Center for Universal Education at Brookings Africa Learning Barometer: Technical Appendix

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Introduction

The Center for Universal Education at Brookings Africa Learning Barometer aggregates learning data from a variety of sources to provide an overall snapshot of the state of education and learning in 28 countries in the region. We caution that comparative conclusions cannot be made given the different data sources, sample sizes, and non-comparable threshold points of learning selected in this exercise.

The Africa Learning Barometer provides a snapshot of enrollment, completion, quality and equity of learning in the region. This appendix provides an overview of the methods used to calculate the various indicators in the Africa Learning Barometer.

School Enrollment Projection Indicator

Description: This indicator uses current enrollment rates to project the number of children that will be out of school in 2025 by region.

Methodology*:* Data was gathered from the UNESCO Institute for Statistics (UIS) online data center. The annual change in total number of out-of-school children was calculated for each region based on the mean change in out-of-school numbers over the last three years of available data (2005-2008). The statistics are based on the most recently revised UIS data from 2010.

Regional Coverage*:* Sub-Saharan Africa, Arab States, East Asia & Pacific, South & West Asia and Latin America.

Years*:* 2000-2025

Additional Details: Additional data for on the out of school primary age population can be found on the UNESCO Institute for Statistics (UIS) online data center.

School Completion Indicator

Description: This indicator shows the probability of children progressing through different stages of education by region. These include enrollment in primary school, completion of primary school, enrollment in secondary school and enrollment in tertiary education.

Methodology*:* Data for each education milestone was gathered from the 2011 UNESCO Education for All (EFA) Global Monitoring Report (GMR).

- *Primary School Enrollment*
  For primary school enrollment, the Primary Net Enrollment Ratio (NER) was used. This indicator measures the enrollment of the official age group for a given level of education, expressed as a percentage of the population in that age group.
- *Completion of Primary School*
  For completion of primary school, the Survival to Last Grade of Primary indicator was used. To calculate the rate of primary school completion, the Survival to Last Grade of Primary indicator was taken as a percentage of the NER.
- *Enrollment in Secondary School*
  For the enrollment in secondary school, the *Secondary Net Enrollment Ratio* was used.
- *Enrollment in Tertiary Education*
  For enrollment in tertiary education, the *Tertiary Gross Enrollment Ratio (GER)* was used. This measures the total enrollment in a specific level of education, regardless of age, expressed as a percentage of the population in the official age group corresponding to this level of education.

Data is disaggregated by gender when available.

Regional Coverage*:* Sub-Saharan Africa, Arab States, East Asia & Pacific, South & West Asia and Latin America.

Years*:* With the exception of the Survival to Last Grade of Primary (2007), all data is from 2008 as available in the 2011 UNESCO Education for All Global Monitoring Report.

Additional Details*:* UNESCO. EFA Global Monitoring Report 2011: The Hidden Crisis – Armed Conflict and Education. Paris: UNESCO, 2011.

Quality of Education Indicator

Description: This indicator uses available data to estimate the proportion of in-school children with little or no value-added to their education by the time they reach the end of primary school (in grades 4, 5 or 6, based on available county data). Value-added to education is based on meeting basic levels of competency in literacy and numeracy as measured by performance assessments.

Methodology*:* Literacy and numeracy achievement data was compiled from three different sources of data at the national level to create an aggregated dataset covering 28 countries in sub-Saharan Africa.The three data sources were:

(1) Southern and Eastern Africa Consortium on Monitoring Education Quality (SACMEQ) (available for 14 countries);
(2) Programme d'Analyse des Systemes Educatifs de la CONFEMEN (PASEC) (available for 11 countries); and
(3) National examinations (used for three countries not participating in SACMEC or PASEC).

To determine the percentage of students not meeting basic levels of literacy and numeracy proficiency, two cutoff points were selected on each of the three examinations (a cutoff score for literacy and a cutoff score for numeracy). The percentage achieving below these minimum cutoff points score at grades 4, 5 or 6 were determined to not have met basic competency after nearing or completing primary school. The percentage not meeting this threshold point were determined to have little or no value-added to their education by the Africa Learning Barometer.   An average of the proportion of students not meeting basic competencies in literacy, and the proportion of students not meeting basic competencies in numeracy was calculated and used as the national indicator for percentage of students with no value added to their education.

Below is a description of each assessment type and the competency levels selected.

SACMEQ

- *Methodology:* For SACMEQ those not meeting basic competencies was the proportion of students achieving levels 1 and 2 on the assessment. There are eight competency levels (1-8) on the SACMEQ assessment and levels 1 and 2 represent the most basic learning competencies. Level 1 (in literacy and numeracy) measures the pre-reading and pre-numeracy stages. Level 2 measures the emergent reading and emergent numeracy stages. For countries utilizing the SACMEQ indicator, a grade 6 student performing at levels 1 or 2 is considered falling behind with no value-added to his or her education. An average of the proportion of grade 6 students scoring level 2 or below on literacy and numeracy formed the composite national indicator for percentage of students with no value-added to education. The SACMEQ data is disaggregated by gender, urban vs. rural and socio-economic class.

- *Regional Coverage*: Countries covered by SACMEQ: Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania (Mainland), Uganda, Zambia and Zimbabwe.
- *Years*: SACMEQ assessed grade 6 students in 2007.

PASEC

- *Methodology:* PASEC assessment results are divided into three bands: levels 1, 2, and 3. Level 1 is comprised of students scoring between 0-25 out of 100. Levels 2 and 3 comprise of students scoring 25-40 and above 40, respectively. The threshold for basic learning competency set by PASEC is a score of 40. The test is based on multiple choice questions on which students can score up to 30 by guessing randomly. The cutoff point for countries using PASEC data was the proportion of students scoring in the 0-25 range and thus failing to meet the minimum level of learning competency. An average of the proportion of students scoring level 1 or below on literacy and numeracy formed the composite national indicator for percentage of students with no value-added to education. The PASEC data is not disaggregated by gender.
- *Regional Coverage*: Countries covered by PASEC: Chad, Benin, Comoros, Madagascar, Gabon, Burkina Faso, Congo, Senegal, Burundi, Cote d'Ivoire, and Comoros; (National Examinations) Ghana, Ethiopia and Nigeria.
- *Years*: PASEC assessed grade 5 students between 2004 and 2009.

National Examinations

Ethiopia

- *Methodology:* The 2012 Ethiopian National Learning Assessment (ENLA) administered to grade 4 students was used. The ENLA categorizes students' performances into three proficiency levels (below basic, basic, and proficient), using a statistical z-distribution with a mean of zero and a standard deviation of one. Students who fall at or below a z standard score of zero in the distribution are categorized in the below basic performance level. This would include not being able to respond to comprehension questions, having low reading fluency and at times not being able to read a single word. Students falling into this category are considered students who fail to attain the minimum level of learning competency by the Learning Barometer. There is no data disaggregated by gender.
- *Years*: National assessment results used for Ethiopia reflect grade 4 students tested in 2012.

Ghana

- *Methodology:* The grade 6 results from the country's 2011 National Education Assessment (NEA) were used to develop the minimum learning threshold. The minimum threshold for basic competency in the NEA test result is 35 percent. A score of 35 percent is equivalent to randomized guessing. Students scoring less than 35 percent on the test are considered not having achieved the minimum learning competency. There is no disaggregated gender data.
- *Years*: National assessment results used for Ghana reflect grade 6 students tested in 2011.

Nigeria

- *Methodology:* The 2010 UK Department for International Development (DFID) Education Sector Support Program in Nigeria (ESSPIN) assessment was used. ESSPIN assesses grade 2 and 4 students in six Nigerian states covering approxiamtely a quarter of the school-aged population. Using the results for grade 4 students, ESSPIN has three categories for literacy and numeracy: Class 4 pupils responding correctly to Class 4 topics; Class 4 pupils responding correctly to Class 3 topics; and Class 4 pupils responding correctly to Class 1 & 2 topics.The percentage of students not responding correctly to Class 1 & 2 topics are considered to not meet the minimum level of learning competency. An average of the proportion of students scoring level one or below on literacy and numeracy formed the composite national indicator for percentage of students with no value-added to education. The mean achievement for the six states was used to determine the national average. There is no disaggregated gender data. National assessment results used for Ghana reflect grade 6 students tested in 2011.
- *Years*: The DFID Education Sector Support Program in Nigeria carried out assessments of grade 2 and 4 students in six Nigerian states (Enugu, Jigawa, Kaduna, Kano, Kwara and Lagos) in 2010.

Additional Details: Because of differences in country-level curricula, assessment and achievement benchmarks, performance levels from student assessments used in this graphic are not absolutely comparable across countries. These results cannot be used to rank countries or measure which country is doing better than the others.

To calculate the total number of children not learning, the country averages were applied to the school-aged population in each country. For those countries not covered by the Africa Learning Barometer, a mean percentage for the 28 countries covered was applied to the school-age population to estimate an absolute number of children not learning.

The overall school aged-population for sub-Saharan Africa was calculated by using the regional net enrollment rate for primary school (76 percent, 2010) and the total number out-of-school children of primary school age, 30.6 million (based on 2012 data from the UNESCO Institute for Statistics). The 30.6 million out-of-school children comprise roughly the 24 percent of children not included in the NER. The number of in-school children was estimated to be 97 million, making the aggregate school-aged population 127.6 million children.

Inequality in Education Indicator

Description: This indicator shows both the absolute number of years a child spends in school, the rate of education poverty (the percent of the population with fewer than four years of education) and the rate of extreme education poverty (the percent of the population with fewer than two years of education) by country. Data is disaggregated by gender and richest and poorest quintile.

Methodology: The UNESCO Deprivation and Marginalization in Education (DME) index from the 2010 Education for All (EFA) Global Monitoring Report (GMR): Reaching the Marginalized was used.

Regional Coverage: DME data is available for 36 coutnries in sub-Saharan Africa. The Africa Learning Barometer graphic uses data for 14 countries: Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Liberia, Malawi, Mozambique, Namibia, Nigeria, Tanzania and Zambia.

Years: The year of coverage varies based on the most recent survey in each country: Burkina Faso (2003), Cameroon (2004), Chad (2004), Côte d'Ivoire (2004), Ethiopia (2005), Ghana (2003), Kenya (2003), Liberia (2007), Malawi (2004), Mozambique (2003), Namibia (2007), Nigeria (2003), Tanzania (2004) and Zambia (2001).

Additional Details: Additional data for the UNESCO Deprivation and Marginalization in Education (DME) index can be found on the online dataset.