RESEP
Research on Socio-Economic Policy

UNIVERSITEIT STELLENBOSCH UNIVERSITY

Access to learning in Francophone Africa

Combining measures of schooling access and quality for comparable estimates across countries and over time

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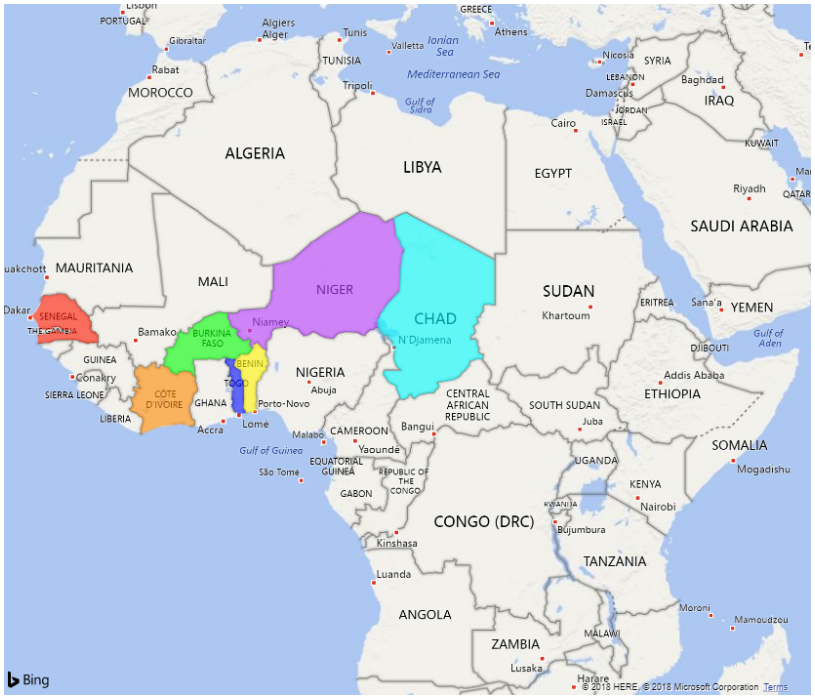
SUSTAINABLE DEVELOPMENT GOAL 4

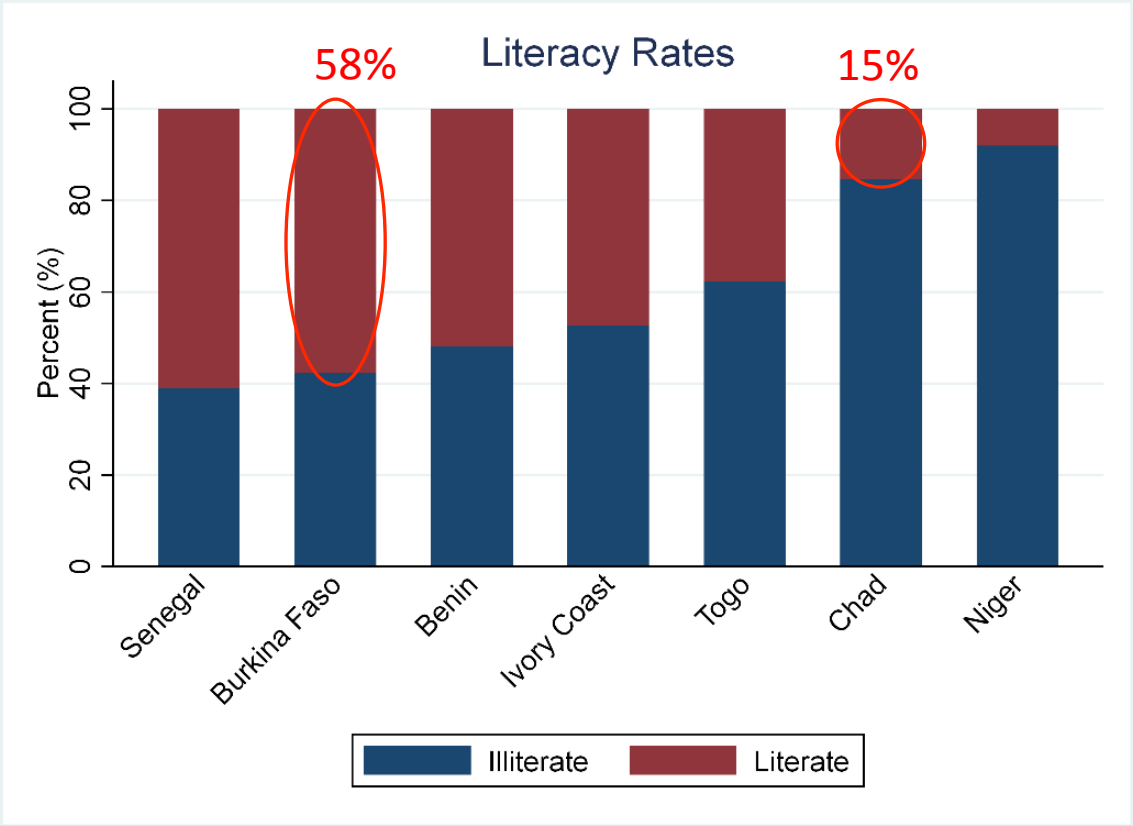
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Countries



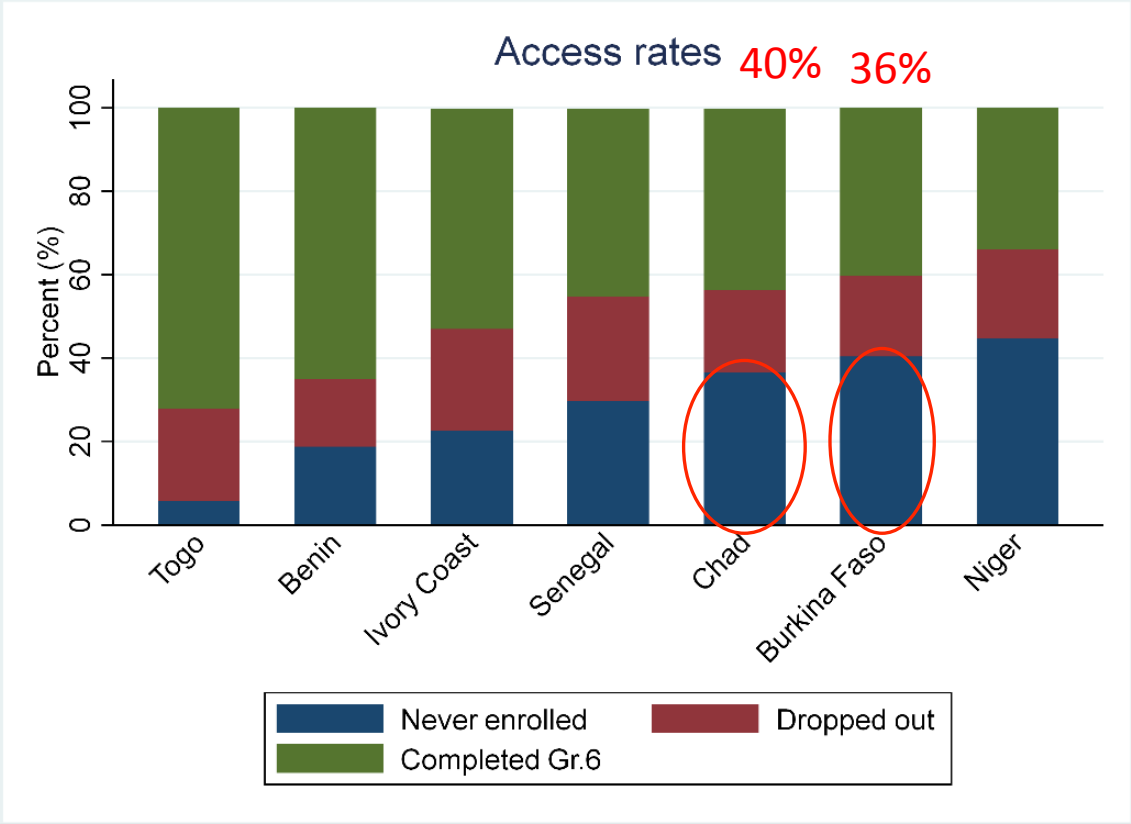
No research on combined measures of access and quality: Although some estimates of enrolment statistics, and learning outcomes from PASEC reports, no research exists which looks at access and quality simultaneously

Quality



Burkina Faso > Chad?

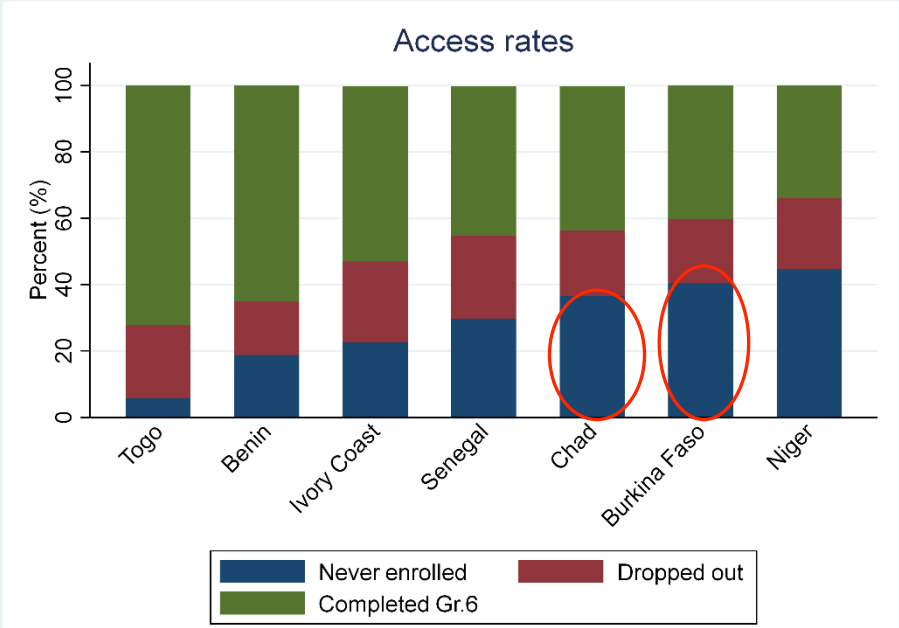
Access

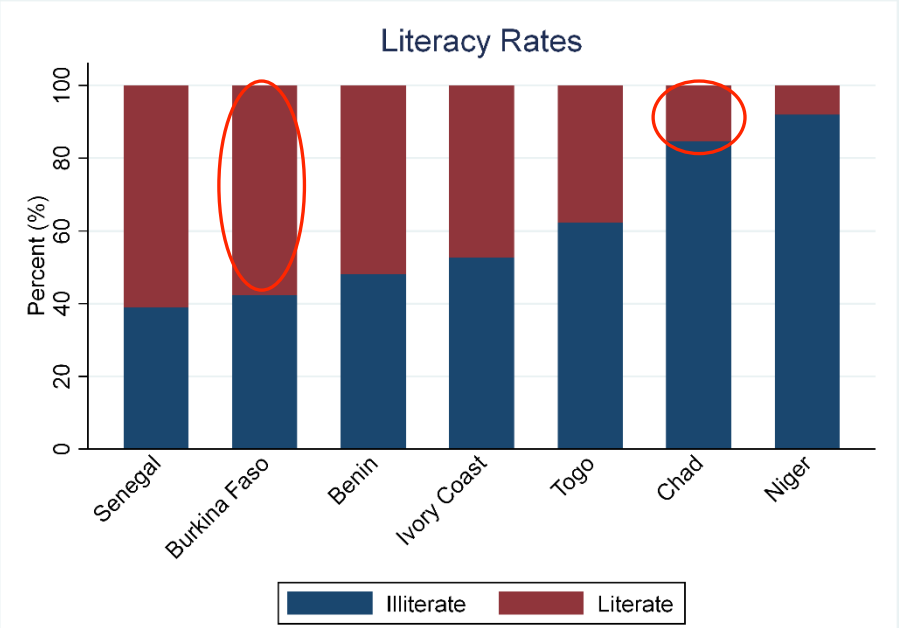


Chad >
Burkina Faso?

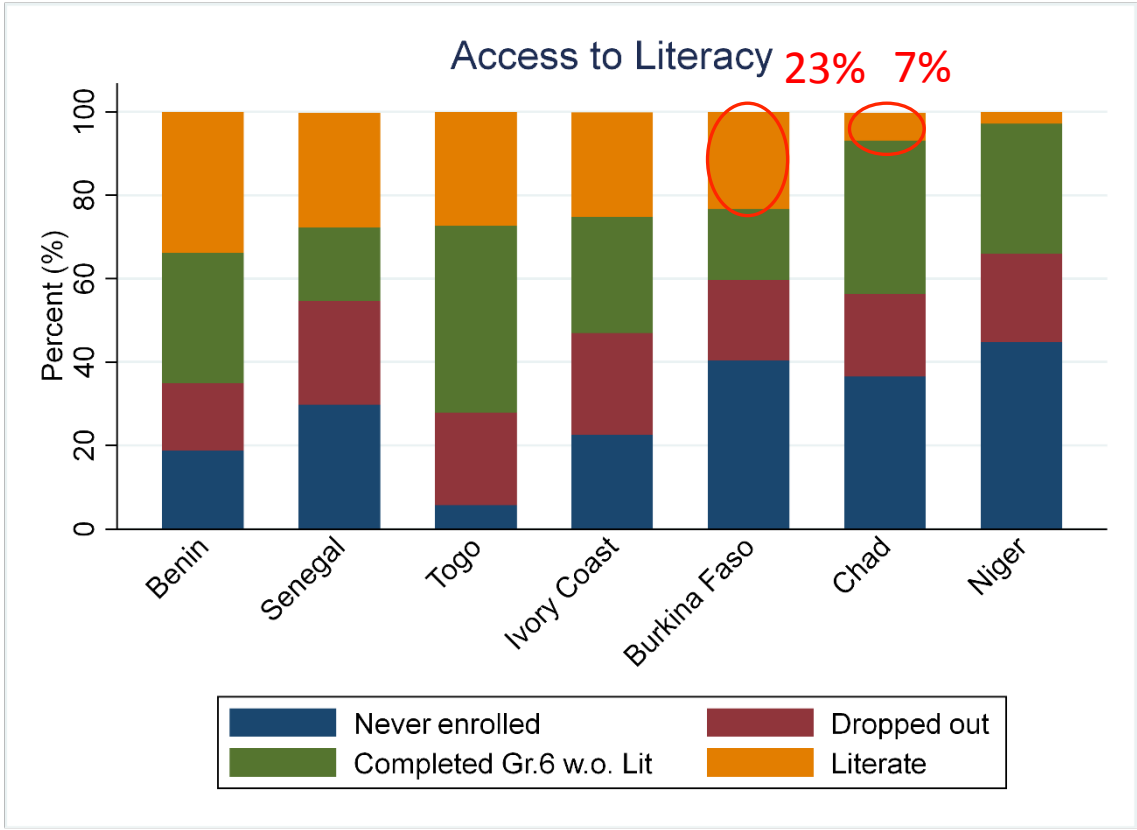
Access and Quality

Chad? Burkina Faso?





Access to Learning



Burkina Faso > Chad.

Motivation

"I'm right there in the room, and no one even acknowledges me."

this issue of **expanding access and attainment has been one of the defining features of education systems in developing countries** for the last two decades.

Sénégal

Enquête Démographique et de Santé Continue (EDS-Continue)

2012–2014

Résultats Régionaux

Anglophone Sub-Saharan Africa
Spaull & Taylor, 2015

Access to What? Creating a Composite Measure of Educational Quantity and Educational Quality for 11 African Countries

NICHOLAS SPAULL AND STEPHEN TAYLOR

The aim of the current study is to create a composite statistic of educational quantity and educational quality by combining household data (Demographic and Health Survey) on grade completion and survey data (Southern and Eastern African Consortium for Monitoring Educational Quality) on cognitive outcomes for 11 African countries: Kenya, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe. Doing so overcomes the limitations of earlier studies that focused solely on either quantity or quality. We term the new statistic "access to literacy" and "access to numeracy" and report it by gender and wealth. This new measure combines both quantity and quality and consequently places educational outcomes at the center of the discourse.

> Defining the scope of the problem of "lack of education" must begin with the *objectives* of education—which is to equip people with the range of competencies . . . necessary to lead productive and fulfilling lives fully integrated into their societies and communities. Many of the international goals are framed exclusively as targets for universal enrollments or universal completion. But getting and keeping children 'in school' is merely a means to the more fundamental objectives of . . . creating competencies and learning achievement. (Pritchett 2004, 1)

Introduction and Research Question

A sequential analysis of the access-to-education literature, and subsequent policy dialogues, shows an important development in the thinking of educational researchers. What started out as an almost single-minded focus on access, "Education for All" (EFA), has slowly developed into a more nuanced concept of quality education for all (UNESCO 2005; Lewin 2007). As more and more countries approach universal enrollment, there is a shift away from

We would like to thank Lant Pritchett and Servaas van der Berg for their helpful advice and useful comments on earlier drafts of this article. We are also indebted to the four anonymous reviewers whose detailed comments and suggestions led to some major improvements in our methodology.

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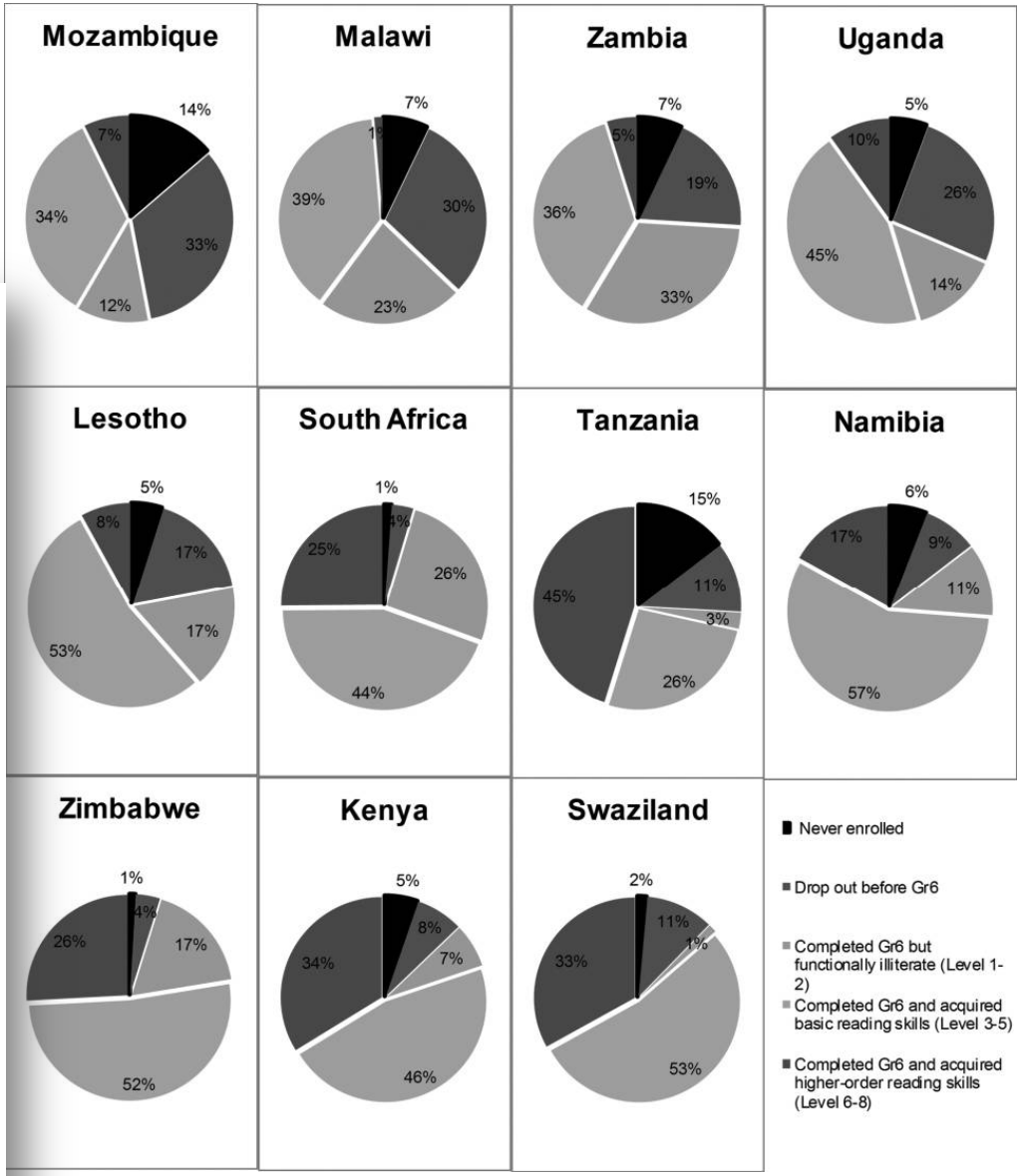


FIG. 1.—Percentage of 19–23-year-olds who never enroll, drop out before grade 6, complete grade 6 but remain illiterate, complete grade 6 and acquire basic literacy skills, or complete grade 6 and acquire higher-order reading skills. Color version available as an online enhancement.

Data

- DHS
  - Comparable
  - Reliable
  - Generally available
  - “Highest year of education attained”
  - Can be dated (2010-2014)
- PASEC
  - 2014
  - Well developed assessment
  - Released items are available… in French

DHS Data

Country	DHS year	Years dated by
Benin	2011	3
Burkina Faso	2010	4
Chad	2014	0
Ivory Coast	2011	3
Niger	2012	2
Senegal	2014	0
Togo	2013	1

PASEC vs SACMEQ

PASEC

Pupils are able to combine two pieces of explicit information from a document or can carry out simple inferences in a narrative or informative text.

They can extract implicit information from written material while giving meaning to implicit connectors, anaphora or referents. Pupils locate explicit information in long texts and discontinuous documents.

SACMEQ

Interprets meaning (by matching words and phrases, completing a sentence, or matching adjacent words) in a short and simple text by reading on or reading back

Method

Multiply completion rate by literacy/ numeracy rate

Method

Multiply completion rate by literacy/ numeracy rate

Simple Multiplication

Example

50% Completed Gr6

60% Literate in school

= 0.5 x 0.6 = 30% access to literacy

Method

Use a younger cohort & apply estimated dropout rates

Simple Multiplication

Adjust for older DHS datasets

Method

Simple Multiplication

Adjust for older DHS datasets

Adjust for late completion

Apply estimated dropout rates to those still enrolled in Gr.3-5

Method

Simple Multiplication

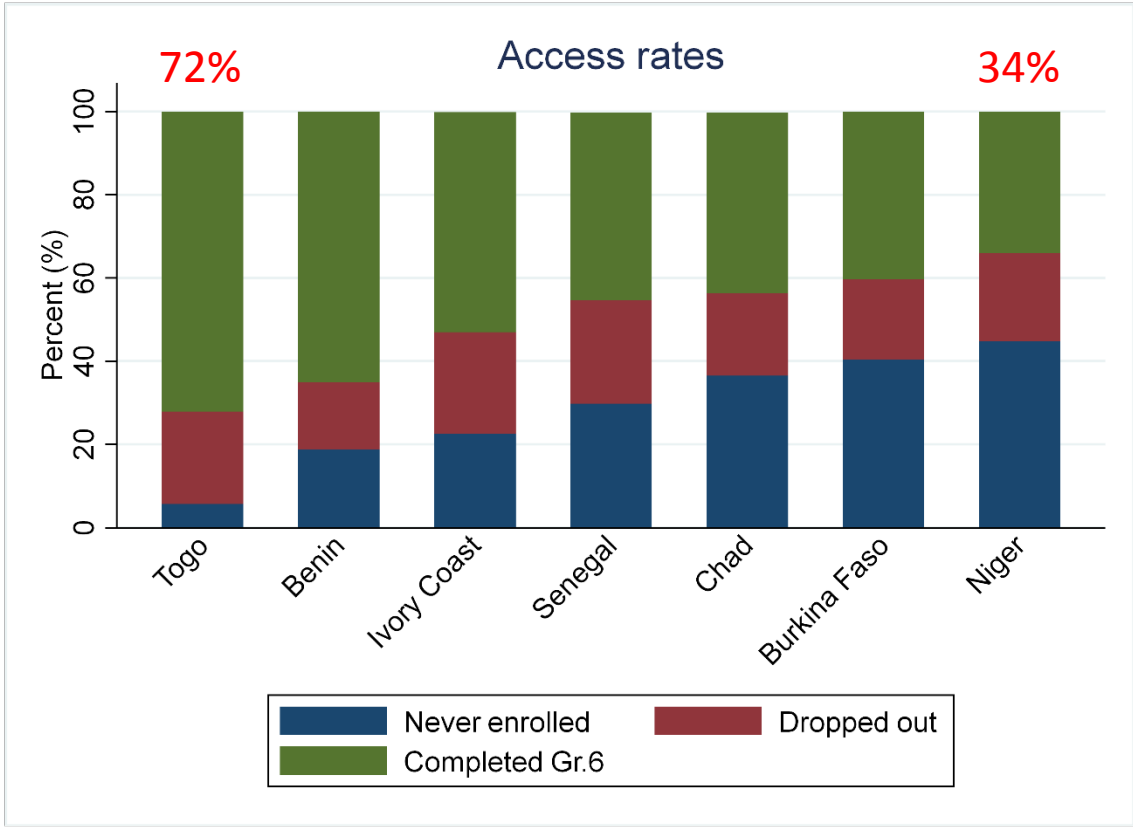
Adjust for older DHS datasets

Adjust for late completion

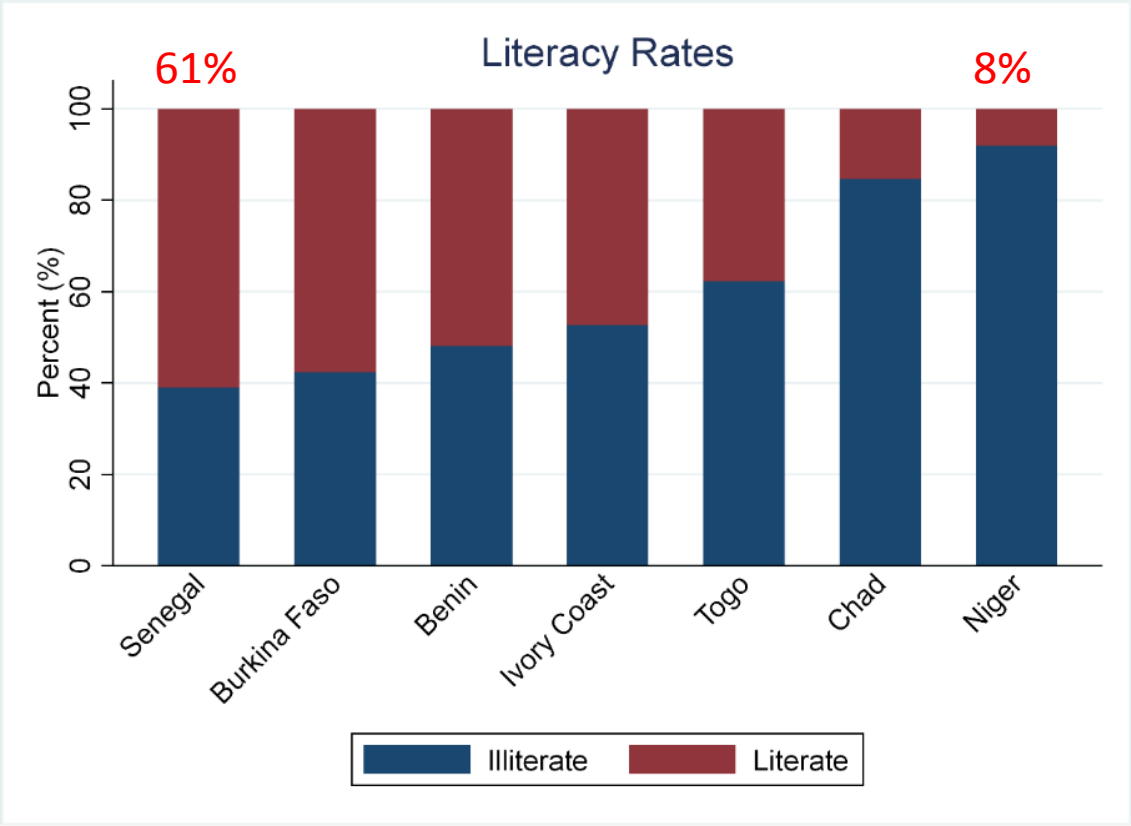
Adjust for underrepresentation of poor kids in schools

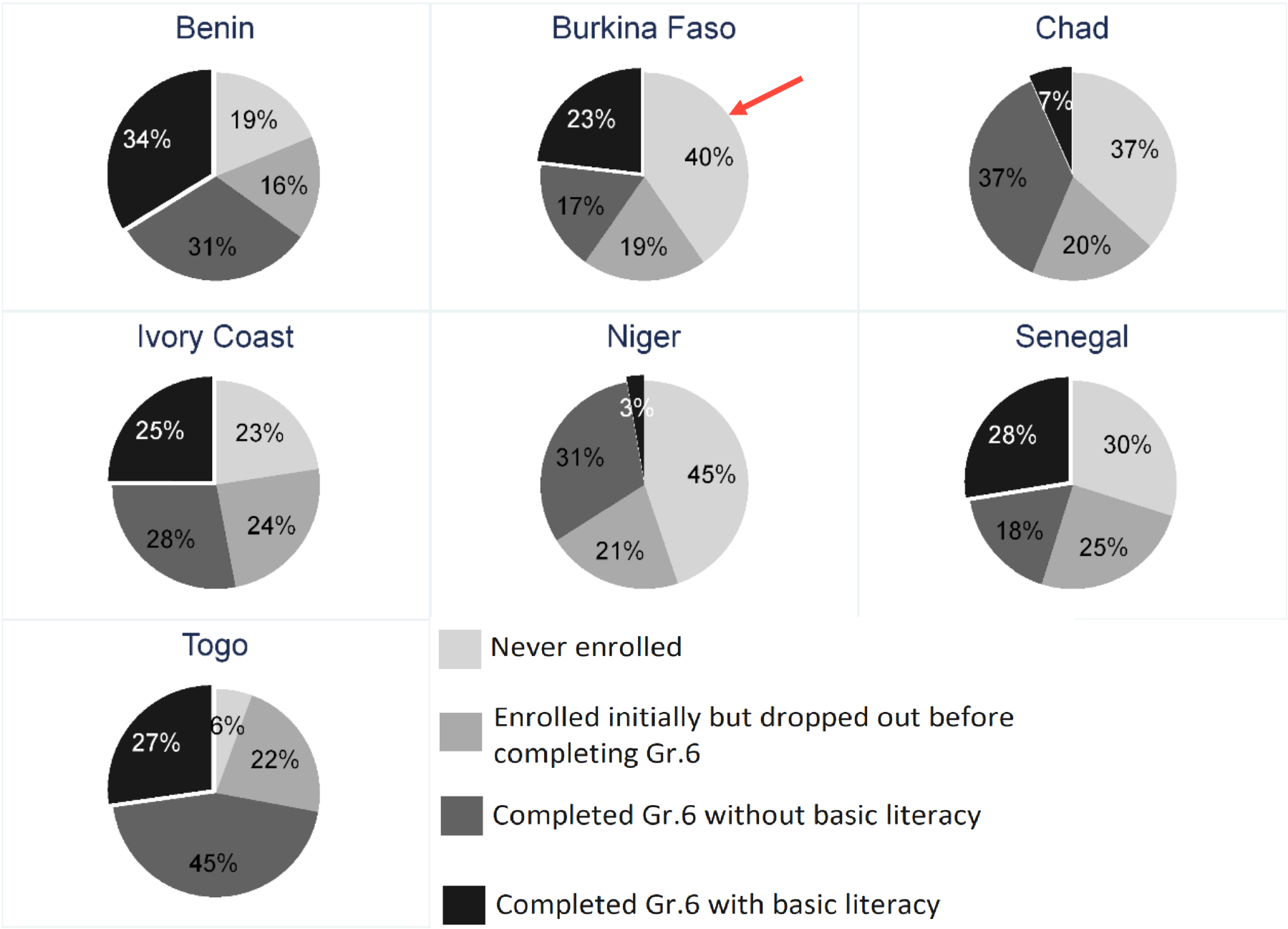
Apply estimated completion rates from DHS data to PASEC sample

Results (1): Access



Results (2): Quality




Benin
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Chad
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Ivory Coast
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Senegal
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25%
18%
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Togo
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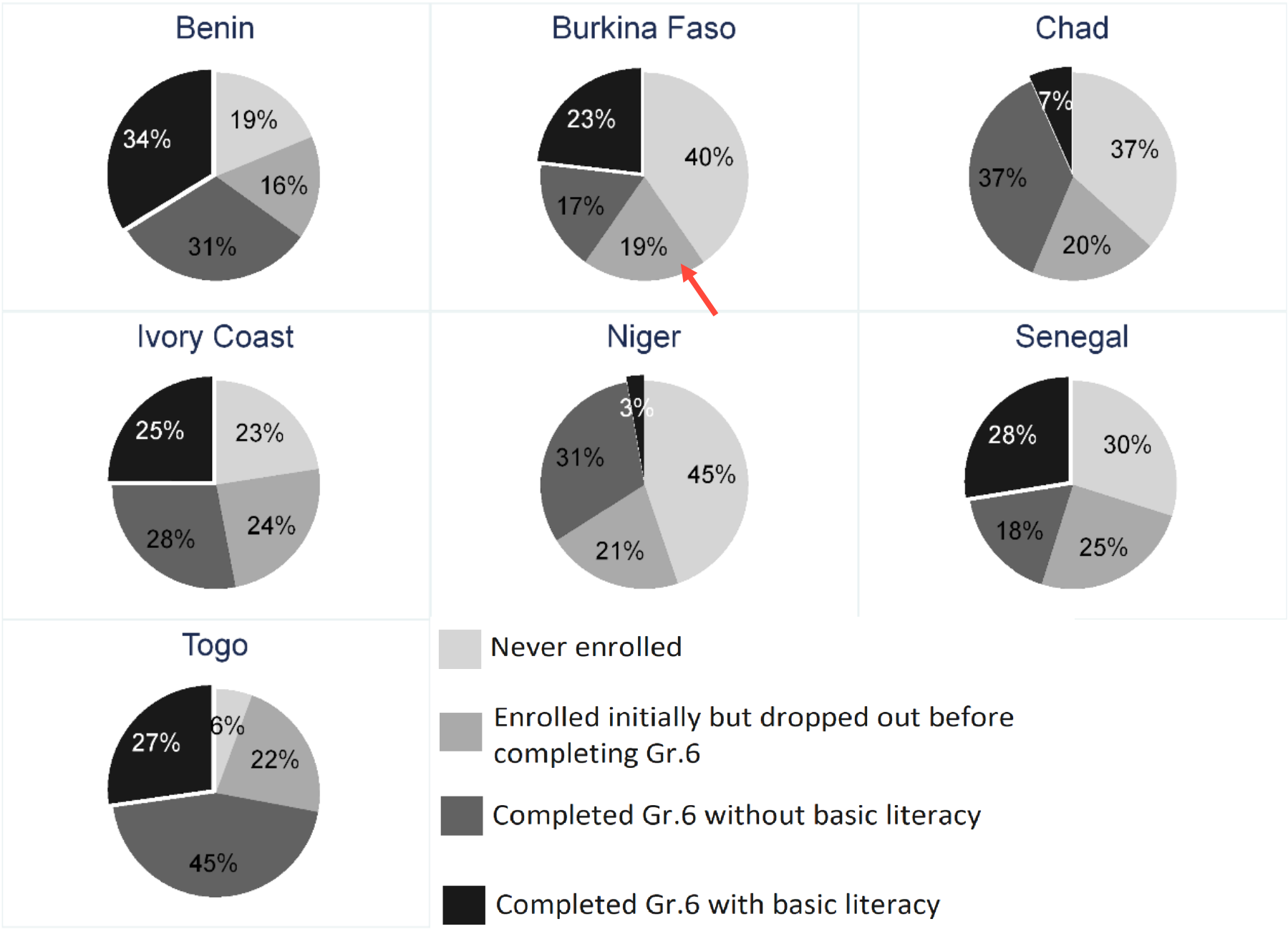
Never enrolled
Enrolled initially but dropped out before completing Gr.6
Completed Gr.6 without basic literacy
Completed Gr.6 with basic literacy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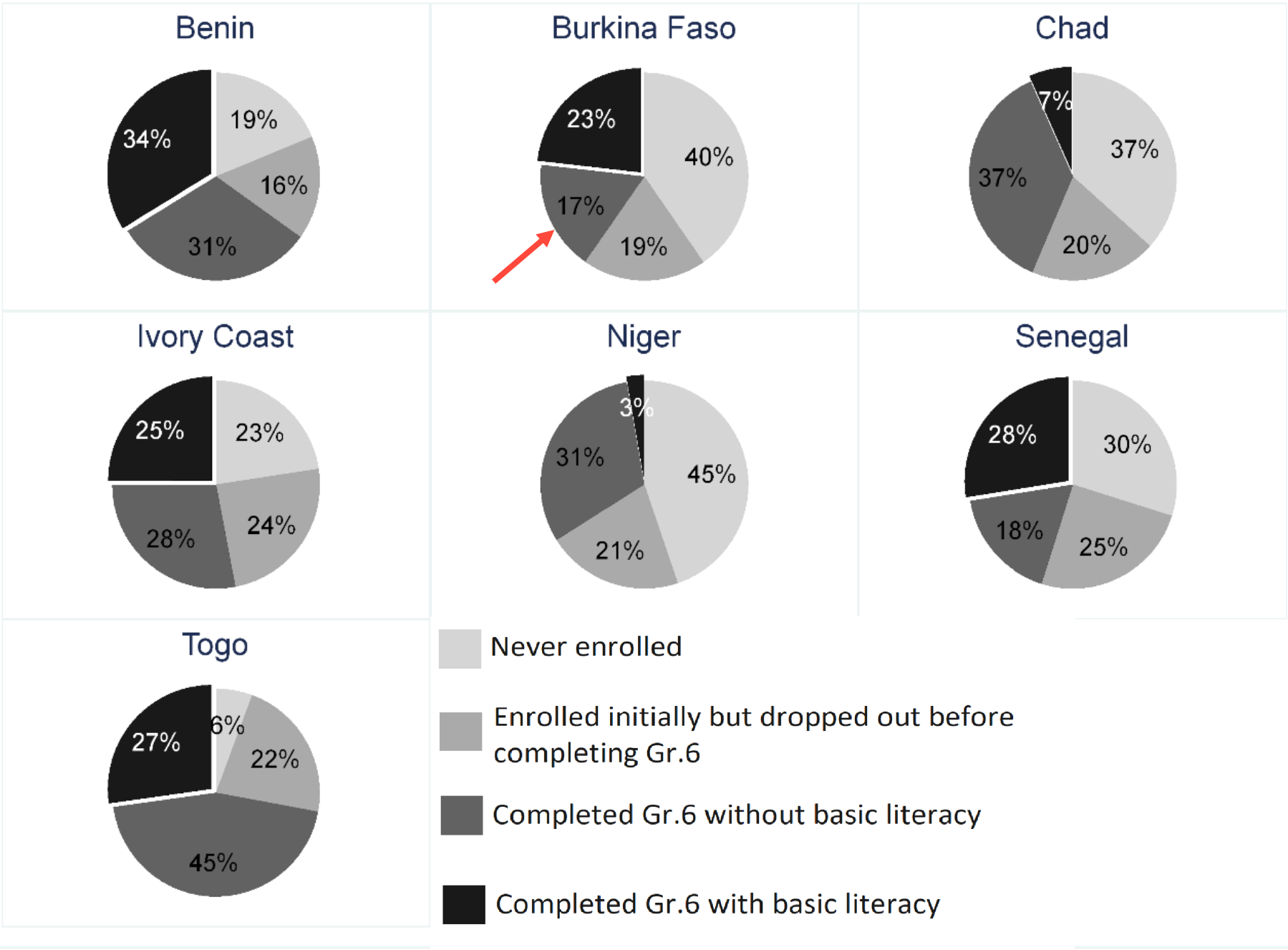
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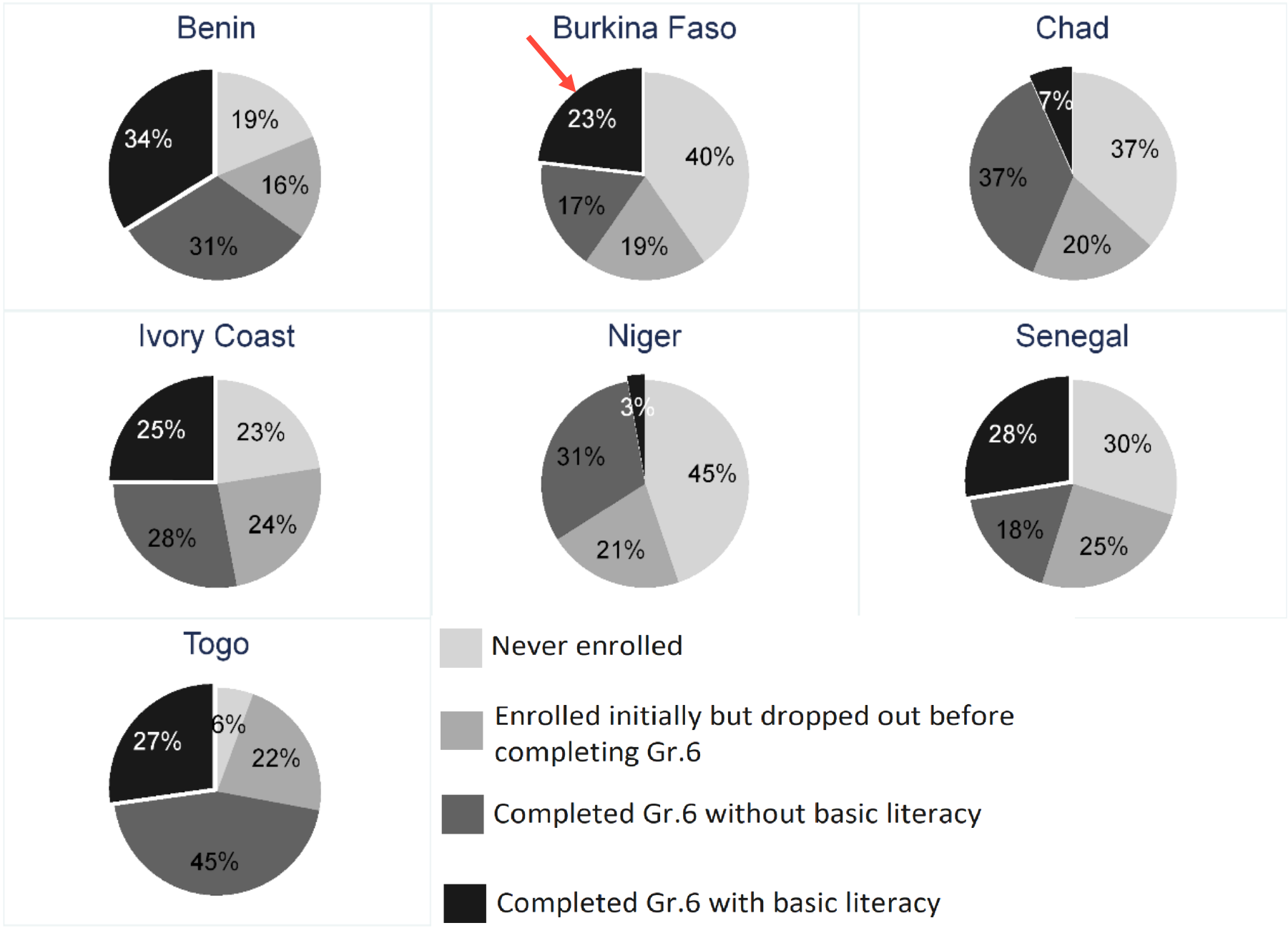
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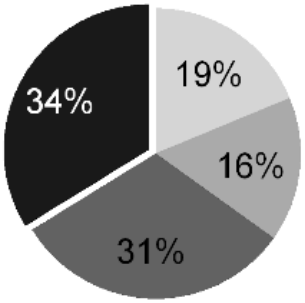
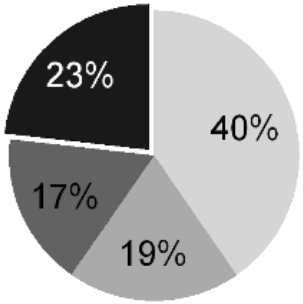
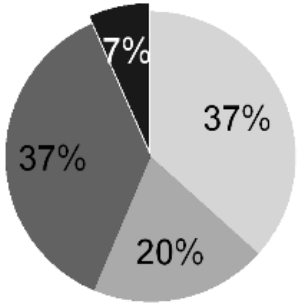
Benin



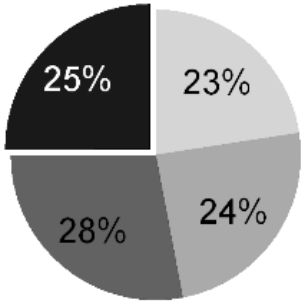
Burkina Faso



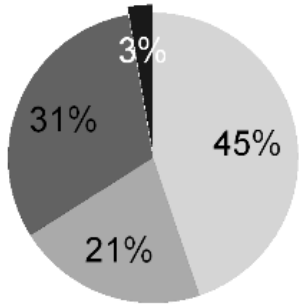
Chad



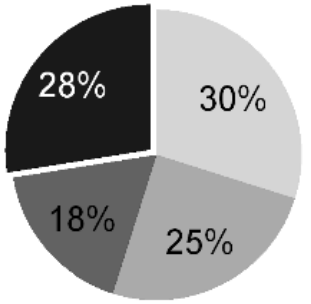
Ivory Coast



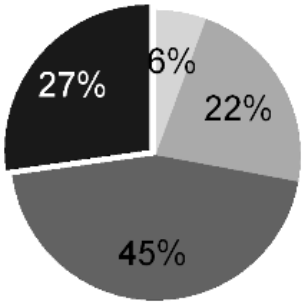
Niger



Senegal



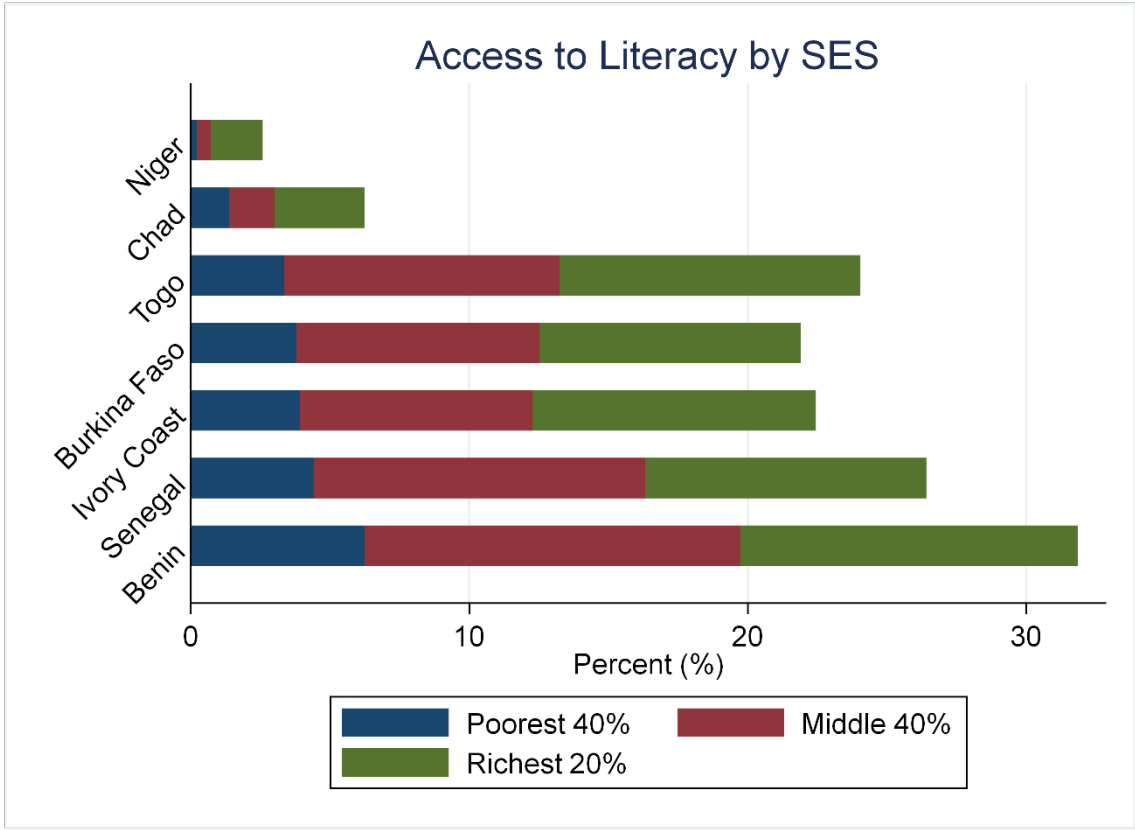
Togo



- **>1/3 children reading** in all countries
- >1/10 children reading in Chad & Niger

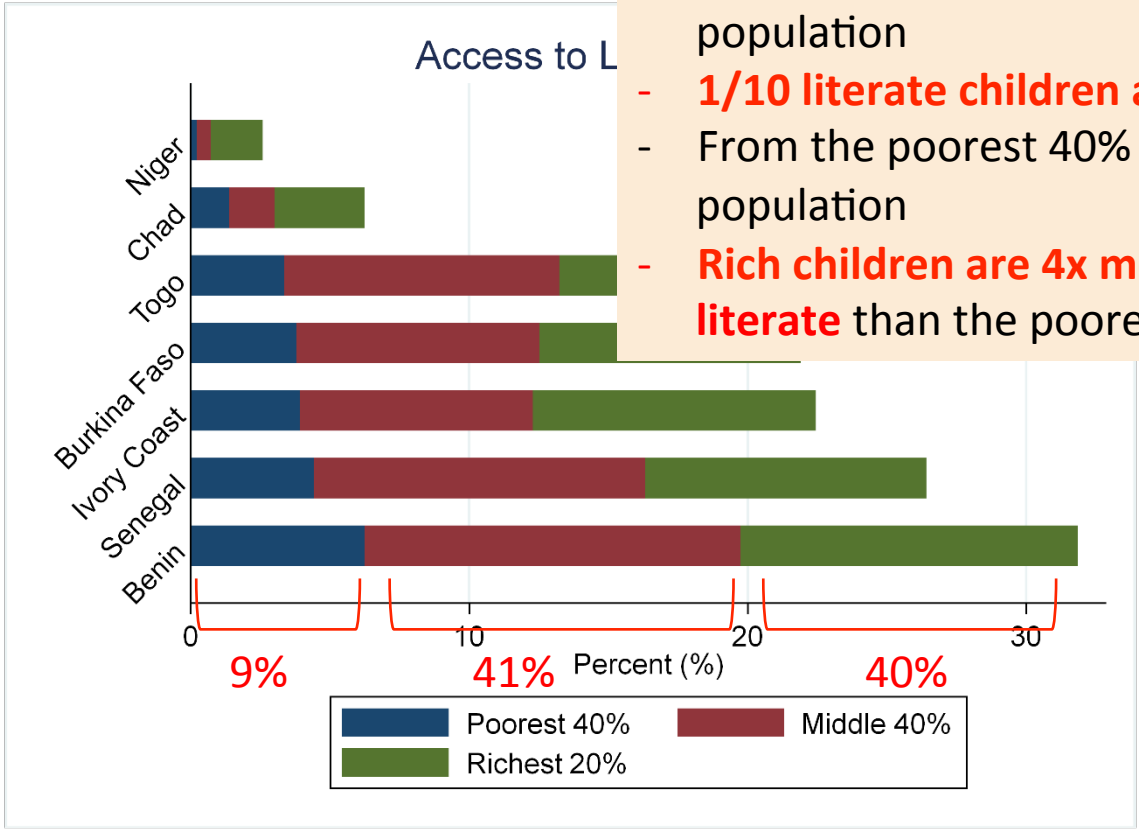

Education
inequality

Results (4): SES

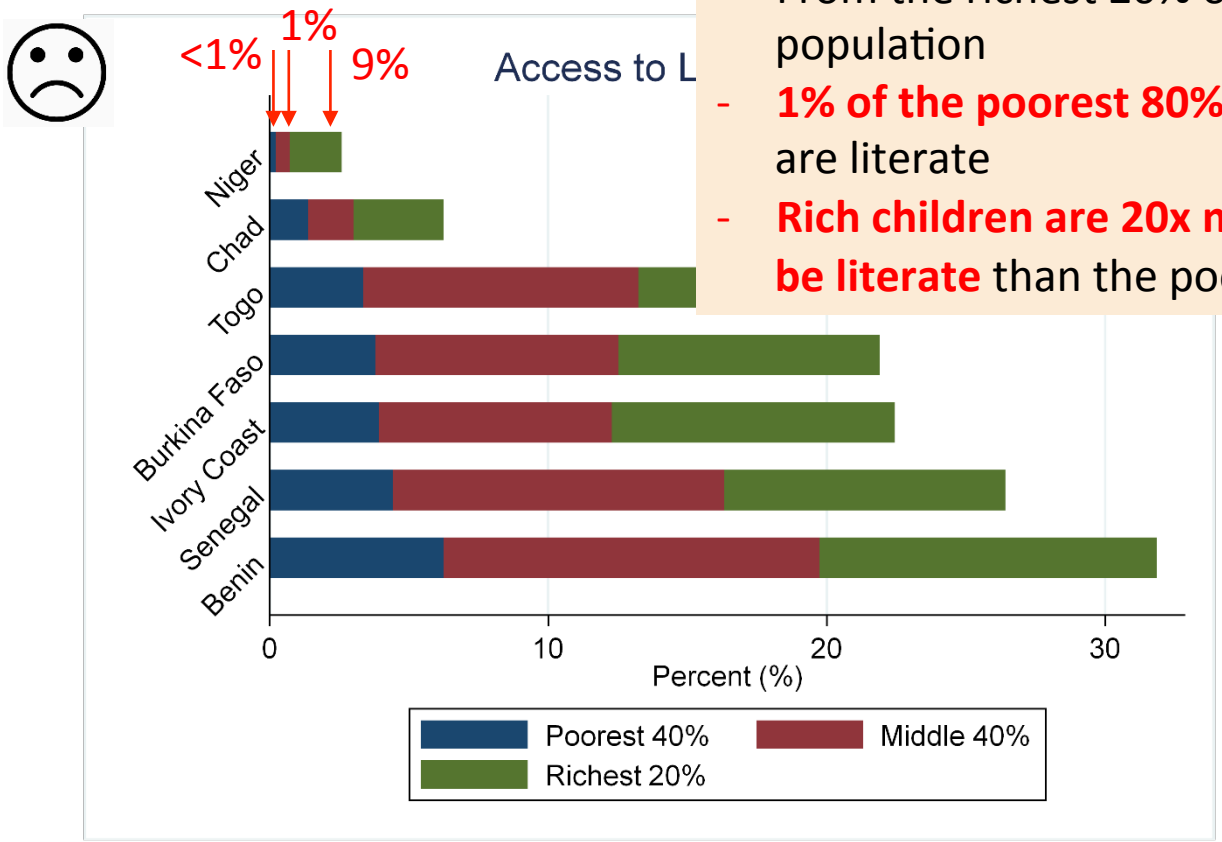


Results (4): SE

In Benin
- **2/5 literate children are wealthy**
- From the wealthiest 20% of the population
- **1/10 literate children are poor**
- From the poorest 40% of he population
- **Rich children are 4x more likely to be literate** than the poorest



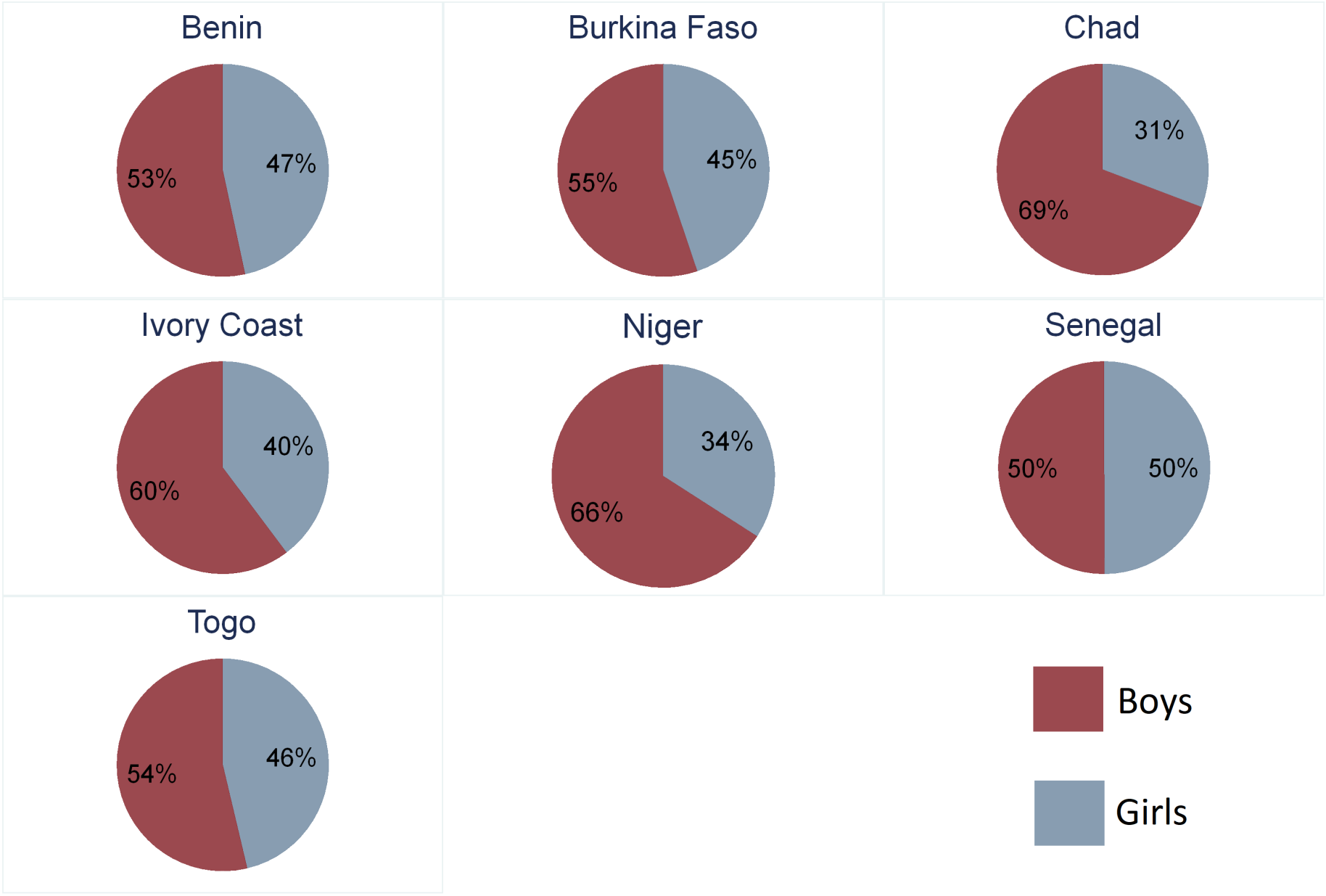
Results (4): SE



In Niger

- **7/10 literate children are weathy**
- From the richest 20% of the population
- **1% of the poorest 80%** of children are literate
- **Rich children are 20x more likely to be literate** than the poorest children

Access to Numeracy by Gender



Results (6): SES & Gender

(1) **<20% poor learn to read:** Less than 20% of the poorest boys and girls will learn to read or do math at a basic level

(2) **Poor boys > Poor girls:** The poorest boys always have better outcomes than girls, except in Senegal, although differences are not statistically significant

(3) **Total illiteracy for poorest girls:** In 5 of 7 countries, standard errors mean that it's possible that zero females are learning to read at a basic level

Take home points

Overall

(1) **<1/3 literate or numerate** in Benin, Burkina Faso, Ivory Coast, Senegal, Togo

(2) **<1/10 literate or numerate** in Chad, Niger

SES

(3) **Vast socioeconomic inequalities** In all countries

Gender

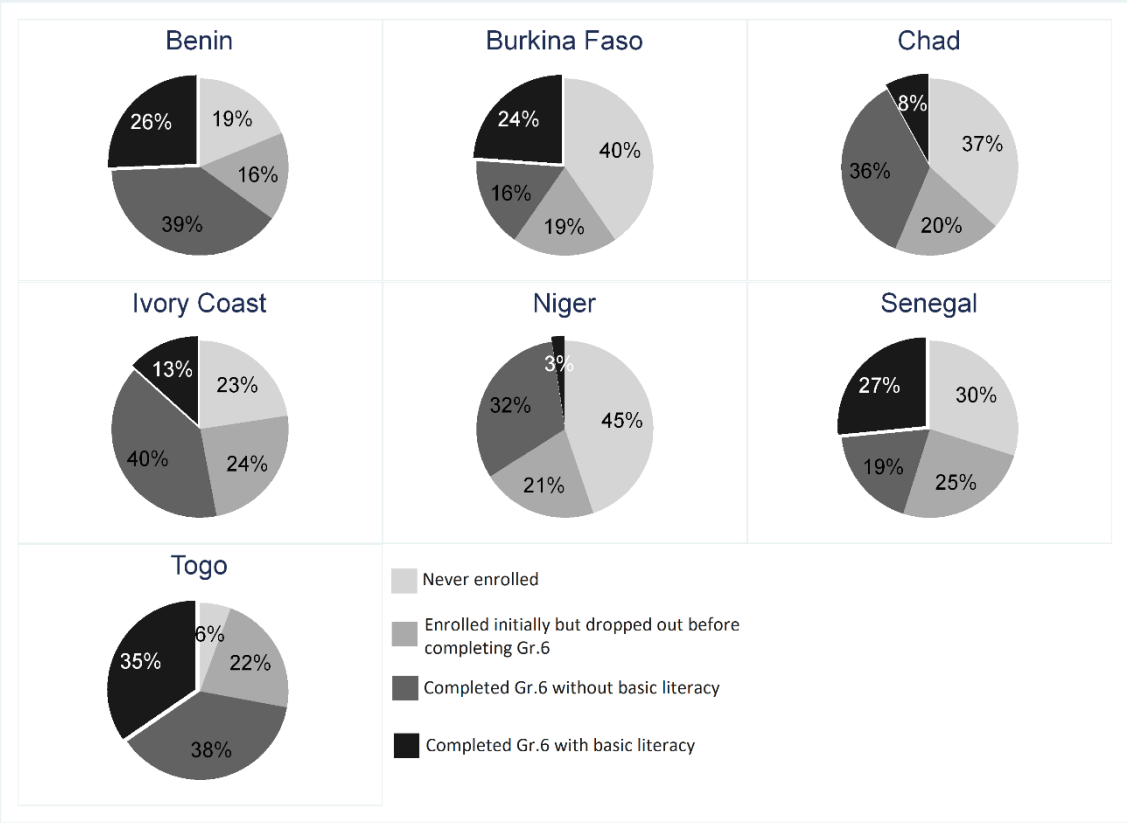
(4) **Total illiteracy for poorest girls** In 5 of 7 countries at lower confidence intervals

SUSTAINABLE DEVELOPMENT GOAL 4

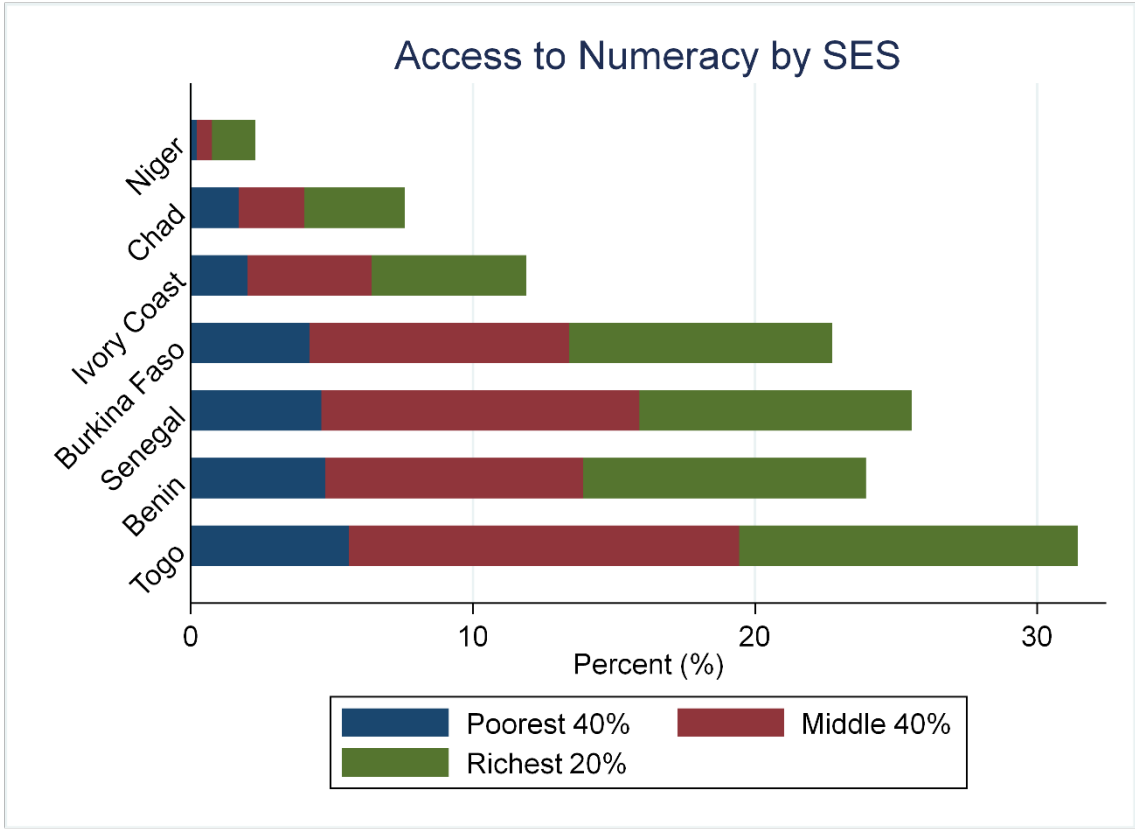
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Thank you

Numeracy (national)



Numeracy by SES



Problem Statement

Problem 1: Generally misleading results Using small non-representative sub-samples as a proxy for a cohort of 15 year olds or an entire schooling system can lead to misleading results.

Problem 2: Inaccurate cross-country comparisons when using only PISA data, especially when countries have different levels of incomplete access or different proportions of delayed (& ineligible) students.

Problem 3: Underestimating progress of the real educational improvements over time for countries that have improved access/attainment.

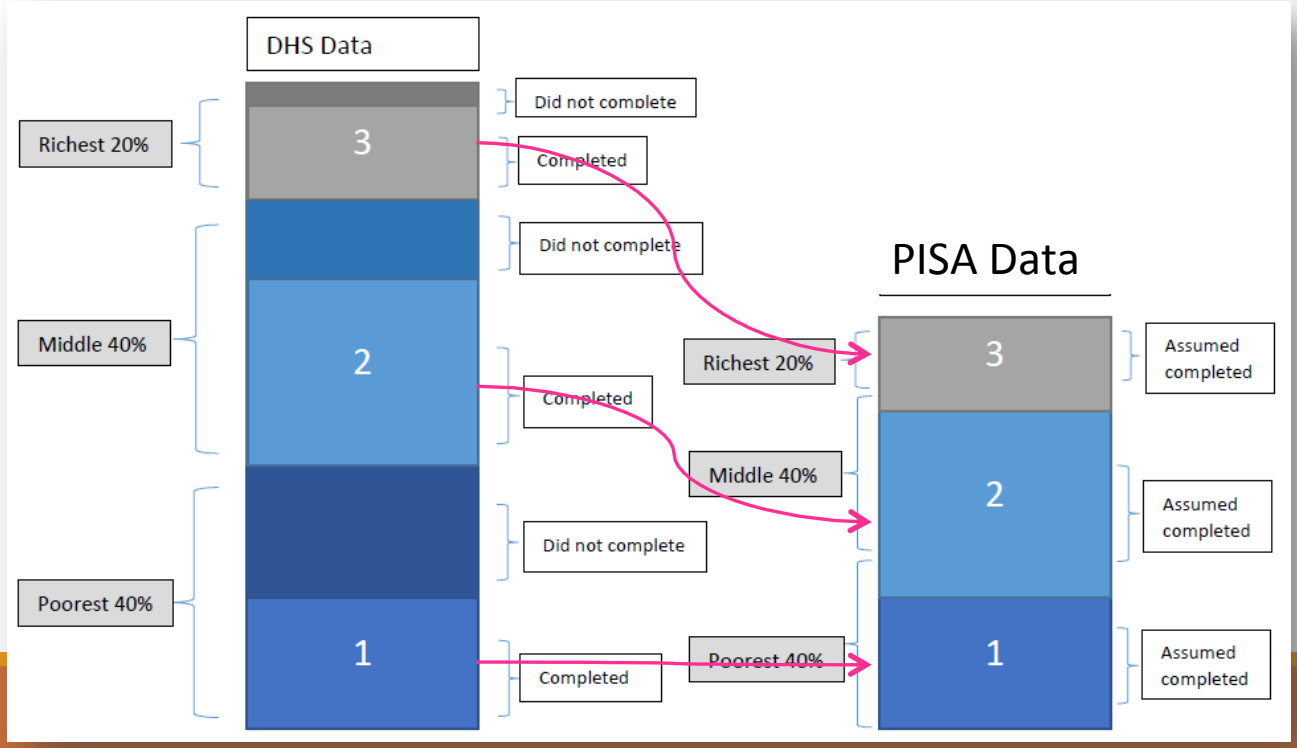
Problem 4: Underestimating inequality When there is a sample selection process involved such that poorer students are more likely to be excluded from the sample, PISA will underestimate socioeconomic inequalities

Creating "access to numeracy"

1. Get estimates of:
   - Percentage of 15-16 year-olds that are eligible for the PISA sample (enrolled and in Gr7+) (from DHS)
   - *(I choose to use 2 age years to increase the sample size and decrease the standard errors)*
   - Percentage of PISA sample that achieved Level 2+ in Maths (from PISA)
2. Multiply the two together, *assuming that ineligible students would not have reached Level 2…*
   1. *eg 80% of 15-16 year-old girls reach Gr7+*
   2. *50% of girls in PISA reach Level 2+*
      1. *Access-to-numeracy = 0.8*0.5 = 40%*
3. Correct for differential access-to-PISA-sample by SES…

Adjusting PISA SES 40-40-20 categories to correspond with DHS categories

$$Total\ PISA\ sample = \int_{0}^{\left(\frac{PER_{poor40}}{0.4*PER_{total}}\right)} CN_{ses} + \int_{\left(\frac{PER_{poor40}}{0.4*PER_{total}}\right)}^{\left(\frac{PER_{mid40}}{0.4*PER_{total}}\right)} CN_{ses} + \int_{\left(\frac{PER_{mid40}}{0.4*PER_{total}}\right)}^{\left(\frac{PER_{rich20}}{0.2*PER_{total}}\right)} CN_{ses}$$



on quality **AND access**

DATA

Without data you are just another person with an opinion.

Sensitivity Analysis & Limitations

Ineligible = illiterate? Large literature attesting to the fact that delayed students and those who drop out are more likely to come from poorer families, rural areas, be female and be low-performers prior to dropout (Lambin, 1995; Filmer & Pritchett, 1999; UNESCO, 2005; Lewin, 2007; Lewis & Lockheed, 2006)

Similar correlates in Turkey as shown in Köseleci's (2015) review of the Turkish literature.

In PISA 2012, those delayed 2-3 grades	**362** (Reading)
In PISA 2012, those 'on-track'/modal-grade	**500** (Reading)

(i.e. 1.6 SD's lower)

Conceptual overview

1. **Access & Quality –** Post-SDG's it is now a truism that we need to focus on both access and quality. But when *Filmer, Hasan & Pritchett (2006)* were arguing for it it wasn't common cause. Coming from Sub-Saharan Africa this is a MAJOR issue. Comparing SACMEQ scores across countries for example (Spaull & Taylor, 2015)

2. **Centre & periphery –** While PISA was designed with OECD countries in mind, there has been a rapid expansion into 'partner' (typically developing) countries. PISA assumptions built on the 'centre' not the periphery
   - "PISA provides an assessment of the cumulative yield of education and learning **at a point at which most young adults are still enrolled in initial education**" - OECD & UNESCO-UIS (2003, p. 249).
   - Of the **88** economies/regions that have participated in PISA only **36** are OECD (https://www.oecd.org/pisa/aboutpisa/pisa-participants.htm).

3. **Overlooking huge contextual differences -** Problems that were initially overlooked as being overly technical or unimportant (sample selection & coverage) need to be revisited in light of changing PISA demographic. Much more nuanced analyses and interpretations are necessary for developing countries.