Policy Brief

Efficiency: A Study of Promotion-, Repetition-, and Dropout Rates among Pupils in Four Age-groups in Sub-Saharan Africa

BACKGROUND[1]

School attendance by overage and underage pupils is widespread in developing countries. According to data from the UNESCO Institute of Statistics (UIS), in half of the Sub-Saharan Africa, roughly 20% of primary pupils are overage and 2.5% of primary pupils are underage[2]. In fact, these numbers underestimate the extent of underage- and overage attendance because they measure only the proportion of children attending primary school who are too young or old for primary as a whole. They do not include the many children who are overage or underage for their *grade* but still fall within the range of primary school children (for example, in a system where official entrance age is 6, first-grade pupils who are 7, or second grade pupils who are 6).

Pupils of different relative ages have unique needs, even when they are attending the same grade. Overage pupils are more likely to be from disadvantaged groups (UNESCO, 2006:26), and may be more independent and have greater extracurricular responsibilities than their younger peers. Underage pupils are more vulnerable and require greater attention to stimulate development to their fullest potential (UNESCO, 2006: 12). There is already some evidence to support the belief that overage pupils have higher repetition and drop-out rates than official age pupils (UNESCO, 2007:43; Cameron, 2005; Mendelson and Roberts, 1996; Wils, 2004). Less is known about underage pupils.

Because the incidence of over- and underage attendance is widespread, and because these pupils likely have unique needs and responses to their school environment, it is worth investigating the effect of pupil age on performance more carefully.

METHODOLOGY

The data for this study are from 22 Demographic and Health Surveys (DHS). The data are used to calculate promotion, repetition and dropout rates of pupils by their relative age. The datasets used are based on the most recent post-2000 DHS surveys available for countries in Sub-Saharan Africa.

---

[2] 2004-2006 data for 33 countries taken from UIS.

Policy Brief

Table 1. DHS datasets included in the study

Benin	2006	Mali	2001
Burkina Faso	2003	Mozambique	2003
Cameroon	2004	Namibia	2000
Congo, Rep.	2005	Niger	2006
Ethiopia	2005	Nigeria	2003
Ghana	2003	Rwanda	2005
Guinea	2005	Senegal	2005
Kenya	2003	Tanzania	2004
Lesotho	2004	Uganda	2006
Madagascar	2004	Zambia	2002
Malawi	2004	Zimbabwe	2006

Relative age of pupils:
The relative age of a pupil refers to the number of years the pupil's age departs from the official age for their grade. The official ages for each grade are based on UNESCO Institute for Statistics (UIS) definitions. Relative age groupings are designated as follows:

- *Underage:* The pupil's age for the previous year is lower than the official age for the grade they reported attending during the previous year.
- *On-time:* The pupil's age for the previous year is equal to the official age for the grade they reported attending during the previous year.
- *One year overage:* The pupil's age for the previous year is one year higher than the official age for grade they reported attending during the previous year.
- *2+ years overage:* The pupil's age for the previous year is two or more years higher than the official age for the grade they reported attending during the previous year.

Note that this definition of overage is overage for grade, as opposed the definition of overage commonly used by UIS and GMR, where the overage pupils in primary are those who are older than the official primary school age range.

Pupil flow rates:
The study compares the flows of pupils by relative age based on three indicators:

- *Promotion*: Pupils who advance one or more grades from one year to the next.
- *Repetition:* Pupils who attend an equal (or lower) grade from one year to the next.
- *Dropout*: Pupils who attend school in one year, but not the next.

Pupils who quit school at one of the transition grades, such as the end of primary-, basic-, mandatory-, or lower secondary school, are counted as dropouts – peak dropout rates at these points indicate barriers that prevent pupils from moving on the next level. The study does not extend past the last grade of secondary, so all pupils who report having completed the last grade of secondary are classified as 'promoted'.

KEY FINDINGS

Prevalence of overage and underage pupils
- Overage pupils account for a large proportion of the student body in nearly all of the 22 Sub-Saharan African countries. In most of these countries, the proportion of overage pupils increases with each grade. Pupils 2+ years overage account for more than 25% of all primary students in 19 of the 22 countries, and more than 50% of the student body in 4 (Fig. 1).
- Underage pupils also constitute a notable proportion of the student body. Underage pupils account for more than 15% of primary pupils in 13 of 22 countries, and more than 25% in six. Underage pupils are most prevalent in grade 1, where they make up more than 15% of pupils in 19 of 22 countries, and more than 25% of pupils in 11 countries (Fig. 1).
-

Fig. 1 Primary pupils by relative age group
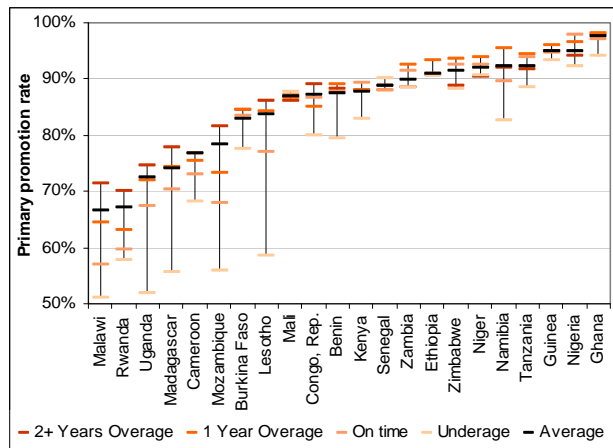
Performance by underage pupils
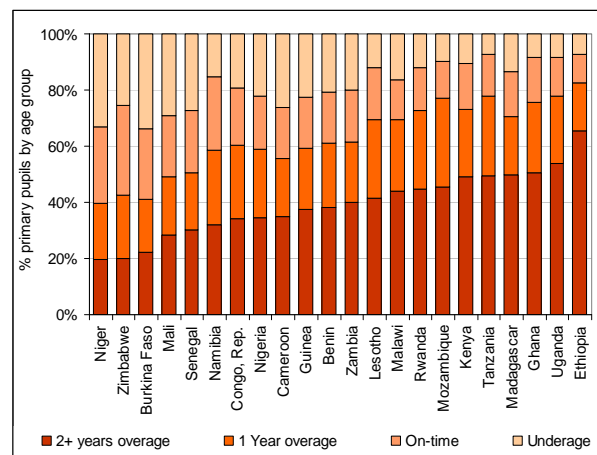
- In the early grades of primary school, underage pupils are the worst performing age group.

Policy Brief

Underage promotion rates are well below average in most countries (Fig. 2), and repetition rates are up to 20 percentage points higher than those of on-time and older pupils (Fig. 6).

Fig. 2 Primary promotion by relative age group

- Underage repetition rates are especially high in grade 1, where underage repetition exceeds 15% in 12 countries, and 50% in 6 (Fig. 6).
- In grade 1, underage pupils comprise a disproportionate percentage of grade 1 repeaters. In all countries, the proportion of underage grade 1 repeaters exceeds the proportion of underage grade 1 pupils. In 7 countries, the size of this gap is greater than 15 percentage points (Fig. 3).

Fig. 3 Underage pupils as a percentage of grade 1 pupils, and as a percentage of grade 1 repeaters
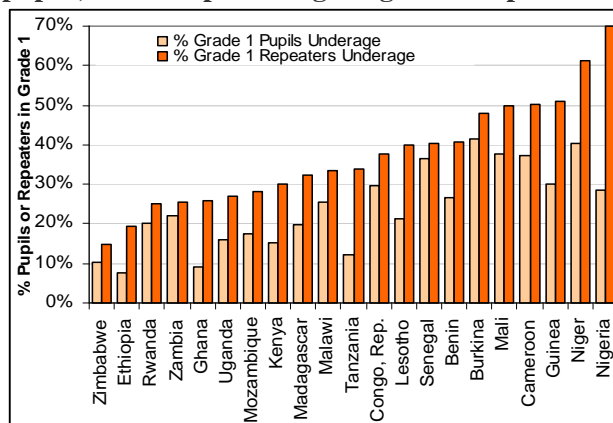

- At higher grades of primary, underage pupils have lower repetition rates (Fig. 6).

- Because underage pupils have low dropout rates at all grades (Fig. 7), underage survival rates are better than those of older pupils.

Performance by overage pupils
- At the lower grades of primary school, overage pupils out-perform younger pupils: promotion rates for overage pupils are equal to or greater than the national rate (Fig. 2), and repetition and dropout rates are lower (Fig.'s 6 & 7).
- At the higher grades of primary, pupils 2+ years overage have higher dropout rates (Fig. 7). Survival rates, a summary measure of pupil performance, are significantly lower for 2+year overage pupils than for on-time and one year overage pupils by grade 5 (Fig. 4).

Fig. 4 Survival to grade 5 by relative age group
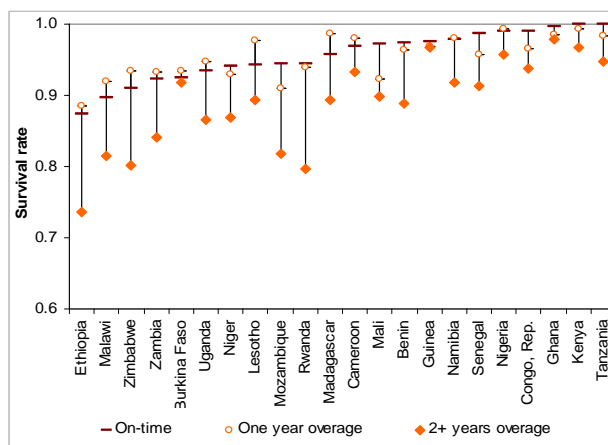
Repetition versus dropout
- At all grades and for all age groups, pupils who are not promoted to the next level are more likely to repeat a grade than to drop out of school (Fig.'s 6 & 7).
- Repetition rates are particularly high in the lower grades of primary school, and especially high in grade 1, where dropout rates are lowest (Fig. 6).
- Dropout rates are especially high in the upper grades of primary, and highest in the last grade of primary (Fig. 7).
- Overage pupils are more likely to drop out than younger pupils. Underage pupils have the lowest dropout rates; pupils 2+ years overage have the highest (Fig. 5).

Repetition and dropout at transition grades

Policy Brief

- In many countries, the highest repetition and dropout rates can be observed at important transition grades such as first and last grades of primary school; and the last grades of lower- and upper secondary school. Greater inefficiencies at these transition grades may be explained by examinations, fees, or other barriers to progression (Fig. 5).

Opportunities for targeted intervention:
The study finds that in the early grades of primary school, overage pupils generally have the highest promotion rates, and underage pupils the lowest. This pattern is reversed in the higher grades of primary, where underage pupils have the highest promotion rates, and overage pupils the lowest.

Underage pupils in most countries in the study have much higher repetition rates in the first grade of school than on-time and older pupils. This finding suggests that there is an unmet need for early childhood education in these countries – parents appear to be utilizing first grade as a replacement for nonexistent or insufficient kindergarten and pre-school facilities.

Dropout rates of overage pupils gradually increase throughout primary school, and in many countries peak at the last grade of primary (the transition to secondary school). The grade-5 survival rate of overage pupils is lower than the grade-5 survival rate for younger pupils. This under-performance by overage pupils at higher grades is particularly noteworthy when compared to their above-average performance in lower grades.

A deepened understanding the nature of the pressures faced by pupils of different age groups, and the manner in which these pressures are amplified or diminished at various points in their educational careers can be an invaluable tool for policymakers. Through carefully-targeted interventions designed to address the specific needs of a single age group at a barrier grade, it may be possible to achieve improvements in the internal efficiency of a school system.

REFERENCES

Cameron, Laurie, 2005. *Primary Completion Rates.* Technical Paper WP-09-01. Education Policy and Data Center, Washington, DC (FHI 360).

Education Policy and Data Center. 2007. Past and future school participation around the world: comparisons by school level, Sub-national region and over time. Background paper for EFA Global Monitoring Report 2008.

Mendelsohn, JM, Roberts, CS. 1996. *A profile of education in Namibia*, Ministry of Basic Education and Culture, Windhoek, Namibia.

UNESCO, 2006. *EFA Global Monitoring Report 2007. Strong Foundations.* Paris, UNESCO

UNESCO. 2007. *EFA Global Monitoring Report 2008. Education for All by 2015: Will we make it?*. Paris, UNESCO.

Wils, A. 2004. "Late Entrants Leave School Earlier: Evidence from Mozambique", International Review of Education / Internationale Zeitschrift für Erziehungswissenschaft / Revue internationale de Éducation 50: 17-37 January 2004

ABBREVIATIONS

DHS	Demographic and Health Surveys
EFA	Education for All
EPDC	Education Policy and Data Center
GMR	Global Monitoring Report
UIS	UNESCO Institute of Statistics
UNESCO	United Nations Education, Science, and Culture Organization
USAID	United States Agency for International Development

Policy Brief

DEFINITIONS

Children of primary school age. The total number of children who are of the ages in the primary school age interval.

Children of secondary school age. The total number of children who are of the ages in the secondary school age interval.

Dropout rate grade X. Pupils who were not attending school in the current year but *did* attend grade X in the previous year, divided by the pupils who attended grade X in the previous year. This is a broad definition of dropouts, and includes both 1) pupils who dropped out without completing the grade or level they most recently attended, and 2) pupils who completed a grade or level but did not move on the next. With this definition, pupils who quit school at one of the transition grades, such as the end of primary, basic, mandatory, or lower secondary school, are counted as dropouts – peak dropout rates at these points indicate barriers that prevent pupils from moving on to the next level. The study does not extend past the last grade of secondary and all pupils who report having completed the last grade of secondary are classified as 'promoted'.

Official age to start school. Official age at which children should enter first grade of primary school.

On-time. The pupil's age for the previous year is equal to the official age for the grade they reported attending during the previous year.

One year overage. The pupil's age for the previous year is one year higher than the official age for grade they reported attending during the previous year.

Primary school age. The age between the official age to start school and the official age to end primary school (official start age plus number of grades in primary school).

Promotion rate grade X. Pupils who were attending grade X+1 or higher in the current year *and* who attended grade X in the previous year, divided by the pupils who were attending grade X in the previous year. This category includes pupils who were reported to have advanced one *or more* grades from the first year to the next.

Promotion rate last grade of secondary school. Pupils who were attending the last grade of secondary school in the previous year *and* report currently having attained "complete secondary", divided by the pupils who were attending the last grade of secondary school in the previous year. Because the study analyzes the pupils who attended school in the previous year for each dataset, *new entrant*s to the school system in the present year are not considered in this study. A pupil would be classified as a new entrant if they reported not having attended school in the previous year, but did attend school in current year.

Relative age of pupils. Refers to how many years the pupils' age departs from the official age for their grade. The official ages for each grade are based on UNESCO Institute for Statistics (UIS) definitions.

Repetition rate grade X. Pupils who were attending grade X or a lower grade in the current year *and* who attended grade X in the previous year, divided by the pupils who were attending grade X in the previous year.

School survival to grade 5. Calculated using the reconstructed cohort method based on promotion, repetition, and dropout rates up to grade 5. It is primarily determined by dropout rates; secondarily by repetition. Promotion, repetition and dropout can be calculated from DHS data on attendance by grade in the present and the previous year. The promotion rate for grade n is the percent of children in grade n+1 in the present year, who were in school in grade n in the previous year. The repetition rate is the percent of children in grade n in the present year, which was also in grade n in the previous year. The dropout rate for grade n is children who were in grade n in the previous year, but are not attending school in the present year.

Policy Brief

Secondary school age. The age between the official start age for secondary (the last official age of primary school plus one), and official age to end secondary school (the official start age for secondary plus the number of grades secondary school).

Underage. The pupil's age for the previous year is lower than the official age for the grade they reported attending during the previous year.
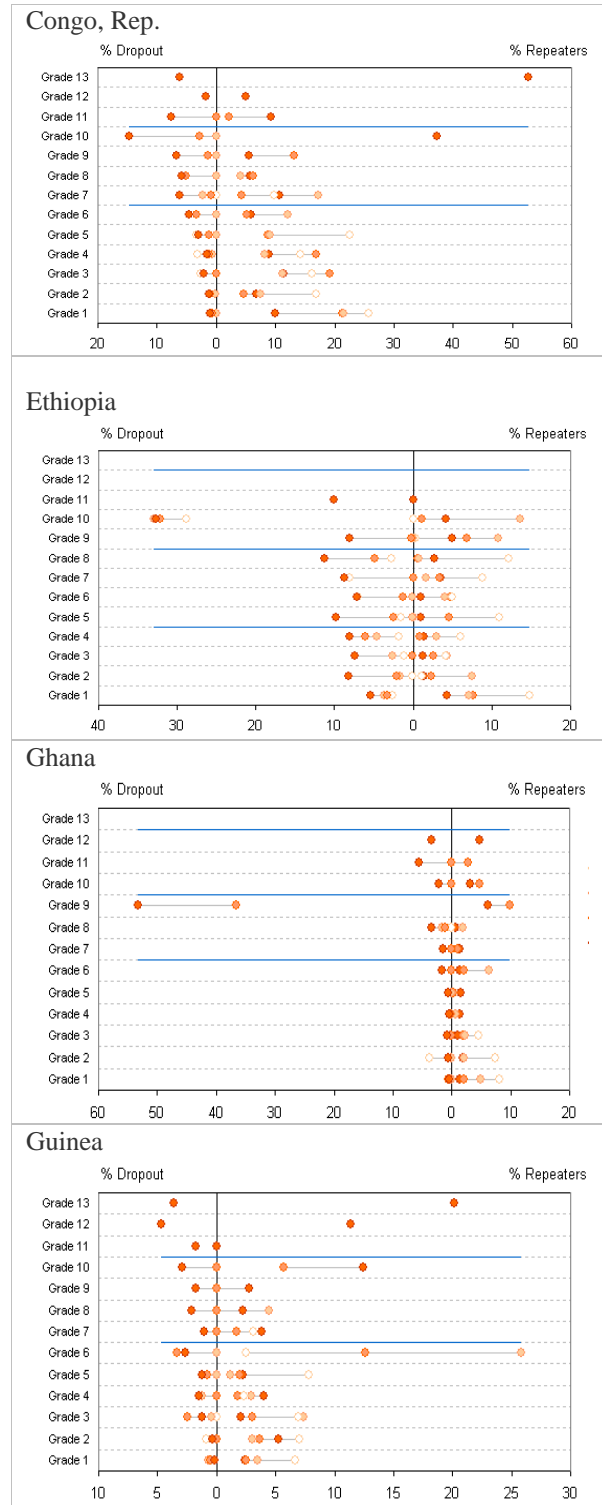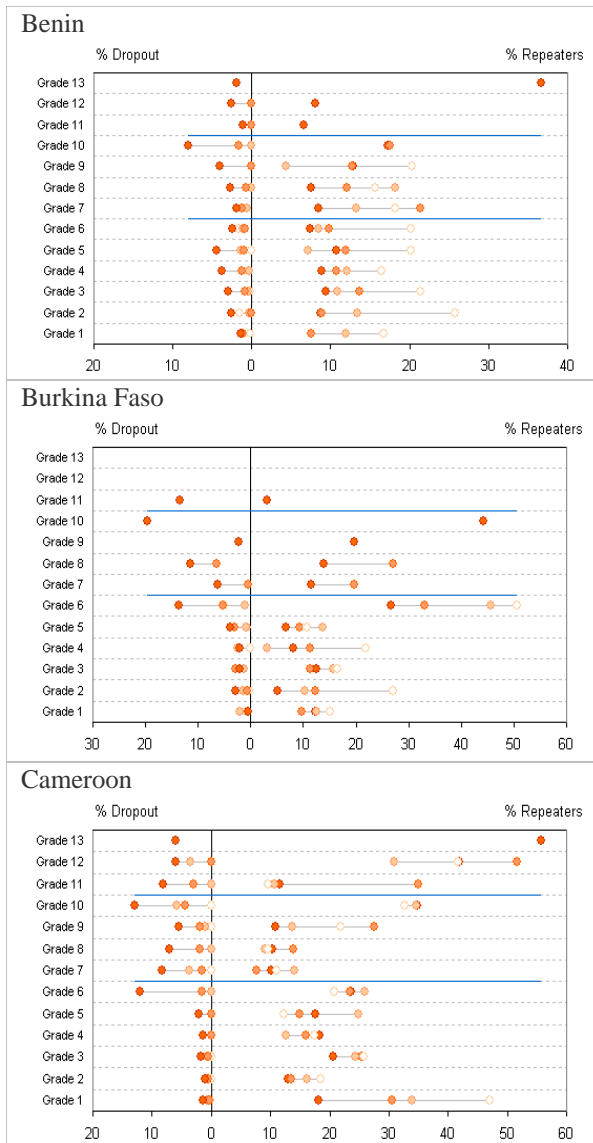
2+ years overage. The pupil's age for the previous year is two or more years higher than the official age for grade they reported attending during the previous year. Note that this definition of overage is *overage for grade,* as opposed the definition of overage commonly used by UIS and GMR, where the overage pupils in primary are those who are older than the official primary school age range.
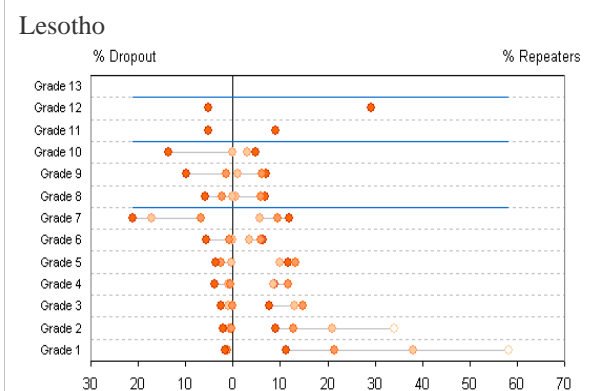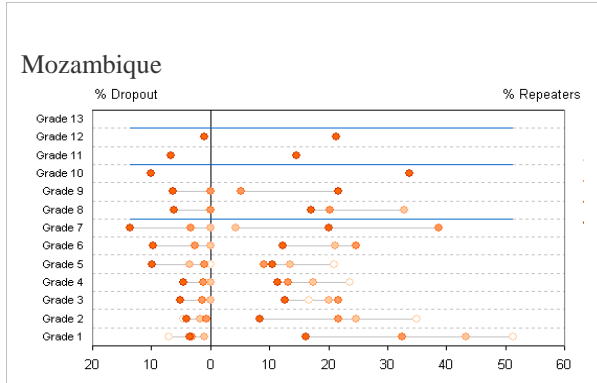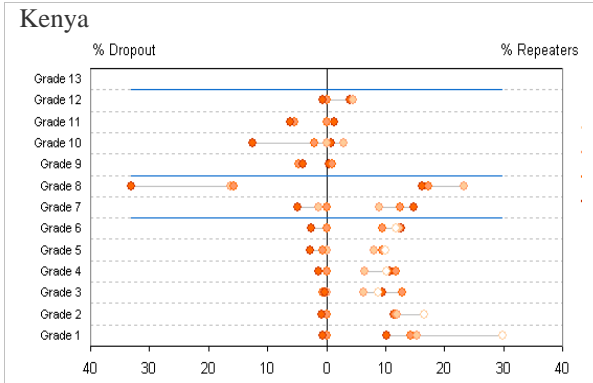
ANNEX

Figure 5 Efficiency Pyramids
The efficiency pyramids on the following pages give dropout rates and repetition rates for each relative age group at each grade. Dropout rates are given to the left of the center line, and repetition rates to the right. The lightest circles represent underage pupils and the darkest represent pupils 2+ years overage. Solid lines indicate transition grades.
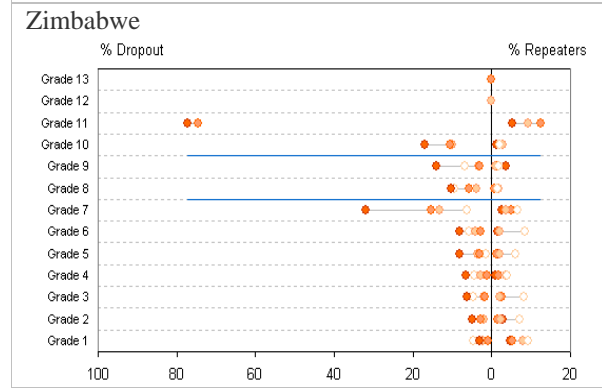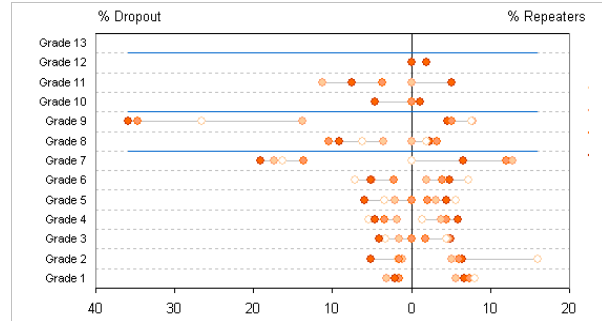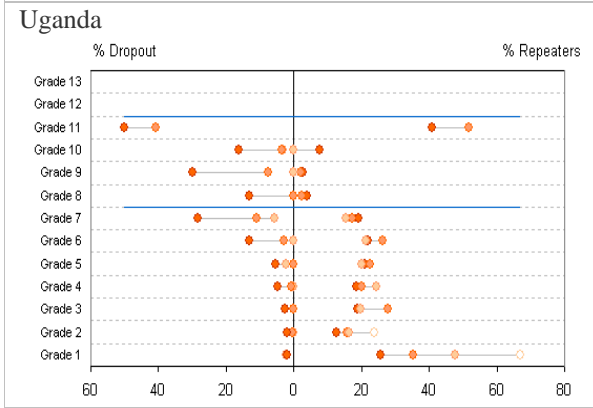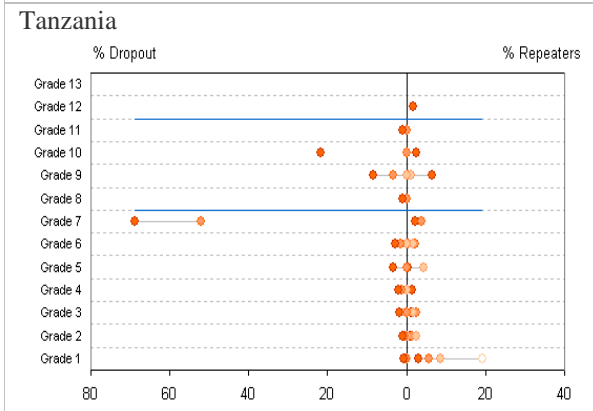

Benin

Burkina Faso

Cameroon

Congo, Rep.

Ethiopia

Ghana

Guinea

Policy Brief

Kenya — % Dropout / % Repeaters (Grade 1–Grade 13)

Mozambique — % Dropout / % Repeaters (Grade 1–Grade 13)

Lesotho — % Dropout / % Repeaters (Grade 1–Grade 13)

Namibia — % Dropout / % Repeaters (Grade 1–Grade 13)

Madagascar — % Dropout / % Repeate (Grade 1–Grade 13)

Niger — % Dropout / % Repeaters (Grade 1–Grade 13)

Mali — % Dropout / % Repeaters (Grade 1–Grade 13)

Nigeria — % Dropout / % Repeaters (Grade 1–Grade 13)

Rwanda

Senegal

Tanzania

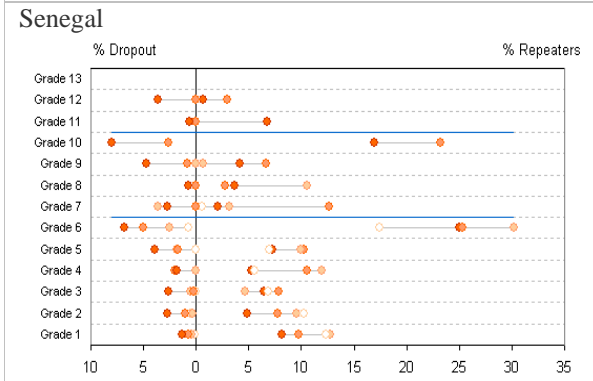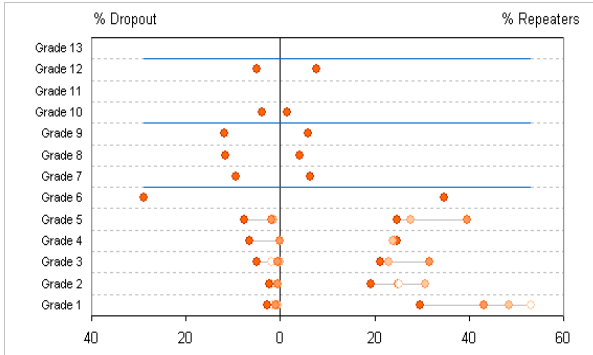Uganda

Zimbabwe

Zambia

Policy Brief

Figure 6 Repetition Rates for each relative age group at the first grade of primary, primary, and the last grade of primary
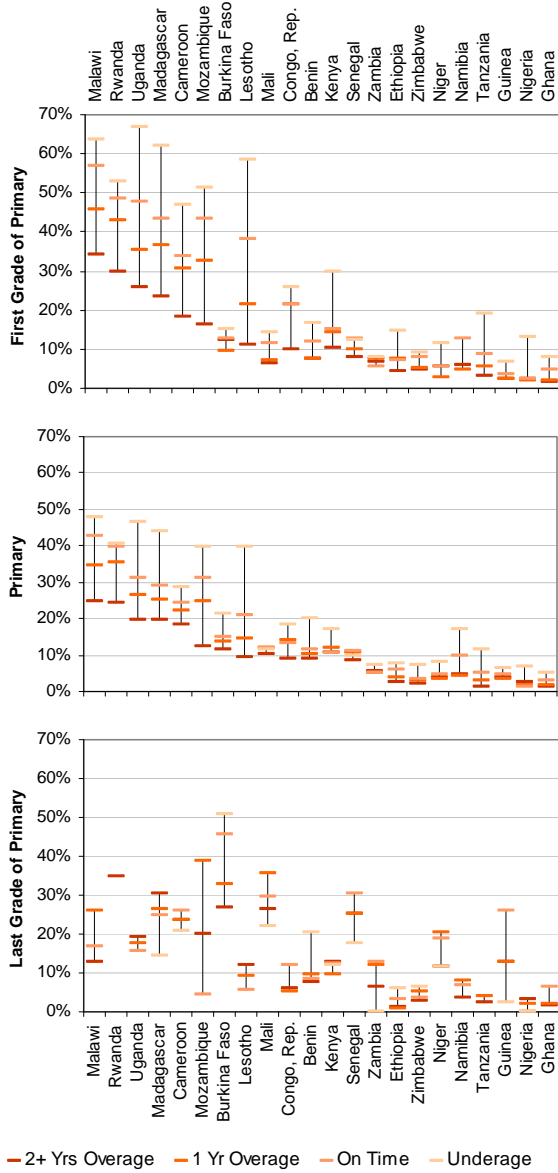

Figure 7 Dropout Rates for each relative age group at the first grade of primary, primary, and the last grade of primary