related to household wealth, parental education, household composition, location (rural-urban, sub-national regions), displacement, different types of disabilities, language, and other possible sources of marginalisation. As such, it does not adequately inform equitable policy decisions. In this regard, ongoing national, regional and continental efforts to improve quality, coverage, and frequency of data collection are invaluable and deserve further investment, with a focus on countries that have very limited data and with a view to identify those children who are left behind.

Key message #3: Despite sizable progress in several countries, many children continue to be left behind. This is partly because equity is often not at the heart of the government's efforts to increase access and to enhance quality and learning. Innovative policies need to be accompanied by targeting strategies aimed at ensuring that interventions reach all children. Improvement opportunities targeting the average population risks leading to a further increase in inequity. This report has put a spotlight on equitable education and discussed ways in which equity should be at the heart of policy planning and investment decisions at all levels of education, and for all elements of the system.

Key message #4: The report underlines the role of system-level planning in achieving sizable progress towards national, continental, and global targets in education. Such short- and long-term planning is important to improve decision-making and policy implementation processes. In this regard, timely and accurate information on the state of education provision, with a focus on the challenges facing implementers and availability of resources and capabilities, is crucial to formulating ambitious yet realistic strategic plans.

Key message #5: The COVID-19 pandemic has resulted in an unprecedented disruption to education services in Africa. The effects on educational attainment, learning outcomes, and disparities in education are still unfolding. The fragility of education systems in the face of this pandemic has shown, with great clarity and urgency, the importance of building resilience at the school and system levels. As a result, African countries are now faced with a dual challenge: investing in system-level components to build resilience into the foundations of their education systems and, at the same time, investing in the capabilities and motivations of key stakeholders (particularly teachers) so that they are able and willing to adapt in the face of future challenges.

Appendix 1: Methodology

Introduction

The analyses underlining the continental report combine qualitative and quantitative methods that are designed to build on and complement each other. The preparation of the report took place over a six-month period (June-November 2021) and consisted of two main phases: the exploratory phase and an in-depth analysis phase. This Appendix describes each of them in detail.

The report benefited from the guidance and suggestions provided by members of the Editorial Committee (EC) and the Steering Committee (SC). Its thematic focus, equity, was identified by the EC and the SC members.[i] Draft versions of the report went through successive rounds of reviews from members of the EC and the SC, as well as subject experts at IIEP.

Table A1.1: Continental report timeline

	05/21	06/21	07/21	08/21	09/21	10/21	11/21	12/21
Phase 1: Exploratory phase (desk research, data identification, exploratory data analysis)								
Phase 2: In-depth analysis and synthesis (in-depth desk review, additional data analysis, case studies)								
First draft (partial) submitted								
First draft review and revision								
Case studies								
Second draft (full) submitted								
Second draft review and revision								
Final report submitted								

Phase 1: Exploratory phase

The exploratory phase consisted of qualitative and quantitative parts. The outputs of the qualitative part informed the quantitative part, as described below.

i. EC members shared their theme suggestions online. The research team identified the four themes (equity, teachers, ECE, resilience) that were most frequently mentioned by EC members, prepared a conceptual note describing the possible scope of a thematic analysis on each of them, and shared it with SC members. An online meeting was then held with SC members where a consensus decision was made to have equity as the thematic focus of the report.

1.1. Exploratory desk research consisted of document identification and selection, document review, and mapping of key issues.

Document identification and selection: The main international organizations working on education policy in Africa were identified, and their publication databases were reviewed. When a document was identified as relevant, it was included by the research team in an Excel document database and coded according to the following codebook:

- **Geo-scope**: specifying the geographical scope of the document (continental, regional, multi-country, single country, or global)
- **Geo-reference**: (if multi-country or single country) specifying the names of the countries covered by the document
- **Regional focus**: specifying the regional focus of the document (central, eastern, northern, southern, western)
- **CESA:** specifying the CESA strategic objectives covered by the document (SO1 through SO12)
- **SDG:** specifying the SDG indicators covered by the report (SDG 4 indicators and SDG 17)
- Information was also recorded on the title, link, publishing organization, publication date, other themes, relevant pages, and special notes.

The first version of the database included 323 individual documents. These were then filtered by themes and regional focus to identify information gaps (e.g. documents on education facilities and ECE). To address these gaps, further online research was conducted, and additional policy reports and papers were identified.

Document review and mapping of key issues: Using this expanded database, documents were reviewed to identify key issues and challenges. For this, the documents were filtered thematically using SDG 4 targets as the themes. For each set of documents under the same theme, additional groupings were created by geographic scope to capture both continent-wide and region/country-specific issues. Each document was then reviewed, and thematic mind maps of the key issues and challenges were created. These were complemented by a document with notes from the relevant sources mirroring the structure of the mind map.

Following the identification of the thematic focus of the report, parts of the existing document review on SDG 4.5 on equity and the CESA strategic objective on gender equity were re-evaluated and expanded to include sources examining the nexus of the existing themes and equity (e.g. teachers and equity, facilities and equity).

In total, six mind maps and documents with complementary notes were developed on access and learning, early childhood education and school readiness, skills for work and economic growth, teachers, educational facilities, and equity. These were then used to identify the key issues that were explored through an in-depth desk research and statistical analysis of data on SDG indicators. Using these key issues, an outline of the report was developed and specific topics for further research were identified. They were also used in developing lists of potential analyses to explore with the quantitative data, and the insights gained from these were then fed back into identifying topics for additional desk research.

Limitations of exploratory desk research: A limitation of the document identification phase of the exploratory desk research concerned the uneven distribution of documents across themes, countries, and regions. There were some themes, SDG indicators, and countries/regions that were overrepresented in the document database. For two themes (early childhood education and education facilities), the original document review produced few documents, so additional research was conducted to identify additional sources, bringing the total number of documents identified in this exploratory phase to 421.

1.2. Exploratory quantitative analysis

Main dataset: The main source of data used for the quantitative analysis in the report is the data on SDG 4 available on UIS website[ii] (March 2021 version from the Bulk Data Download Service in .csv and .xlsx format). The data was imported and merged with STATA software, and .dta files were created. The complete dataset was then restructured to have one variable per indicator; resulting in a dataset containing 9,600 observations and 1,379 variables. Due to the timeline of the report's development, the quantitative analyses did not make use of the September 2021 version of the UIS dataset. However, the data availability analyses in the report used the September 2021 version to reflect more accurately the current state of data availability. The report includes regional aggregate values for indicators only when they were available in the UIS data. These aggregate values were computed by UIS following the methodology presented in the metadata repository and, were 'derived by using the national population in the respective age groups as weights for aggregation of national values'.[iii]

Complementary data: Complementary data sources used in the report include the following:

1. National monitoring data for education on the UIS website (renamed 'other policy relevant indicators' in the September 2021 release).
2. International Labour Organization (ILO) data: Data for the SDG indicator 8.6.1, the proportion of youth not in education, employment, or training (NEET), analysed in *Chapter 5* are retrieved from ILO statistics.[iv]
3. Creditor Report System (CRS) Aid Activity data: Data on official development aid analysed in *Chapter 8* are retrieved from OECD statistics.[v]
4. UNHCR data on the enrolment rate of refugee children from the 'Tableaux de bord sur les données sectorielles', shared by UNHCR in October 2021.
5. Water, sanitation, and hygiene (WASH) data from the WHO/UNICEF Joint Monitoring Programme (JMP). The report made use of the JMP data on basic water, sanitation, and hygiene services by urban/rural location.

Selecting indicators for analysis: The report's broader objective is to complement the ongoing benchmarking process led by AUC and UIS. Therefore, the indicators selected for this process were placed at the core of the quantitative data analyses conducted for this report. But, as discussed in *Chapter 8*, data was not available for all benchmark indicators. In addition, those SDG 4 global indicators that were not selected for the benchmarking process were also analysed. Some SDG 4 thematic indicators were also examined in cases where: (1) benchmark indicators and global SDG indicators have limited data availability, (2) benchmark indicators and global SDG indicators cover only part of the pertinent SDG target.

ii. http://data.uis.unesco.org/
iii. https://unstats.un.org/sdgs/metadata/
iv. https://ilostat.ilo.org/topics/sdg/
v. https://stats.oecd.org/Index.aspx?DataSetCode=crs1

Selecting scope of analysis: As a first step in choosing the indicators to be analysed, a consolidated framework was built that mapped and linked SDG 4 targets and CESA 16-25 strategic objectives with the report's chapters. This list was then reviewed in light of the mind maps synthesizing the key issues highlighted in the documents reviewed. A long list of possible quantitative analyses was created for each chapter, which were then narrowed down, based on data availability. The shortlisted ideas for possible analyses were then prioritized to ensure that this could be completed in the given time frame.

Table A1.2: Mapping report chapters, SDG targets and indicators, CESA SOs and indicators

Report chapter	SDG target	SDG indicators	CESA strategic objectives	CESA indicators
Chapter 2: Equity	4.1, 4.2, 4.3, 4.5, 4.6, 4.7, 4.a, 5	4.5.1, 5.1.1, 4.5.3	5	5.1, 5.2, 5.3, 5.4, 5.5
Chapter 3: ECE	4.2	4.2.2, 4.2.1, 4.2.3, 4.2.4, 4.2.5		
Chapter 4: Primary and secondary				4.1, 4.7, 5.4
4.1 Access and completion	4.1	4.1.2, 4.1.4, 4.1.3	4	
4.2 Learning outcomes	4.1, 4.4, 4.6, 4.7 3.7, 5.6, 12.8, 13.3	4.1.1, 4.1.5, 4.1.6, 4.1.7(a), 4.1.7(b), 4.5.2, 4.6.1, 4.6.2, 4.6.3, 4.7.1, 12.8.1, 4.7.2, 4.7.3, 4.7.4, 4.7.5, 4.7.6	4, 7, 3, 10	4.3, 4.5, 4.6, 5.5, 6.1, 10.3, A.1, A.2, A.3, A.5
Chapter 5: Skills for work, TVET, tertiary education	4.3, 4.4, 4.b, 8.6	8.3, 8.6.1, 9.5.1, 4.3.1, 4.3.2, 4.3.3, 4.4.1, 4.4.3, 8.5.2, 8.b.1	8, 9	4.2, 4.4, 4.6, 6.1, 8.1, 8.2, 8.4, 8.5, 8.6, 9.1, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8
Chapter 6: Teachers	4.c	4.c.1, 4.c.2, 4.c.3, 4.c.4, 4.c.5, 4.c.6, 4.c.7	1, 3, 4, 10	1.1, 1.2, 1.3, 1.4, 4.2

Chapter 7: Education facilities	4.a	4.a.1, 4.a.2, 4.a.3	2, 3	2.1, 2.2, 2.3, 3.1, 10.1, 10.2,
Chapter 8: Means of implementation	17	1.a.2, 4.1.2, 4.1.7, 4.2.5, 4.5.3, 4.7.3, 4.7.6, 4.b.1, 9.5.1	3, 11, 12	1.3, 2.3, 4.3, 4.2, 8.5, 10.1, 11.1, 11.2, 11.4,11.5, 12.1, 12.2, 12.3, A.1, F.1, F.2, F.3

Phase 2: In-depth analysis

2.1 In-depth desk research

The draft report outline that was developed based on the exploratory desk research was then reviewed by the SC and revised to reflect their suggestions. The outline was then expanded to identify topics for additional desk research. This iterative process continued throughout the report's drafting and finalization. Commentary on findings from statistical analyses and contextualizing patterns/trends relied heavily on reviewing documents from the original database and identifying new documents. Similarly, in incorporating the comments from the EC and the SC members, additional topic-specific research was conducted.

2.2 Case studies

The identification of case studies started during the desk review. The research team made a long list of all potential examples that were mentioned in the documents reviewed, which were recent (documented after 2015 and ideally initiated/scaled up after 2014), and implemented beyond a pilot phase. This long list of over 100 cases was then coded according to the following categories: country, theme (equity, access, learning, ECE, TVET, tertiary education, skills for work, teachers, facilities, policy-making, ICT), country fragility category (stable, alert, warning using Fragile States Index), region, country income group (World Bank's income groupings), scope of intervention (single large-scale, system-wide, implementation change, financing model, innovative small-scale), implementer (government, PPP, government and/or international organization (IO) and/or NGO, NGO on its own, or NGO and IO). Additional research identified more cases for certain themes where the initial pool was limited (e.g. teachers, facilities, ECE). The final pool included 112 potential cases.

From this large group, a shortlist was drawn up using the following criteria of prioritization: (1) cases with accessible assessment/evaluation information; (2) cases with a focus on equitable education; (3) cases initiated/implemented by the government or in close partnership with the government. The shortlist also aimed to have a geographic spread and diversity of countries with respect to their income group and fragility category. Two to four cases per chapter were selected from this list. At this point, additional research was done on these cases prior to the final round of selection. The final round of selection aimed to maintain a regional balance.

Some of the limitations of the case study selection processes include: (1) the initial desk review bounded the source of information, (2) geographically, fewer cases were available from northern Africa compared to other regions, (3) generally speaking, initiatives with the involvement of IOs and NGOs were better documented than government-only initiatives, and were also more likely to have assessment/evaluation information readily available. Due to short time frame to prepare the report, the team relied only on secondary sources of information in the preparation of the case stories.

To inform the preparation of the case studies with respect to structure, scope, and tone, a complementary desk review was conducted. This analysed five different studies on policy learning processes and provided evidence on: (1) how policy-makers learn about new ideas, (2) how policies diffuse and transfer, (3) what information policy-makers seek in reports and research, and (4) what factors impact the likelihood of a new policy being considered/adapted by a country. This desk review provided guidance on how to structure the stories in a way that would elicit interest and facilitate learning about new initiatives.

For the selected cases, additional research was conducted. For some of them, information from the additional research necessitated refocusing the story (e.g. case study on electrification of education facilities). Information from the secondary sources was used to draft each one, which was then reviewed by at least two members of the research team for purposes of accuracy, structural consistency, and clarity. They were then included in the second draft of the report and shared with the EC and the SC for their review.

2.3 In-depth quantitative analysis

At the end of Phase 1 and the exploratory quantitative analysis, a prioritized list of secondary analysis for selected indicators was elaborated and executed.

Baseline and change analyses*:* To report on baseline performance of countries and change since 2016, the following rules were established for the choice of baseline and endline years:

- Rule 1: the order of preference for baseline years is: 2016, 2015, 2017, 2014, 2018.
- Rule 2: to analyse change, a minimum length of three years is used between baseline and endline. The more recent year available for the endline value is always used, in the following preferred order: 2020, 2019, 2018.
- Rule 3: if conflicts between rules 1 and 2 arise, rule 1 is prioritized. For example, if data is available for 2015, 2016 and 2018, we could either choose 2016 as baseline (preferred in terms of rule 1) and no endline data, or choose 2015 as baseline and have 2018 as endline data (preferred in terms of rule 2). In this case we choose the first option, even though it means that we are not able to represent the change in the indicator over time.

Country-specific data years are included in the notes section of each visual.

Country income and regional classifications: Country income classifications follow the World Bank income groupings for 2015. Regional classifications follow the African Union regions.

Adjusted parity indices: The values for adjusted parity indices for gender (female/male), wealth (Q1/Q5), location (rural/urban), disability (child with disability/child without disability) are from the UIS database. The default calculation method for the parity index yields an asymmetric value with no upper limit. The adjusted parity index overcomes this limitation by inverting ratios that exceed 1, and subtracting them from 2. Note that in those cases where the parity index is equal to 0, which may occur where the numerator or the denominator has a value of 0, it was decided not to display the data point in the visual (as the 0 value may have been the result of a sample size limitation in the pertinent household survey).

Enabling legal framework analysis: All SDG 4 indicators and CESA objectives were reviewed to identify the indicators that were directly related to a country's laws, regulations, and national policies. Where data was available for fewer than five countries, the indicator was not analysed. In the report, seven such indicators were analysed, and the findings were presented using radar graphs.

Continental profile: The main purpose of the report is to present a continent-level picture of the performance of African countries on key education indicators. The first step in this process involved conducting a desk review on monitoring country performances using scorecards. This review looked at 17 existing scorecards used in well-known education-related reports. It also analysed research on the different methodologies used to produce scorecards. This desk review produced a set of suggestions that guided the inception and structuring of the continental profile.

In deciding the content of the continental profile, the benchmark indicators identified by the AUC and UIS were prioritized. The analytic framework of these indicators reflects the thematic focus of the continental report, that is equity, so adjusted parity indices are highlighted where appropriate and viable. In addition, synthesizing visuals on data availability and on enabling legal framework were included.

Quality assurance

To ensure that the analyses presented in the report are relevant and accurate, a series of internal checks were performed including: (1) random selection and review of one-fourth of citations; (2) random selection and review of data points in visuals against raw quantitative data; (3) review of alignment between the analyses presented in text and the quantitative data.

External review process: The report outline, first draft, and second draft were reviewed by experts from UNESCO IIEP Dakar and IIEP Paris, members of the EC, and members of the SC. The EC is composed of UNESCO chiefs of education, education heads of the Regional Economic Communities, representatives of CESA 16-25 clusters, and selected academics and researchers. The SC is composed of representatives from the Association for the Development of Education in Africa (ADEA), AU ESTI Education Division, Pan African Institute for Education for Development (IPED), Pan African University, UNHCR, UNICEF.

During each external review process, feedback received was transferred to a spreadsheet. In total, over 400 individual comments were received and processed for the first and second drafts of the report. Additional research was conducted whenever needed to respond to the comments received, and the details of the revision were noted in the spreadsheet. Where no revision was made, the reasons were noted. This spreadsheet was then shared with the EC and the SC to inform their subsequent review and comments. The transparent nature of the process aimed to enhance the contribution of external reviews to the relevance and accuracy of the analyses put forward in the report.

Appendix 2: Proportion of countries with 1, 2, 3, 4, 5, and 6 years available, by indicator disaggregation

Title: Indicator and disaggregation	Proportion of countries with 1, 2, 3, 4, 5, and 6 years available over the period, by indicator disaggregation. 1 year	2 years	3 years	4 years	5 years	6 years	Total
SDG 4.2.2: Adjusted net attendance rate, one year before the official primary entry age	42.59	11.11	0.00	1.85	0.00	0.00	55.56
--- Gender disaggregation	42.59	11.11	0.00	1.85	0.00	0.00	55.56
--- Wealth disaggregation	42.59	11.11	0.00	1.85	0.00	0.00	55.56
---Urban/rural disaggregation	42.59	11.11	0.00	1.85	0.00	0.00	55.56
SDG 4.1.2: Completion rate, primary education	7.41	0.00	0.00	0.00	0.00	83.33	90.74
--- Gender disaggregation	7.41	0.00	0.00	0.00	0.00	83.33	90.74
--- Disability disaggregation	1.85	0.00	0.00	0.00	0.00	0.00	1.85
--- Wealth disaggregation	42.59	11.11	0.00	1.85	0.00	0.00	55.56
---Urban/rural disaggregation	42.59	11.11	0.00	1.85	0.00	0.00	55.56
SDG 4.1.4: Out-of-school rate for children of primary school age	11.11	11.11	7.41	22.22	9.26	20.37	81.48
SDG 4.1.1: Proportion of students at the end of primary education achieving at least a minimum proficiency in mathematics	33.33	5.56	0.00	0.00	0.00	0.00	38.89
--- Gender disaggregation	31.48	1.85	0.00	0.00	0.00	0.00	33.33
--- Wealth disaggregation	25.93	0.00	0.00	0.00	0.00	0.00	25.93
--- Language spoken at home disaggregation	1.85	0.00	0.00	0.00	0.00	0.00	1.85
---Urban/rural disaggregation	27.78	0.00	0.00	0.00	0.00	0.00	27.78
SDG 4.1.1: Proportion of students at the end of primary education achieving at least a minimum proficiency in reading	33.33	3.70	0.00	0.00	0.00	0.00	37.04
--- Gender disaggregation	29.63	0.00	0.00	0.00	0.00	0.00	29.63
--- Wealth disaggregation	24.07	0.00	0.00	0.00	0.00	0.00	24.07
--- Language spoken at home disaggregation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---Urban/rural disaggregation	25.93	0.00	0.00	0.00	0.00	0.00	25.93

Proportion of youth aged 15-24 years not in education, employment, or training	27.78	18.52	3.70	3.70	3.70	1.85	59.26
--- Gender disaggregation	27.78	18.52	3.70	3.70	3.70	1.85	59.26
SDG 4.4.1: Proportion of youth and adults who have sent e-mails with attached files	18.52	0.00	1.85	1.85	3.70	0.00	25.93
--- Gender disaggregation	29.63	1.85	0.00	1.85	0.00	0.00	33.33
SDG 4.4.1: Proportion of youth and adults who have connected and installed new devices	14.81	1.85	1.85	1.85	3.70	0.00	24.07
--- Gender disaggregation	29.63	1.85	0.00	1.85	0.00	0.00	33.33
SDG 4.4.1: Proportion of youth and adults who have copied or moved a file or folder	16.67	0.00	1.85	1.85	3.70	0.00	24.07
--- Gender disaggregation	25.93	1.85	0.00	1.85	0.00	0.00	29.63
SDG 4.4.1: Proportion of youth and adults who have created electronic presentations with presentation software	14.81	1.85	1.85	1.85	3.70	0.00	24.07
--- Gender disaggregation	29.63	1.85	0.00	1.85	0.00	0.00	33.33
SDG 4.4.1: Proportion of youth and adults who have used copy and paste tools to duplicate or move information within a document	14.81	1.85	1.85	1.85	3.70	0.00	24.07
--- Gender disaggregation	29.63	1.85	0.00	1.85	0.00	0.00	33.33
SDG 4.4.1: Proportion of youth and adults who have used basic arithmetic formulae in a spreadsheet	14.81	1.85	1.85	1.85	3.70	0.00	24.07
	29.63	1.85	0.00	1.85	0.00	0.00	33.33
SDG 4.4.1: Proportion of youth and adults who have written a computer program using a specialized programming language	16.67	0.00	3.70	1.85	1.85	0.00	24.07
--- Gender disaggregation	27.78	1.85	0.00	1.85	0.00	0.00	31.48
SDG 4.4.1: Proportion of youth and adults who have found, downloaded, installed, and configured software	16.67	0.00	1.85	1.85	3.70	0.00	24.07
--- Gender disaggregation	29.63	1.85	0.00	1.85	0.00	0.00	33.33
SDG 4.4.1: Proportion of youth and adults who have transferred files between a computer and other devices	14.81	1.85	3.70	1.85	1.85	0.00	24.07
--- Gender disaggregation	29.63	1.85	0.00	1.85	0.00	0.00	33.33

Appendix 3: Relevant SGD 4 and CESA equity indicators

Equity indicators are mainstreamed across all SDG 4 indicators with SDG Indicator 4.5.1 recommending using parity indices (female/male, rural/urban, bottom/top wealth quintile, disability status, indigenous peoples, conflict-affected) for all SDG 4 indicators that can be disaggregated. Another SDG 4 indicator that is also related to equity is 4.5.3 on funding mechanisms to reallocate resources to disadvantaged populations.

In the case of CESA, indicators that relate to equity include: (5.1) gender parity index for gross enrolment ratio, (5.2) percentage of female teachers, (5.3) percentage of female head teachers, (5.4) girls' dropout rate per reason of dropout, and (5.5) percentage of girls enrolled in STEM.

Early childhood education

In the absence of a CESA strategic objective focusing on ECE, pertinent indicators are almost exclusively from the SDGs. Specifically, SDG Target 4.2 identifies two global indicators. Indicator 4.2.1 concerns the proportion of children under five who are developmentally on track in terms of health, learning, and psychosocial well-being,[vi] and relates to school readiness. Indicator 4.2.2 concerns the participation rate in organized learning one year before the official primary age. This indicator is also the one selected by UIS and AUC for the benchmarking exercise to monitor progress in Africa. It is defined as 'the percentage of children of the given age who participate in one or more organized learning programmes, including programmes which offer a combination of education and care', [1] [vii] [viii] and it is also referred to as the adjusted net attendance rate (ANAR). In the UIS database, there are two values for indicator 4.2.2: one calculated based on administrative data and the other one calculated based on household survey data. Given this report's focus on equity and disaggregated analysis, values estimated using household survey data are used.

SDG Target 4.2 also identifies four thematic indicators. Indicator 4.2.3 concerns children who experience positive and stimulating home learning environments. It is defined as a 'percentage of children aged 36-59 months who live in households where their mother, father, or other adult household members engage with them in the following types of activities: reading or looking at picture books; telling stories; singing songs; taking children outside the home; playing; and naming, counting and/or drawing'.[2] Indicator 4.2.4[3] concerns the gross early childhood education enrolment ratio regardless of age in both pre-primary education and early childhood educational development. Indicator 4.2.5[5] concerns the number of years of free from tuition fees and compulsory pre-primary education guaranteed in legal frameworks.

Access and completion for primary and secondary education

Both the SDG and CESA indicators on access and completion for primary and secondary education are designed with three related purposes: to describe the state of access with a focus on completion, to identify the state of access for disadvantaged children, and to take stock of the enabling legal environment.

vi. Since 2015, efforts led by UNICEF have been underway to identify the best items to measure SDG indicator 4.2.1, leading to the development of the Early Childhood Development Index (ECDI) 2030. This new indicator will replace the original ECDI, starting in 2020, and provides a standardized way to collect nationally representative and internationally comparable data on early childhood development.

vii. The indicator includes participation in both early childhood education and primary education. The age varies by country depending on the official age for entry to primary education. 'An organized learning programme' is defined as one which consists of a coherent set or sequence of educational activities designed with the intention of achieving predetermined learning outcomes and the accomplishment of a specific set of educational tasks.
UNESCO, UIS, and Sustainable Development Goals, 'Quick Guide to Education Indicators for SDG 4' <http://uis.unesco.org/sites/default/files/documents/quick-guide-education-indicators-SDG 4-2018-en.pdf> [accessed 1 October 2021].

viii. Since this indicator includes both ECE (children who enrol in primary school before the official age of entry) and primary school learners, it overestimates access to pre-primary education. Also, the indicator measures exposure to organized learning but not the intensity of exposure, which may vary significantly given the wide variety of ECE models.

The UIS and the AUC have selected the following SDG and CESA indicators for the benchmarking efforts: completion rate (%) at primary, lower secondary, and upper secondary levels (SDG 4.1.2); and out-of-school rate (%) for children of primary school, lower secondary, and upper secondary school ages (SDG 4.1.4). Plans are also underway to include and operationalize CESA's 'proportion of students enrolled in STEM-related fields by level of education' as a third benchmark indicator.

Other SDG thematic indicators include gross intake ratio to the last grade of primary education and of lower secondary general education (4.1.3); percentage of pupils enrolled in primary education/lower secondary education who are at least two years overage for their current grade (4.1.5); number of years of free primary and secondary education guaranteed in legal frameworks (4.1.7(a)); number of years of compulsory primary and secondary education guaranteed in legal frameworks (4.1.7(b)).

Other CESA indicators on access for primary and secondary education include: SO 4.7 (percentage of girls who complete secondary education); SO 4.1 (gross intake ratio to last grade of primary, lower secondary, and upper secondary); and SO 5.4 (girls' dropout rate per reason of dropout).

Learning outcomes in primary and secondary

Both SDG 4 and CESA indicators capture learning outcomes in a variety of areas and mirror each other in a few cases. Yet, systematic data collection predominantly focuses on literacy and numeracy skills.

From among these indicators, UIS and AUC have selected the following indicator for benchmarking the progress in learning in primary and secondary education: Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex (SDG 4.1.1).

To operationalize this indicator, building on existing cross-national assessments, UIS has coordinated efforts to establish a Global Proficiency Framework and formed a common scale from low to high achievement in reading and mathematics,[5] as well as the Global Content Reference Framework that defines the skills, knowledge, and competencies that are important for all children to achieve.[6]

The other global SDG indicator related directly to literacy and numeracy is: Proportion of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex (SDG 4.6.1). Thematic SDG indicators related to learning outcomes are: youth literacy rate (4.6.2), adult literacy rate (4.6.2), participation rate of illiterate youth/adults in literacy programmes (4.6.3); extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies, (b) curricula, (c) teacher education, and (d) student assessment (4.7.1 and 12.8.1); percentage of schools that provide life skills-based HIV and sexuality education (4.7.2); extent to which the framework on the World Programme on Human Rights Education in implemented nationally (4.7.3); percentage of students in lower secondary education showing adequate understanding of issues relating to global citizenship and sustainability (4.7.4); percentage of students in lower secondary showing proficiency in knowledge of environmental science and geoscience (4.7.5); extent to which national education policies and education sector plans recognize a breadth of skills that needs to be enhanced in national education systems (4.7.6); administration of a nationally representative learning assessment in Grade 2 or 3 at the end of primary in mathematics/in reading (4.1.6); and percentage of students at the end of primary education who have their first or home language as language of instruction (4.5.2).

CESA indicators related to learning outcomes are: (4.5) proportion of children and young people in (a) Grade 3, (b) at the end of primary education, (c) at the end of lower secondary education achieving at least a minimum proficiency level in reading, mathematics and science; (4.6) proportion of population in a given age group achieving at least a fixed level of proficiency in functional literacy, in functional

numeracy; (5.5) percentage of girls enrolled in STEM; (6.1) youth literacy rate; (A.1) existence of African language policy; (A.2) percentage of pupils being taught using an African language as a medium of instruction; (A.3) percentage of learners learning an African language as a subject; (A.5) national cultural activities in learning institutions.

Skills for work, TVET, and tertiary education

The pertinent indicators from SDGs and CESA on skills for work, TVET, and tertiary education span various goals/targets and strategic objectives.

Benchmark indicators: For the same reason, the indicators identified by UIS and AUC for benchmarking progress do not have a clear thematic match to the issues identified in this chapter. Among the indicators, the following are selected to anchor the statistical analysis, given their relevance for assessing skills for work, and technical, vocational and tertiary education: (8.6.1) Proportion of youth aged 15-24 years not in education, employment or training; (SDG 9.5.1/ CESA 9.2) Gross expenditure on research and development as a percentage of GDP.

Efforts by UIS and AUC are underway to also operationalize the following indicators as benchmark indicators: (8.3) TVET graduates labour force participation rate; public expenditure on TVET; proportion of students enrolled in STEM-related fields by level of education. However, data for these indicators were not available at the time the statistical analyses were conducted for this report.

SDG indicators: With respect to SDG indicators, skills for work, and technical, vocational and tertiary education are taken up primarily by SDG 4.3 ('ensure equal access for all women and men to affordable and quality, technical, vocational and tertiary education, including university') and SDG 4.4 ('substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship), as well as SDG 8.6 ('substantially reduce the proportion of youth not in employment, education or training').

From these targets, the global indicators related to skills for work, TVET, and tertiary education include: (4.3.1) participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, (4.4.1) proportion of youth and adults with information and communication technology (ICT) skills, by type of skill (see *Box 5.3* for types of skills).

Also from these targets, the thematic indicators related to skills for work, TVET, and tertiary education include: (4.3.2) gross enrolment ratio for tertiary education; (4.3.2) gross attendance ratio for tertiary education; (4.3.3) proportion of 15-24 year olds enrolled in vocational education; (4.4.3) educational attainment rate, completed Bachelor's or equivalent education or higher, completed doctoral or equivalent, completed Master's or equivalent education or higher, completed post-secondary non-tertiary education or higher, completed short-cycle tertiary education or higher; (8.5.2) unemployment rate; (8.b.1) existence of a developed or operationalized national strategy for youth employment.

Given the imperfect match between the benchmark indicators and the scope of issues examined in this chapter, the analyses make extensive use of several of these global and thematic SDG indicators to expand and deepen our understanding about the baseline state of TVET and skills for work in Africa.

CESA Indicators: CESA indicators related to skills for work, TVET, and tertiary education include the following: (4.2) existence of a national qualifications framework; (4.4) percentage of distribution of tertiary graduates by field of study; (4.6) proportion of youth (aged 15-35 years) achieving at least a fixed level of proficiency in functional literacy and numeracy skills; (6.1) youth literacy rate; (8.1) percentage of

total enrolment in secondary and tertiary TVET; (8.2) percentage of TVET graduates; (8.4) percentage of students who meet national requirements for academic programmes in secondary or tertiary and enrol for TVET; (8.5) state of national TVET policies and governance structures; (8.6) percentage of TVET graduates who have participated in apprenticeships; (9.1) number of earned doctoral degrees by field; (9.3) enrolment of students in higher and tertiary education per 100,000 inhabitants; (9.4) inbound mobility ratio; (9.5) outbound mobility ratio; (9.6) the quality of graduates and their employability in the world economy; (9.7) conducive environment for research and innovation through the provision of adequate infrastructure and resources; (9.8) proportion of learners enrolled in: distance education, open learning, e-learning programmes.

The report's use of CESA indicators is limited, as systematic data collection for monitoring progress against these indicators is yet to be operationalized.

Teachers

Several SDG 4 and CESA indicators on teachers overlap, while others complement each other. In its analysis, this report focuses on the benchmark indicator on teachers identified by UIS and AUC. It also provides additional analysis using SDG 4.c's thematic indicators.

The following SDG global indicator for SDG Target 4.c on teachers has been selected for benchmarking progress: (4.c.1) Proportion of teachers with the minimum required qualifications, by education level. This indicator captures the percentage of teachers who have received at least the minimum organized pedagogical teacher training pre-service and in-service required for teaching at the relevant level in a given country.

Thematic indicators for SDG 4.c include: pupil to trained teacher ratio by education level (4.c.2); percentage of teachers qualified according to national standards by education level and type of institution (4.c.3); pupil to qualified teacher ratio by education level (4.c.4); average teacher salary relative to other professions requiring a comparable level of qualification (4.c.5); teacher attrition rate by education level (4.c.6); percentage of teachers who received in-service training in the last 12 months by type of training (4.c.7).

CESA indicators related to SO 1 on teachers include: percentage of teachers qualified to teach according to national standards (1.1); percentage of teachers qualified in science, technology, engineering, or mathematics (1.2); existence of operational teacher development policy (1.3); percentage of teachers who have undergone in-service training (1.4).

Education facilities

SDG and CESA indicators on education facilities overlap in several areas, as described below. This report focuses on the benchmark indicators on education facilities identified by UIS and AUC, but also incorporates some key findings about safety in schools, as well as the availability of adapted infrastructure and materials for children with disabilities.

The SDG global indicator for education facilities is 4.a.1. The proportion of schools with access to: (a) electricity; (b) the internet; (c) computers; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single-sex basic sanitation facilities; and (g) basic handwashing facilities.

The benchmark indicator selected to monitor progress towards Target 4.a incorporates all components of indicator 4.a.1, with the exception of 4.a.1(d) regarding adapted infrastructure and materials for students with disabilities.

SDG thematic indicators of 4.a include: 4.a.2. 'the percentage of students experiencing bullying in the last 12 months'; 4.a.3. the 'number of attacks on students, personnel and institutions'.

CESA indicators for SO 2 on education facilities and SO 3 on ICTs include: (2.1) 'proportion of schools with access to (i) basic drinking water; (ii) single sex basic sanitation facilities; (iii) basic hand-washing facilities; (2.2) 'proportion of schools with (i) adapted infrastructure, (ii) materials for students with disabilities; (2.3) 'existence of a national safe schools policy; and (3.1) 'proportion of educational institutions with access to (i) electricity, (ii) the internet for pedagogical purposes, and (iii) computers for pedagogical purposes'.

Other CESA indicators related to education facilities include: (10.1) 'existence of national strategies to ensure the continuation of education during humanitarian situations, emergency situations such as armed conflict, and support the reestablishment of educational facilities'; (10.2) 'existence of national education policies to address psychosocial support, disaster risk reduction, other systems/mechanisms to protect education from attacks, and support for rehabilitation of school infrastructure'. The report's ability to use CESA indicators that do not overlap with SDG indicators is limited as systematic data collection for monitoring progress against these indicators is yet to be operationalized.

CESA and SDG indicators to monitor policies, planning, and financing are, by their nature, numerous and dispersed across different targets and strategic objectives. While they are listed here to highlight their vast scope, the rest of the chapter focuses on the benchmark indicator concerning financing, and SDG 4 indicators concerning laws and policies.

Means of policy implementation

To benchmark progress, UIS and AUC have identified the SDG global indicator, combined with the above-mentioned financing targets put forward by the Education 2030 Framework for Action: government spending on education as percentage of GDP and as percentage of total government spending (1.a.2 - proportion of total government spending on essential services [education, health, and social protection]).

Other global and thematic SDG and CESA indicators related to means of implementation include:

CESA indicators		SDG indicators	
Enabling financing			
F.1	Public expenditure on education as a percentage of total government expenditure.	Government spending on education as percentage of GDP and as a percentage of total government spending.	1.a.2
F.2	Public current expenditure on education as a percentage of total education expenditure by level.	Volume of official development assistance flows for scholarships by sector and type of study.	4.b.1
F. 3	Public expenditure on education as a percentage of GDP.	Government spending on research and development as a percentage of GDP.	9.5.1
Data and EMIS			
11.1	Funds allocated to EMIS are used specifically for EMIS activities.		

11.2	Annual production of a school census report, school census return rate.		
11.4	EMIS assessments.		
11.5	Education sector plan includes a chapter on EMIS.		
Enabling framework for improved learning and teaching			
4.3	Membership in the Network of African Learning Assessments.	Administration of a nationally representative learning assessment.	4.1.2
4.2	Existence of a national qualifications' framework.	Extent to which national education policies and education sector plans recognize a breadth of skills that needs to be enhanced in national education systems.	4.7.6
8.5	State of national TVET policies and governance structures.	Extent to which the framework on the World Programme for Human Rights Education is implemented nationally.	4.7.3
1.3	Existence of operational teacher development policy.		
Enabling legal framework for equitable and inclusive education			
A.1	Existence of African language policy.	Number of years of free primary and secondary education guaranteed in legal frameworks.	4.1.7
2.3	Existence of a national safe-schools policy.	Number of years of free pre-primary education guaranteed in legal frameworks.	4.2.5
10.1	Existence of national strategies to ensure the continuation of education during humanitarian and emergency situations such as armed conflict and support the reestablishment of educational facilities.	Existence of funding mechanisms to reallocate education resources to disadvantaged populations.	4.5.3
Enabling multilevel governance			
12.1	Existence of school management committee policy.		
12.2	Existence of national educational cluster.		
12.3	Financial or political support to CESA implementation cluster on education planning.		

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United Nations
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and Cultural Organization

African Union

Education in Africa
Placing equity at the heart of policy

Continental report

Learning to read and write, and do simple maths, is a basic requirement in order to be able to function in this increasingly globalised and competitive world. And it is the duty of governments to provide children with these skills.

It is with this in mind that the Pan-African High-level Conference on Education (PACE 2018) asked the African Union and the United Nations Educational, Scientific and Cultural Organization (UNESCO) to produce regular reports on the progress made towards achieving quality education for all.

This first edition, 'Education in Africa – Placing equity at the heart of policy', found that while many countries are taking important and significant positive steps towards reaching this goal, too many children are still left behind. It also found that the quality of schooling they receive varies widely.

The report looks at six key topics: early childhood education, primary and secondary school, skills for work, teachers, education facilities, and means of implementation, and suggests that providing quality education for all children will require a complex set of interventions.

It is hoped that the study will provide African governments with concrete guidelines and advice as they try to overcome the challenges they face.

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4 QUALITY EDUCATION

Sustainable Development Goals