Facing Forward: Schooling for Learning in Africa

Regional Study on the Quality of Basic Education
Brookings Institute, Washington D.C.
19 April 2018
Purpose and scope of the study

Scope
- All sub-Saharan African countries have committed to Sustainable Development Goal 4
- Prioritize basic education of quality (grades 1-9)

Focus
- Science: “What works”
- Service delivery: “How to implement”
- Countries can learn from each other
- Should develop the culture of continuous improvements

Audience
- Ministries of Finance; Ministries of Education
- Development partners
What can we learn from this study?

1. Compares countries by education progress and learning

2. Four focus areas: student progression, teachers, budgets, capacity gaps

3. What are the implications for the region?
Real GDP per capita and Primary-School Enrollment in Sub-Saharan Africa, 1960–2014

US$ at 2010 prices

1st Oil Price Shock

Jomtien

GDP pc at 1974 level

Real GDP per capita

1700
1600
1500
1400
1300
1200
1100
1000

Total Enrollment In Primary

Millions of students

160
140
120
100
80
60
40
20
0

Total Enrollment In Primary

Millions of students

160
140
120
100
80
60
40
20
0

1st Oil Price Shock

Jomtien

GDP pc at 1974 level
Four Country Groups: Geographical spread

Country Groupings
- Established
- Emerged
- Emerging
- Delayed

Countries

<table>
<thead>
<tr>
<th>Primary GER</th>
<th>Lower Secondary GER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Established: 110</td>
<td>87</td>
</tr>
<tr>
<td>Emerged: 117</td>
<td>55</td>
</tr>
<tr>
<td>Emerging: 108</td>
<td>55</td>
</tr>
<tr>
<td>Delayed: 81</td>
<td>42</td>
</tr>
</tbody>
</table>
Four groups of countries based on progress in primary education

Group 1: Established
Group 2: Emerged
Group 3: Emerging
Group 4: Delayed

South Africa, Zimbabwe, Mauritius, Ghana, Botswana, Kenya, Lesotho, Cabo Verde, Namibia, São Tomé and Príncipe, Swaziland, Gabon


Congo, Botswana, Kenya, Lesotho, Cabo Verde, Namibia, São Tomé and Principe, Swaziland, Gabon


Out of school children
Gross Enrollment Ratio 2013
GER at 100%
Progress towards Lower secondary education (GER)
Few students reach **minimum proficiency levels in reading or math**

**Countries in Group 1 and Burundi perform better**

(each dot represents an international or regional assessment in Reading, Math, and Science from early grade to lower secondary, and adult literacy)
At the end of 4th grade, fewer than 30 percent of children can read a paragraph (except Tanzanian children in Kiswahili)
Equity is a major issue but teachers and schools **can** affect learning

<table>
<thead>
<tr>
<th>Some groups of children do systematically worse</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Poor children</td>
</tr>
<tr>
<td>• Rural children</td>
</tr>
<tr>
<td>• Children who do not speak language of instruction</td>
</tr>
<tr>
<td>• Gender effect varies by country</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teachers, classroom and school resources make a difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Structured pedagogy (tightly linked curriculum, teacher training, instructional materials, assessment)</td>
</tr>
<tr>
<td>• Teacher content knowledge</td>
</tr>
<tr>
<td>• Instructional time</td>
</tr>
<tr>
<td>• Infrastructure, classroom and school pedagogical resources</td>
</tr>
</tbody>
</table>
PASEC Grade 2: Average scores and score gap between students instructed in the home language and in another language

<table>
<thead>
<tr>
<th>Language used at home and school: Wide gaps in learning in grade 2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Mathematics</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Burundi</strong></td>
<td><strong>533</strong></td>
</tr>
<tr>
<td><strong>Senegal</strong></td>
<td><strong>509</strong></td>
</tr>
<tr>
<td><strong>Congo, Rep.</strong></td>
<td><strong>515</strong></td>
</tr>
<tr>
<td><strong>Togo</strong></td>
<td><strong>457</strong></td>
</tr>
<tr>
<td><strong>Chad</strong></td>
<td><strong>468</strong></td>
</tr>
<tr>
<td><strong>Cameroon</strong></td>
<td><strong>458</strong></td>
</tr>
<tr>
<td><strong>Niger</strong></td>
<td><strong>426</strong></td>
</tr>
<tr>
<td><strong>Burkina Faso</strong></td>
<td><strong>440</strong></td>
</tr>
<tr>
<td><strong>Benin</strong></td>
<td><strong>444</strong></td>
</tr>
<tr>
<td><strong>Côte d'Ivoire</strong></td>
<td><strong>482</strong></td>
</tr>
</tbody>
</table>

*Never use LOI at home, Gap Size, Always/Sometimes use LOI at home*
Some interventions boost learning in SSA and other low- and middle-income countries.
Four areas of focus in the study

1. Student progression from early grades to end of lower secondary, with learning
2. Teacher management and support
3. Using the budget to improve quality
4. Closing the capacity gap
1. Student progression with learning

- **Student progression: early grades through basic education**
- Unblock early grade “traffic jam”
- More lower secondary schools
- Target poor, female, rural students
Early Grade “Traffic Jam”: Three Factors

Student Flow
- Children enter at different ages
- Attend irregularly
- Repeat years
- Learn little

Poor Learning Environment in Early Grades
- Large classes (>80)
- Different ages
- Classes held outside
- Few learning materials
- Teachers need training to teach reading, numeracy

Language Policy
- Children don’t understand Language of Instruction
- Teachers are not familiar with language

CHILDREN STUCK IN EARLY GRADES
Survival rates through grade 9
Plan for increase: Will double in 10 years

Standard school facility package

Choice between boarding schools versus day schools:
  - Boarding schools are expensive and not effective
  - Address inequality in resources for day schools

Use ICT, especially to address shortages of math/science teachers, materials, labs

Eliminate exams between primary and lower secondary

Remove fees, barriers for girls, nomadic children, etc.

Expand access to lower secondary, address demand constraints
2. Teachers: Improve management and support

- Improve teacher management and support
  - Improve knowledge and practice
  - Strengthen school leadership
  - Deploy correctly/ensure presence
  - Minimum learning conditions in schools
  - Accountability and incentives
“Leakages” in Teacher Management at Multiple Points

**Teacher recruitment**
- Teaching attracts the more educated
- But pre-service preparation is inadequate
- And teacher knowledge remains modest

**Teacher deployment**
- Allocations vary widely across schools
- Control of allocations and transfers is weak
- Curriculum specialization worsens problems

**Teacher absenteeism**
- Teachers are absent from school and from the classroom (“orphaned” classrooms)
- Problems stem from issues with leave policy and weak school level management
- Teachers lack ongoing support to improve teaching

**Teaching and learning in the classroom**
- Material and other conditions are unconducive
Teacher knowledge lags in the more advanced tasks

SDI surveys 2012–2016, grade 4

<table>
<thead>
<tr>
<th>% correct on language</th>
<th>Composition task</th>
<th>% correct on mathematics</th>
<th>Adding double digit numbers</th>
<th>Subtracting double digits</th>
<th>Comparing fractions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td>63</td>
<td>92</td>
<td>49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uganda</td>
<td>54</td>
<td>89</td>
<td>37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Togo</td>
<td>50</td>
<td>74</td>
<td>26</td>
<td></td>
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</tr>
<tr>
<td>Tanzania</td>
<td>42</td>
<td>73</td>
<td>22</td>
<td></td>
<td></td>
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<tr>
<td>Group 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mozambique</td>
<td>34</td>
<td>83</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td>49</td>
<td>64</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathemat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td>77</td>
<td>98</td>
<td>86</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uganda</td>
<td>58</td>
<td>96</td>
<td>79</td>
<td>21</td>
<td></td>
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<tr>
<td>Togo</td>
<td>33</td>
<td>79</td>
<td>65</td>
<td>13</td>
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<tr>
<td>Tanzania</td>
<td>65</td>
<td>97</td>
<td>86</td>
<td>50</td>
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<tr>
<td>Group 3</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Mozambique</td>
<td>33</td>
<td>87</td>
<td>65</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td>42</td>
<td>89</td>
<td>70</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>
Large shares of teachers are absent—not just from school but especially from class

<table>
<thead>
<tr>
<th>Country</th>
<th>School</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>0.15</td>
<td>0.43</td>
</tr>
<tr>
<td>Tanzania</td>
<td>0.15</td>
<td>0.47</td>
</tr>
<tr>
<td>Togo</td>
<td>0.21</td>
<td>0.36</td>
</tr>
<tr>
<td>Uganda</td>
<td>0.24</td>
<td>0.53</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>0.05</td>
<td>0.22</td>
</tr>
<tr>
<td>Madagascar</td>
<td>0.35</td>
<td>0.42</td>
</tr>
<tr>
<td>Mozambique</td>
<td>0.43</td>
<td>0.55</td>
</tr>
<tr>
<td>Nigeria</td>
<td>0.14</td>
<td>0.29</td>
</tr>
<tr>
<td>Senegal</td>
<td>0.18</td>
<td>0.29</td>
</tr>
</tbody>
</table>

Source: Service Delivery Indicators Surveys of primary schools, 2013-14, based on enumerators’ school visit reports
3. Use the budget to improve quality

- Spend incremental resources on learning
- Reduce disparities in standards of provision
- Improve the efficiency of public spending
- Project multi-year resource requirements
More resources, better utilization

**ADDITIONAL RESOURCES ARE REQUIRED**
- $208 per student in primary
- Enrollments in lower secondary will double in 10 years

**WHAT YOU SPEND ON IS IMPORTANT**
- 95% on teachers salaries
- 5% on everything else
- Huge disparities

**IMPROVE BUDGET PLANNING, SPENDING, AND EXECUTION**
- Inability to spend on non-salary items
- Weak procurement; financial management processes

**NEEDS TO COME FROM DOMESTIC REVENUES**

**MOVE TO 80% SALARIES 20% ON BOOKS, TRAINING, ETC.**

**MINIMUM STANDARDS BUDGET CAPACITY IS CRITICAL**

More resources, better utilization
## Predictability of Direct Budget Support by country grouping

|------------------|--------------|------------------|---------------------|-----------------|---------------|-----------------|-------------------|-------------------|

### Legend
- D/D+
- C/C+
- B/B+
- A
Knowledge of “what to do” and increased financial resources are not enough.

The challenge is implementation and specific capacities are required.

From “Science to Service Delivery” – Closing the capacity gap.
Bridging the implementation gap – connecting to schools/teachers

Ministry of Finance

Ministry of Education

Technical Institutions

Policy Planning Data Capacity

Unions Parents Elected Officials

Coordination Negotiation Capacities

Accountability Incentives

Technical Capacity

Decentralized/Deconcentrated Units

Schools
### Market Failure in Capacity Building

<table>
<thead>
<tr>
<th>Demand</th>
<th>Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Longer term capacity needs fail to be expressed</td>
<td>• Usually from donors</td>
</tr>
<tr>
<td>Ministry of Finance unwilling to borrow</td>
<td>• Short term/project based</td>
</tr>
<tr>
<td>• Short electoral cycles</td>
<td>• Related to planning rather than implementation</td>
</tr>
<tr>
<td>• Longer term capacity building required for:</td>
<td>• Or focused on implementation of project</td>
</tr>
<tr>
<td>• Specialized technical skills</td>
<td>• Training of few staff</td>
</tr>
<tr>
<td>• Soft areas- negotiation, coordination</td>
<td>• Equipment, etc.</td>
</tr>
<tr>
<td>• Needs “learning by doing”</td>
<td>• International technical assistance</td>
</tr>
</tbody>
</table>

- International technical assistance
Economic growth across the region is highly heterogeneous

Some countries have more diversified economic structures

A vast population growth is expected: most African countries are at the “pre-demographic dividend” stage, with total fertility rates (TFRs) of 4 or more.

Need to expand while sustaining past learning improvements and absorbing students from disadvantage social backgrounds.

Many countries in educational Groups 3 and 4 have TFR above 5

A sustained projected expansion in enrollment
Thank You

Suggested citation:

Bashir, Sajitha, Marlaine Lockheed, Elizabeth Ninan, and Jee-Peng Tan. Forthcoming.
Annexes – Data Sources
## Data Sources: Chapter 1, Country Groupings and Challenges

<table>
<thead>
<tr>
<th><strong>UIS.Stat database (UNESCO)</strong></th>
<th><strong>Pole de Dakar (IIEP)</strong></th>
<th><strong>Household Surveys (WB)</strong></th>
<th><strong>WDI (WB)</strong></th>
<th><strong>WPP 2015 (UN DESA)</strong></th>
<th><strong>Ethnologue (SIL)</strong></th>
<th><strong>ACLED, Armed Conflict Location and Event Data, version 6</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Country groupings, GERs, Enrollment (48 countries)</td>
<td>Country groupings, Enrollment, GERs, (48 countries)</td>
<td>Out of School Rates (34 countries)</td>
<td>GDP, Growth of GDP (40 countries)</td>
<td>Population Projections (48 countries)</td>
<td>Linguistic Diversity Index 2015 (47 countries)</td>
<td>Number of conflicts (48 countries)</td>
</tr>
<tr>
<td>ISCED Mappings of Length Cycles (48 countries)</td>
<td></td>
<td></td>
<td>Gini Index (40 countries)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Poverty Headcount (40 countries)</td>
<td></td>
<td></td>
<td>7 countries</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9 countries</td>
</tr>
</tbody>
</table>
## Data Sources: Chapter 2, Learning

<table>
<thead>
<tr>
<th>Study</th>
<th>Subject</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>PISA</td>
<td>Reading, Math, Science</td>
<td>Mauritius, Botswana, Ghana, South Africa</td>
</tr>
<tr>
<td>TIMSS</td>
<td>Math, Science</td>
<td>Botswana, South Africa</td>
</tr>
<tr>
<td>PIRLS</td>
<td>Reading</td>
<td>Botswana, South Africa</td>
</tr>
<tr>
<td>PASEC</td>
<td>Reading, Math</td>
<td>10 Francophone countries</td>
</tr>
<tr>
<td>SACMEQ</td>
<td>Reading, Math</td>
<td>16 education systems</td>
</tr>
<tr>
<td>SDI</td>
<td>Reading, Math</td>
<td>7 countries</td>
</tr>
<tr>
<td>EGRA</td>
<td>Reading</td>
<td>9 countries</td>
</tr>
<tr>
<td>STEP</td>
<td>Reading</td>
<td>Kenya, Ghana</td>
</tr>
</tbody>
</table>

EGRA, EGRA: education systems

SACMEQ: 16 education systems

PASEC: 10 Francophone countries
### International and regional learning assessments in SSA (96)

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Grades /Ages</th>
<th>Countries</th>
<th>Subjects</th>
<th>Minimum Threshold</th>
<th>Examples of Minimum Proficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>PISA+</td>
<td>Age 15</td>
<td>Mauritius</td>
<td>Reading</td>
<td>Level 2 and above</td>
<td>Reading: Locates and recognizes main idea in text, interprets and integrates parts of text. Math: Solves problems using whole numbers. Science: Makes literal interpretations of the results of scientific inquiry.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Math</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIMSS</td>
<td>8</td>
<td>Botswana, Ghana, South Africa</td>
<td>Math</td>
<td>Low International Benchmark and above</td>
<td>Math: Some knowledge of whole numbers and decimals. Science: Some basic knowledge of biology, chemistry, physics, and earth science. Interprets simple pictorial diagrams and applies basic knowledge to practical situations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASEC</td>
<td>2, 6</td>
<td>10 Franco-phone countries</td>
<td>Reading</td>
<td>Level 3</td>
<td>Reading (grade 6): Combines, extracts and locates implicit information.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Math</td>
<td>Level 2</td>
<td>Math (grade 6): Answers brief arithmetic, measurement and geometry questions.</td>
</tr>
<tr>
<td>SACMEQ</td>
<td>6</td>
<td>16 education systems</td>
<td>Reading</td>
<td>Level 4</td>
<td>Reading: Reads on or reads back in order to link and interpret information located in various part of the text.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Math</td>
<td>Level 4</td>
<td>Math: Translates verbal or graphic information into simple arithmetic operations. Uses multiple different arithmetic operations on whole numbers, fractions and/or decimals.</td>
</tr>
<tr>
<td>SDI</td>
<td>4</td>
<td>7 countries</td>
<td>Reading</td>
<td>--</td>
<td>Reading: Reads a sentence aloud</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Math</td>
<td></td>
<td>Math: Solves a math story</td>
</tr>
<tr>
<td>EGRA</td>
<td>2, 3</td>
<td>9 countries</td>
<td>Reading</td>
<td>--</td>
<td>Oral reading: any score above zero</td>
</tr>
</tbody>
</table>
Data Sources: Chapter 3, Student Progression

**UIS.Stat database (UNESCO)**
- Bulge Analysis (all countries):
  - current, 103 countries
  - trend, 84 countries
- Enrollment by grade
  - GERs in grade 1,
  - GIR in grade 1
  - GER in Pre-School
  (Population projections by age, UN DESA)

**Household Surveys (WB)**
- Over-age enrollment in grade 1
- Repetition rates by grade 1
- GERs by area, wealth
- Distance to School
- Gender Parity by area
- Survival Rates grades 1-9
- Drop-out reasons
  (34 countries)

**Other sources**
- Language Policies and Implementation:
  - EGRA reports, UNICEF, UNESCO (27 countries)
- National Examinations: UIS, WB, ESP documents, national documents, WES, Nuffic (43 countries)
- Class size, SDI (Malawi)
- Internet and Mobile Users (Regional Averages)
- ICT use: UIS Communication and Information database, InfoDeb, WB, MoE (26 countries)
Data Sources: Chapter 4, Teachers

### UIS.Stat database (UNESCO)
- # of teachers, Total (P=38, S=32 countries)
- Non-permanent (P=29 countries)
- Class Size (25 countries), Textbooks per pupil (32 countries)
- Toilets, potable water and electricity in primary schools (33 countries)
- PTR (P=43 countries, S= 39 countries)

### Household / Labor Surveys (WB)
- Teachers and comparator groups: educational attainment, wages, hours of work, second job, hourly and annual pay (13-16 countries)
- Class Size (25 countries), Textbooks per pupil (32 countries)

### EMIS data
- Teacher deployment (Ghana, Cote d'Ivoire)
- Randomness in teacher allocation (P=28 countries, S=8 countries)

### SDI (WB)
- Teacher absenteeism (9 countries)
- Teacher Pedagogy Knowledge, Teaching Practices (6-7 countries)

### PASEC (2014) and SACMEQ (2007)
- Teacher knowledge (Only SACMEQ 2007, 11 countries)
- Pre-Service Teacher Training (25 countries)
- Prof. Development (15 countries)
- In-service Training (10 countries)
- Essential conditions (23-25 countries)

### Other sources
- STEP (Ghana and Kenya)
- TIMSS and TED-S (Botswana)
Data Sources: Chapter 5, Budget and Finance

<table>
<thead>
<tr>
<th>UIS.Stat database (UNESCO)</th>
<th>UNESCO’s Global Monitoring Reports (GMRs)</th>
<th>OECD-DAC and various GMRs</th>
<th>Public Expenditure and Financial Accountability (PEFA, 2011 Framework)</th>
<th>Education Sector Plans</th>
<th>WB PERs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total government expenditure (TGE) (39 countries)</td>
<td>Household spending on education (18 countries)</td>
<td>Donor aid for education (42 countries)</td>
<td>Assessment of budgetary processes (38 countries in the 2010-2016 period)</td>
<td>Plans appraised for the Global Partnership for Education (GPE) (20 countries)</td>
<td>Various issues covered in this chapter (10 countries, across several years)</td>
</tr>
</tbody>
</table>
Data Sources: Chapter 6, Capacity Gap

**UIS.Stat database (UNESCO)**

Selected indicators in three domains: enrollment, teachers and spending
- Coverage: at least one year in 2000-04, 2005-09, and 2010-15 periods
- Number of countries with valid data increases over time

**World Bank Internal Survey**

Data collected through questionnaires addressed to Bank staff working in different Sub-Saharan African countries.
- Information available on 26 countries
Data Sources: Chapter 8, Coda

**Enrollment Projections**
Prepared for Ethiopia, Ghana, Kenya, and Senegal

Inputs:
- Population Projections: WPP 2012
- Patterns of Student Flows: Household Surveys
- Student Teacher Ratios (STRs): UIS.Stat database (UNESCO)

**WPP 2017 (UN DESA)**
Total Fertility Rates, TFR (46 countries)

**World Bank**
Robustness of economic performance, 1995–2016 (45 countries)