

AFRICA DEVELOPMENT FORUM



OVERVIEW

# Facing Forward

## Schooling for Learning in Africa

Sajitha Bashir, Marlaine Lockheed,  
Elizabeth Ninan, and Jee-Peng Tan





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Elizabeth Ninan, and Jee-Peng Tan**

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## Abbreviations

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CONFEMEN	Conference of Ministers of Education of French-Speaking Countries
EGRA	Early Grade Reading Assessment
EMIS	education management information system
GDP	gross domestic product
GEE	government expenditures on education
GER	gross enrollment ratio
GIR	gross intake ratio
PASEC	Programme d'Analyse du Secteur Educatif de la CONFEMEN
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SDI	Service Delivery Indicators
SES	socioeconomic status
STEP	Skills Toward Employment and Productivity
TIMSS	Trends in International Mathematics and Science Study
UIS	UNESCO Institute for Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organization



# Overview

## Introduction and Study Framework

### **Knowledge Capital: Critical for Africa's Future Development**

Knowledge capital enables countries to harness the world's storehouse of information to grow their economies and improve the well-being of their citizens. Sub-Saharan Africa cannot afford to lag behind other regions in developing this asset. The region is entering a new phase of economic development—one with greater economic diversification and urbanization, closer economic integration with regional and world markets, and larger potential for new, higher-productivity jobs. The continent's youths, a sizable and growing share of the population, are essential for realizing this transformation—provided they enter adulthood and the labor market well equipped to facilitate the acquisition, adaptation, and diffusion of new knowledge and technologies. An educated youth population would also help reduce income inequality, promote social mobility, foster social cohesion, and jump-start the stalled fertility transition in Sub-Saharan Africa.

Enrolling students in primary school is the first step in building the region's knowledge capital, and Sub-Saharan African countries have focused on this effort for the past 25 years. On this count, the region has made tremendous progress. However, for the region's knowledge capital to catalyze socioeconomic transformation, all its young people will need 9 to 10 years of basic education, with adequate competencies in literacy, numeracy, and science—and many of them must be educated and trained beyond basic education. Such knowledge capital remains thin, even as the frontiers of knowledge push forward at a rapid pace.

How to improve the learning outcomes in basic education while expanding access and completion is the focus of this book. It draws lessons—*from* the region and *for* the region—about “what works” to boost learning and how to better implement what is known to have worked. It also adds to the literature its

extensive new analyses of multiple datasets from the region, integrating findings about children's learning, access to school, and progress through basic education.

### **From Science to Service Delivery: A Framework**

This study uses a conceptual framework of “from science to service delivery,” highlighting three broad areas that affect learning:

- *The contextual factors* (social, cultural, economic, political, and security-related) that affect learning through their influence on the behavior and abilities of children, households, and governments
- *The science*, referring to the evidence-based choice of policies and programs that are expected to produce results
- *The service delivery*, referring to the implementation of these policies and programs in schools and in classrooms, the venues where much formal learning occurs

Given the importance of *country context* in assessing progress and in developing strategies for improvement, the study developed a typology to classify Sub-Saharan African countries by their educational progress over the past 15 years, and also examined that progress relative to the challenges they faced in the early 1990s. The grouping provides a tool for identifying possible patterns in how countries have overcome common obstacles, especially institutional and managerial constraints, to expanding educational coverage and improving learning. It enables a country to compare itself with others in a similar position, whether in the past or at present. The grouping also sets a useful starting point for assessing country prospects for progress in basic education in the coming years, as countries press toward achieving the Sustainable Development Goals by 2030.<sup>1</sup>

Regarding what works to boost learning in Sub-Saharan Africa country contexts (the science), this study marshals evidence from (a) original analyses of the correlates of learning, using learning assessments in over two dozen Sub-Saharan African countries; and (b) a growing body of impact evaluations from the region and other low- and middle-income countries. As with the country typology, these analyses also consider contextual factors that affect learning, focusing on those operating at the level of children and households.

Evidence of the science is insufficient, however, to achieve results on the ground. Also needed is effective implementation (the service delivery) of sound policies and programs. Schools are the main organizations for delivering educational services, and teachers and school administrators are the main personnel involved. Systematic reinforcement and oversight of these frontline agents by supporting institutions is also critical. Such institutions ensure that schools have the required teachers, facilities, teaching and learning materials, and other



inputs to provide a conducive teaching and learning environment for students. They also provide the professional support and guidance that teachers and school leaders need to help their students learn well.

This study's analyses of learning bring into sharp focus a severe learning crisis in Sub-Saharan Africa. Education systems throughout the region, and all key policies and interventions, must immediately tackle what may be described as a veritable disaster unfolding across successive age cohorts. The study identifies and analyzes four priority areas that will help countries to better align their systems with an effective learning agenda and to bridge the gap *from science to service delivery* at the school and classroom levels:

- *Completing the unfinished agenda of universalizing basic education with quality.* This goal entails addressing major deficiencies in service delivery that affect children's entry to first grade and their learning and their subsequent progression through basic education, as well as the wide disparities in learning that greatly increase the risk of dropping out among rural and poor children who are already burdened by economic pressures to do so.
- *Ensuring effective management and support of teachers.* Because teachers are at the center of the teaching and learning process, it is critical for countries to address the serious problems documented in this study relating to teacher recruitment, preparation, deployment, supervision, and support at the school level. Teacher absenteeism is high, and teachers lack sufficient knowledge and skills as well as conducive workplaces to be effective in their work.
- *Increasing financing of education and focusing spending and budget processes on improving quality.* Implementing good ideas to realize Sub-Saharan Africa's agenda for basic education requires more and better-aligned resources. At present, many of the region's countries spend too little per student on basic education, and the little that is spent is often poorly used, as reflected in the haphazard allocation of teachers, the wide disparities across schools in the availability of learning materials and basic conditions, and the consequent shortfalls in learning.
- *Closing the institutional capacity gap.* Tackling the weaknesses in Sub-Saharan Africa's basic education systems, as this study elaborates, involves complex activities—including planning, coordination, negotiations, operational oversight, follow-up, course correction, evaluation, data collection and analysis, and communication. At present, these functions are highly fragmented and operate with limited technical capacity in most of the region's ministries of education.

Addressing these four priority areas is essential to advance the region's aspirations for basic education. A fundamental premise of this study is that although Sub-Saharan African countries might learn from high-performing

and higher-income education systems, they should also look closely at other low- and middle-income countries, especially within Sub-Saharan Africa, that have made progress under conditions similar to or more challenging than their own. Such countries offer particularly relevant sources of inspiration. However, learning from them must not bypass the essential work of local adaptation—including careful consideration of local constraints and opportunities.

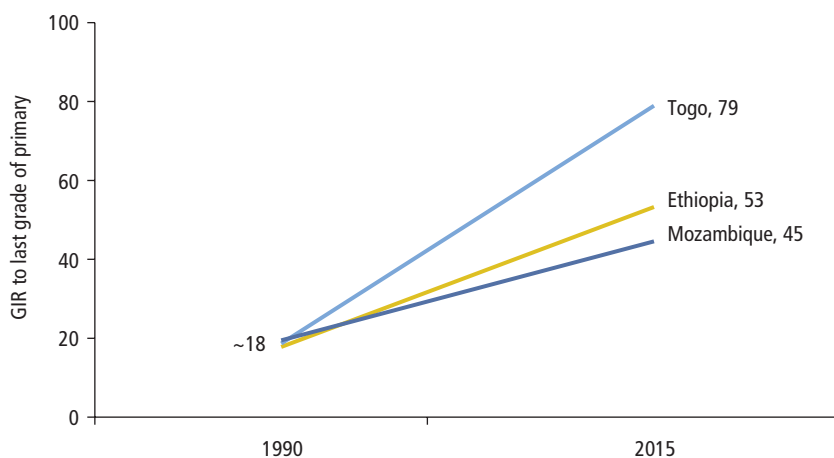
### How Countries Differ: Educational Progress and Contextual Challenges

Since the 1990 Education for All Conference in Jomtien, Thailand, Sub-Saharan Africa's progress toward universalizing primary education has been nothing short of stupendous. The region's average primary gross enrollment ratio (GER) grew from 68 percent in 1990 to 98 percent in 2015, and enrollments grew from 63 million students to 152 million, with 78 percent of primary school-age children enrolled.<sup>2</sup> Education systems in Sub-Saharan Africa today increasingly offer opportunities for primary school leavers to access secondary education; they also employ millions of teachers.

#### *Twenty-Five Years of Sustained, Divergent Expansion of Primary Education*

To illustrate the pace and diverse trajectories of expansion, consider the examples of Ethiopia, Mozambique, and Togo (figure O.1): In 1990, only one-fifth of girls in these countries who should have been in the last grade of primary school

**Figure O.1** Girls' Gross Intake Ratio, Last Grade of Primary Cycle, in Ethiopia, Mozambique, and Togo, 1990 and 2015



Source: Based on data from UNESCO Institute for Statistics (UIS.Stat) database (accessed March 30, 2017), <http://data.uis.unesco.org>.

Note: Gross intake ratio (GIR) to last grade of primary is defined as the total number of new entrants in the last grade of primary education, regardless of age, expressed as a percentage of the population of theoretical entrance age to the last grade of primary education.

were in that grade. By 2015, the share had risen to 53 percent, 45 percent, and 79 percent, respectively.

This study characterizes, in four country groups, the divergent paths of primary education's expansion, based on the countries' primary GERs, the shares of children out of school, and the retention rates in basic education. Although the lengths of primary and lower secondary education differ across countries in Sub-Saharan Africa, in this book, data have been analyzed in a standardized way using grades 1–6 as primary education and grades 7–9 as lower secondary education. The four country groups are as follows (table O.1):

- “*Established*” countries (Group 1) demonstrate high primary GERs in the baseline year (2000) and circa 2013, low rates of out-of-school children of primary school-going age, and primary retention rates of close to 100 percent (in the most recent year for which data are available).
- “*Emerged*” countries (Group 2) had high primary GERs in 2000 and 2013 and low rates of out-of-school children, but primary retention rates are still below 80 percent.
- “*Emerging*” countries (Group 3) made progress in enrollment, having low primary GERs in 2000 that increased to over 90 percent in 2013; however, they have high rates of out-of-school children and low primary retention rates.
- “*Delayed*” countries (Group 4) have made limited progress on all fronts: they had low primary GERs in 2000 and 2013, high rates of out-of-school children, and low primary retention rates.

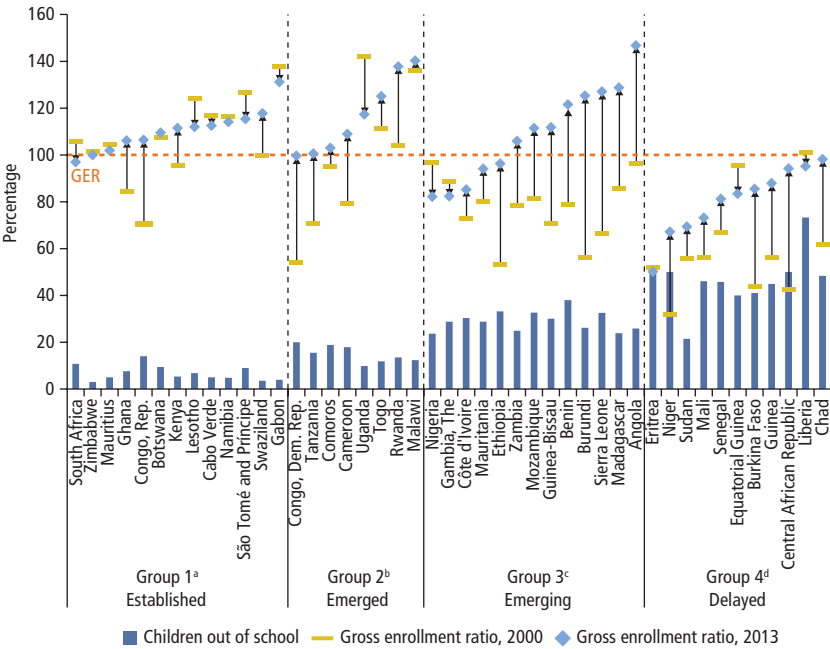
In figure O.2, the countries are ordered within each group by their GERs, circa 2013.<sup>3</sup> Despite growing GERs, more than 50 million children of primary and lower-secondary school age remain out of school, and most of them have never enrolled. “Delayed” countries (Group 4) have the most work to do to enlarge the coverage of their education systems; however, countries in all four groups share the agenda for improving learning outcomes, as will be discussed later in this overview.

**Table O.1** Definition of Four Levels of Progress in Primary Education across Sub-Saharan African Countries, 2000–13

Measure	Group 1 established	Group 2 emerged	Group 3 emerging	Group 4 delayed
Gross enrollment ratio, 2000	High	High	Low	Low
Gross enrollment ratio, 2013	~ 100%	High	High	Low
Out-of-school rate, latest available year	Low	Low	High	High
Primary school retention rate, 2013	~100%	Low	Low	Low

Note: Gross enrollment ratios are high if they are 90 percent or higher, and low if they are below 90 percent. Out-of-school rates are high if they are 20 percent or higher, and low if they are below 20 percent. Retention rates are high if they are 80 percent or higher, and low if they are below 80 percent.

**Figure 0.2** Growth in Access to Primary Education in 45 Sub-Saharan African Countries, by Group, 2000–13



Sources: For the gross enrollment ratio (GER) and retention rate: analyses of UNESCO Institute for Statistics (UIS.Stat) database (accessed July 18, 2016) <http://data.uis.unesco.org>; UNESCO International Institute for Educational Planning (IIEP) Pôle de Dakar Indicator Database version 19. For the percentage of children who are out of school: analysis of the most recent year microdata from the Labor Force Survey (South Africa), Multiple Indicator Cluster Surveys (Mauritania, Sudan, and Zimbabwe), Demographic and Health Surveys (Benin, Burundi, Cameroon, Democratic Republic of Congo, Gabon, The Gambia, Kenya, and Senegal), and Living Standards Measurement Surveys (all other countries with household surveys). For countries without household surveys (Cabo Verde, Central African Republic, Eritrea, Equatorial Guinea, Guinea-Bissau, and Mauritius): analyses of UIS.Stat database.

Note: Each country is shown in its group organized according to its primary gross enrollment rate (GER) in 2013, indicated by a blue diamond. The primary GER around 1995–2000 is designated by a red line (depending on the latest year of country data). The primary GER over 100 percent represent students not of primary school age but still enrolled in primary school. For simplicity of presentation, the figure omits the retention rate data included in determining the country groups. Those data are included in chapter 1 of the full book.

a. “Established” countries (Group 1) are characterized by high gross enrollment ratios (GERs) in 2000; GERs of nearly 100 percent in 2013; low (below 20 percent) out-of-school rates in the latest available data year; and nearly 100 percent primary school retention rates in 2013.

b. “Emerged” countries (Group 2) are characterized by high (90 percent or higher) GERs in 2000 and 2013; low (below 20 percent) out-of-school rates in the latest available data year; and a low (below 80 percent) primary retention rates in 2013.

c. “Emerging” countries (Group 3) are characterized by low (below 90 percent) GERs in 2000; high (90 percent or higher) GERs in 2013; high (20 percent or higher) out-of-school rates in the latest available data year; and low (below 80 percent) primary retention rates in 2013.

d. “Delayed” countries (Group 4) are characterized by low (below 90 percent) GERs in 2000 and 2013; high (20 percent or higher) out-of-school rates in the latest available data year; and low (below 80 percent) primary retention rates in 2013.

### *Vastly Different Social and Economic Challenges*

Countries in Sub-Saharan Africa have faced widely varying social and economic challenges affecting the growth of their education systems. This study identified seven key challenges: large total population, rapid growth of the school-age population, low or stagnant growth of gross domestic product (GDP) per capita, high income inequality, high poverty levels, high linguistic diversity, and frequent incidence of conflict. Based on the number of challenges faced in the early to mid-1990s, a country can be said to have faced *few challenges*, *some challenges*, or *many challenges*. Because country conditions vary enormously within each group, the classification is inevitably rough, although still meaningful.<sup>4</sup>

Table O.2 combines the two dimensions: (a) challenges at baseline, and (b) educational progress in primary education. This two-dimensional framework enables Sub-Saharan African countries to benchmark themselves, learn from each other, and identify promising policies and implementation strategies used by countries facing similar challenges.

**Table O.2** Progress in Primary Education Relative to Baseline Challenges, Sub-Saharan African Countries, by Group, 1990–2015

Extent of challenges in the 1990s <sup>a</sup>	Group 1: Established	Group 2: Emerged	Group 3: Emerging	Group 4: Delayed
Few	Botswana, Cabo Verde, Ghana, Lesotho, Mauritius, São Tomé and Príncipe, Swaziland	Comoros	Mauritania	
Some	Congo, Rep., Gabon, Namibia	Cameroon, Malawi, Tanzania, Togo	Benin, Côte d'Ivoire, The Gambia, Guinea-Bissau, Madagascar, Sierra Leone, Zambia	Burkina Faso, Equatorial Guinea, Guinea, Mali, Senegal
Many	Kenya, South Africa, Zimbabwe	Congo, Dem. Rep., Rwanda, Uganda	Angola, Burundi, Ethiopia, Mozambique, Nigeria	Central African Republic, Chad, Eritrea, Liberia, Niger, Sudan

Source: Baseline challenges compiled from Lewis, Simons, and Fennig 2016; UN DESA 2015; World Development Indicators database (July and October 2016), <https://data.worldbank.org/products/wdi>; Armed Conflict Location & Event Data (ACLED) version 6, <https://www.acleddata.com/data/>; details provided in chapter 1 of the full book.

Note: For country group definitions, see table O.1 and figure O.2. Table excludes the Seychelles, Somalia, and South Sudan due to a lack of data on their educational progress.

a. Countries are ordered according to each of seven challenges (as detailed in chapter 1 of the full book). Among the 38 countries with available data on all seven challenges and the two countries with data on six of the seven challenges, “few challenges” pertains to countries in the least challenged quartile for three or more of the challenges; “many challenges” pertains to countries in the most challenged quartile for three or more challenges; and “some challenges” pertains to all other countries. The exceptions are three countries initially classified as having “some challenges” (Ethiopia, South Africa, and Zimbabwe) and one country initially classified as having “few challenges” (Rwanda), which were reclassified as having “many challenges” on the basis of World Bank staff country knowledge. For six of the eight countries lacking data for two or more challenges (Equatorial Guinea, Eritrea, Liberia, Mauritius, Sudan, and Togo), classification was made on the basis of available data and World Bank staff country knowledge.

As might be expected, the number of challenges a country faced in the 1990s appears to affect its educational progress. Countries with few challenges are mainly in the “Established” group, and those with many challenges, in the “Delayed” group. The many countries in the “Emerged” and “Emerging” groups highlight Sub-Saharan Africa’s unfinished agenda: to expand children’s access to primary education and prevent students from dropping out. Three of the largest countries in the region—the Democratic Republic of Congo (population of 82 million), Ethiopia (102 million), and Nigeria (186 million)—are in these groups and together account for over 40 percent of the out-of-school population in the region. Most of the countries in the “Delayed” group are either francophone or affected by prolonged crises, including violent conflict (for example, Eritrea, Liberia, and Sudan). Conditions of conflict that prevail in many Sub-Saharan African countries jeopardize educational progress; even a few years of conflict in Côte d’Ivoire set the country back by a decade in terms of average years of schooling (Caruso, Cacagna, and Niu 2017).

The extent of challenges does not necessarily determine the amount of educational progress, however. Some countries faced many challenges 25 years ago but are nonetheless in Group 1 (“Established”). Others that faced fewer challenges 25 years ago made less educational progress. It is thus possible to overcome challenges and improve access to education, as the following highlights suggest:

- *In the “many challenges” group*, Kenya, South Africa, and Zimbabwe maintained high primary GERs, while Rwanda and Uganda greatly improved their primary GERs and reduced their out-of-school rates.
- *In the “some challenges” group*, Cameroon, Malawi, Tanzania, and Togo improved their primary GERs and out-of-school rates, while many countries in the same group made modest or little progress.
- *In the “few challenges” group*, Comoros and Mauritania made less progress than several countries that faced more initial challenges.

## Assessing Knowledge Capital in Sub-Saharan Africa

A country’s knowledge capital defies easy measurement. Average years of schooling, a common indicator in the past, is neither adequate nor appropriate today and is being replaced with various direct measures of literacy, numeracy, and other skills.

Comparisons among countries based on learning are not straightforward, however. The data vary according to the tests used to assess learning as well as by the scope of country coverage. About half of Sub-Saharan African countries participate in regional or international large-scale learning assessments, but comparisons are possible only within the subset participating in the same assessment.

Most of the assessments focus on primary-level learning, measure few skills, and are often not comparable over time. Some of the region's most populous countries—such as the Democratic Republic of Congo, Ethiopia, and Nigeria—have participated in few of these assessments. Despite these limitations, enough information is available to reveal the contours of learning levels of different age groups.

### **Knowledge Capital Rising from Low Levels**

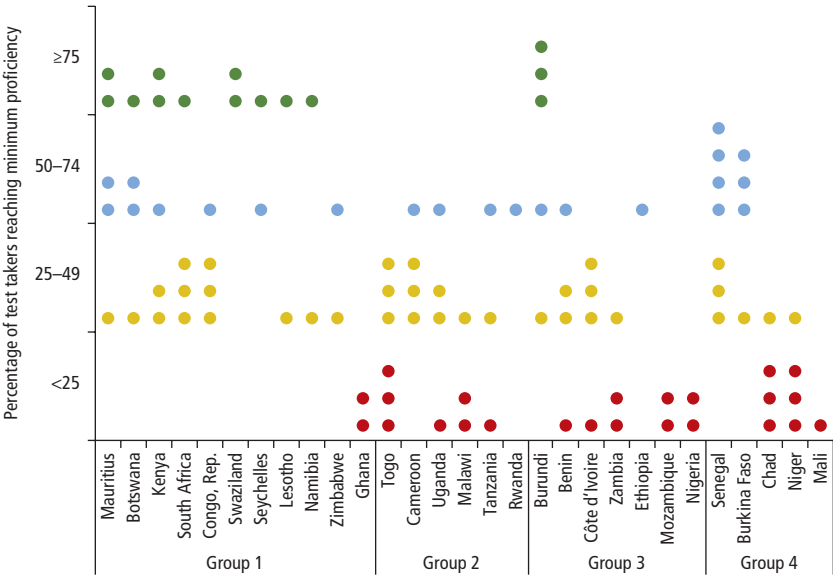
Figure O.3 summarizes countries' participation and performance on various recent regional and international assessments of learning. Each dot represents a country's performance in one assessment: green indicates that 75 percent or more of students reached the minimum level of proficiency on that assessment, while red indicates that less than 25 percent reached that level. Except for most Group 1 countries and Burundi, less than 50 percent of students reached the absolute *minimum* level of learning on virtually all assessments. In many assessments for countries in Groups 2–4, less than 25 percent reached that level.

What is the minimum level of proficiency? Clearly this varies from assessment to assessment, but it reflects what is expected for students, generally, by the time they reach a specific grade level.<sup>5</sup> The definition of “minimum level” is low for all assessments; for example, for early-grade reading, it is anything above a score of zero. On the Service Delivery Indicators (SDI) reading test for fourth graders, it is the ability to read a sentence aloud. On the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) mathematics test for sixth graders, it is the ability to translate verbal information into arithmetic operations.<sup>6</sup> On the Trends in International Mathematics and Science Study (TIMSS) mathematics test for eighth graders (generally taken by ninth graders in Sub-Saharan Africa), it is some knowledge of whole numbers and decimals. For all countries, 75 percent would appear to be a reasonable target for the share of students demonstrating minimum performance (meaning that all the dots in figure O.3 should be green).

### ***In the Adult Population, Increasing Literacy***

A widely available indicator of learning is the self-reported literacy rate of the working-age population. Household surveys show that self-reported literacy rates among young people are high: in all 35 countries with available data, 70 percent or more of youths, ages 15–19, report themselves as literate. However, reading proficiency tests—measures of the cognitive operations required for the diverse, complex tasks encountered by adults in daily life—suggest this estimate may be high (OECD 2013). For example, 83 percent of youths in Ghana and 93 percent of youths in Kenya reported being literate, but less than 47 percent of young adults (ages 15–34) in Ghana and 65 percent of young adults in Kenya demonstrated functional literacy.<sup>7</sup>

**Figure 0.3** Share of Test Takers Reaching Minimum Standards in Recent Learning Assessments in Sub-Saharan Africa, by Country and Group



Sources: Compiled from Early Grade Reading Assessment (EGRA) World Bank EdStats database (accessed January 4, 2017), <http://datatopics.worldbank.org/education/>; Bold et al. 2017; PASEC 2015; Martin et al. 2016; MOEST 2017; Mullis et al. 2016; Valerio et al. 2016; Walker 2011.

Note: Figure summarizes results of seven recent assessments covering three subjects (reading, mathematics, and science) across several grades and age groups: EGRA in grades two and three for reading; PASEC (Programme d'Analyse des Systèmes Éducatifs de la CONFEMEN) in grades two and six for mathematics and reading; SDI (Service Delivery Indicators) in grade four for mathematics and reading; SACMEQ (Southern and Eastern Africa Consortium for Monitoring Educational Quality) IV in grade six for mathematics and reading; TIMSS (Trends in International Mathematics and Science Study) 2015 in grade eight or nine for mathematics and science; PISA (Programme for International Student Assessment) 2009 Plus for 15-year-old students for mathematics, reading, and science; and the STEP (Skills Towards Employability and Productivity) survey of urban adults, ages 15–64, for reading literacy. Countries are presented in descending order within each group, based on the number of assessments in which each country has participated. For definitions of country groups, see table O.1 and figure O.2.

Functional literacy appears to be improving in both countries, however, because younger workers outperformed older workers. Among workers ages 35 and older, only 27 percent in Ghana and 55 percent in Kenya demonstrated functional literacy—substantially less than the corresponding percentages of younger workers. Recent improvements in education coverage and attainment appear to be making a difference in these two countries, which are among the Group 1 countries that have made the most progress in primary education.

### *In the Younger Generations, Low but Improving Skills*

If knowledge capital is improving in the younger generations, the overall adult skill level will rise rapidly because of the high proportion of young people in



Sub-Saharan African countries. Most youths in the region will enter the labor market with just lower-secondary education (about nine years' schooling) or less (incomplete lower-secondary or about six years of primary education). It is therefore instructive to assess the skills of these young people at the end of these cycles.

Learning levels in lower-secondary education are improving from a low base. Data on student learning at the lower-secondary level (approximately grades seven through nine) are quite limited in Sub-Saharan Africa. One source of data comes from the four countries that participated in either of two international assessments: TIMSS or the Programme for International Student Assessment (PISA) Plus.<sup>8</sup> Another data source comes from national assessments, although few of these have suitable measurement properties to show change over time.

The mean TIMSS mathematics scores of eighth- or ninth-grade students in Botswana, Ghana, and South Africa and the mean PISA Plus scores of 15-year-olds in Mauritius—all Group 1 countries—were well below those of students from other low- and middle-income countries, and several standard deviations below the scores of students in high-income countries.

Nevertheless, both Ghana and South Africa have shown considerable progress, albeit starting from a low base, with greater shares of eighth- or ninth-grade students reaching the low international benchmark in mathematics for eighth-grade students in more recent assessments (TIMSS 2011 or 2015) than in earlier ones (TIMSS 2003 or 2007).<sup>9</sup>

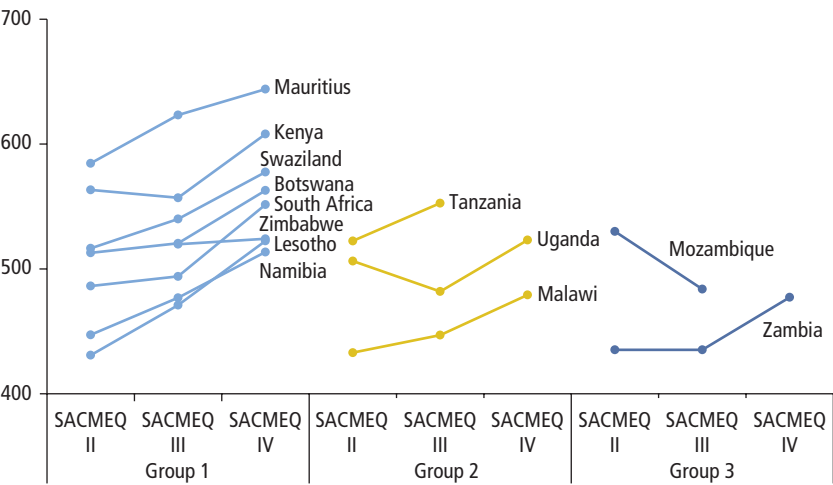
Ethiopia's national assessment results also show improvements in learning between 2011 and 2015 for eighth-grade students in all subjects assessed, with substantially fewer students scoring "below basic" in 2015 than in 2011. For example, in mathematics, the share of such students declined from 45 percent in 2011 to 38 percent in 2015.

Performance assessed at the end of primary school also is improving in some countries. In Southern and East Africa, sixth-grade student performance is improving in several countries. Average SACMEQ mathematics and reading scores increased from 2007 to 2013, but the scores may not be fully comparable over time (figure O.4).

The pattern of SACMEQ performance across countries is quite consistent, with countries in Group 1 generally having higher average scores. Kenya and Mauritius consistently rank as the top two performers. Despite the many challenges it has faced in the past decade, Zimbabwe continues to do relatively well. On the other hand, Malawi (Group 2) and Zambia (Group 3) have been relatively low performers but improved in 2013. On average, across all 14 participating countries, a third of sixth-grade students were performing no higher than the "basic reading" and "basic numeracy" levels: 32 percent in reading and 31 percent in mathematics.

Among the 10 francophone countries participating in the Programme d'Analyse du Secteur Educatif de la CONFEMEN (PASEC) 2014, no more than half of the

**Figure 0.4** Average SACMEQ Sixth-Grade Mathematics Scores, Participating Southern and East Africa Countries, by Group, 2000–13



Sources: Based on data in Bethell 2016; MOEST 2017.

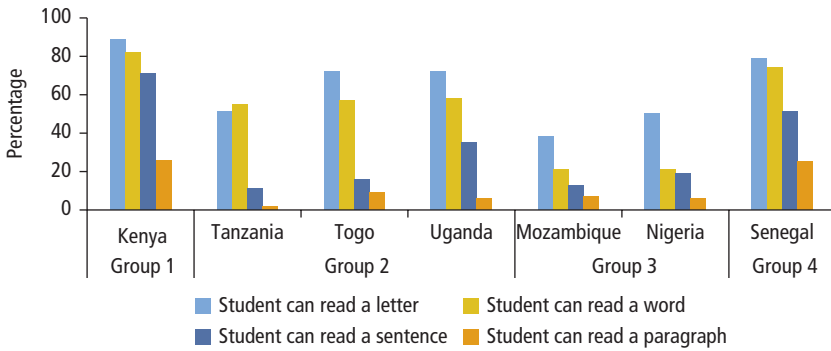
Note: SACMEQ = Southern and Eastern Africa Consortium for Monitoring Educational Quality, which measured sixth-grade mathematics proficiency in 2000 (SACMEQ II), 2007 (SACMEQ III), and 2013 (SACMEQ IV). No SACMEQ IV data were reported for Mozambique or Tanzania. Data from Seychelles and Zanzibar are not shown. For definitions of country groups, see table O.1 and figure O.2; no Group 4 countries participated in SACMEQ.

students tested reached “sufficient competency” in mathematics and reading.<sup>10</sup> The language of the assessment seems to affect these results, as the next subsection about learning gaps discusses further. Most of these countries are in Group 4, the “Delayed” countries that remain far short of universal coverage in primary education. Only one of the countries faced few challenges in the 1990s, six faced some challenges, and four faced many challenges.

An analysis of the various recent educational assessments within primary education in Sub-Saharan Africa also yields the following overarching conclusions:

- *At the mid- to late-primary level, students struggle for literacy.* The SDI reading and mathematics assessments of fourth graders in 10 countries reinforce some of the conclusions from other assessments.<sup>11</sup> Overall scores were low, averaging below 50 percent correct in six countries; students in Ethiopia, Kenya, and Senegal performed better, whereas students in Malawi, Mozambique,<sup>12</sup> and Uganda were relatively poor performers. Detailed analyses of SDI reading in seven countries reveal that fourth graders are still struggling with foundational skills: in five of the countries, less than 10 percent of students could read a paragraph, and in four of the countries, less than

**Figure 0.5** Selected Reading Skills, Fourth-Grade Students in Seven SDI Countries, by Group, Most Recent Year



Source: Based on data in Bold et al. 2017.

Note: SDI = Service Delivery Indicators. Reading tests were administered in Portuguese in Mozambique; in French in Senegal and Togo; in both Kiswahili (70 percent of respondents, with an average score of 70 percent) and English (30 percent of respondents, with an average score of 40 percent) in Tanzania; and in English in Kenya, Nigeria, and Uganda. In all countries, the language test was administered by enumerators one-on-one, with instructions given in a language that the child understands. Two other SDI participant countries, Madagascar and Niger, were not included in the analysis. For definitions of country groups, see table O.1 and figure O.2.

20 percent could read a sentence (figure O.5). Botswana and South Africa have participated in the Progress in International Reading Literacy Study (PIRLS), which also measures fourth-grade reading skills. Sixth-grade students in Botswana and fifth-grade students in South Africa scored significantly below their fourth-grade counterparts in Latin America and Morocco.

- *The problem of low learning achievement starts in the early grades.* The teaching of reading, which is crucial to children's progress through school, is highly ineffective in most Sub-Saharan African countries. Early Grade Reading Assessment (EGRA) tests conducted in several of the region's countries reveal that 50–80 percent of children in second grade could not answer a single question based on a short passage they had read in the language of instruction. A large proportion could not read even a single word.
- *Reading skills are higher when children are taught and tested in their home language or a local language.* More than 50 percent of second- or third-grade children in Burundi, Ethiopia, and Tanzania—all of which teach in the local languages in the early grades—achieved higher than a zero score on the EGRA reading comprehension test. In Tanzania, for example, 60 percent of second-grade children scored above zero in Kiswahili, compared with only 5 percent scoring above zero on the English test. SDI reading scores for fourth graders in Tanzania also were higher for those assessed in Kiswahili than for those assessed in English, by a wide margin (70 percent versus 40 percent).<sup>13</sup>

## **Wide Learning Gaps Related to Household Socioeconomic Status and Language**

Wide gaps in student learning indicate that certain population groups are being left behind, presaging inequalities in economic and social outcomes in adult life that can also undermine overall social cohesion.

Several student characteristics are strongly associated with learning outcomes. New analyses for this study found consistent, significant performance gaps in many countries. Students from lower socioeconomic status (SES) households, with less familiarity with the language of instruction and living in rural communities, typically underperformed relative to more advantaged students on tests of reading and mathematics; in some cases, gender differences in performance were also found. The performance gap between children who speak the language of instruction (and of the assessment) at least sometimes at home and those who do not is particularly striking (figure O.6).

Unfortunately, these student characteristics often overlap, with implications for variations in the quality of the students' schools. Rural students tend to come from more disadvantaged households and be less familiar with the official language of instruction. Schools serving poor, rural students often have fewer learning resources than those that serve more advantaged, urban students.

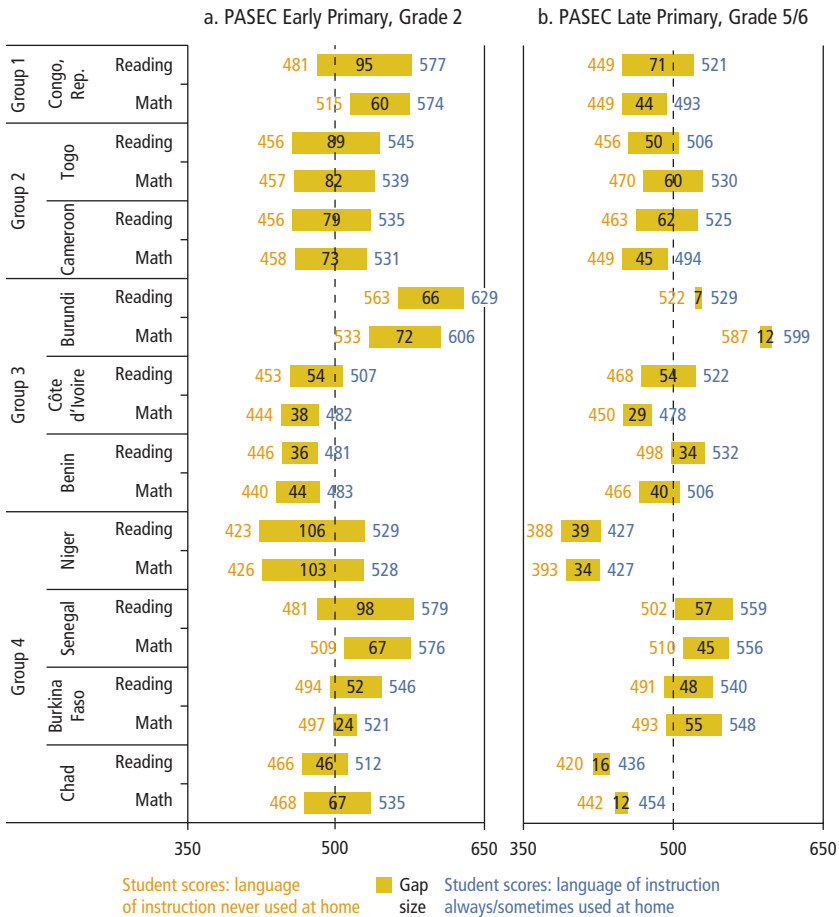
Most Sub-Saharan African countries show large inequalities in learning across schools. For the 25 countries with data from international or regional learning assessments, the share of variance in student test scores attributable to variation between schools exceeds the international average for reading in all but one country and the average for mathematics in 16 of the countries (figure O.7).<sup>14</sup> The data also reveal greater inequality between schools in francophone countries than in the countries of Southern and East Africa. Large between-school variance typically signals inequality in learning environments. In Sub-Saharan Africa, schools serving more-advantaged students have more resources, more emphasis on academic success, and fewer discipline problems.

## **New Research on Improvement of Learning in Low- and Middle-Income Countries**

How can countries in Sub-Saharan Africa boost learning for all while at the same time reduce inequality in learning? To answer this question, this study summarizes the evidence about what works globally in low- and middle-income countries, and specifically in Sub-Saharan African countries. It also adds to knowledge about the region through original analysis of recent surveys.

The global evidence is drawn from analyses of international learning assessments on the correlates of student learning as well as from carefully designed impact evaluations of specific interventions. The findings highlight important differences between high-income countries and low- to

**Figure 0.6** Language of Instruction and Language at Home: Learning Gaps in Grades Two and Five/Six in Sub-Saharan Africa, by Country Group, 2014



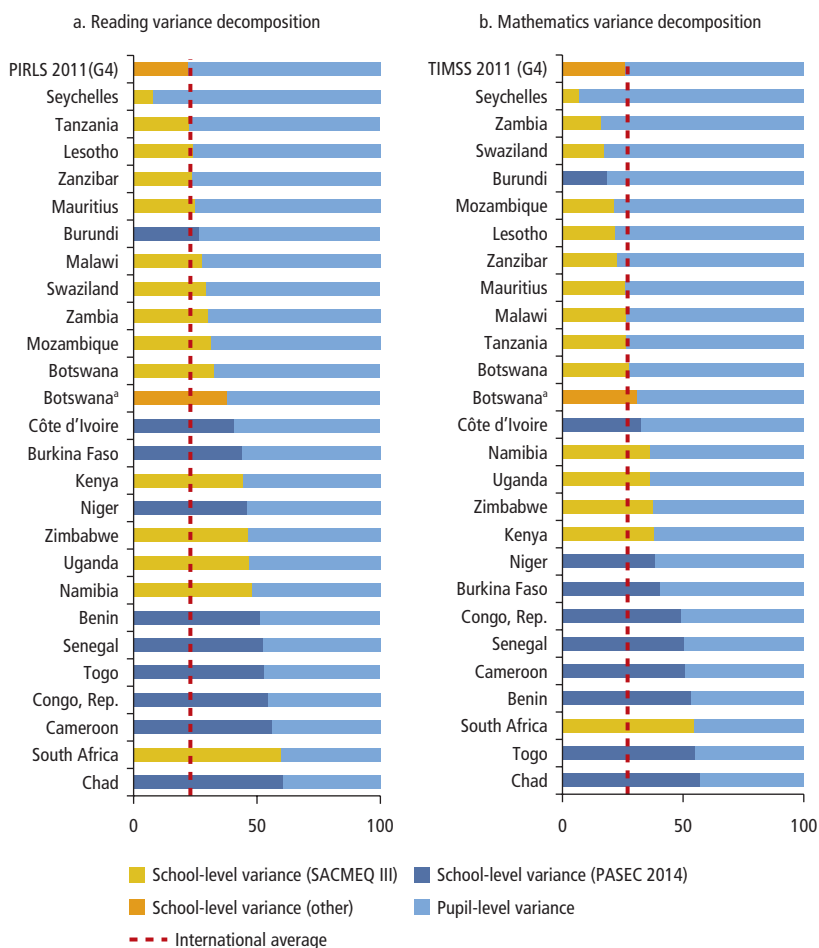
Source: Based on Analysis of microdata from Programme d'Analyse des Systèmes Éducatifs de la CONFEMEN (PASEC) 2014 (<http://www.pasec.confemen.org/pasec2014/>).

Note: For definitions of country groups, see table O.1 and figure O.2.

middle-income countries—differences that must be considered in adapting solutions to local contexts.

### *International Survey Assessments*

Three teacher and classroom characteristics are correlated with student learning in all countries: teacher knowledge, teaching practices, and instructional time. Although formal teacher certification does not correlate consistently with

**Figure 0.7** Reading and Mathematics Score Decomposition, Sixth Grade, 25 Sub-Saharan African Countries

Sources: Based on analysis of microdata from PASEC 2014 (<http://www.pasec.confemen.org/pasec2014>); Hungi (2011); and Martin et al. (2013).

Note: Figures show the percentage of variance attributable to schools versus students in "empty" multilevel models of mathematics and reading. Empty models do not include any independent variables at either the school or student level. International benchmarks for student-level versus school-level variance in reading (from the Progress in International Reading Literacy Study [PIRLS]) and in mathematics (from the Trends in International Mathematics and Science Study [TIMSS]) are indicated by dark vertical lines. PASEC = Programme d'analyse des systèmes éducatifs de la CONFEMEN; SACMEQ = Southern and Eastern Africa Consortium for Monitoring Education Quality.

a. The second Botswana entry in each panel shows the 6th grade test results for Botswana participation in 2011 PIRLS (Reading) and in 2011 TIMSS (Mathematics), respectively.

student learning, greater teacher subject-matter knowledge is associated with higher student learning in both high-income countries and low- or middle-income countries (Bold et al. 2017; Hill, Rowan, and Ball 2005). Specific teaching practices that improve learning include providing high-quality instruction, using direct instruction, providing feedback to students, assigning homework, and questioning of students (Hattie 2009).

Regarding instructional time, a distinction needs to be made between *official* and *actual* instructional time. In primary and lower-secondary education, the former is quite similar across countries, but the latter may vary widely, even across schools in the same country. Additional learning time is associated with higher student learning in many countries (Alfaro, Evans, and Holland 2015; Lockheed, Prokic-Breuer, and Shadrova 2015). Instructional time can be increased by reducing double-shift schooling, lengthening the school day or school year, minimizing teacher absenteeism (including absences for approved reasons), and ensuring that teachers are in their classrooms and teaching.

By contrast, the correlations between student learning and variations in system-level and school-level factors differ between high-income and lower-income countries. Education systems establish different incentives and accountability relationships among actors in the system (officials, school heads, teachers, and parents, for example). Much of the empirical evidence on the positive correlation between some of these system-level factors and student learning is based on studies in high-income countries. Recent research shows that these factors do not necessarily have the same effect in low- and middle-income countries (Hanushek, Link, and Woessmann 2013). The same applies to the correlations between student learning and characteristics of schools, such as physical infrastructure and type of school (Lockheed, Prokic-Breuer, and Shadrova 2015).

### *Recent Assessments in Sub-Saharan African Countries*

Recent large-scale assessments of learning in over two dozen countries in Sub-Saharan Africa provide new microdata for the analyses carried out for this study.<sup>15</sup> Based on multilevel regression models of learning, these analyses showed the following:

- *Schools serving disadvantaged students had lower learning and fewer instructional resources*, as shown in these findings:
  - The average SES of students in the school was one of the most important correlates of learning, particularly in the countries in Groups 1 and 2. For example, the mathematics scores of students in high-SES schools were

significantly higher than those of students in low-SES schools on TIMSS 2015 in Botswana and South Africa, on SACMEQ IV (2013) in Kenya, and on PASEC 2014 in 9 of the 10 participating francophone countries. The performance gaps ranged from around 50 percent of a score standard deviation on TIMSS 2015 and SACMEQ IV to more than one full score standard deviation on PASEC 2014 in Cameroon, the Republic of Congo, Senegal, and Togo.

- The average SES of students was highly correlated with the availability of essential teaching resources, such as textbooks.
- Teachers in schools serving low-SES students in Botswana and South Africa reported more problems with infrastructure and educational resources—including technology—than did teachers in schools serving high-SES students.
- *Some features of classrooms and schools were correlated with student learning* after statistically controlling for the effects of student background, as in these findings:
  - Greater teacher content knowledge and better pedagogical practices were highly correlated with higher student learning in the two countries with the relevant microdata: Kenya and Malawi.
  - Textbooks (in sufficient quantity for students to take home) were correlated with higher student learning in Burkina Faso, Côte d'Ivoire, and Senegal.
  - More pedagogical resources—textbooks per student, teaching resources in class, and furniture in class—were correlated with higher student learning in Benin, Cameroon, Chad, and Togo.
  - Better school facilities were related to higher learning in Benin, Burkina Faso, Kenya, and Malawi.
  - Smaller classes were associated with higher learning in Burundi and Kenya.
- *Large differences exist across countries in the features of schools and classrooms that were correlated with learning.* This underscores the importance for countries to analyze their own school and classroom conditions to identify “what works” for them.

### ***Impact Evaluations in Low- and Middle-Income Countries***

A recent meta-analysis of high-quality impact evaluations of more than 200 unique interventions in 52 low- and middle-income countries (including 21 in Sub-Saharan Africa) provides insights into specific actions that the region's countries could consider to boost learning or improve school attendance (Snijlsteit et al. 2015). One of the most important interventions, found



effective in other low- and middle-income countries, was remedial education. In Sub-Saharan Africa, there were no studies of this intervention during the review period. Yet, given that many early learners are struggling to learn fundamental reading and mathematics, this intervention could give positive results.

Figure O.8 summarizes the impact of various education interventions in Sub-Saharan Africa and in all low- and middle-income countries. The size of the impact is designated in units of standard deviations (generally referred to as “effect sizes”)<sup>16</sup> of learning and student attendance. It illustrates both which interventions are more effective (such as structured pedagogy) and which ones are less effective (such as school-based management of school grants).

The most effective interventions for increasing *learning* in Sub-Saharan Africa are the following:

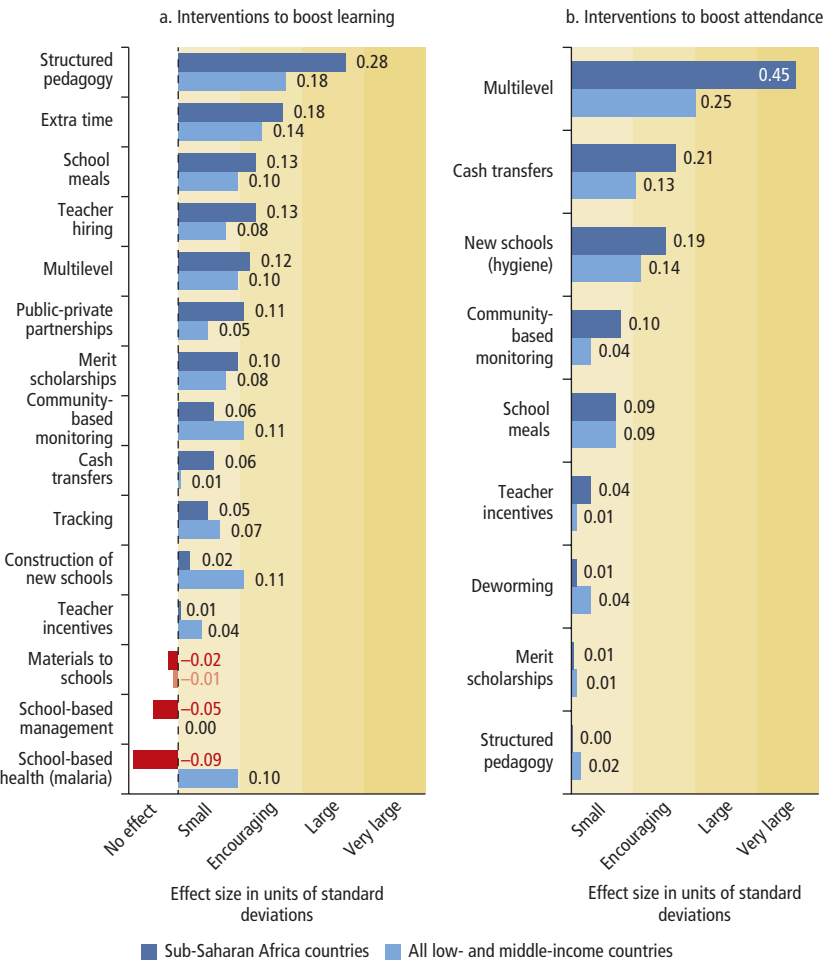
- *Structured pedagogy*: a package of teacher training, ongoing pedagogical support, and resources and materials for teachers and students, that boosts student learning by more than a quarter of a standard deviation (figure O.8)
- *Additional learning time*: extension of the school day or school year, achievable in Sub-Saharan Africa by improving teacher attendance in class
- *Feeding programs*: provision of school meals or take-home rations
- *Additional teachers*: sufficient hiring to reduce the number of students per class to a more manageable class size for teaching

The most effective interventions for improving school *attendance* in Sub-Saharan Africa are the following:

- *Multilevel interventions*: interventions that target not only students but also parents, teachers, and schools
- *Cash transfers*: conditional transfers that help to increase the school attendance of children from disadvantaged families
- *Hygiene facilities in schools*: especially important for improving the attendance of girls in lower-secondary school
- *Community-based monitoring*: helps improve teacher attendance and ensure that essential school conditions are available

To summarize, Sub-Saharan African countries now have access to an increasing wealth of evidence about student learning. Early-grade learning is important, and the language of instruction affects how well children learn. What teachers know and how they teach is strongly correlated with how much children learn. Schools that serve disadvantaged students often lack essential teaching and learning resources. Effective implementation is essential for translating promising interventions into results on the ground.

**Figure 0.8 Effectiveness of Education Interventions in Sub-Saharan African Countries Relative to All Low- and Middle-Income Countries**



Source: Snijlsteit et al. 2015.  
Note: “Extra time” refers to added learning time through an extended school day or year. “Multilevel” refers to interventions that target all levels: students, teachers, schools, and parents. “Structured pedagogy” is a package of teacher training, ongoing pedagogical support, and instructional materials. “Effect size” refers to the effectiveness of a given intervention, shown as a unit of 1 standard deviation: effect sizes of less than 0.1 are “small”; of 0.1–0.25 are “encouraging”; and of more than 0.25 are “large.”

The experience of high-performing low- and middle-income countries shows that *a sustained focus on a few key areas can yield substantial gains*. A more selective prioritization will also limit the burden on relatively weak implementing agencies and allow them to build capacity through a process of learning by doing. The next section examines the four areas identified in this

study as priorities that will help countries better align their systems to improve learning and access.

## **The Unfinished Agenda for Achieving Universal Basic Education**

If the tremendous enrollment gains of the past two decades are to mature into improvements in learning, retention, and completion, the foundations of learning in grades one and two must be made strong for all children. Sub-Saharan African countries need to set themselves the target of ensuring that most children have acquired foundational reading and mathematics skills by the end of grade two and can progress through the system without repeating or dropping out. To do so, these countries should aim to reduce excessive repetition in early grades, improve the transition from primary grades to lower-secondary grades, and expand lower-secondary schooling.

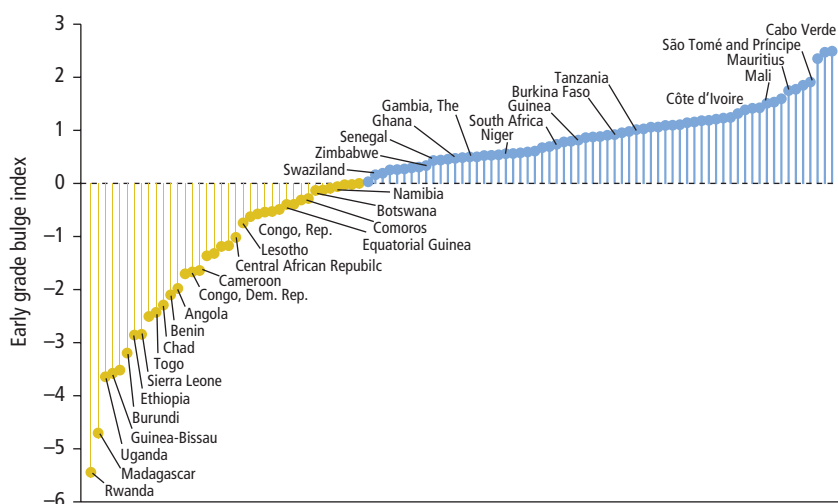
### **Addressing the Early-Grade “Traffic Jam” in Progression and Learning**

Three sets of problems—which are interrelated and compound each other—create a “traffic jam” of children in the early grades: (a) delayed progression, (b) poor learning environments and instructional practices, and (c) instruction in a language that is not familiar to the children.

#### *Delayed Student Progression in the Early Grades*

In many Sub-Saharan African countries, enrollments in grades one and two greatly exceed the number of children in the relevant age cohorts, sometimes by as much as 20–50 percent. This situation arises from underage and overage children initially enrolling in grade one and from students repeating grades one and two, often multiple times. The problem has persisted for over a decade in many countries in the region, worsening learning conditions and putting a heavy strain on budgetary resources.

Swollen early-grade enrollments are most prominent in countries where access to schooling has grown fastest in the past decade or so. The problem is highlighted by the following four factors: a persistently high gross intake ratio (GIR) in grade one;<sup>17</sup> a persistently high ratio of enrollment in grade one to the age-specific population; a persistently low ratio of grade two to grade one enrollment; and a low enrollment ratio in preprimary education. Across 103 countries for which data were available, an index (the early-grade “bulge index”) was computed to assess the issue of delayed progression in early grades (figure O.9).<sup>18</sup> Of the 10 countries in the world with the worst values, eight are in Sub-Saharan Africa (from the lowest up): Rwanda,

**Figure 0.9** Early-Grade “Bulge Index” Rankings of Sub-Saharan African Countries

Source: Analysis of population data from UN DESA, and education indicators from UNESCO Institute for Statistics (UIS.Stat) database (accessed November 19, 2016), <http://data.uis.unesco.org>.

Note: The value of the index is the standardized predicted score estimated after applying factor analysis to four indicators: the gross intake ratio in grade 1, the enrollment ratio in grade 1, the ratio of grade 2 to grade 1 enrollment, and the gross enrollment ratio in preprimary education. Values over zero indicate greater efficiency, and values under zero indicate less efficiency, respectively, in the early grades. A country with a value of  $-2$  or  $+2$  is approximately 2 standard deviations away from the mean value of a linear combination of all indicators.

Madagascar, Uganda, Guinea-Bissau, Burundi, Ethiopia, Sierra Leone, and Togo. Of the 20 worst performers, 14 are in Sub-Saharan Africa.

Changes in the index over time (not shown in figure O.9) reveal that in some countries, student progression in early grades has improved, while in others the problem has worsened. Among the Sub-Saharan African countries, the improvers are (in order of higher ranking) Cabo Verde, São Tomé and Príncipe, Mauritius, and South Africa—all Group 1 countries. (Globally, other improvers include Mexico, Peru, and Vietnam.) Countries where the index has worsened include Benin, Burundi, Ethiopia, Guinea-Bissau, and Madagascar—all countries in Group 2 or Group 3. All the backsliders implemented a “big bang” approach to universal primary education in either the early 1990s or early 2000s and have high population growth.

The experience of both Group 1 countries, as well as of successful Latin American countries, shows that it is possible, over a time frame of 10 to 15 years, to reduce the gridlock in early grades. South Africa’s experience is salutary in this respect. Soon after apartheid was dismantled in 1991, the government started focusing on student progression, using three strategies: (a) compiling

grade- and age-specific data; (b) establishing age-grade schooling norms and promulgating them to lower-level education officials; and (c) supporting the expansion of preprimary schooling.

### ***Poor Learning Environments and Instructional Practices***

Poor learning conditions arise from extremely large class sizes. In Malawi, for example, the average class in grade one has about 150 students; and in grade two, about 125 students. Effective teaching in such large groups, with the wide variations in student levels, is all but impossible. Schools often allocate existing classrooms to smaller groups of students in higher grades, leaving early-grade instruction outdoors. Compounding the problem is that the teachers assigned to the early grades are often the least experienced or trained, especially in early literacy and numeracy. Moreover, the strain on budgets, when governments try to cope by hiring more teachers and building more classrooms, means that students often lack printed materials and other resources for learning.

### ***The Language of Instruction in Early Grades and the Transition to an International Language***

Instruction in the home language of children in the early grades is clearly desirable for achieving early literacy and numeracy.<sup>19</sup> Students in Burundi and Tanzania—two countries where a local language familiar to children is used throughout primary school—outperform their peers in other countries participating in the PASEC and SACMEQ tests, respectively. Ethiopia, which has adopted a similar policy, also does better than all seven other Sub-Saharan countries participating in EGRA tests.

In some countries, the language of instruction is the home language for the first few years of school, changing to an “international” language (such as English, French, or Portuguese) in the upper-primary grades. In other countries, the international language may be introduced as a subject in the early grades. Many Sub-Saharan African countries lack a consistent language policy, however. Even where one exists, it is often not carried through in practice by training teachers in the relevant language, deploying them to the linguistic area, and providing relevant printed materials. Only a handful of countries, among them, Burundi, Ethiopia, South Africa, and Tanzania have a formal language-of-instruction policy that is consistently implemented.

### ***Policy Responses in Early Grades***

Policy responses that are required to alleviate the “traffic jam” in the early grades and improve early-grade learning include the following:

- *Reducing hidden and official repetition in grade one* through actions at the school level, informing communities and parents, and monitoring and follow-up by the administrators

- *Expanding early childhood programs gradually*, while putting in place quality standards, to reduce the overcrowding in early grades while boosting learning
- *Bringing schools and classrooms closer to where children live*, possibly through multigrade schools but also through geomapping to better locate new schools and classrooms
- *Improving the learning environment* by reducing class sizes, providing printed reading materials for children, and training and supporting teachers on how to use those materials
- *Aligning curricula, teacher training, materials, and assessment* around the need for all children to acquire foundational skills in reading and numeracy in the early grades
- *Adapting or developing new policies and teacher training on the language of instruction* based on the recognition that children in the early grades learn their foundational skills best when taught in a familiar language before switching to an official or international language

### **Increasing Access and Progression in Basic Education**

Access to the primary grades of basic education has improved greatly across the region, although the high costs of sending children to school—in out-of-pocket expenses and forgone labor—remain a constraint in many countries. By comparison, access to the lower-secondary grades is incomplete (although growing), especially for girls, children from poor households, and rural children. The inadequate number of lower-secondary schools creates a serious barrier to access, and the practice of sorting students based on end-of-primary examinations leads many children to drop out from basic education.

### ***Remaining Inequities in Primary and Lower-Secondary Education***

Across Sub-Saharan Africa, the gaps in access are substantial, as the following comparisons reveal:

- *Poor versus wealthier children.* At the primary level, only a few Sub-Saharan African countries show comparable access to school for all children regardless of their families' incomes: these include Botswana, Kenya, and Lesotho in Group 1; Malawi, Togo, and Uganda in Group 2; Sierra Leone and Zambia in Group 3; and Chad in Group 4. Large disparities in access by income quintile persist in many francophone African countries—such as Benin (GER of 114 percent for the wealthiest quintile versus 58 percent for the poorest quintile); Mali (101 percent versus 41 percent, respectively); and Senegal (103 percent versus 60 percent, respectively). Disparities in access

between the wealthiest and poorest quintiles widen as children move to lower-secondary education.

- *Rural versus urban children.* Children in rural areas also show lower access to primary schooling compared with children from urban areas. For example, in Liberia, Mali, and Niger, where almost all urban children are enrolled in school, just 50 percent of primary school-age children in rural areas go to school. Once again, the disparities in access between children living in urban and rural areas widen at the lower-secondary level.
- *Girls versus boys.* Despite significant progress in gender parity at the primary education level, most countries in Sub-Saharan Africa are still lagging on gender parity at the lower-secondary level. In many of the region's countries, child marriage and pregnancy are significant factors preventing girls from entering or completing lower-secondary education.

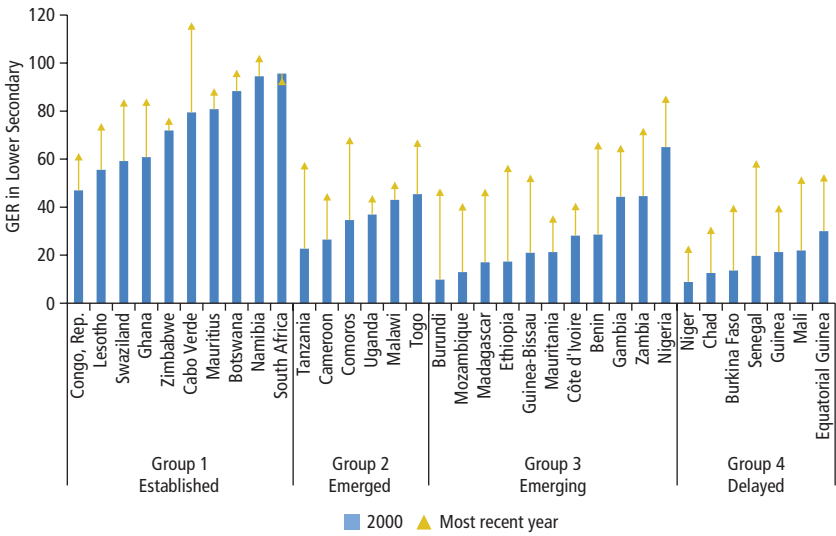
#### ***Limited Progression to Lower-Secondary Education***

In 2013, about 27 percent of the children who completed grade six in Sub-Saharan Africa did not continue into the next grade,<sup>20</sup> jeopardizing the region's progress toward meeting its goals. Although the share of children enrolled in lower-secondary grades rose from 41 percent in 2000 to 66 percent in 2014, this regional GER is the lowest in the world—far below South Asia's average ratio of 80 percent, which is the second-lowest regional ratio (UNESCO 2016). Only a handful of countries in Group 1 have attained universal access to lower-secondary education.

Figure O.10 highlights the differences in lower-secondary education by country group. The GER is generally higher for countries in Group 1; for countries in the other three groups, it is still below 50 percent, despite significant progress since 2000. Across the region, countries are following diverse pathways to universalizing coverage in primary and lower-secondary education, falling into three trend patterns:

- *Gains in both primary and lower-secondary education.* Countries with these trends include Burundi, Cameroon, Ethiopia, Madagascar, Mozambique, Tanzania, and others in Group 1 and Group 2. Ethiopia's GER for lower-secondary education rose from 17 percent in 2000 to 56 percent, and Tanzania's rose from 20 percent to close to 60 percent. The increase is even more dramatic in Burundi—from less than 10 percent to close to 50 percent.
- *Gains in lower-secondary education but not in primary education.* This pattern characterizes the situation in francophone countries. Although many of these countries still struggle to universalize primary education, some of them were able to expand coverage in lower-secondary education rather rapidly.

**Figure O.10** Lower-Secondary Gross Enrollment Ratios of 34 Sub-Saharan African Countries, by Group, 2000 and Most Recent Year



Sources: Analysis of UNESCO Institute for Statistics (UIS.Stat) data (accessed July 18, 2016), <http://data.uis.unesco.org>; UNESCO International Institute for Educational Planning (IIEP) Pôle de Dakar Indicator Database version 19.  
 Note: GER = gross enrollment ratio. For definitions of country groups, see table O.1 and figure O.2.

In Senegal, for example, the GER for lower-secondary education rose from 20 percent in 2000 to 58 percent in 2013.

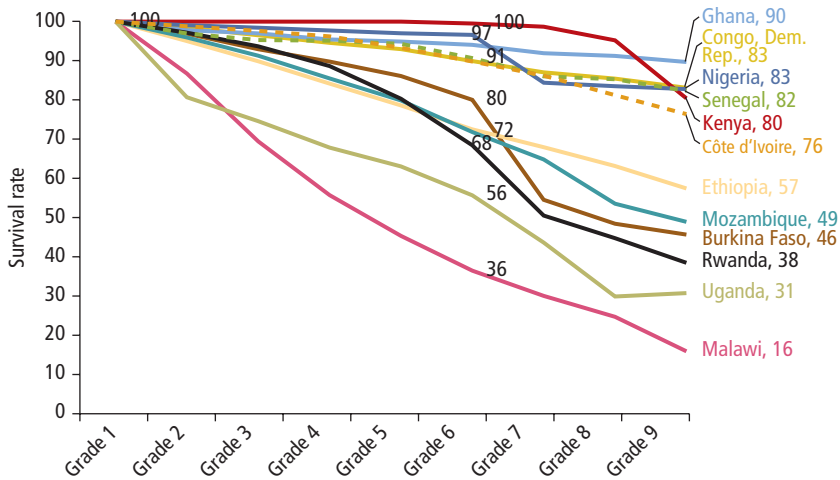
- *Gains in primary education but stagnation in lower-secondary education.* Three anglophone countries—Malawi, Uganda, and Zimbabwe—have universalized primary education but have barely increased coverage of lower-secondary education over a 15-year period.

As a result of disparities in completion of primary education and the higher costs of secondary education, lower-secondary schooling is accessed to a greater extent by children from wealthier households, children who live in urban areas, and boys. Access is particularly limited for children in rural areas; in some Sub-Saharan African countries, the GER exceeds 100 percent in urban areas while remaining below 50 percent in rural areas.

### ***Dropouts: The Poor, Rural Children, and Girls***

Most Sub-Saharan African countries need to do better at keeping students in school. Figure O.11 shows the “survival rate”: the percentage of a cohort of



**Figure 0.11** Survival Rates through Grade 9, Selected Sub-Saharan African Countries

Sources: Analysis of microdata (most recent year) from the World Bank Living Standards Measurement Studies (Burkina Faso, Côte d'Ivoire, Democratic Republic of the Congo, Kenya, Malawi, Rwanda, and Uganda); and the Demographic and Health Surveys (Ethiopia, Ghana, Mozambique, Nigeria, and Senegal).

Note: The "survival rate" is the percentage of a cohort of students enrolled in first grade, in a given school year, who eventually reach grade six and grade nine, regardless of repetition. Survival rates are estimated using the reconstructed cohort method.

students enrolled in first grade, in a given school year, who eventually reach grade six and grade nine, regardless of repetition. For example, in Mozambique, 72 percent of children who enroll in first grade are expected to complete sixth grade, and fewer than half the children enrolled in first grade are expected to complete ninth grade. For Group 1 countries like Ghana and Kenya, survival rates are much higher.

For Sub-Saharan African countries in Groups 2 and 3, retaining students from grade one through grade nine is a major challenge that warrants attention by policy makers. For countries in Group 4, the focus should be on improving access to education in first grade and maintaining a high retention rate through the basic education cycle. For Group 1 countries, retaining the small percentage of students who are dropping out by having targeted programs for children from disadvantaged and vulnerable backgrounds is the most important step to achieving universal completion of basic education.

Microdata from household surveys of 12 countries point to the main reasons for high dropout rates, as reported by their parents. For children who are of

primary school age, the most common reasons given are the high cost of school, the poor quality of education, distance to school, and children being too young. At the lower-secondary level, across the 12 countries, cost is also the main reason that children, ages 12–15, drop out of school, followed by the quality of schooling. Marriage (and pregnancy for girls) is also a major reason for dropping out of school.

Upon reaching puberty, girls are often viewed by their families as “marriageable.” Although multiple factors may lead girls to drop out prematurely, child marriage remains a leading cause of the gender gap in education observed at the secondary level in Africa (Wodon et al. 2017). In Burkina Faso, Senegal, and Uganda, parents report that child marriage (and pregnancy) is a main reason for girls dropping out but not for boys. In Ethiopia, families report that a large percentage of both boys and girls drop out because of child marriage (23 percent and 29 percent, respectively). Interestingly, the Democratic Republic of Congo and Mozambique have more boys than girls dropping out of school because of child marriage. Child marriage and pregnancy are even bigger issues and causes for dropping out of school at the upper-secondary level.

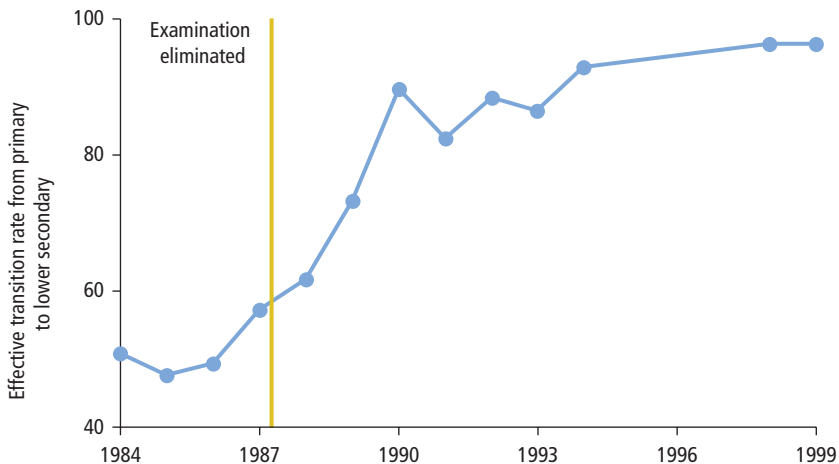
### *High-Stakes Examinations: A Progression Bottleneck*

National examinations restrict students’ progress from primary to lower-secondary or from lower-to upper-secondary education in many Sub-Saharan African countries. In 28 of the 43 countries for which data are available, examinations take place at all education levels: primary, lower-secondary, and upper-secondary. These examinations may lead a school to hold back lagging learners to repeat a grade, thereby improving its pool of test takers and helping to boost its examination pass rate.

One study estimated that about half of the delay in universalizing primary education in francophone Sub-Saharan African countries could be attributed to the high repetition rates in these countries (Bernard, Simon, and Vianou 2005). Countries that have moved toward consolidating primary and lower-secondary into a “basic education” cycle of eight to nine years of schooling typically have eliminated examinations at the end of the primary cycle.

Abolishing examinations at the end of primary school often produces two observable changes: (a) a reduction in the spike in repetitions observed for the grade at which the examination is administered and for the previous grade; and (b) an increase in transition rates to lower-secondary education. Botswana’s experience exemplifies these changes: In 1987, the country eliminated examinations at the end of primary school, which were previously used to select students for lower-secondary school. Following this policy

**Figure O.12** Transition Rates from Primary to Lower-Secondary Education, Before and After Elimination of the Primary School–Leaving Examination in Botswana, 1984–99



Source: Based on data from UNESCO Institute for Statistics UIS.Stat database, (accessed August 17, 2017) <http://data.uis.unesco.org>.

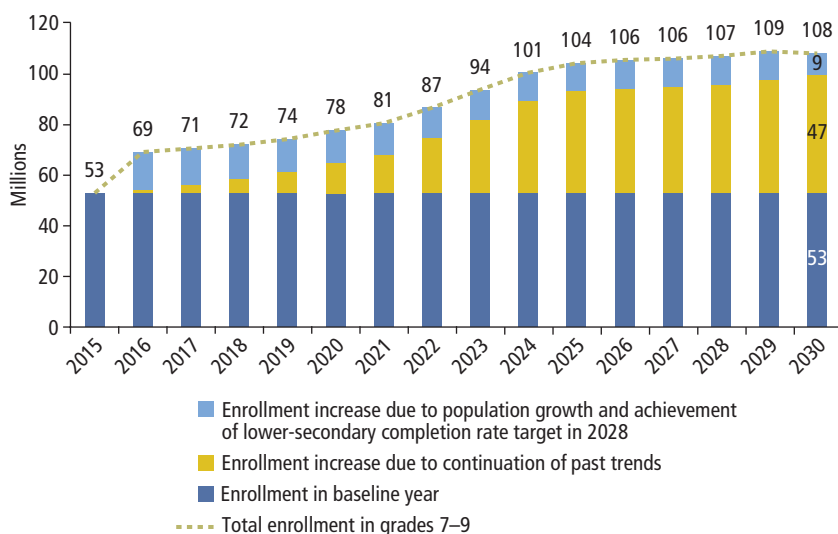
Note: In 1987, Botswana eliminated its national primary school–leaving examination. “Effective transition rate” measures the transition from a lower to a higher level of education, regardless of repetition.

change, the transition rate between primary and lower-secondary education rose quickly, from around 50 percent before 1987 to around 90 percent by 1994 (figure O.12).

### *Lower-Secondary Enrollments Projected to Double by 2030*

In 2015, about 53 million children were enrolled in lower-secondary education in Sub-Saharan Africa (figure O.13). If the region continues to grow at the same pace as it has during the past 15 years, the lower-secondary grades (seven through nine) are projected to enroll approximately 47 million more children by 2030. In addition, a further 9 million children will be in the system if countries ensure that all children who enter the education system complete their schooling and do not drop out.

Although the projected expansion of enrollment creates immense challenges, it also offers opportunities. Significant new investments will be required in school infrastructure and material resources, as well as in teacher training and recruitment—and this effort will create pressures that will undoubtedly stretch the financial and managerial capacity of Sub-Saharan African countries, but also make it possible to improve the system through careful stewardship of the new investments.

**Figure 0.13** Projected Lower-Secondary Enrollment in Sub-Saharan Africa, 2015–30

Sources: Based on projections of the World Bank Living Standards Measurement Study datasets; and the UNESCO Institute for Statistics UIS.Stat database (accessed July 18, 2016), <http://data.uis.unesco.org>.

Note: "Lower-secondary" refers to grades seven through nine.

### ***Policy Responses to Ensure Basic Education***

Based on these analyses, the following policies will contribute to improving access to and completion of basic education. Specific policies to improve access include the following:

- *Bringing schools closer to rural children* by building smaller lower-secondary schools or adding classrooms to existing primary schools. This may require changes in the standard package of facilities provided in schools (for example, one multipurpose laboratory instead of separate subject-specific laboratories, and classroom libraries rather than a separate library room) as well as in the way teachers are recruited to work in remote areas (for example, local hiring rather than housing teachers from other areas). Boarding schools provide one option for children who live at great distances, but they are costly and not as cost-effective as regular day schools, according to some research (Ngeno, Simatwa, and Ayodo 2012).
- *Using school facilities on double shift* in urban settings, where school crowding is an issue.
- *Leveraging and effectively regulating the private sector* to support the expansion of the network of schools.

Policies to reduce the incidence of children dropping out of basic education include these initiatives:

- *Offsetting the direct and indirect costs of schooling* with targeted cash transfers to rural and poor households with school-age children. For lower-secondary education, girls should also be targeted.
- *Eliminating high-stakes primary school-leaving examinations* that serve to limit access to lower-secondary schools.
- *Ensuring that schools have separate sanitary facilities for girls.* The lack of toilets and water in lower-secondary schools is a deterrent for girls (and boys). Almost all lower-secondary schools in Group 1 countries have access to potable water and separate toilets for boys and girls, whereas only about half of schools in most Group 4 countries have such facilities; in many countries in Groups 2 and 3, these facilities are lacking in a large share of schools.

Policies to improve the relevance and quality of lower-secondary education include the following:

- *Revising curricula for greater relevance.* The curricula taught in secondary schools in many countries in Sub-Saharan Africa date back to the 1970s and were designed for an academic minority. They are ill-adapted to the increasingly broad range of students in lower-secondary schools today. Major curriculum reform is costly and has met with resistance in some countries, but it can be a catalyst for change in the entire system by linking education more closely with the needs of a modern society.
- *Realizing the full benefits of the revised curricula.* New curricula alone will likely be ineffective unless teachers are equipped to teach these curricula and unless students and their teachers have access to revised instructional resources. Curricular changes must therefore be accompanied by increased opportunities for teachers and school managers to renew their professional competence and by the development of new instructional materials for lower-secondary education.
- *Using technology to improve teaching and learning.* The high level of mobile telephone penetration in Sub-Saharan Africa and the falling costs of using digital resources provides an opportunity for the region to use technology. Faced with the constraints of infrastructure and connectivity, the introduction of technology must necessarily be an iterative process. Nevertheless, the use of technology and digital resources must be actively considered, given the high cost of building traditional laboratories and libraries and the low level of teacher subject knowledge and skills.

## Effective Management and Support of Teachers

Teachers are central to improving students' learning. How Sub-Saharan African countries recruit, develop, deploy, manage, and support teachers will largely determine how well their students will learn. Much is known about the essential ingredients for learning, but putting these in place requires dealing with the implementation and political economy challenges that arise from dealing with dispersed service providers and multiple principal-agent relationships.

### Teacher Recruitment

In Sub-Saharan Africa overall, the teacher workforce has expanded rapidly over the past 15 years—growing by an average of 4.1 percent a year in primary education and by 6.6 percent a year at the secondary level—and it will need to continue to grow to meet future demand.<sup>21</sup> To accommodate this growth, teacher recruitment strategies must take the following points into account:

- *Most teachers at present are drawn from the more educated pool of the national labor force.* This study's analyses of survey microdata from 13 Sub-Saharan African countries show that primary teachers are more likely than other professional workers to have a postsecondary diploma and that secondary teachers are more likely to have a university degree.<sup>22</sup> In Kenya, prospective teachers in degree-level programs scored only slightly lower on university entrance examinations than students going into other degree programs (as further discussed in box O.1).
- *Primary teachers earn about 9 percent less than other tertiary-educated workers, all else being equal, based on the microdata from the 13 countries.* There is no statistical difference between the earnings of secondary school teachers and those of other tertiary-educated workers. Teachers are more likely than other professionals and clerical workers to hold a second job (12 percentage points more likely among primary school teachers, and 9 percentage points more likely among secondary school teachers). In general, the second job is in agriculture.
- *As economies diversify, there will be greater competition for the relatively few tertiary-educated workers.* The education sector may not be able to retain trained teachers. This is especially the case for teachers with training in mathematics, science, or an international language. Many countries already face serious shortages in these areas.

**BOX 0.1****Who Enters the Teaching Profession in Kenya?**

Admission to teacher training and other programs in Kenya's tertiary institutions depends largely on results on the Kenya Certificate of Secondary Education (KCSE), a nationwide, curriculum-based examination administered by the Kenya National Examination Council (KNEC). The Kenya Universities and Colleges Central Placement Service (KUCCPS) determines applicants' course placements in public universities and colleges based on cutoff KCSE scores for admission to the various programs.

This study's analysis of the KNEC microdata for the 2015 admission exercise yields the following principal insights on the quality of future primary and secondary school teachers in Kenya:

- About 12,000 and 85,000 candidates, respectively, were admitted to diploma-level and degree-level courses (in all disciplines).
- About 17 percent of the new students were accepted into teacher training programs; of those, the overwhelming majority (96 percent) went into degree-level courses and only 4 percent into the shorter diploma-level courses.
- Regression analysis showed that for diploma-level courses, those admitted to teacher training scored higher (by about 10 percent) on the KCSE than those admitted to other fields of study.
- However, among those admitted to degree-level courses, those placed in teacher training scored lower (by about 5 percent) than those admitted to other programs.
- The differences in scores are not large, suggesting that teacher training programs in Kenya are still able to attract relatively well-qualified candidates from among the available pool of secondary school graduates.

Source: Analysis of KNEC microdata.

**Enhancement of Teacher Education and Training**

Teacher training programs have not developed teachers with strong subject-matter knowledge, pedagogical knowledge, or pedagogical skills, as the following survey findings show:<sup>23</sup>

- *Subject-matter knowledge:* Although virtually all teachers in the 13 education systems participating in SACMEQ III (2007) scored above the minimum level in reading, 10 percent or more of teachers in five countries did not reach the minimal content knowledge required to teach sixth-grade mathematics. In Ghana and Kenya, the Skills Toward Employability and Productivity

(STEP) skills survey of working adults, including teachers, showed that 80 percent of primary teachers and 65 percent of secondary teachers in Ghana did not reach Level 3 on the literacy test, which is considered the minimum literacy level to teach effectively. In Kenya, 72 percent of primary and secondary teachers did not reach Level 3.

- *Pedagogical skills:* In SDI surveys, only slightly more than a third of the teachers in the best-performing countries—Kenya and Tanzania—answered the pedagogical questions correctly (for example, on lesson planning, assessing student abilities, and evaluating student progress in learning). In the worst-performing countries—Mozambique, Nigeria, and Togo—that share fell below a fifth. Teachers who could assess a student’s abilities and academic progress were a small minority among their colleagues; the share ranges from 6 percent to 33 percent across the sample countries.

Moreover, teaching practices in many Sub-Saharan African countries are rudimentary. Observations of teachers in countries where SDI surveys were conducted showed that most teachers used basic instructional practices (like writing on a blackboard), but few used practices requiring more effort (such as collecting or reviewing homework) or more skill (such as posing questions that required students to respond with new applications of what was taught) (Molina and Martin 2015).

In most of Sub-Saharan Africa, teachers’ weak subject-matter knowledge and poor pedagogical knowledge and skills are creating a vicious cycle of low quality: low cognitive attainment among current and prospective teachers hampers future student learning, which in turn makes it more difficult to improve the quality of the pool from which future cohorts of new teachers will be recruited.

Arresting the downward spiral of low quality calls for radical changes in preservice education. Preservice teacher training needs to be reformed to emphasize developing the knowledge and skills that teachers need and to remediate the deficiencies of incoming students.

In addition, most teachers in Sub-Saharan Africa receive no in-service training or support. The available evidence suggests that support to the region’s teachers is neither systematic nor effective. Less than 50 percent of primary school teachers report receiving regular instructional support from headmasters. Among teachers who have received in-service training or professional development, most view it as ineffective.<sup>24</sup>

### **Equitable Teacher Deployment**

In all four groups of countries, the rapid hiring and deployment of new teachers have generally reduced average student-teacher ratios. Some of the steepest declines occurred in the countries in Groups 3 and 4. Nevertheless, in many countries in Groups 2, 3, and 4, the average student-teacher ratio remained above 45.<sup>25</sup>



However, although some countries have succeeded in deploying teachers according to student enrollments, many countries are still struggling with this basic function.<sup>26</sup> Student-teacher ratios should be more or less consistent across schools to provide all students with equitable learning opportunities, but in some countries this does not occur. In Ghana, for example, the same number of teachers is allocated to schools having 500 students as to schools having half as many students; by comparison, in Côte d'Ivoire, the number of teachers in a school relates more consistently to the number of students in that school.

At the primary level, countries in Group 1 (Lesotho, Mauritius, South Africa, Swaziland, and Zimbabwe) have been more successful at deploying teachers. These good performers share common features: small or mature systems; modest increases in the size of the teacher cadres (in some cases, even slight declines); and few initial contextual challenges. Other good performers are The Gambia and Mozambique (Group 3). The latter has been especially successful, given that it needed to deploy 40 percent more teachers into public primary schools between 2010 and 2015.

Most of the countries in Groups 2, 3, and 4 have recruited large numbers of teachers but have been unable to deploy them to schools in need. Especially poor results have been noted for Cameroon, the Democratic Republic of Congo, and Togo (Group 2); Benin, the Republic of Congo, Côte d'Ivoire, and Tanzania (Group 3); and Burkina Faso, Chad, and Senegal (Group 4).

The need for specialized teachers in secondary education greatly complicates the task of teacher allocation to schools. Three countries—Côte d'Ivoire, Kenya, and Zimbabwe—show that it is possible to achieve consistency in teacher allocation across secondary schools. Countries with inconsistent teacher allocation in secondary education also tend to have the same problem at the primary level. However, some have done better at the primary level than at the secondary level (for example, Mauritius and Mozambique).

## **Teacher Management**

The most important teacher management task is to ensure that teachers attend school and teach their classes. Regrettably, teacher absenteeism from school and classroom is relatively common in Sub-Saharan Africa. Among the nine countries where schools were visited, and absenteeism observed, analysis of the SDI microdata showed rates of absenteeism among primary school teachers ranging from an average of just 5 percent in Ethiopia to 43 percent in Mozambique. In all countries, teachers were more often absent from their classrooms than from their schools, and much higher teacher absenteeism rates were observed in rural schools in Mozambique, Togo, and Uganda.

Teacher absenteeism from school is largely for authorized leave, but it still leaves children without adequate instructional time because typically no

substitute teachers are provided. In four of the nine SDI countries (Ethiopia, Kenya, Tanzania, and Uganda), the absence of a teacher meant that children in more than half the classes were left unattended. Authorized reasons for teacher absences include illness or childbirth, approved leave, and training-related activities. The last two reasons account for at least 40 percent of the reasons cited in the nine countries, and for as much as three-quarters in Ethiopia and Kenya. Unauthorized leave or unknown reasons accounted for between a quarter and a third of the reasons cited in Mozambique, Togo, and Uganda.

Training can equip school principals to improve staff management and reduce absenteeism, but it may be insufficient in the absence of measures to improve accountability at the school level. According to the 2014 PASEC survey, the share of school heads who received management training in the previous two years averaged only 43 percent, ranging from 21 percent in Chad to 58 percent in Niger (PASEC 2015). Even modest strengthening of staff management in schools—through simple tools and training to focus teachers’ and school heads’ attention on seven basic tasks—can make a difference, particularly in systems with low initial capacity (Lassibille et al. 2010).

### **Essential Conditions in All Schools to Enable Teaching and Learning**

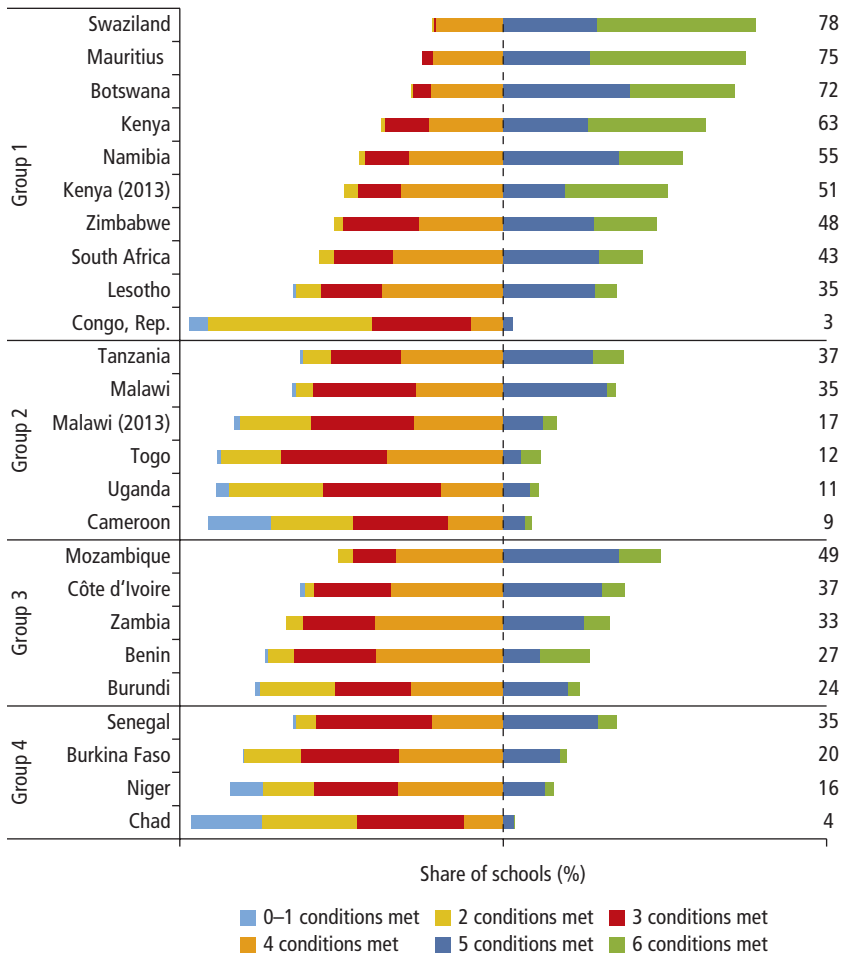
Too many primary schools currently lack minimally conducive conditions for effective teaching and learning. A qualified teacher with content and pedagogical knowledge and skills is essential, but five other features of schools also matter:

- A manageable student-teacher ratio (no more than 50 students per teacher)
- Basic services, such as toilets for girls and electricity
- Access to textbooks for reading and mathematics
- Regular attendance in class by both teachers and students
- A school climate free from abuse and violence

The study defines minimum thresholds for these essential conditions and considers an integrated package of at least five of the six conditions at or above the relevant thresholds to be essential for teacher effectiveness in helping their students learn.

How well do primary schools in Sub-Saharan African countries do in providing such conditions? Microdata from the SACMEQ III (2007) and PASEC 2014 surveys provide the answer (figure O.14). Conditions are best in Group 1 countries, albeit not uniformly so: In Botswana, Mauritius, and Swaziland, more than 70 percent of the schools exceed the thresholds for at least five of the six conditions, but in Lesotho the share is barely more than a third of the schools.

**Figure O.14** Distribution of Primary Schools in Sub-Saharan Africa Regarding the Availability of the Essential Conditions for Effective Teaching and Learning, by Country Group



Sources: Based on analysis of microdata from SACMEQ III 2007; and PASEC 2014.

Note: Figures in the right-hand column denote the percentages of schools that meet at least five of the six conditions in the minimum package. The six conditions are (a) qualified teachers with content and pedagogical knowledge and skills; (b) ratio of no more than 50 students per teacher; (c) basic services, such as toilets for girls and electricity; (d) access to textbooks for reading and mathematics; (e) regular class attendance by both teachers and students; and (f) a school climate free from abuse and violence. For definitions of country groups, see table O.1 and figure O.2. SACMEQ data from both 2007 and 2013 for Kenya and Malawi enabled two sets of results for those countries.

In Kenya and Malawi—two countries for which SACMEQ IV (2013) data were available for analysis at the time of writing—the situation had deteriorated between 2007 and 2013; the share of schools meeting five of the six conditions fell from about two-thirds to half in Kenya, and from one-third to less than one-fifth in Malawi.

Among the remaining SACMEQ countries, in Groups 2 and 3, many schools are in dire straits. The situation is similarly grim among the PASEC countries. Burundi's situation is anomalous; only a third of its primary schools met at least five of the six minimum conditions, and yet its students consistently achieve the best test results among the PASEC countries. The country's unique characteristics—for example, a literate adult population, a single language, reasonable class sizes, teachers who are all trained and on regular employment contracts, and high prevalence of on-site support for teachers—may be sufficient to overcome handicaps in the traditional classroom conditions that are considered essential for learning.

The wide diversity in essential conditions across schools in the region calls for a nuanced approach to enabling the work of teachers through management of their workplace conditions. In countries where most schools possess the six essential conditions that describe minimally conducive learning environments, a greater focus on teacher effectiveness—whether through preparation, continuing training, or incentives—would be as appropriate as it is feasible. In other settings, where constraints are severe (such as in schools that possess no more than, say, three or four items in the essential package), addressing these limitations could be prioritized, especially where the gaps create overwhelming odds against the potential for effective teaching. Nonetheless, as Burundi's example suggests, it appears possible—even in very poor countries without the resources at present to provide a full package of essential conditions to all schools—to foster student learning by focusing on teacher preparation, training, and support as well as ensuring manageable class sizes for teachers to do their work.

### **Policy Responses to Improve Teacher Effectiveness**

Sub-Saharan African countries face unique challenges in teacher management today. The current stock of teachers in many countries comprises a mix of trained or untrained and qualified, unqualified, or underqualified teachers who have a modest and variable grasp of content knowledge and skills and teaching effectiveness. Teachers are not well-deployed across schools, and their work exerts too little influence on student learning, owing to a lack of systematic supervision and support at the school level. At the same time, countries in the region face pressure to sustain the rapid pace of teacher recruitment in the coming decades to cope with continuing enrollment growth, particularly in lower-secondary education.

In this context, it is crucial to rationalize the patchwork of approaches to provide new and incumbent teachers with an integrated system of professional preparation and development, as well as supervision and support at their places of work. Countries also need to ensure that teacher policies and programs are coherent with broader policies, such as those on language of instruction and the emphasis on mathematics and science instruction in lower-secondary education.

Policies to improve teachers' professional knowledge and competence include the following:

- *Revamping initial teacher education programs* to align them more closely, in content and design, with the school curriculum and with systemwide priorities for student learning in schools (for example, skills for teaching early-grade literacy and numeracy; local-language instruction; knowledge of mathematics and science; and international language skills for future secondary school teachers)
- *Enhancing practicums* through better supervision of trainee teachers, guided reflection on trainees' teaching practice experience, and increased access by student teachers to videos and other digital resources that exemplify good teaching
- *Enabling serving teachers to gain mastery of their work* through continuous professional development aimed at increasing subject-matter knowledge and pedagogical skills, with options for different teachers according to need, including induction of novice teachers, programmatic or thematic in-service training (not one-off workshops) adapted to assessed needs, in-class guidance and coaching for struggling teachers, and peer learning
- *Ensuring the quality of teacher training programs* by establishing criteria for benchmarking program content and relevance and for monitoring and assessing impact on teacher competence and effectiveness in raising student learning (for example, accreditation requirements for training providers, and standards for trainee selection and for certification of satisfactory program completion)

Policies to strengthen the managerial and instructional leadership of school heads and other leaders include the following:

- *Offering dedicated training for school heads and academic advisers* (or coaches) to deepen their capacity to provide sustained, on-site coaching and guidance to teachers under their purview
- *Providing school heads with simple school management tools* (for example, to track teacher presence, ensure availability of school materials, and maintain a school climate free of abuse)

- *Building the institutional capacity for instructional leaders to monitor and evaluate* programs and policies intended to improve teachers' professional competence and effectiveness

Policies to improve teachers' deployment across schools and teachers' attendance at their workplace include the following:

- *Engaging key stakeholders in developing teacher allocation and deployment norms*, informed by reliable data consolidated from all relevant sources.
- *Rationalizing teacher leave policies* to reduce authorized teacher absences when schools are in session, with possible provision of substitute teachers.
- *Strengthening incentives* for school heads and the local community to reduce teacher absences.

Policies to ensure that conditions in all schools are minimally conducive for teaching and learning include the following:

- *Prioritizing additional support for schools* with serious inadequacies in the physical environment (such as severe overcrowding and a lack of toilets); in the access to instructional resources (such as a lack of trained teachers and textbooks); and in the school climate (such as a high prevalence of abusive and disruptive behaviors)

Policies to strengthen accountability and incentives for developing a more effective teacher workforce include the following:

- *Engaging in sustained dialogue with teachers* through their unions and other key stakeholders to take joint ownership of the learning agenda and its challenges
- *Agreeing on a results-oriented action plan to remove key impediments to better learning outcomes*, including grievances about working conditions; pay and career progression; standards for professional conduct; and criteria and processes for teacher certification, recruitment, and school head selection

## Spending Increases and Budget Processes to Improve Quality

Most Sub-Saharan African countries will require additional resources to deliver on the large unfinished business of universalizing access to high-quality basic education. They will also need to use their resources more efficiently to maximize learning outcomes for their children. In 2014, the median government spending per student in the region was just \$208 for primary education and \$412 for secondary education (in constant 2013 PPP dollars), compared

with median spending of \$451 and \$665, respectively, for South Asia, the region with the next-lowest level of spending per student. Education spending in Sub-Saharan Africa is also largely absorbed by teacher salaries, which leaves little for inputs essential for quality instruction.

### **Education Financing and Spending in Sub-Saharan Africa**

Revenues of the central government dominate the public financing of education across Sub-Saharan Africa, with local governments in decentralized systems contributing little. Households are often an important—and sometimes the dominant—source of overall funding for education.

Government funding is supplemented to varying degrees by transfers of aid from other countries. This flow of funds is relatively modest, and is heavily concentrated in a few countries. In 2014, the regional average annual aid to primary education per child enrolled was US\$8; countries in Groups 2 and 3 received little aid (table O.3).

Sub-Saharan African countries allocate more of their government expenditures on education (GEE) to primary education (about 43 percent) than do countries in other regions (30–34 percent). As might be expected, countries in Groups 2–4, which still need to ensure universal primary coverage, devote a higher share of government education spending (averaging nearly 50 percent) to primary education, whereas Group 1 countries spend a larger share (almost 40 percent) on secondary education (figure O.15). Strikingly, however, countries in Group 4 spend, on average, almost a quarter of their GEE on tertiary education—about the same as on secondary education. In some countries—Chad, Ethiopia, and Guinea, for example—a disproportionate share goes to tertiary education, despite those countries' huge unfinished business in primary education.

#### ***Little Government Funding for Nonsalary Expenses***

Spending on nonsalary inputs, such as teacher training and instructional support and appropriate materials for children, remains a low priority in many of the region's countries. Zambia is a typical case; in 2013, 89 percent of total spending on basic and secondary education was for salaries, 8.5 percent was for infrastructure (mainly in secondary schools), and 2.5 percent was for school grants. A negligible 0.2 percent of the total spending was for textbooks (World Bank 2016). In Ghana, salaries averaged around 97 percent of government expenditures on basic education (Darvas and Balwanz 2014).

Except for some middle-income countries in Group 1, most countries in the region rely heavily on donors to finance textbooks, teacher training, and even grants to schools. Although the poorer countries cannot avoid this dependence, continued reliance on foreign funding for recurrent expenditures that are essential for the functioning of the education system creates problems of sustainability and exposes it to substantial shocks when aid is withdrawn.

**Table O.3** Total Aid to Primary Education per Child Enrolled in Sub-Saharan Africa, by Country Group  
Current 2014 US\$

Country group	\$0–\$10	\$11–\$20	\$21+
Group 1	Congo, Rep. (<1)	Zimbabwe (15)	Swaziland (21)
	South Africa (1)		Seychelles (24)
	Kenya (6)		São Tomé and Príncipe (26)
	Lesotho (8)		Namibia (34)
	Mauritius (9)		Botswana (40)
	Ghana (10)		
Group 2	Togo (1)	Malawi (12)	None
	Cameroon (1)	Rwanda (14)	
	Uganda (3)		
	Congo, Dem. Rep. (4)		
	Comoros (8)		
	Tanzania (8)		
Group 3	Angola (2)	Zambia (14)	None
	Nigeria (2)	Mozambique (15)	
	Côte d'Ivoire (3)	Ethiopia (16)	
	Mauritania (3)	The Gambia (18)	
	Benin (7)	Sierra Leone (19)	
	Burundi (7)		
Group 4	Madagascar (8)		
	Chad (3)	Guinea (11)	Senegal (31)
	Equatorial Guinea (3)	Niger (13)	Liberia (41)
	Eritrea (3)	Burkina Faso (16)	
	Sudan (6)	Mali (18)	

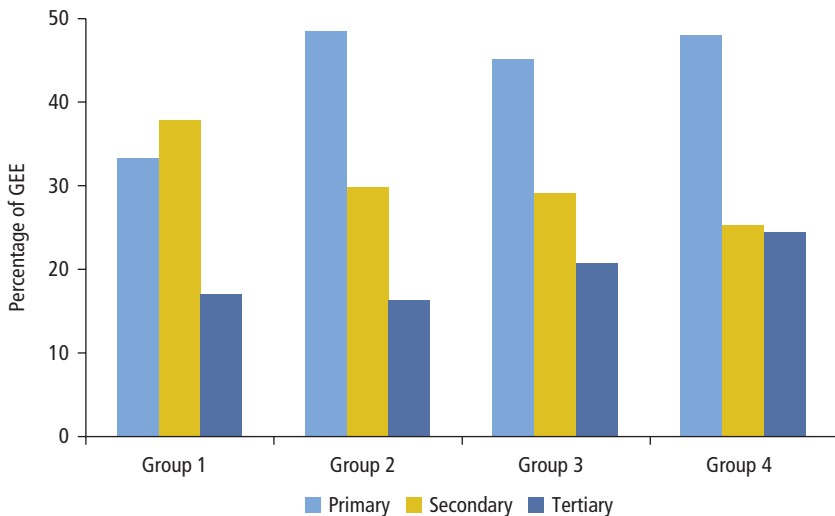
Sources: Compiled from aid data from the Organisation for Economic Co-operation and Development (OECD) Creditor Reporting System (CRS) Aid Activity database, available on-line at <https://stats.oecd.org/Index.aspx?DataSetCode=CRS1>, accessed on October 12th, 2017. Enrollment data are from UNESCO 2016, table 2, except for Angola, Nigeria, and Sudan, which came from United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics UIS.Stat database (accessed October 12, 2017), <http://data.uis.unesco.org>.

Note: Spending ranges correspond to gross disbursements in current U.S. dollars of 2014. Figures in parentheses indicate aid per child enrolled in primary education. Countries ranked within each cell in ascending order by the amount of aid per child. Aid to primary education is estimated using direct aid to primary education (broadly defined) from OECD-CRS, as well as general budget support and aid unspecified by level, that is, estimated to go to primary education (using the proportion reflected in the UNESCO aid tables). For definitions of country groups, see table O.1 and figure O.2.

Despite the formal abolition of school fees, many countries continue to rely on household contributions to compensate for low public spending on nonsalary educational inputs. These contributions account for an average of about 35 percent of total education expenditures in 18 Sub-Saharan African countries (UNESCO 2015).<sup>27</sup> The dependence on households tends to reinforce inequality in the quality



**Figure 0.15** Average Percentage of Government Education Expenditures in Sub-Saharan Africa, by Education Level and Country Group, circa 2014



Source: Constructed from UNESCO 2016, Statistical Tables for year ending 2014—long version, Table 16: “Domestic financial commitment to education: public spending.”

Note: Data are for 26 countries with a six-year primary education cycle. For definitions of country groups, see table O.1 and figure O.2. GEE = government expenditures on education.

of school provision. In rural areas, where household incomes fluctuate according to the weather, it also makes the education of rural children vulnerable to local conditions.

### *Inequality in Public Spending on Basic Education*

Public spending on education accrues largely to richer income groups in Sub-Saharan Africa because the overwhelming majority of poor children do not go beyond primary education. Inequality in spending on primary and lower-secondary education reinforces the bias.

Inequality in public spending on basic education stems from three underlying factors: teacher allocations, quality of school infrastructure, and teaching-learning inputs. Schools in poorer communities tend to have higher student-teacher ratios; smaller shares of well-qualified and experienced teachers on staff; and fewer books, learning materials, and educational equipment. Such schools also have fewer of the amenities that enhance conditions in the workplace and drive teachers’ preference for working in a specific school. In addition, many governments have not been able to ensure that teachers who

are assigned to rural schools continue to teach there after completing their initial assignment. Substantial gaps also exist across regions or districts in the distance of schools from children's homes and in class size. These gaps are worse in lower-secondary education in disadvantaged regions that have few lower-secondary schools in relation to primary schools.

In large Sub-Saharan African countries, inequality in education financing across regions or subnational units is a major issue. Ethiopia and South Africa have well-developed systems for transfer of funds to provinces or regions for education. In Ethiopia, the devolution of powers to the regions and *woredas* (districts), coupled with the system for intergovernmental transfers, has narrowed gaps in enrollment ratios across *woredas* and channeled more benefits to poorer households than to richer ones (Khan et al. 2014). The Democratic Republic of Congo has a nascent system for transferring funds. Nigeria, however, illustrates a case where federal transfers have continued to accentuate disparities between regions (see box O.2).

Decentralizing education decision making and finance to subnational and local governments or relying on school-based management are not silver bullets for achieving equity or improving learning (Hanushek, Link, and Woessmann 2013; Snilstveit et al. 2015). How the decentralization strategy is designed and implemented exerts a powerful influence on the outcome. School-based management works differently in Sub-Saharan Africa than in other regions, in that school committees typically have limited control (or even influence) over the management of teaching staff (including hiring and firing), the choice of learning materials, and the setting of the school calendar. Their impact on teacher attendance and student learning is therefore limited. Ultimately, it is the timeliness and quality of inputs, especially of teachers, at the school and classroom levels that matter for improving learning.

### **Need to Mobilize More Domestic Resources**

Overall domestic revenue as a share of GDP is smaller in Sub-Saharan Africa than in other regions—about 17 percent in 2013, compared with a global average of around 25 percent (IMF 2016). Countries where the share is below the regional average include the Central African Republic, Ethiopia, Madagascar, Nigeria, and Uganda. The delivery of basic education will be threatened without strong revenue mobilization, as most countries in the region are already allocating relatively high shares of government spending to education, and donor contributions to education are expected to stay constant or decline.

Shifting more of the basic education costs to households risks exacerbating inequities. Households in Sub-Saharan African countries contribute heavily to total education expenditures, as indicated earlier. Although household spending on education represents a relatively small share of total household spending,

**BOX 0.2****Intergovernmental Relations and the Effects on Equality of Education in Nigeria**

Nigeria is a federal state, and the rights of state governments are guaranteed by the Constitution. The states receive the bulk of their income from revenues accrued in the Federation Account according to formulas that determine the distribution between the federal, state, and local governments, as well as between the states, and that have changed little over the past 50 years. Since 2004, as part of an effort to accelerate the achievement of universal basic education, three main institutions have been involved in the delivery of basic education: the State Universal Basic Education Boards (SUBEB), the Universal Basic Education Commission (UBEC), and the Federal Ministry of Education.

Many challenges arise from the lack of alignment between the agencies' legally conferred responsibilities and their institutional authority to carry out these responsibilities. The federal government, through UBEC, has to allocate most of its intervention funds equally across all states. This makes it impossible for the states with low access to basic education to expand. Without changing the distribution of funds to a results-based and policy-driven intervention framework that focuses on the states with greatest needs, education inequalities will not diminish.

Although the law mandates that UBEC monitor and evaluate basic education, the commission does not have the capacity to do so and relies instead on states, which often have weak data-collection capacities. As a result, Nigeria is one of several, but mainly poorer, Sub-Saharan African countries that cannot provide the United Nations Educational, Scientific and Cultural Organization (UNESCO) with reliable information.

Nigeria also lacks a system for reporting state expenditures to the federal government. Studies of individual states, plus accurate data on primary education teacher salaries, suggest that public spending at all levels of education accounts for 12.5 percent of total public spending and around 1.7 percent of GDP—on both measures, among the lowest shares in Sub-Saharan Africa.

Source: World Bank 2015.

this may reflect the fact that poor households do not enroll all their children. Hence, shifting costs to families without paying attention to the ability to pay can increase inequality in access. However, shifting more of the costs of *post-basic* education to households could free government resources to equalize the quality of basic education.

**Inefficient Budget Processes in Ministries of Education**

How well resources are used to achieve the government's strategic objectives depends on alignment between budget allocations and the policies and

programs designed to achieve these objectives; it also depends on effective implementation. Although data are not available to assess budget processes specifically associated with the education sector, the Public Expenditure and Financial Accountability (PEFA) indicators for government planning and budgeting mechanisms provide insights into deficiencies in government budget processes as a whole, which inevitably affect the education sector.<sup>28</sup>

Budget planning is weak in most Sub-Saharan African countries, including in the highest-performing Group 1 countries, according to PEFA indicators for 38 countries in the region. Many of the countries performed well on the orderliness of the annual budget preparation process and the scope of participation in the process. Based on these two aspects of the budget planning processes, Gabon (Group 1) and a number of countries in Groups 3 and 4, including Burkina Faso, Burundi, Ethiopia, and The Gambia also rate well. Sub-Saharan African countries perform relatively poorly, however, on budget transparency—an essential quality if expenditures are to be classified properly and tracked. Policy-based budgeting is also not yet widely practiced in these countries, especially in terms of multiyear planning of revenue collection, government spending, and budgeting.

Budget execution processes are even weaker, especially in Group 3 and 4 countries. The predictability of funds affects the ability of ministries of education and their constituent units to implement planned activities in a timely way. Fewer than a quarter of the countries received a positive rating, and more than half received the lowest rating. These patterns reflect the inability of the central ministries of finance to forecast cash commitments and provide reliable information needed by the education sector to plan and implement the delivery of services.

There are significant gaps in the effectiveness of controls on payroll spending and on nonsalary expenditures. Payroll control is especially germane for a sector as labor-intensive as education. Only 35 percent of countries received a positive rating, while 41 percent were rated at the lowest level. In some countries, actual spending on salaries in the education sector exceeds the salary ceilings set by the finance ministry by more than 100 percent. Weaknesses in the controls over nonsalary expenditures are even more alarming. These indicators assess the presence and robustness of measures designed to keep the government's payment obligations within the relevant budget allocations, thereby minimizing the potential for corruption. Only 11 percent of the countries received a positive rating, and a third scored at the lowest level.

Public expenditure reviews of the education sector in 11 Sub-Saharan African countries conducted by the World Bank highlight other dimensions of

poor budget implementation.<sup>29</sup> Execution rates are low for nonsalary inputs. In Senegal, for example, the budget execution rate in 2013 was 18 percent for learning materials, 25 percent for rural secondary school buildings, and 7 percent for primary schools. Governments typically prioritize salary payments, but in some countries, even regular payment of salaries is not always assured. The buildup of arrears is a major reason for teacher strikes and loss of instructional time.

The behavior of development partners often impedes the implementation of sound budget practices. On measures such as the “predictability of direct budget support,” “financial information provided by donors for budgeting and reporting on project and program aid,” and “the proportion of aid managed through the use of national procedures,” most donors to Sub-Saharan African countries received less than the highest ratings, and some received the lowest ratings.<sup>30</sup> In many countries, external funding continues to flow through parallel channels for both the delivery of services and financial transfers.

### **Policy Responses for Targeting Education Spending and Strengthening Budget Processes**

Ministries of education in Sub-Saharan Africa generally focus too little on improvements in budget processes—planning, budget preparation, execution, and monitoring—that could help realize their objectives. Improvements in the four broad areas listed below are worth considering.

Policies to spend incremental resources for improving learning include the following:

- *Increasing and protecting the budget for quality-enhancing, non-teacher-related inputs*, as well as strengthening the public financial management processes related to the execution of these budget lines
- *Recruiting additional teachers* to improve learning in such areas as early literacy and numeracy and secondary science and mathematics
- *Planning for the use of substitute teachers* to reduce loss of instructional time from authorized teacher absenteeism

Policies to reduce disparities in standards of provision include the following:

- *Defining and implementing standards* for minimum school facilities and instructional materials
- *Targeting poor regions and poor households* for additional support to offset inequities

Policies to improve the efficiency of public spending on salaries and nonsalary inputs include the following:

- *Implementing existing teacher allocation policies*
- *Paying teacher salaries regularly and improving controls on payroll and allowances*
- *Establishing accountability measures to reduce unauthorized teacher absenteeism*
- *Enhancing capacity for improved execution of nonsalary budget, procurement, and contract management for construction, textbooks, and other critical inputs*

Policies to strengthen projections of multiyear resource requirements include the following:

- *Preparing expenditure projections based on an evaluation of alternative options, cost-effectiveness, and impact on other subsectors*

## **From Science to Service Delivery: Closing the Gap in Institutional Capacity**

For most ministries of education in Sub-Saharan Africa, especially in countries that are still trying to ensure universal coverage in primary education, managing even the basic functions of the system is a challenge. They must plan and manage the hiring, training, deployment, and performance of teachers; oversee the choice of location for new schools and their construction processes; supervise the procurement and timely delivery of textbooks and learning materials; and ensure the collection, analysis, and use of data on a regular basis.

Moreover, improving student learning in basic education demands even more capacity than expanding enrollment at the primary level—and ministries of education in Sub-Saharan Africa face both demands. In particular, changing the focus to learning necessitates aligning all policies and institutions with this goal, which requires specialized technical capacity as well as the “soft” capacities to lead, coordinate, and change course as required. Further, education systems in the region’s countries have become large and complex: the numbers of functions and stakeholders have increased, and system management is increasingly decentralized. Building consensus among this varied group requires special attention. These “soft” capacities are, in fact, the hardest to create and sustain.

This study identifies five areas of capacity that are important for strengthening the link between science and service delivery: the generation

and use of data; technical capacity; coordination among institutions; accountability and incentives; and negotiation and consensus building with stakeholders.

### **Generating and Using Data for Better Education Systems**

The capacity of a ministry of education to *establish* and *use* data systems that help to monitor and improve the education sector's performance is an indirect indicator of its implementation capacity. Common sense, professional judgment, and lessons from the past are also of value, but they should complement, not supplant, evidence-based policy and decision making that are customized to local needs and opportunities.

Several Sub-Saharan African countries seem to have improved their data collection and analysis over the past two decades, with the UNESCO Institute for Statistics (UIS) and development partners supporting training and providing computing support.<sup>31</sup> Many of the region's countries have established education management information systems (EMIS) that collect data on students, inputs to schools, and finance. The share of countries that report data on various indicators has improved considerably between 2000 and 2014, particularly for those relating to students. But critical weaknesses remain: even some of the most basic data on enrollments, teachers, and expenditures are often not readily available in many countries; many EMIS do not cover the entire education sector (that is, both public and private providers as well as all levels, from preschool through higher education); and the quality of existing data is often poor. Also, most EMIS cannot link data from multiple sources.

An informal survey carried out for this study found that (a) only a few countries compiled timely and reliable data on student school participation, physical and financial inputs, and learning outcomes; and (b) data on teachers—available for most countries—often lacked information on qualifications, compensation, and deployment. Data on public spending on education are surprisingly uneven. UIS data show that in approximately 20 percent of countries in the region, data are not available regarding the percentage of public spending on education as a share of GDP or regarding the share of public education funding going to primary or secondary education. Remarkably, over half of countries in the region do not report data on primary education teachers' compensation as a share of public current expenditures.

Sub-Saharan African countries need to conduct national assessments and increase their participation in regional and international assessments to measure system performance. Only around one-third of countries conduct national assessments regularly (for example, every year or every two years), and only about one-third participate in regional or international assessments. Most of these assessments focus on primary grades.

A distinguishing feature of data initiatives in most Sub-Saharan African countries, including EMIS and some learning assessment systems, is that most have been set up and operated with funding from donors, often spurred by the need to monitor achievement of the Education for All (EFA) goals and targets. The multiplicity of donor-financed projects—each with its own scope, technical design, and rationale—often results in mismatches of software and hardware, complicated and overlapping questionnaires, irregular implementation, and a lack of overall system coherence and internal compatibility. Donor-funded initiatives are also hard to sustain because of the lack of resources for routine system maintenance and updates, including the critical human resources required for this purpose.

### **Insufficient Technical Capacity, Fragmented among Multiple Institutions**

Effective instruction and learning in the classroom requires a range of technical capacities at the system level. The key areas are curriculum development, including language policy; teacher recruitment, development, and support; textbook and materials development, production, and distribution; learning assessments; school leadership and support; and school construction. In most of the region's countries, however, the broader institutional infrastructure that supports student learning has not kept pace with the explosion in primary enrollment. In some countries, many critical institutions do not yet exist; in many others, they are not fully functional. In the poorer countries, as might be expected, there is a heavy reliance on donor-funded technical assistance in these areas.

Institutions with clear mandates are essential. Countries that have made the greatest progress in education (Group 1) have created a network of supporting institutions with relatively clear mandates, roles, and responsibilities. These include Botswana, Mauritius, and South Africa. Even though they are often hampered by constraints in technical expertise and resources, such institutions nonetheless have enabled these countries to revise curricula regularly, improve teacher training programs, prepare new textbooks and learning materials, conduct regular national learning assessments, and internationally benchmark their system's learning outcomes.

In addition to the lack of clear mandates (or sometimes overambitious mandates) and vague definition of responsibilities, the supporting institutions in most Sub-Saharan African countries often suffer from ineffective governance structures arising from mismatches in autonomy and accountability; an inappropriate skills mix related to the recruitment and training systems in public institutions; inadequate physical resources; and insufficient and erratic funding. Investment also needs to be made in the continuous training of qualified staff so that they can keep abreast of developments in their field.



### **Strengthening Coordination among Institutions**

Improving learning requires significant organizational capacity to coordinate and align the work of different institutions to ensure that what they produce is brought together effectively in the classroom. For instance, institutions that provide preservice education and continuous professional development to teachers—as well as those that supply textbooks and instructional materials and those that conduct examinations and assessments—must all be coordinated to ensure that the content of instruction is well aligned. This entire process has proven difficult to organize in contexts with limited capacity.

One of the most challenging tasks in low-capacity environments is the revision of the curriculum and the downstream changes that are required in textbooks, teaching-learning materials, assessment methods, teacher training, and teacher support. For example, curriculum changes in a number of Sub-Saharan African countries, including the use of national languages for instruction, were not incorporated into the teacher education curriculum (Pryor et al. 2012). This reflects the lack of mechanisms for coordination between the ministries of education and providers of teacher education to ensure that preservice teacher education programs are aligned with new curricula. The problem is especially severe in the training for secondary teachers, which is undertaken in universities.

### **Building Accountability and Incentives**

The failure to provide schools with the required inputs for teaching and learning, the high levels of teacher absences from schools and classrooms, and poor learning outcomes across Sub-Saharan Africa have focused attention on weaknesses in the overall accountability framework between the central administration and frontline service providers, on the one hand, and the state and the broader society, on the other. The influence of rent seeking and patronage in public administration as a whole has also had deleterious effects on the education sector.

Efforts to improve accountability, often through performance-based incentives for teachers and schools, have produced few results. Government performance in the delivery of education and other public services, as well as its responsiveness to civil society interventions, depends more broadly on the nature of the political process—specifically, whether political competition is based on clientelism or on programmatic interventions (Devarajan, Khemani, and Walton 2014).

Whether communities can play an effective role in monitoring and enforcing accountability also depends on the complexity of the task and the additional training and support that communities require, given the relatively low educational attainment in most countries. Providing information to parents

and communities can be useful, but success depends on whether schools and teachers can change their practices to improve learning (Bruns, Filmer, and Patrinos 2011). Community management of school construction has often proven cost-effective, provided there is a modest investment in training and preparation of simple tools and procedures, together with technical supervision.

### **Strengthening Stakeholder Consultations and Negotiations**

Education systems have become increasingly complex and involve a variety of stakeholders. These include elected representatives at the national and local levels, parents' associations, associations of private schools, and teachers' unions, among others. Reflecting varying interests and levels of power, these stakeholders can affect the implementation of decisions and, especially, of major policy reforms.

Teachers' unions constitute an important group of stakeholders in the education sector, and the ability to negotiate consensus with them is critical to improve student learning. The number, membership, and capacity of teachers' unions varies across Sub-Saharan African countries. The role they play in competitive electoral politics also differs from country to country, influenced as well by the nature of the political process and whether it is largely programmatic or based on clientelism. Countries that have relied on a large percentage of contractual or community-recruited teachers with lower formal qualifications and pay are now faced with the challenges of developing a cohesive teaching force with minimum standards. Failure to engage strategically can undermine reform initiatives, and ministries of education need to develop the capacity to build consensus with teachers' unions and other stakeholders.

### **Policy Responses for Building Capacity**

Knowing *what* to reform in an education system is only part of the solution. The bigger challenge is to find out *how* to introduce and sustain reforms in individual country contexts. In this regard, there are failures on both the demand and the supply sides: On the demand side, resource-constrained countries do not wish to use scarce resources to build long-term capacity, even though they recognize that their limited capacity is a constraint. On the supply side, although some initiatives have helped to build capacity in specific areas, these efforts have been fragmented or linked to supporting project implementation. Success will depend in large measure on the willingness of countries to build capacity as well as on the availability of resources to fund long-term capacity, as has been done in the financial sector or in the area of disaster risk management.

Policies to build capacity need to focus on the following:

- *Prioritizing the regularity and accuracy of data collection of key indicators and improving the use of national and regional learning assessments.* These data should be presented to key stakeholders and actors in the system through regular, simplified, and relevant analyses.
- *Creating a pool of education specialists in-country to improve the technical capacity of ministries of education,* through targeted university programs in curriculum and materials development; teacher education and professional development; assessments, monitoring, and evaluation; and education economics.
- *Participating in broader governance initiatives to improve the efficiency of ministries of education and decentralized entities,* specifically in public financial management and human resource management.
- *Using a regional approach to building capacity* through long-term support to overcome the past “market failure” in capacity building, particularly by developing many of the “soft” capacities of leadership—coordination, changing the administrative culture, and consensus building with stakeholders—that are better acquired through peer learning, exchange of knowledge about implementation experiences, and cooperation between countries.

## Summary of Conclusions

How do Sub-Saharan African countries compare on learning in basic education? This study shows that there are substantial differences between them. The countries can be classified into four groups, based on the progress they made since the mid-1990s toward universal primary education coverage.

Group 1 countries—the “established” countries, almost entirely in Southern and East Africa, that have achieved almost universal coverage—also demonstrate the highest levels of learning. Several of them have also shown modest improvements in learning over time. Still, these levels are far below the achievement of non-African countries on international assessments.

Among most of the countries in Groups 2, 3, and 4—which are, in general, still struggling to ensure universal coverage—less than 50 percent of children achieved the *minimum* levels of proficiency on a range of tests administered in various primary grades. One important issue is the language of instruction or assessment. In those countries where children were taught and tested in the home language, student performance was higher.

Within each country, the strongest student-level correlates of learning are familiarity with the language of instruction, SES, urban or rural location, and (to a lesser degree) gender. Of special concern is the wide differential in

learning between rich and poor children and between urban and rural children in almost all countries; gender differences are less pronounced and vary by country. Between-school variance accounts for a high share of the variation in student learning relative to within-school variation, indicative of severe inequalities across the population. More troubling, this between-school variation in learning outcomes is almost entirely accounted for by the average SES of the children in the schools. However, better teacher knowledge and pedagogical practices, increased actual instructional time, and improved learning resources and school facilities contributed to better learning outcomes in many countries, and these practices can overcome some of the problems encountered in schools with low-SES children.

This study underscores the importance of aligning the educational system to be steadfastly focused on learning outcomes. Such an effort entails acknowledging and tackling the learning shortcomings that permeate the region's education systems. The study suggests four areas of focus to improve learning for all students:

1. *Student progression from first grade to the end of basic education should be ensured.* Specific issues to be addressed are removing the gridlock in the early grades by reducing hidden and official repetition; ensuring class sizes of fewer than 50 students; training and equipping teachers to teach reading in the early grades in a language that is familiar to the child; improving the transition rate between upper-primary and lower-secondary education by enhancing access, especially in rural areas and for girls; eliminating lower-primary and end-of-primary high-stakes examinations; and modernizing the lower-secondary curricula, which includes improving the quality of mathematics, science, and language teaching.
2. *Sub-Saharan African countries need to overhaul policies and programs related to teacher recruitment, preparation, deployment, attendance, and professional support from the early grades to lower-secondary education.* The requirements of implementing language-of-instruction policies must be integrated into teacher planning and management. The current stock of teachers, who have low levels of content knowledge and limited pedagogical skills, need continuous support provided close to the school or within the school and related to improving instruction in reading, academic literacy, mathematics, and science. Redeployment to ensure reasonable student-teacher ratios requires a combination of norm-based planning, negotiations, incentives, and strict accountability. Increasing instructional time through greater teacher attendance and possibly the use of substitute teachers is required. New entrants into the teaching force need to be trained through revamped preservice teacher education programs that emphasize mastery of content, practical teaching strategies, and continuous development. To be effective, teachers need the minimum essential

conditions for effective teaching and learning in schools; in all but the Group 1 countries, less than 10 percent of schools currently have the minimum environmental conditions conducive to teaching and learning.

3. *Many Sub-Saharan African countries need to increase public spending per child in basic education, and most countries could use their budgetary resources more effectively.* Additional resources are required to meet the projected doubling of the student population in basic education over the next 15 years. Greater domestic resource mobilization is needed to meet these demands. Immediate improvements can be brought about by improving budget planning and budget execution processes. Incremental resources should be targeted to learning materials and meeting the minimum conditions in schools. Specific aspects of public financial management—such as better controls on payroll and teacher allowances as well as better execution of nonsalary budgets through procurement planning and contract management—will allow governments to get better value for money.
4. Finally, *capacity needs to be built in a few critical areas to bridge the gap between the knowledge of “what works” and effective service delivery.* These areas include specific technical domains—for instance, curriculum, languages used for instruction, textbook development and production, teacher development, and assessment—and the capacity to generate and use data. In addition, ministries of education need to build their capacity in the “soft areas” needed to coordinate different functions and activities for timely and regular delivery of services, including (a) use of incentives and enforcement of accountability to change an administrative culture of patronage; and (b) negotiation and consensus building with stakeholders, especially teachers and their unions. These capacities are best built through a “learning by doing” approach and the use of peer-learning networks.

As this study shows, there is a new wealth of knowledge about how to improve learning in low- and middle-income countries. The challenge is to discover how to introduce and sustain reforms in individual country contexts. Such a process requires a permanent cycle of implementing, evaluating, and reforming for results. Education leaders and professionals in each country must gain mastery over the entire process, at all levels of responsibility, from ministries of education to school principals. If there is one thing to learn from high-performing countries, it is the need to build this kind of capacity to drive sustained gains in learning outcomes. Their experience also shows that countries that adopt a relentless focus on learning outcomes, and align their efforts systematically, are more likely to succeed.

Many Sub-Saharan African countries have implemented a few successful policy interventions and have made notable progress, but very few have implemented a comprehensive approach to improving learning for all. Most countries are following different trajectories to achieving universal basic education

with quality. The country grouping developed for this study suggests that context will be a major, though not an overriding, influence on their progress in the coming years.

In Group 1 countries, several countries are likely to pull ahead of the others because of their systematic efforts to build the national capacity required for coherent management of the entire complex chain of processes involved in shaping and implementing reforms as well as for reflection on the results. Mauritius and South Africa provide good examples in this regard. A second set of countries, comprising mainly Group 2 and Group 3 countries and some in Group 4, have possibilities for improving, but the prospects are more uncertain. As countries like Burundi demonstrate, deciding on a few key priorities for focus and organizing effort around those priorities is a pragmatic approach for making incremental progress. Finally, the Group 4 countries, which faced multiple challenges in the mid-1990s, are still mired in similar challenges; they face the prospect of continuing to lag behind, both in coverage of basic education and in learning.

## Looking Ahead

Sub-Saharan African countries have diverged significantly in their educational development over the past 25 years. How will they look 15 years from now? Three challenges have the greatest effect on their prospects—fertility rates, economic growth, and conflict—and these will differentiate the region's countries in the future.

Group 1 countries, for example, have lower fertility rates, although the Republic of Congo, Gabon, Ghana, Kenya, and Zimbabwe will continue to face population pressures for some time. These countries are likely to make more educational progress than countries facing a “demographic disaster” with total fertility rates of five or more (18 countries for which data are available).<sup>32</sup> These include Group 2 countries, such as the Democratic Republic of Congo, Tanzania, and Uganda, as well as many countries that have made only limited progress or are substantially delayed. In seven countries, the total fertility rate is greater than six. Population growth across the region, along with improved student progression through basic education, suggests that primary enrollment will increase by 50 percent by 2030. Enrollments in lower-secondary education will more than double in some countries.

Economic growth has also diverged across the region, with some countries maintaining high rates of growth before and after the financial crisis of 2008 and others decelerating. Much will depend on whether growth rates are sustained, and the prospects are uncertain, particularly in view of the fall in commodity prices. Countries that are diversifying their economies face better prospects. Economic growth will also affect the ability of Sub-Saharan African countries to mobilize more resources for education, which is critical to sustain expansion and promote learning.

On average, conflict has increased across the continent, but in some countries it has abated. Declines in conflict provide windows of opportunity for improving basic education, whereas increases in conflict could threaten the educational achievements of countries in Groups 1 and 2, while jeopardizing prospects for improvement in Groups 3 and 4.

These are sobering prospects. Many Sub-Saharan African countries will find themselves losing ground in the face of rapid population growth and less-than-robust economic growth. The most pressing challenges for these countries are to reduce and stabilize population growth and to raise domestic resources for education. Nevertheless, there are reasons to be optimistic about the prospects for educational progress in the region. The achievements of the past two decades—particularly in improving enrollments and making some modest gains in learning—can be sustained and enhanced, especially in countries where population growth is slowing down, economies are becoming more diversified and resilient, and conflict has subsided.

## Notes

1. Sustainable Development Goal (SDG) 4 is “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (UN 2015). For more about SDG 4 and its specific targets, see the United Nations (UN) Sustainable Development Knowledge Platform: <https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals>.
2. Elaborated using data from UIS.Stat database, UNESCO Institute for Statistics (accessed October 2, 2017), <http://data.uis.unesco.org>.
3. For simplicity of presentation, figure O.2 shows only the GER and the out-of-school rate; the retention rate data can be found in chapter 1 of the full book.
4. Countries were grouped according to the density of the challenges they faced before 2000; details are provided in chapter 1 of the full book.
5. The description of each learning assessment is provided in chapter 2 of the full book.
6. SACMEQ is a consortium of 16 education systems (mainland Tanzania and Zanzibar are treated separately) in Southern and East Africa.
7. Ghana and Kenya participated in the Skills Toward Employment and Productivity (STEP) surveys, along with seven other low- and middle-income countries. The STEP surveys measure the reading proficiency of workers, ages 25–64, using tests comparable to those used in the Program for the International Assessment of Adult Competencies (PIAAC).
8. PISA Plus refers to the 2010 administration of PISA 2009 in 10 non-OECD (Organisation for Economic Co-operation and Development) countries (Walker 2011).
9. The “low international benchmark” for eighth-grade TIMSS mathematics requires that students have some basic mathematical knowledge, can add and subtract whole numbers, and recognize parallel and perpendicular lines and familiar geometric shapes.

10. The PASEC test for 2014 is not comparable with earlier tests; hence trends are not available for this assessment.
11. SDI surveys were conducted in nine countries. A recent survey in Malawi used a test similar to that used in SDI.
12. The lowest average scores were for students in Mozambique, who also performed poorly on SACMEQ IV.
13. In Tanzania, Kishwahili is the language of instruction in grades one through seven. English officially becomes the language of instruction in the first year of lower-secondary education. Scores in mathematics were not affected by the language of the test.
14. In all countries, the total variance is large enough to make a difference, and a country's share of between-school variance is unrelated to its average score on the assessment.
15. The assessments used include TIMSS 2015 in the two participating Sub-Saharan African countries (Botswana and South Africa, both Group 1 countries); SACMEQ IV (2013) in the two countries for which data were available (Kenya in Group 1 and Malawi in Group 2); and PASEC 2014 in all 10 participating countries (in Group 1, the Republic of Congo; in Group 2, Cameroon and Togo; in Group 3, Benin, Burundi, and Côte d'Ivoire; and in Group 4, Burkina Faso, Chad, Niger, and Senegal).
16. Effect sizes less than 0.20 are often considered "small," while those larger than 0.80 are considered "large" (Cohen 1992).
17. The gross intake ratio (GIR) in grade 1 is the total number of new entrants in the first grade of primary education, regardless of age, expressed as a percentage of the population of theoretical entrance age to the first grade of primary education.
18. A synthetic index was computed using the four indicators mentioned above; the methodology is described in the note to figure O.9.
19. By "home language" is meant a child's mother tongue or other vernacular, which may be a lingua franca used by the community.
20. This estimation is based on the regional database of education indicators constructed for this study. In this book, "lower-secondary" education refers to grades seven through nine. Some countries classify grades one through seven or grades one through eight as "primary" and consider grades six through seven or eight as "upper-primary" education.
21. These patterns are found in analyses of data from the United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics (UIS.Stat) database (accessed November 27, 2016), <http://data.uis.unesco.org>.
22. Postsecondary diplomas are earned upon successful completion of programs that build on secondary education to prepare students for labor market entry or tertiary education. The curricula are broader than secondary education but not as complex as tertiary education. University degrees are earned upon completion of tertiary education, often requiring more years of study than diploma-level courses.
23. Several international surveys, all in anglophone countries, provide information on teachers' content knowledge, contextual information on teachers, and teachers' perceptions and practices in the classroom. Unfortunately, little information is available on teachers' content knowledge in francophone countries or for secondary-education teachers.



24. This finding is based on this study's analysis of data from the SACMEQ III (2007) and 2014 PASEC surveys as well as on PASEC (2015).
25. The patterns of teacher hiring and deployment relative to student-teacher ratios are based on analyses of data from the UNESCO Institute of Statistics (UIS.Stat) database (accessed February 23, 2016), <http://data.uis.unesco.org/>.
26. The results reported in this section are based on analyses of education management information system (EMIS) data for public sector schools in 11 countries for primary education and 8 countries for secondary education. These datasets were supplemented as follows: SDI data for Tanzania in 2014, PASEC data for 10 countries in 2014, and SACMEQ data for 14 countries in 2007.
27. "Total education expenditures" includes both government and household education expenditures.
28. The 2017 Public PEFA National Assessments (PEFA 2011 framework as at June 30, 2017) are accessible as a data file (Excel spreadsheet) at [https://pefa.org/sites/default/files/PEFA%20Scores-Jun17-N-Public-PEFA2011\\_0.xlsx](https://pefa.org/sites/default/files/PEFA%20Scores-Jun17-N-Public-PEFA2011_0.xlsx).
29. A list of these public expenditure reviews is provided in chapter 5 of the full book.
30. See the 2017 Public PEFA National Assessments data file (PEFA 2011 framework as at June 30, 2017), accessible online: [https://pefa.org/sites/default/files/PEFA%20Scores-Jun17-N-Public-PEFA2011\\_0.xlsx](https://pefa.org/sites/default/files/PEFA%20Scores-Jun17-N-Public-PEFA2011_0.xlsx).
31. Data in this section come from UIS and an informal World Bank survey of 26 countries.
32. "Total fertility rate" is defined as the total number of children who would be born to each woman if she were to live to the end of her childbearing years and give birth to children in alignment with the prevailing age-specific fertility rates.

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While everybody recognizes the development challenges facing Sub-Saharan Africa, few have put together coherent plans that offer real hope for any feasible and general improvement. *Facing Forward* combines an evidence-based plan that not only recognizes the deep problems but provides specific prescriptions for dealing with the problems. In the simplest version, focus on the skills of the people and do it in a rational and achievable manner.

– Eric Hanushek, Paul and Jean Hanna Senior Fellow, Hoover Institute, Stanford University

This book offers a clear perspective on how to improve learning in basic education in Sub-Saharan Africa, based on extremely rigorous and exhaustive analysis of a large volume of data. The authors shine a light on the low levels of learning and on the contributory factors. They have not hesitated to raise difficult issues, such as the need to implement a consistent policy on the language of instruction, which is essential to ensuring the foundations of learning for all children. Using the framework of “From Science to Service Delivery,” the book urges policy makers to look at the entire chain from policy design, informed by knowledge adapted to the local context, to implementation. *Facing Forward: Schooling for Learning in Africa* is a unique addition to the literature that is relevant for African policy makers and stakeholders.

– Professor Hassana Alidou, Ambassador of the Republic of Niger to the United States and Canada

As the continent gears itself up to provide universal basic education to all its children by 2030, it has to squarely address the challenge of how to improve learning. *Facing Forward* helps countries to benchmark themselves against each other and to identify concrete lines of action. It forces policy makers to think “where do I go from here?” “what do I do differently?” and to examine the hierarchy of interventions that can boost learning. It rightly urges Ministries of Education to build capacity through learning by doing and continuous adaptation of new knowledge to the local context. *Facing Forward* will unleash frank conversations about the profound reforms that are required in education policy and service delivery to ensure learning for every child on the continent.

– Dr. Fred Matiang’i, Cabinet Secretary for the Interior and Coordination of National Government, Government of Kenya (former Cabinet Secretary for Education)

*Facing Forward* couldn’t have come at a more opportune time as countries in the region, including Mauritius, focus more on learning outcomes rather than simply on inputs and processes in education systems. The book underscores the important point that African countries need not exclusively model themselves on high-performing education systems in the world. Much can as well be learnt from other countries at the same level of development, or lower, by virtue of the challenges they have faced and successfully overcome. This presents opportunities for greater peer-sharing and networking with these countries. Indeed a number of key focus areas are highlighted in the book that demonstrate good practices worthy of being emulated. These cover domains as diverse as enabling factors leading to improved student progression, strengthened teacher capacity, increased budgetary allocation with a focus on quality, as well as improved technical capacity of implementing agencies in the region.

– Hon. (Mrs.) Leela Devi Dookun-Luchoomun, Minister of Education and Human Resources, Tertiary Education and Scientific Research, Republic of Mauritius



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