The Investment Case for

EDUCATION AND EQUITY

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EDUCATION AND EQUITY

Acknowledgements

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Foreword

Education is a right and a crucial opportunity. It holds the key to a better life for a billion children and adolescents worldwide: a life with less poverty, better health and an increased ability to take their future into their own hands. Education, particularly girls' education, is also one of the most powerful tools for creating economic growth, decreasing the likelihood of conflict, increasing resilience and impacting future generations with wide-reaching economic and social benefits.

Progress towards education for all was unprecedented between 2000 and 2007 and resulted in a decline in the number of primary-school-age children from 100 million to 60 million. In recent years, however, progress has stalled, leaving the most vulnerable children excluded from education and learning. In 2012, nearly 58 million children of primary school age and about 63 million adolescents of lower secondary school age were still out of school. Many of them live in conflict-afflicted regions and emergency situations. Many are poor and live in rural areas. Many also face discrimination because of ethnic origin, language, gender or disability. In addition, pre-primary education is underdeveloped, particularly in low-income countries, where the average gross enrolment ratio is 19 per cent.

Even more importantly, there is a learning crisis that urgently needs to be addressed. Evidence shows that even if children go to school, they often do not acquire the basic competencies due to the poor quality of education provided. It is estimated that 130 million children do not learn to read or write despite reaching Grade 4. This failure to learn puts children at a disadvantage at a very early stage, and disparities increase as children move through grades.

Prepared while the international community works on the post-2015 development agenda, the *Investment Case for Education and Equity* examines the challenges facing education today, including the growing school-age populations in the world's poorest countries. Sub-Saharan Africa, the region with the largest number of out-of-school children in the world, will have to provide basic education to 444 million children between the ages of 3 and 15 in 2030, 2.6 times the numbers enrolled today.

/ Challenges in the education sector will not be addressed solely by increased funding. Policies that allow for the equitable targeting of resources and improve the efficiency of overall education spending are needed.

The report establishes three essential ingredients to revive progress in increasing the number of children who can go to school and learn: more funding for education, an equitable approach to resource allocation and more efficient spending on quality education.

More funding is required from governments and donors, including a greater provision of resources to education during and in the aftermath of conflicts and emergencies. Increased education financing is also more than a humanitarian act: It is an investment in strong economies and in more peaceful, resilient and equitable societies.

Challenges in the education sector will not be addressed solely by increased funding. Policies that allow for the equitable targeting of resources and improve the efficiency of overall education spending are needed. With limited resources and a long way to go before every child has access to education and learning, it is essential to identify and support country-specific, cost-effective policies and interventions. Making sound decisions will require strong evidence and better data. Given the magnitude of the learning crisis, we need strengthened learning assessment systems, particularly for the early grades, and strong accountability structures to improve the way in which investments are transformed into actual learning.

Providing these ingredients will be challenging. But it is necessary if we want to provide a billion children with their birthright: learning. Because today's investment in education is tomorrow's success.

Anthony Lake
Executive Director, UNICEF

Abbreviations and definitions[1]

BREDA: Regional Bureau for Education in Africa (UNESCO)

Completion: participation in all components of an educational programme, including final exams, if any, irrespective of the result of any potential assessment of achievement of learning objectives

Completion rate: proportion of a student cohort that completes a given level of education. Completion rates are often approximated using a proxy: the gross intake ratio to the last grade of the level considered, e.g., primary or lower secondary education (*see below*).

CONFEMEN: Conference of the Ministers of Education of French-speaking countries

Dependency ratio: proportion of primary-school-age children in the total population

DHS: Demographic and Health Survey

EFA: Education for All

GDP: gross domestic product, the sum of gross value added by all resident producers in the economy, including distributive trades and transport, plus any product taxes and minus any subsidies not included in the value of the products

GER: gross enrolment ratio/rate, the number of students enrolled in a given level of education, regardless of age, expressed as a percentage of the official school-age population corresponding to the same level of education; for the tertiary level, population is the 5-year age group starting from the official secondary school graduation age

GMR: Global Monitoring Report (Education for All)

GPE: Global Partnership for Education

GPI: gender parity index, the ratio of female to male values of a given indicator

Gross intake ratio to the first grade of primary education: total number of new entrants in Grade 1 of primary education, regardless of age, expressed as a percentage of the population at the official primary school entrance age

Gross intake ratio to the last grade of primary (resp. lower secondary) education: total number of new entrants in the last grade of primary education, regardless of age, expressed as a percentage of the population at the theoretical entrance age to the last grade of primary education

Humanitarian funding: humanitarian funding relates to funding for interventions to help people who are victims of a natural disaster or conflict meet their basic needs and rights; tracking of humanitarian funding by the United Nations Office for the Coordination of Humanitarian Affairs[2] includes consolidated appeals, response to natural disasters, bilateral aid and all other reported humanitarian funding

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1 Definitions of statistical indicators are, when possible, from the UNESCO Institute for Statistics Glossary, www.uis.unesco.org/Pages/Glossary.aspx.

2 Financial Tracking Service, http://fts.unocha.org/pageloader.aspx?page=emerg-globalOverview&year=2014.

IIEP: International institute for Educational Planning

Income quintiles: the division of households into five income groups, the 'quintiles', from lowest income to highest income such that 20 per cent of the population is in each group

MICS: Multiple Indicator Cluster Surveys

ODA: official development assistance, the flows of official financing administered with the main objective of promoting the economic development and welfare of developing countries, and which are concessional in character with a grant element of at least 25 per cent – by convention, ODA flows comprise contributions of donor government agencies, at all levels, to developing countries and to multilateral institutions, and ODA receipts comprise disbursements by bilateral donors and multilateral institutions

OECD: Organisation for Economic Co-operation and Development

PASEC: Programme for the Analysis of Education Systems (in CONFEMEN countries)

Pôle de Dakar: an education sector analysis unit set up within the UNESCO's International Institute for Education Planning

PTA: parent-teacher association

SACMEQ: Southern and Eastern Africa Consortium for Monitoring Educational Quality

SEE: Simulations for Equity in Education

UIS: UNESCO Institute for Statistics

UNESCO: United Nations Educational, Scientific and Cultural Organization

UNICEF: United Nations Children's Fund

UNRWA: United Nations Relief and Works Agency for Palestine Refugees in the Near East

Survival rate: percentage of a cohort of students enrolled in the first grade of a given level or cycle of education in a given school year who are expected to reach a given grade, regardless of repetition; 'survival' is different from completion in the sense that it only considers students who started the first grade of the level or cycle of education, while completion considers all children

WHO: World Health Organization

WIDE: World Inequality Database on Education – www.education-inequalities.org; produced by the EFA GMR and UNESCO, gathering DHS and MICS data from more than 60 countries

/ Introduction

The international community is currently working on the post-2015 development agenda. The proposed goals and targets are not yet fully defined, but the general outline is known – including a continuation of the unfinished Education for All (EFA) agenda, an emphasis on equity and a focus on learning. The proposals also encompass an increased emphasis on the provision of secondary education for an increasing number of primary school leavers, and the goal to equip children and youth with skills that are adapted to the needs of the labour market in a fast-changing and increasingly globalized economy. Most of these issues are covered in this document.

Recent history has shown that considerable progress in achieving education for all can be made with concerted efforts, as enrolment rates have climbed, particularly in countries in sub-Saharan Africa and South Asia, which had very low levels of access in the early 2000s. According to the UNESCO Institute for Statistics (UIS Data Centre), between 2000 and 2012, the percentage of out-of-school children among primary-school-age children has declined from 40 per cent to 22 per cent in sub-Saharan Africa and from 20 per cent to 6 per cent in South Asia.

Still, in 2012, 57.8 million primary-school-age children were out of school (about 121 million if lower secondary is included). Access to education remains unequal. In addition, the pace of progress in access to education has slowed down, and the number of out-of-school children of primary school age worldwide has declined, on average, by a mere 1 per cent annually between 2007 and 2012. In contrast, the decline was 7 per cent a year between 2000 and 2007. The percentage of out-of-school children in conflict-affected countries rose from 42 per cent in 2008 to 50 per cent in 2011 (GMR 2013).

Progress is also affected by the challenges countries face as they increasingly need to enrol harder-to-reach groups of children than those who first benefited from the gains made in access to education. This means that in order to enrol out-of-school children, not only is there a need to invest more, but there is also a need to do things differently. Furthermore, there must be more of a focus on learning, not just access.

Chapter 1 examines the wide-reaching impact of education, economically and socially. One key message is that not all education levels are equally important – both from an equity perspective and as a means to maximize the benefits of education in developing countries.

Chapter 2 analyses which children remain excluded from education, considering access, completion and learning.

Chapter 3 explores the barriers to education, including education funding levels (domestic resources and external aid), how it is distributed and how efficiently it is used. Finally,

Chapter 4 recommends ways of addressing the challenges highlighted in Chapter 3, including improved data and increased, more equitable and cost-effective investment.

/ In order to enrol out-of-school children, not only is there a need to invest more, but there is also a need to do things differently.

1.

One billion reasons for investing in education

◄ Pre-primary students at Shilchari Para Kendra in Rangamati, south-east Bangladesh.

There are approximately 650 million primary-school-age children and 370 million children of lower secondary school age in the world today. If children of pre-primary school age are included, the total rises to 1.4 billion. Improving the futures of these children – whether they are poor, live in conflict situations, or face discrimination because of gender, disability or ethnic origin – is the most important reason to invest in education. The Universal Declaration of Human Rights (article 26) states that education is an inherent right: "Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages" (United Nations 1948).

The Convention on the Rights of the Child asserts children's right to education in article 28, and states in article 29 that "the education of the child shall be directed to … development of the child's personality, talents and physical abilities to their fullest potential." In article 23, the Convention asserts the rights of children with disabilities and calls for special care and support.

A rights-based approach to education is also reflected in UNICEF's 2014–2017 Strategic Plan:

> The fundamental mission of UNICEF is to promote the rights of every child … For UNICEF, equity means that all children have an opportunity to survive, develop and reach their full potential, without discrimination, bias or favouritism. To the degree that any child has an unequal chance in life – in its social, political, economic, civic and cultural dimensions – her or his rights are violated. There is growing evidence that investing in the health, education and protection of a society's most disadvantaged citizens – addressing inequity – not only will give all children the opportunity to fulfil their potential but also will lead to sustained growth and stability of countries. This is why the focus on equity is so vital. It accelerates progress towards realizing the human rights of all children (UNICEF Executive Board 2013, I.1).

Despite common agreement about children's right to education, millions are still excluded from exercising their right. When the time comes to make choices, education is too often considered less important, or even a luxury. Children living in conflict, for example, are frequently seen as only needing life-saving interventions, education is often perceived in poor or marginalized communities as less important for a girl than for a boy, and children with disabilities are rarely given the same opportunities as children without disabilities.

Additionally, international aid does not focus enough on education. While not minimizing the importance of health-related interventions, during 2010–2012, on average, external aid to health amounted to US$20 billion a year compared with only US$13 billion a year for education.[3] These trends do not mirror the importance placed on education and health in developing countries' budgets. On average, in low-income countries, the share in total government expenditures is 9.2 per cent for health and 16.3 per cent for education.[4] Donors do not attribute the same priority to education as governments do.

This chapter makes the case for investment in education by presenting concrete evidence of the positive impact education has on individuals, families and nations, both in terms of national income, economic growth and poverty reduction and in human development outcomes such as health, fertility, women's empowerment, risk management, individual and community resilience, civic engagement and increased tolerance (*see Sections 1.1.2 and 1.2.2*).

Equally important, this chapter shows that equity and education are highly associated in multiple regards, strengthening the rationale for inclusive education in support of inclusive economic and social growth. Chapter 1 also demonstrates that the level of education that should be prioritized in times of budget constraints depends on the overall development of the country (*see Section 1.2*). In particular, good-quality pre-primary,

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3 Based on Organisation for Economic Co-operation and Development (OECD) data for education (total amount) and the sum of amounts devoted to health (general) from 'Aid to the Health and Population Policies/Programmes and Reproductive Health sectors' extracted from the OECD database in October 2014, www.oecd.org/dac/stats/aidtohealth.htm.
4 World Health Organization (2011 data) and authors' calculation from the UNESCO Institute for Statistics (UIS) Data Centre, consulted 24 October 2014.

primary and lower secondary education – basic education – is the level that most influences equity and economic and human development in low-income countries. Whereas in middle-income countries, on average, the secondary level (general and vocational/technical) has the most effective economic impact, it should not be forgotten that some of these countries must still achieve universal primary completion and most of them still need to improve learning outcomes. In high-income countries, tertiary-level education is the most cost-effective in economic terms.

/ "Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages."

– Article 26, Universal Declaration of Human Rights

1.1 The case for investment in education

1.1.1 Economic returns

▲ Pupils at Alula Alternative Basic Education Centre in Ethiopia. The school is in the Afar region and now serves as a primary school.

Among the most often cited rationales for education is its impact on gross domestic product (GDP) per capita, individual earnings and poverty reduction. This relationship has been well analysed for decades, and now, there remains little doubt about education's causal role.

The existing literature shows three main ways to estimate economic returns to education: (1) macro-estimated cross-country regression models, which assess the association between one additional year of education on average and national economic income (GDP per capita or GDP per capita growth); (2) use of the rates of return, which compare the additional costs

and earnings associated with an increase in individuals' number of years of education; and (3) estimation of the association between average years of education and poverty incidence.

Education and national economic income

The evidence that education is a driver of national economic growth has been extensively studied and is well accepted. Starting with Schultz in 1961 and Becker in 1964, many economists have studied education's role in rising incomes, including Romer (1994), Mingat and Tan (1996), Heckman and Klenow (1997), Topel (1999), Bils and Klenow (2000), Bassanini and Scarpetta

TABLE 1: Macro-estimated returns to one additional year of education

Effect	Source
Each additional year of education is associated with about 30% higher GDP per capita	Heckman and Klenow (1997)
A 1-year increase of years of education is associated with 0.30% per year faster growth	Bils and Klenow (2000)
Macro-estimated rate of return to education between 18% and 30%	Krueger and Lindahl (2001)
A 1-year increase in average education raises per capita income between 3% and 6%	Bassanini and Scarpetta (2001)
A 1-year increase in the mean years of education is associated with a rise in per capita income by 3%–6%, or a higher growth rate of 1 percentage point	Sianesi and Van Reenen (2003)
No evidence of wide social returns to education based on cross-country regressions	Pritchett (2006)
Macro-estimated rate of return to education is 27%	de la Fuente and Doménech (2006)
A 1-year increase in years of education is associated with an additional 0.2 percentage point in GDP per capita annual growth (in real terms)	Brossard and Foko (2006)
Macro-estimated rate of return to education is between 9.0% and 12.3%	Cohen and Soto (2007)
Macro returns to years of education is 36.9%, or each year of education is statistically significantly associated with a long-run growth rate that is 0.58 percentage points higher	Hanushek and Woessmann (2008)
Controlling for physical capital stock, the rate of return to the average year of education is 12.1%	Barro and Lee (2010)
Each additional year of education is associated with 18% higher GDP per capita	Crespo Cuaresma, Lutz and Sanderson (2012)
Each additional year of education is associated with 13% higher GDP per capita	Thomas and Burnett (2013)
Each additional year of education is associated with 35% higher GDP per capita	Patrinos and Psacharopoulos (2013)

Source: Patrinos and Psacharopoulos (2013), in 'How Much Have Global Problems Cost the World? A Scorecard from 1900 to 2050' (Bjørn Lomborg, Cambridge University Press, 2013) and authors.

(2001), Krueger and Lindahl (2001), Sianesi and Van Reenen (2003), Psacharopoulos and Patrinos (2004), Brossard and Foko (2006), de la Fuente and Doménech (2006), Cohen and Soto (2007), Hanushek and Woessmann (2008), Barro and Lee (2010) and Patrinos and Psacharopoulos (2013).

Overall, these studies confirm that additional years of education have a significant influence on GDP per capita or its growth. Providing more education, knowledge and skills to individuals of a country, i.e., accumulating human capital, increases their productivity and employability, which in turn increases the overall income and development of the country. There is a large variability in estimated impacts. How much an additional year of education adds to GDP per capita or to its growth depends on the estimation

method (e.g., some studies control the physical capital investment and others do not) and the period and countries covered by the analysis. It is also noteworthy that, due to the lack of fully comparable learning measurement across all countries, only a few studies (e.g., Hanushek and Woessmann 2008) factor in learning, which could be seen in economic terms as the 'quality' of the human capital accumulated, when estimating the impact on national income – in spite of its likely importance.

Table 1 presents estimates of the impact of one more year of education in the adult population, from 14 representative studies from 1997 to 2013. A recent estimate by Crespo Cuaresma, Lutz and Sanderson (2012) calculates that each additional year of education is associated with an 18 per cent higher

GDP per capita; this is a median number among the studies presented in the table. Using this estimate, if a country such as Guinea, which had an average number of 3.3 years of education per person in 2012, progressed to the education level of a country such as Kenya, where the average was 9.0 years, then its GDP per capita could double.

In addition, Patrinos and Psacharopoulos (2013) in Lomborg (2013) demonstrated that there is a correlation between increasing the education level in a country, measured by average years of education, and decreasing income inequality, as measured by the Gini coefficient.[5] Using data for 114 countries in the 1985–2005 period, they showed that one extra year of education is associated with a reduction of the Gini coefficient by 1.4 percentage points.

▼ A girl pays attention during class at school in Sierra Leone. Educating girls is an investment in their futures, but it is an investment that also pays development dividends.

Rates of return (private)

Rates of return are typically estimated by comparing the increase in individuals' labour market earnings (benefits) from the completion of an additional year of education with its increased costs.[6]

Adults with higher education levels have, on average, higher incomes. Globally, the average private return for one additional year of education was found to be a 10 per cent increase in income, according to computations from more than 800 surveys in 139 countries. The returns are generally higher in low- or middle-income countries than in high-income countries. It is also noteworthy that returns are higher for women than for men. Over the years, private returns to education have modestly decreased, suggesting that the world demand for skills has been increasing as world skill supply has also increased (Montenegro and Patrinos 2014). Nevertheless, they remain high – a strong argument for education investment, particularly in developing countries.

Education, poverty and equity

Higher levels of education are associated with lower poverty rates. For example, the *Education for All (EFA) Global Monitoring Report 2013/4* noted that the impact would be 171 million fewer people living in poverty (on $1.25 a day) if all students in low-income countries learned basic reading skills (UNESCO 2014).

Figure 1 shows the correlation between average years of education for young adults aged 25–34 and poverty incidence, measured as the percentage of the population living on less than $2 per day in terms of purchasing power parity. On average, for each additional year of education among young adults, poverty rates were 9 per cent lower.

In addition, Ravallion (2001) used data from 47 developing countries to show that for any given rate of economic growth, poverty reduction is significantly associated with greater income equality. Poverty reduction is 75 per cent faster if the income Gini is

0.30 (relatively high income equality, such as in Germany or the Netherlands) as compared to when it is 0.60 (relatively low income equality, such as in Honduras or Zambia), even if the economy in both situations is growing at the same pace. These findings suggest that there should be a focus on inclusive economic growth where all segments of society have equitable opportunities: Inclusive growth is not just inherently fairer, but also a more effective investment for countries on the path of development. More inclusive education – with equitable educational opportunities for all – has the potential to be an important driver of inclusive growth.

> More inclusive education – with equitable educational opportunities for all – has the potential to be an important driver of inclusive growth.

FIGURE 1: Relationship between the percentage of the population living on less than US$2 a day and the average years of education among the population aged 25–34
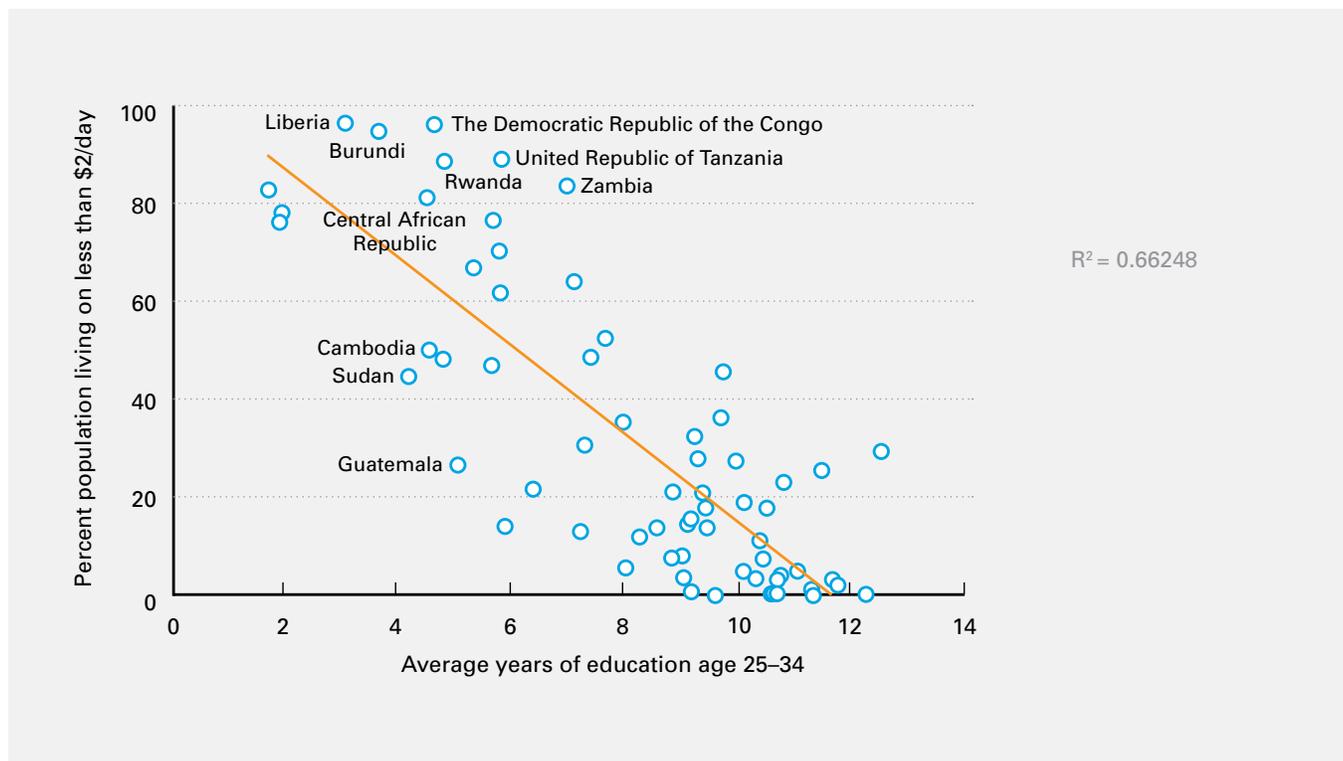
Source: World Bank, 'World Development Indicators', http://data.worldbank.org/data-catalog/world-development-indicators, accessed October 2014.

5 Gini coefficient is a commonly used measurement of inequality.
6 This is usually known as the Mincerian method (see Mincer 1974).

1.1.2 Human development returns

While education benefits are often measured in economic terms, such as increased income and reduced poverty, even further-reaching effects are found in the health and social areas. Educated people and the children of educated parents tend to be healthier, more empowered regarding their own lives and their society, and socially more tolerant and resolution-seeking. Many of the observed social impacts are linked to women's education, hence, the importance of girls' education for future social welfare.

Child mortality, prenatal care and family formation

Education's association with health outcomes is significant. *The Lancet* recently published the most comprehensive review of child mortality, which was financed by the Bill and Melinda Gates Foundation. Using more than 900 censuses and surveys, the study (Gakidou et al. 2010) found that around half of the under-five mortality reduction from 1970–2009 can be traced to increases in the average years of education of women of reproductive age. In 2009, there were 8.2 million fewer deaths of children under age 5 than in 1970, even with a much larger population, and 4.2

million of those averted deaths were attributable to higher levels of education.

Prenatal care is one factor related to this remarkable outcome. Education is linked to the likelihood that a pregnant woman will see a health-care professional for prenatal visits, whereas the likelihood is lower if she has no education. In 10 African countries with available data, the percentage of unschooled women who see a health-care professional for prenatal care ranges from only 31 per cent in Burkina Faso up to 92 per cent in Malawi. In many of these countries, the rates were significantly higher for women who completed primary education – with the highest increase in Chad, as shown in Table 2.

After they are born, children of more educated mothers are more likely to receive vaccines, see a doctor if they are sick, receive rehydration if they have diarrhoea, sleep under insecticide-treated nets and benefit from other health-related practices. Education also delays childbirth, which improves health outcomes of pregnancy for both the mother and the child. Furthermore, as Figure 2 shows, women's education is correlated with decreases in overall fertility rates. Women with primary education have, on average, 0.7 fewer live births than women with no education.

TABLE 2: **Percentage of pregnant women who see a health-care professional for prenatal care, by percentage point increase for those who completed primary education**

Country	Women with no education	Women who completed primary education	Percentage point increase in prenatal care
Chad	36%	78%	42
Sao Tome and Principe	46%	83%	37
Central African Republic	58%	81%	23
Congo	75%	90%	15
Mali	80%	95%	15
Benin	84%	99%	15
Mauritania	84%	93%	9
United Republic of Tanzania	73%	81%	8
Burkina Faso	31%	36%	5
Malawi	92%	95%	3

Source: Data derived from education sector analysis country reports (World Bank 2007b, 2008a, 2009, 2010a, 2010b, 2010C, 2010d Pôle de Dakar 2010b, 2013; United Republic of Tanzania and Pôle de Dakar 2011).

The effects for secondary education are even greater, as women with secondary education have, on average, 2.3 fewer children than women with no education.

Adult health, life expectancy and HIV/AIDS

Education's influences are felt long after youth and continue through all age groups. Extensive research in industrialized countries has shown a consistent decline in mortality levels with education (KC and Lentzner 2010) that has been linked to behavioural, psychological and contextual differences among education groups. In developing countries, a smaller set of studies also reveals a consistent correlation between adult health and education. In Bangladesh and Viet Nam, for instance, studies found significantly higher mortality among older adults with no education compared with their more-educated counterparts (Mostafa and van Ginneken 2000; Hurt et al. 2004; Huong et al. 2006). In addition, in a cross-national study, de Walque and Filmer (2011) found that in developing countries outside Africa, the mortality rates for women with at least primary education are 36 per cent lower than for women with less than primary education.[7] In Africa, the mortality rates of adult women with primary education are 14 per cent lower than for women with less than primary education.

One of the more complex effects of education has been regarding HIV/AIDS, in particular, in sub-Saharan Africa. Early in the epidemic, more-educated adults, particularly men, had higher rates of HIV/AIDS mortality because their higher socio-economic status gave them access to more partners than less-educated men. Over the years, this has changed. Thanks to an improved understanding of the disease and the spread of antiretroviral medications, more educated adults adapted their behaviour, and their HIV and AIDS mortality rates today are lower than those of less-educated men (de Walque and Filmer 2011). Another study reveals that, on average, people who have at least completed a lower secondary education had 50 per cent more knowledge about HIV and AIDS than people with no education (Majgaard and Mingat 2012).[8] Moreover, more-educated young adults tend to have more tolerant views of people with HIV/AIDS.[9]

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7 The mortality rates for the more-educated men are 'only' 13 per cent lower.
8 HIV and AIDS knowledge is measured using a composite index that scores the respondent's answers to questions about the pandemics. The increase is, on average, 30 per cent in DHS and 78 per cent in MICS.
9 IFC International, DHS STATcompiler data extraction, July 2014.

FIGURE 2: **Total fertility rates of women in 48 low- and middle-income countries, 2008–2012, by level of education**
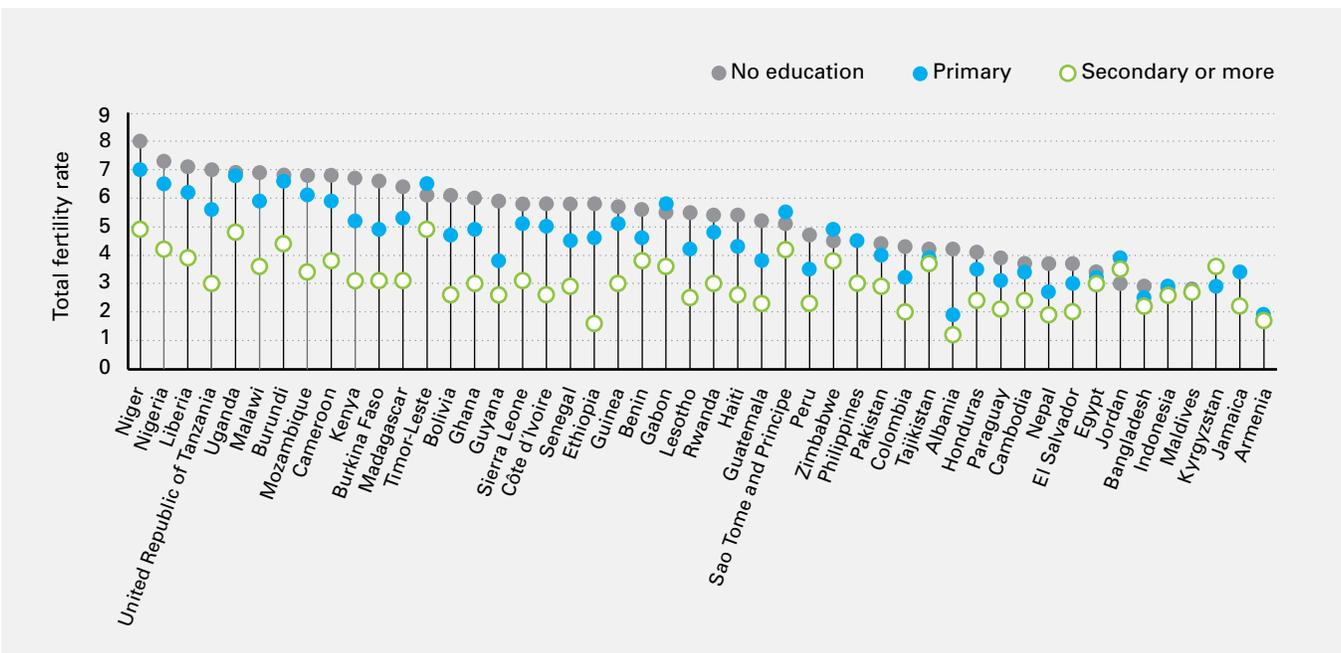
▼ Students attend a class on the essentials of hygiene at a school in Dar es Salaam, United Republic of Tanzania.

Box 1:   Education's impact on empowerment and civic engagement

"Across 18 sub-Saharan African countries, those of voting age with primary education were 1.5 TIMES MORE LIKELY TO EXPRESS SUPPORT FOR DEMOCRACY than those with no education."

"In 14 Latin American countries, TURNOUT WAS FIVE PERCENTAGE POINTS HIGHER for those with primary education and nine points higher for individuals with secondary education compared to those with no education."

"Across 29 mostly high-income countries, 25% of people with less than secondary education expressed CONCERN FOR THE ENVIRONMENT, compared with 37% of people with secondary education and 46% of people with tertiary education."

"In Latin America, people with secondary education were 47% less likely than those with primary education to EXPRESS INTOLERANCE FOR PEOPLE OF A DIFFERENT RACE. In the Arab States, people with secondary education were 14% less likely than those with only primary education to express intolerance towards people of a different religion."

"In Ethiopia, six years of education increased by 20% the chance that a FARMER WOULD ADAPT TO CLIMATE CHANGE through techniques such as practising soil conservation, varying planting dates and changing crop varieties."

Source: UNESCO 2014, 17.

Disability

Not surprisingly, disabled children may have fewer educational opportunities (*see Chapter 2 for greater analysis on disability and education*). But there is also some evidence that suggests that less education itself leads to higher disability rates, for example, through lower access to health care, higher-risk jobs or unsafe health-related behaviours. In the majority of cases, adults with disabilities were not disabled as children. Adult disability prevalence rates in low- and middle- income countries, for instance, are far higher than childhood disability, on average, about 18 per cent compared with about 5 per cent for children (WHO and World Bank 2011). For disabled adults who were not disabled as children, education-level differences suggest that the lack of education somehow has an impact on disability.

In this context, KC and Lentzner (2010) looked into the education disability gradient in low-income countries, using World Health Surveys from 70 countries. They found that for adults over age 30 in Africa, the odds of being disabled for women and men with no education is 1.9 and 1.8 times higher, respectively, than for women and men with secondary education and higher. In Asia, women with no education were 3.8 times more likely to be disabled than women with secondary education and higher, and men were almost twice as likely to be disabled. In the most extreme case, in Latin America, women with no education are 4.7 times more likely to report being disabled than women with secondary education.

Empowerment and civic engagement

Higher education levels lead to higher empowerment and civic engagement. *The EFA Global Monitoring Report 2013/4* (UNESCO 2014) presents a number of study results that highlight the importance of education for empowerment and civic engagement, including the understanding of and support for democracy, participation in civic life, tolerance for people of a different race or religion, and concern for the environment and adaptation to climate change (*see Box 1*).

Resilience and social cohesion

Education is crucial for fostering more cohesive societies and mending the social fabric that may have been damaged by years of conflict and violence.

Education can help children, communities and systems become resilient against conflict and disasters by building capacities and skills that will enable them to manage and resolve tensions and conflict peacefully (UNICEF 2014). Education can also help address the inequalities that generate conflict. Education is arguably the single most transformative institution when it is equitable, of good quality, relevant and conflict-sensitive. It is central to identity formation, promotes inclusion and contributes to state building. Most importantly, equity in education leads to conflict-risk reduction: In 55 low- and middle-income countries, where the level of educational inequality doubled,[10] the probability of conflict more than doubled, from 3.8 per cent to 9.5 per cent (UNESCO 2014).

1.1.3 The virtuous cycle of education: Inter-generational effects

One of the most important effects of education is its impact on future generations.

At the individual level, education provides people with an increased likelihood to break the cycle of poverty. Children of more educated mothers, for instance, are more likely to attend school. Research found that around 2003, for 16 sub-Saharan African countries, on average, 68.0 per cent of children of uneducated mothers attended school, 87.7 per cent of children of mothers with six years of education attended school, and 95.5 per cent of children of mothers with 12 years of education attended school (Majgaard and Mingat 2012).

At the national level, education leads to economic growth, which provides countries with more resources to educate children. It also leads to lower birth rates, which makes it easier (by creating a smaller youth cohort) to accommodate all children in schools. In this context, a national increase in education creates better conditions to educate further generations. Progress towards inclusive education also leads to benefits such as faster poverty reduction and declining risks of conflict, which create better conditions for future generations.

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10 Looking into years of education by ethnicity, religion and region of residence.

1.2 An equity perspective: The case for investment per level of education

Investing in education overall has important economic and human development returns. However, questions remain, particularly when there are resource constraints: How to balance investment at the various levels of education to achieve the highest economic and human development returns? Are the returns higher for primary, secondary or tertiary education? In a context of budget constraints, analysis makes the case for prioritizing investment in quality primary and lower secondary education in the poorest countries and in upper secondary and tertiary education in higher-income countries.

Because of data limitations, this section does not cover pre-primary education. However, it has been demonstrated that pre-primary education has the potential to increase primary school intake, improve learning (Jaramillo and Mingat 2008) and provide significant private and social economic returns (Heckman and Masterov 2007).

1.2.1 Economic benefits by level of education

Contribution to national income (economic growth)

Several studies have investigated the macroeconomic returns to different levels of education (primary, secondary and tertiary) using the same method as the one used to estimate the impact of one additional year of education on national income (*see Section 1.1.1*). Table 3 synthesizes two of these studies, by Mingat and Tan (1996) and Brossard and Foko (2006), which used past series of education and macroeconomics data. Both studies show that the contribution of

▼ Children aged 3–6 learn through creative play and art at a preschool in Nicaragua's North Atlantic Autonomous Region. Studies indicate that pre-primary school can increase primary school enrolment and improve learning outcomes.

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TABLE 3: **Impact of enrolment rates per level of education on per capita GDP growth**

	Low-income countries		Middle-income countries		High-income countries	
	(1)	(2)	(1)	(2)	(1)	(2)
Primary education	0.033***	0.028*	0.031*	0.016	– [12]	-0.010
Secondary education	0.034	0.003	0.070***	0.047***	-0.008	0.012
Tertiary education	-0.129	0.047	-0.100	0	0.062**	0.021*

Note: The coefficients that are significant at the 10% threshold are followed by an *, by ** at the 5% threshold, and *** at the 1% threshold.
Source: (1) Mingat and Tan 1996, and (2) Brossard and Foko 2006.

education varied greatly according to the economic context and levels of education. It supports the idea that education expansion must take into account available productive sector opportunities to ensure the efficient use of resources.

In low-income countries, the expansion of primary education contributes the most to national income growth. It is estimated that 10 additional percentage points in the primary enrolment rate is associated with an increase of between 0.2 and 0.3 percentage points in GDP per capita annual income growth (in real terms), a significant increase as the average annual growth has been 0.8 per cent during the period considered. The availability of a critical mass of individuals having completed primary education has been decisive.[11] In middle- and high-income countries, the post-primary education levels (secondary in middle-income countries and tertiary education in high-income countries) contributed the most to growth.

For low-income countries, primary education forms the bedrock of development and the foundation for further income growth. However, as income levels increase, the importance of higher levels of education also increases. For countries with full or nearly universal primary completion, lower secondary education becomes the level where the highest returns can be reaped. In addition, the importance of upper secondary and technical and vocational education and training is heightened as today's rapidly growing economies depend on the creation, acquisition, distribution and use of knowledge, and this requires an educated and skilled population. There is a need for carefully balanced, contextualized investment in the different levels of education.

Private and social economic returns

There are two types of rates of return that assess the cost-benefit ratio of years of education: the private rates of return and the social rates of return. Both use the same estimation of the benefits (the increase in individuals' earnings) but the costs that are considered differ. For the private rates of return, only the costs incurred by individuals are considered (these include tuition or other school costs as well as lost earnings while studying). For the calculation of the social rate of return, the public cost of education is added to the individual costs. Consequently, for a given country, the private rate of return is always higher than the social rate of return.

Figures 3 and 4 show average private and social economic returns by level of education for low-income countries and the world as described by Psacharopoulos and Patrinos (2004) for years between the 1960s and

/ Particularly in budget-constrained contexts, tertiary education is subsidized to the detriment of financing quality primary education for the most marginalized children.

11 Conversely, the weak rates of primary enrolment rates have constituted a serious handicap to the economic growth of the low-income countries.
12 The lack of impact of primary enrolment on per capita GDP growth in these countries is, at least partly, due to a lack of variance in enrolment rates, as in most cases universal primary enrolment is achieved.

the 1990s. Taken globally, there are different patterns between private and social economic returns. Social economic returns decrease with the level of education: Public costs for the education system increase more than earning benefits. Private returns follow a different pattern: They are high for an individual in primary education (as compared to an individual with no education), drop in secondary education and rise again with tertiary education.

The difference between private and social economic returns for tertiary education is particularly striking in low-income countries, at 26 per cent for private returns versus 11 per cent for social returns, taking into account public cost. This should be put in perspective with the discussions regarding household-government cost-sharing (*see Section 3.3.4*) and socio-economic inequities in terms of access to the highest levels of education (*see Section 1.2.2*) because it raises an equity issue: Children from the poorest households in low-income countries are often excluded from access to tertiary education – and often even secondary education – which is associated with high private returns and much lower social returns. Thus, for at least some countries, there is a lack of pro-equity public financing across levels of education. Particularly in budget-constrained contexts, tertiary education is subsidized to the detriment of financing quality primary education for the most-marginalized children.

Poverty

As a corollary to the income effects of education, poverty rates decline with each level of education, particularly for primary education. Figure 5 shows the proportions of lower-income households in 12 African countries. On average, approximately half of the households led by an adult with no education are lower-income. The chance of being poor, on average, is 28 per cent for households headed by adults with primary education, 19 per cent for households headed by an adult with lower secondary education and only 6 per cent for households headed by an adult with tertiary education. The greatest reduction in poverty is associated with primary education, followed by secondary.[13]

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13 Note that this does not contradict the results regarding private income returns: tertiary education may bring significantly higher personal income than secondary education, but if at both levels there is a low likelihood of being poor, poverty gains from tertiary education will be low, with the highest gains being at the lowest levels of the education ladder.

FIGURE 3: Private economic rates of return in low-income countries and world average, by level of education (%)

FIGURE 4: Social economic rates of return in low-income countries and world average, by level of education (%)
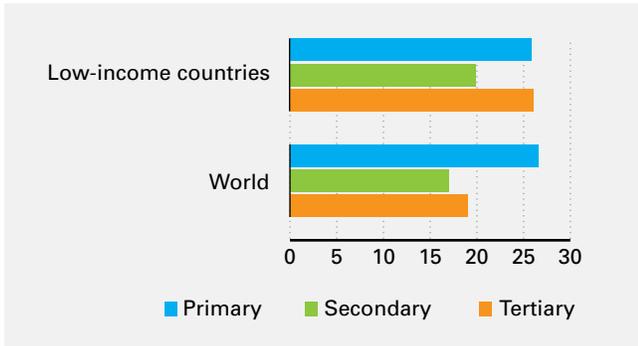
Source: Psacharopoulos and Patrinos 2004.
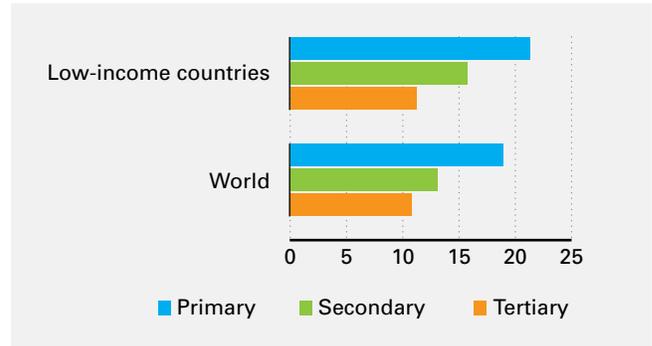
FIGURE 5: Probability of being among the poorest households (%), by the educational attainment of the head of the household
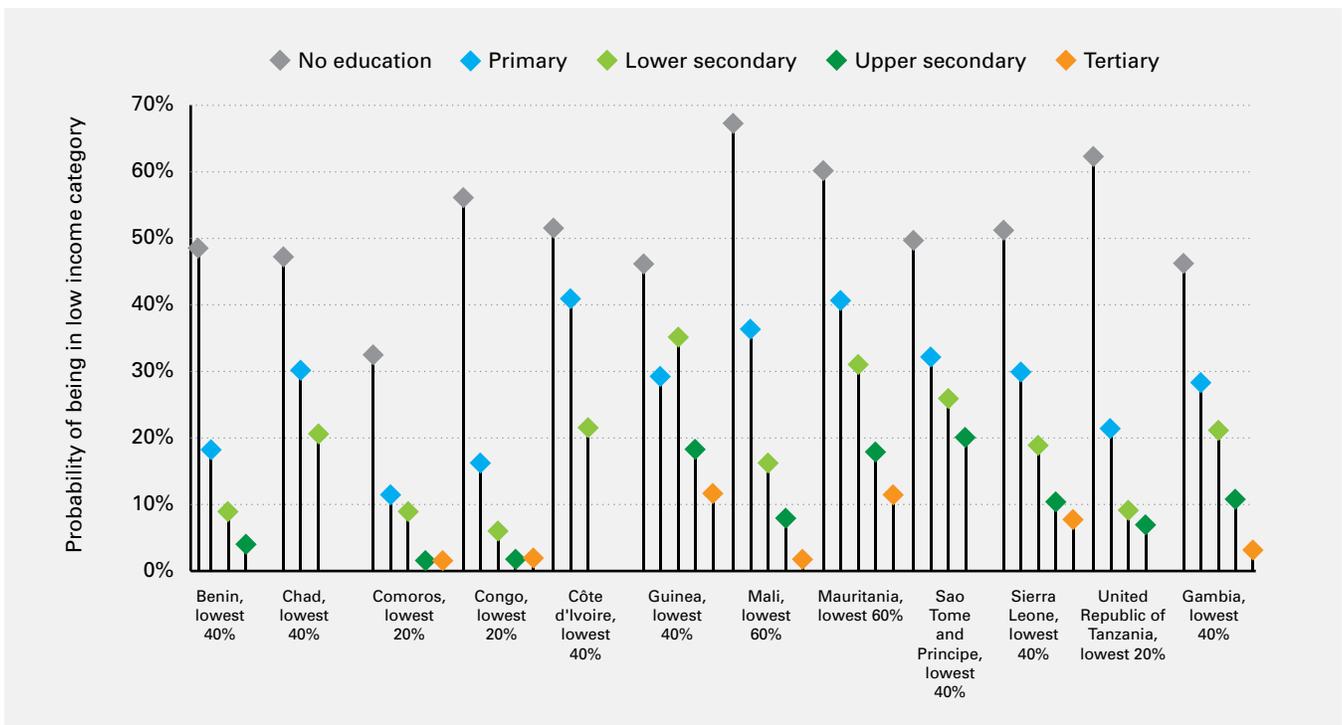
Source: Education sector analyses of countries (Pôle de Dakar 2010b, 2012b, 2013; World Bank 2005, 2007b, 2009, 2010c, 2010d, 2011c, 2011a; United Republic of Tanzania and Pôle de Dakar 2011; Pôle de Dakar et al. 2013).

◄ A girl raises her hand to answer a question at Alula Alternative Basic Education Centre in Ethiopia. For some girls, as they get older, the chance that they will finish school decreases.

1.2.2 Human development benefits by level of education

Various human development effects can be analysed by level of education. This section presents a selection and summary of benefit-to-cost ratios for different human development outcomes and a selected measure of women's empowerment.

Table 4 shows the average benefit-to-cost ratios for various human development outcomes in sub-Saharan Africa as computed by Majgaard and Mingat (2012). These ratios represent the relative benefit of one additional year of education within a level and have been normalized so that the ratio for primary education is 100. The measured human development outcomes include basic health outcomes, poverty-related outcomes and measures of social knowledge.

The cost-to-benefit ratio for primary is higher than for both lower-secondary and upper-secondary education. There are two exceptions: With regard to the age at first birth (in the 'childbearing' category, not detailed in the table), it is 40 per cent more cost-effective to invest in lower secondary education than primary education. Lower secondary education is also a more cost-effective

/ For low-income countries, primary education forms the bedrock of development and the foundation for further income growth.

investment than primary education to increase the use of newspapers ('use of media' category, not detailed in the table). The cost-benefit ratio for lower secondary is always higher than that for upper secondary by at least a factor of three. (*See Figure A.1, Annex A, for details of per-country results that formed the basis of Table 4.*)

Education and women's empowerment

Education is also linked to empowerment, particularly for girls. Women with higher education are much more likely than uneducated women to be able to make their own choices in life concerning their spouse, number of children, working outside the home and making important household decisions. For instance, women in India who had at least a secondary education were 30 percentage points more likely to have a say in choosing their husband than their peers with less education (UNESCO 2014).

TABLE 4: Benefit-to-cost ratios for different types of human development outcomes in sub-Saharan Africa

Social outcomes	Primary (6 years)	Lower secondary (4 years)	Upper secondary (2 years)
Childbearing[a]	100	44	11
Prenatal health[b]	100	26	5
Child health and development[c]	100	27	6
Risk of poverty (%)	100	28	5
Knowledge about HIV/AIDS (index)	100	20	3
Use of media (radio, television, newspapers)	100	60	17
Average of all dimensions	**100**	**34**	**8**

a. Average for age at first birth, months between consecutive births, number of live births by approximately age 30, and percentage for use of any contraceptive method.
b. Prenatal consultations, tetanus vaccines and vitamin A supplementation during pregnancy and delivery assisted by skilled personnel.
c. Children sleeping under mosquito nets, fully vaccinated by age 2, under-five mortality rate and percentage of children enrolled in school.

Source: Authors' computations based on Majgaard and Mingat 2012.

In Africa, the percentage of female respondents with a favourable view of genital mutilation/cutting declines with education. In Mauritania, for example, 79 per cent of unschooled women aged 15–49 viewed female genital mutilation/cutting favourably in 2007, but only 41 per cent of those with lower secondary education and 21 per cent of women with tertiary education did (Pôle de Dakar 2010b; also see Figure A.6, Annex A).

Finally, as shown in Figure 6, women with less education are more likely to view their husband's violence as an appropriate punishment for what is seen as undesirable behaviour for a wife, particularly in countries where the overall level of education is low.

▶ This 13-year-old girl in Bangladesh hopes to become a doctor one day. She has already overcome the threat of a child marriage and has been able to continue her studies. But child marriage is a danger that can impede girls' efforts to finish school.

FIGURE 6: Percentage of women who condone a husband's beating
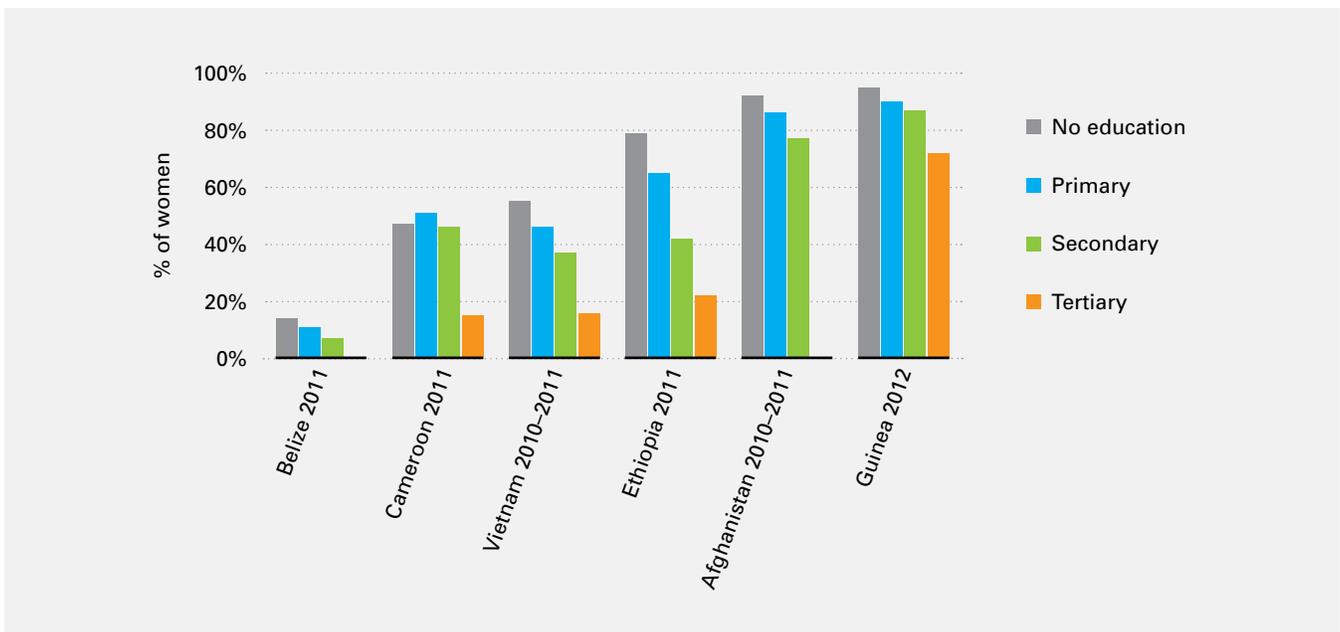
Note: For Belize, the value for secondary education refers to 'secondary or higher'. Values for tertiary education were not available for Afghanistan.
Source: STATcompiler extraction from most recent Demographic and Health Surveys (Cameroon, Ethiopia, Guinea); weighted extractions with Stata; and MICS reports (Afghanistan, Belize, Viet Nam).

2.

Crises at the foundation: Poor learning and high inequity

◄ A 12-year-old girl helps out at a recycling warehouse in Turkey where her mother and sister work. Her family fled Syria because of conflict in the country. She attended Grade 6 in Syria but does not attend school in Turkey.

Large numbers of children are still out of school, and access to school remains inequitable, with entire groups of vulnerable and marginalized children excluded from education. In addition, it is increasingly clear that what children learn in school in many developing countries falls far short of their potential and far below what children in more developed countries learn.

Overall, when considering both access and learning challenges, it is estimated that 250 million children worldwide have failed to learn how to read or write,

▲ A row of boys at Seno's Franco-Arabic School in the Niger. The school allows students the opportunity to learn in French and Arabic. It was constructed to accommodate students displaced in 2012 by flooding in Niamey.

or to do basic mathematics (UNESCO 2014). This is due to exclusion at various stages of education: They were denied access to education, they did not complete their education or, despite attending school, the low quality of the education they received did not enable them to learn.

2.1 Increasing levels of access mask low levels of completion and learning

It takes many steps for a child to reach the end of basic education and acquire the necessary skills and knowledge to succeed. These steps can however be divided into three basic elements. First, the child must enter school, or intake, which will be called 'I'. Second, a child entering school must navigate through all the grades and complete his or her education. The probability that a new entrant in Grade 1 will reach the end of primary or lower secondary education is the survival rate, which will be called 'S'. Third, the child must have the opportunity to learn, which will be called 'L'. The probability that a child will have the full benefits of her or his education, or 'E', is equal to the product of the percentage of children who enter school (I) times the proportion among entrants who reach the end of primary or lower secondary education (S) times the probability of receiving a full learning experience (L), or:

$$E=ISL$$

These three dimensions are illustrated in Figure 7: Some children never enter school, more never complete their education, and among those who complete, only a fraction will have learned the basics expected at that level.

FIGURE 7: **The learning pyramid: Intake, completion and learning**

- Learning
- Completing basic education
- Accessing primary school
- Primary-school-age population
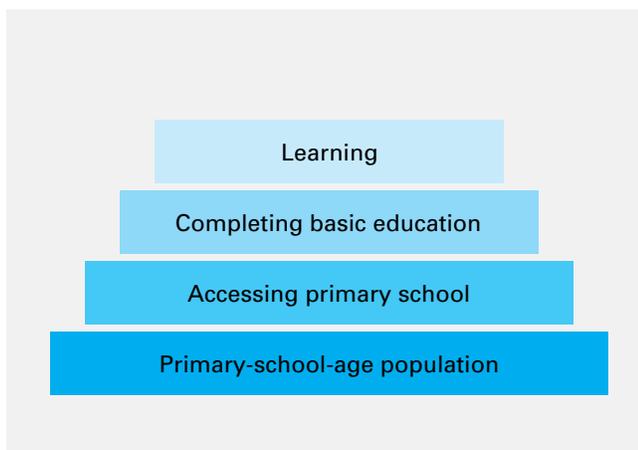
2.1.1 E = ISL: Intake and never entered

To begin his or her education, a child has to step into a school as a student. Although there is a large variability in available figures, and available data may lack reliability, it can be estimated that the first step in school is denied to millions of children. More specifically, UIS estimates that, out of 650 million children of primary school age today, approximately 28 million never take that first step (*see UNICEF and UIS 2005 for a description of the methodology for computing 'never entry'*).

Never enrolling in or attending school, referred to here as 'never entry', is the most absolute form of education exclusion. Among the children who never enter school, 57 per cent are in sub-Saharan Africa (UIS and GMR 2014), and in some countries, such as Burkina Faso, Mali and the Niger, never entry affects more than 40 per cent of the school-age population.

Never entry is also an important issue in some countries (e.g., Yemen) in other regions. In countries where never entry is moderate at the national level, it may be still large in certain population groups (e.g., Haiti, Lao People's Democratic Republic, Nepal). This will be discussed in more detail in Section 2.2.

Conflict is a major source of education exclusion, and approximately two thirds of the countries with the highest never-entry rate are fragile or conflict-affected (see Figure 8).

It is increasingly clear that what children learn in school in many developing countries falls far short of their potential and far below what children in more developed countries learn.

In absolute value, countries such as India, Nigeria or Pakistan, despite having lower never-entry rates, have large numbers of children who never enter school because of the size of their school-age population.

2.1.2 E = ISL: Completion and early dropout

Once a child has entered school, the next step is reaching the end of primary school, however survival rates in primary education are extremely low in low-income countries, with only 57 per cent of those entering school reaching the last grade of primary education. This has not improved significantly between 1999 (55 per cent) and 2011 (UIS Data Centre). Out of the 650 million primary-school-age children, UIS estimates that among those who begin school, as many as 92 million[14] never reach Grade 4. In total, including children who never access school, approximately 120 million children have never reached Grade 4, let alone finished primary or lower secondary education. According to the World Inequality Database on Education (WIDE), less than one child in two completes four years of education in Afghanistan, Burkina Faso, Ethiopia and Senegal.

Figure 9 considers completion, i.e., the probability that a child will reach the end of the education level, among countries with recent household surveys.[15] In addition to the countries mentioned above, only one child in two or less completes primary education in Côte d'Ivoire, Haiti, Liberia, Madagascar, Mauritania, Mozambique, Rwanda and Uganda, and less than one child in two completes lower secondary education in 28 countries.

Note that comparatively higher primary completion rates do not automatically translate into high lower secondary completion rates. For example, Belize has a completion rate of 86 per cent (the second highest of the countries in Figure 9) in primary education, yet its lower secondary completion rate is only 42 per cent – meaning that a full half of all primary completers in Belize drop out before the end of lower secondary education. Many countries still do not have the capacity to accommodate large numbers of learners in lower secondary education, and transition rates from primary to secondary are low.

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14 The *EFA Global Monitoring Report 2013/4* (UNESCO 2014, 191) estimates that 250 million children are not learning how to read; of those, 120 million, including non-entrants, will not reach Grade 4. This 92 million estimate is based on subtracting the 28 million who will not enter from the 120 million who will not reach Grade 4.
15 WIDE, DHS and MICS dating from 2007 and beyond.

FIGURE 8: **Percentage of children who never entered school, among countries where these rates were higher than 10 per cent**
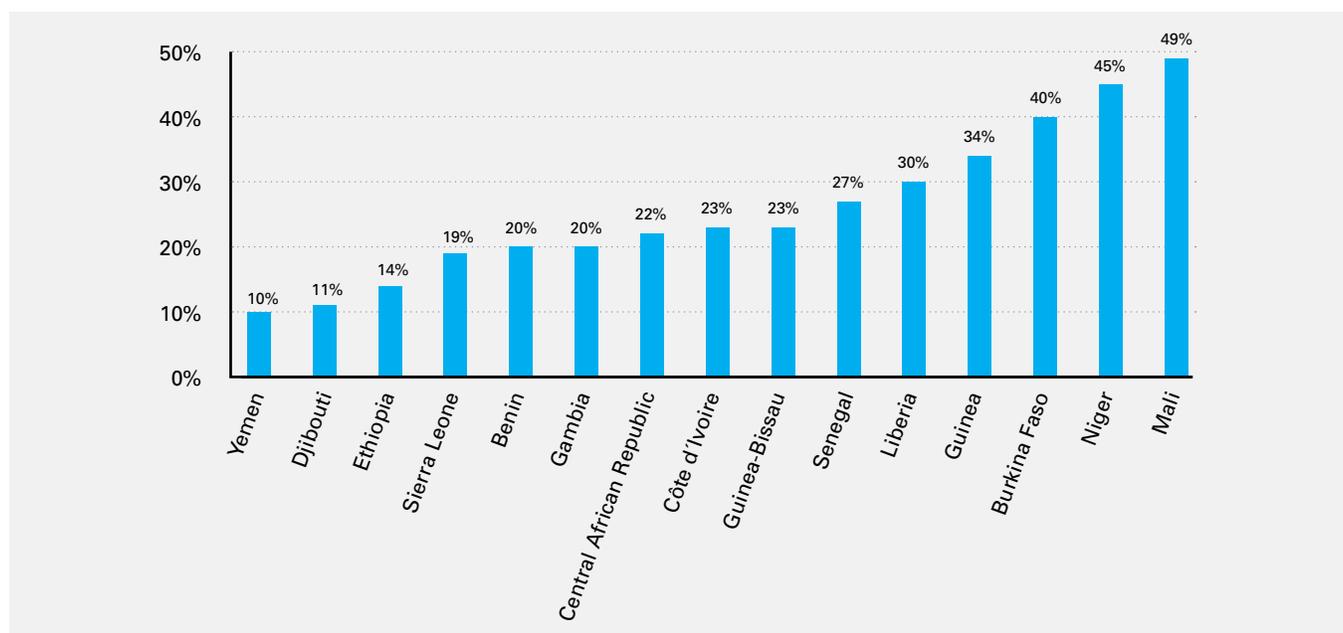
Source: Data computed from household surveys, 2006–2011.

FIGURE 9: Primary and lower secondary/basic education completion in 28 countries with low completion rates

- Primary completion rate
- ◇ Lower secondary/basic education completion rate
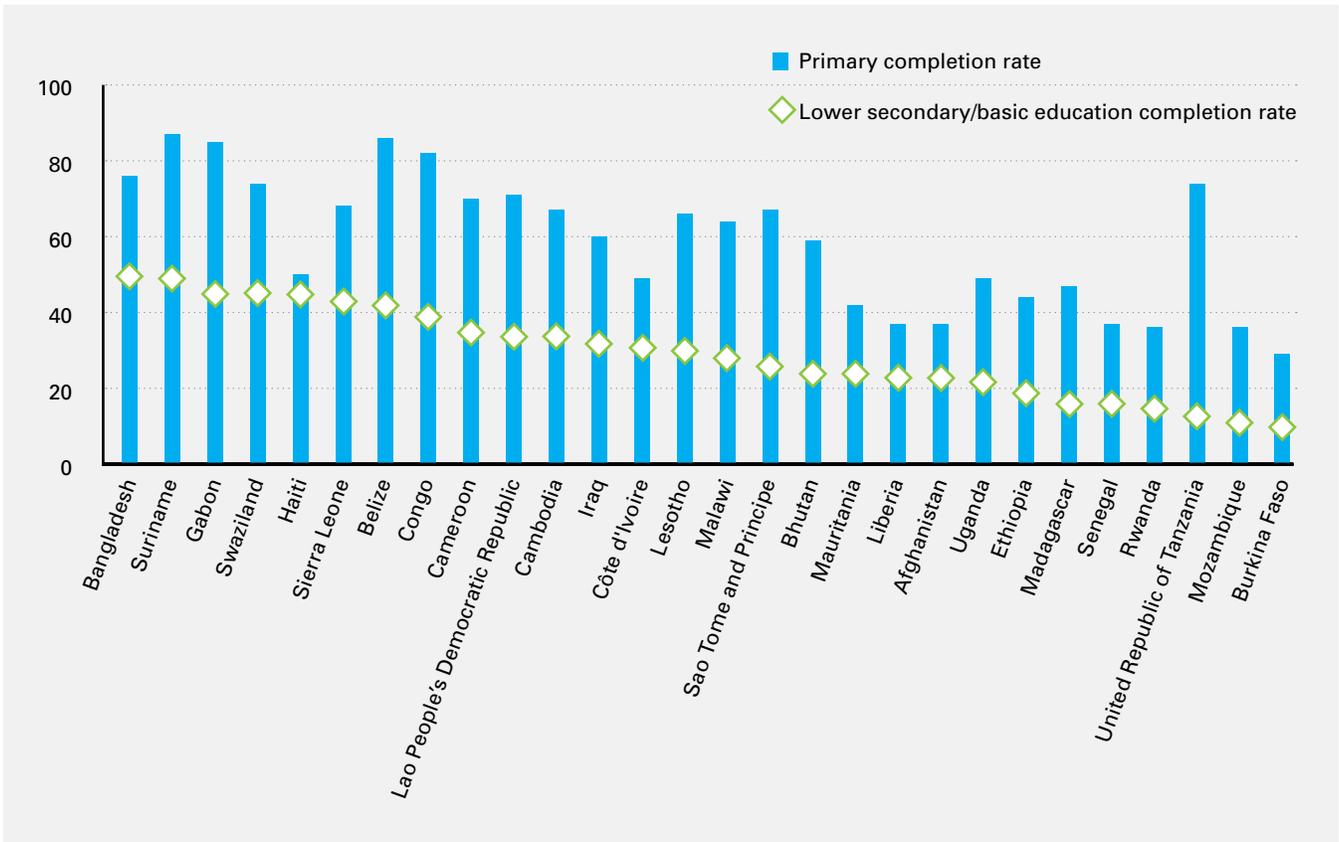
Source: WIDE, accessed October 2014.

▼ A secondary school student writes on the chalkboard at her school in the Niger. Secondary education offers girls greater opportunities in life. But girls with a secondary education also contribute to the health and prosperity of their families, communities and countries.

UNICEF/UNI164924/Terdjman

2.1.3 E = ISL: Learning

Even if children complete primary education, it is not certain that they will develop the expected competencies – not even the minimum standards in literacy and numeracy. UIS estimates that approximately 130 million children among those who reach Grade 4 do not learn to read. Hence, the total number of children who do not learn to read is 250 million out of 650 million of primary-school-age children, or close to 40 per cent of the total.

Failure to learn starts early. A growing number of assessments of reading and numeracy ability in the early grades of school show that many second and third graders have not even mastered basic letter, number or word recognition. A series of Early Grade Reading Assessments and Early Grade Math Assessments showed that overwhelming proportions of pupils were not mastering even the most basic skills (letter and number recognition, phonetics, single-digit addition) in the first years of school. A Global Partnership for Education (GPE) working paper (Abadzi 2011), showed that, on average, students of Fast Track Initiative[16] countries tested for reading fluency could

▲ These students attend a government school in a remote region of Bangladesh where monsoons and civil unrest have disrupted life. In areas where conflict and disaster are common, education can offer a normalizing influence.

read 12 words per minute in Grade 1 and 23 per minute in Grade 2, when a speed of 45 words per minute is considered the minimum for reading comprehension. The ASER and Uwezo[17] assessments, which have roots in India but are now implemented in a larger number of countries, show similar results.

Figure 10 shows the proportion of children among those who were tested in primary education (Grade 4, 5 or 6), who have learned the basics of reading and mathematics for countries where this proportion is below 50 per cent. Among these, there are many countries from sub-Saharan Africa, the Middle East and North Africa, South Asia and Latin America. This does not mean that there are not other countries with acute learning issues, as information on learning remains too limited and is rarely comparable, even at the regional level.

16 The Fast Track Initiative is now the Global Partnership for Education.
17 The ASER Centre's website is found at www.asercentre.org; Uwezo, www.uwezo.net.

FIGURE 10: Proportion of children who learn the basics of reading (left graph) and mathematics (right graph) among children who were tested, for selected countries
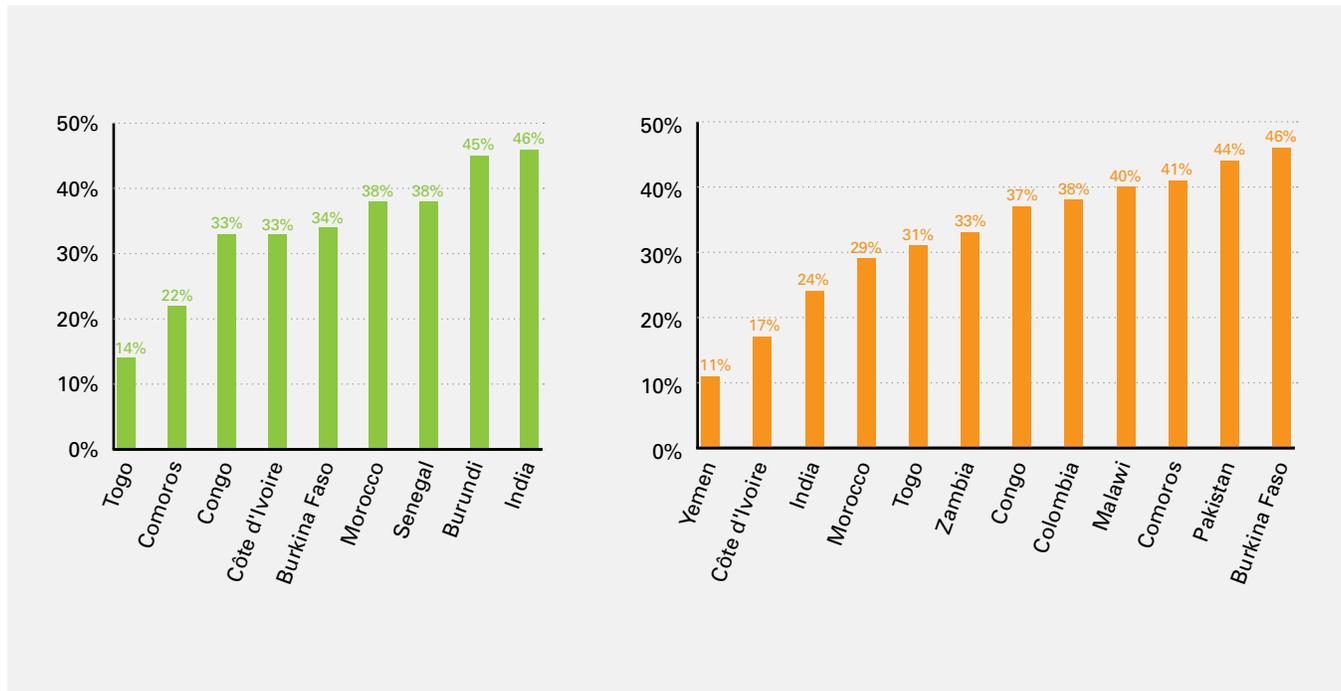
Source: WIDE, student surveys for 2007–2012, retrieved in October 2014.

2.1.4 Early foundations: Pre-primary education

Pre-primary education is a key EFA goal agreed upon in Dakar in 2000. It provides children with early development and learning opportunities, which increase their likelihood to succeed in furthering their education. *The EFA Global Monitoring Report 2007* (UNESCO 2007) indicated that children who have attended early childhood development programmes have lower chances of dropping out of primary school and better exam results. Yet, according to the UIS Data Centre, pre-primary gross enrolment ratios in low-income countries are only 19 per cent on average, while they are around 50 per cent for lower middle-income countries, 69 per cent for upper-middle-income countries and 86 per cent for high-income countries.

Countries with low pre-primary enrolment rates often have low primary completion rates. There are some exceptions, however, such as Kyrgyzstan, for which pre-primary gross enrolment was only 25 per cent in 2012 even though the country is close to reaching universal completion for primary education.

FIGURE 11: Average pre-primary enrolment rates, by income group
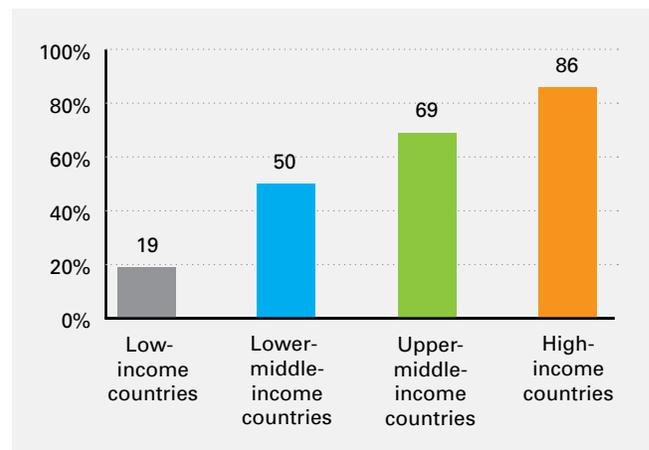
Source: UIS Data Centre, accessed October 2014.

2.2 Vulnerable and marginalized children suffer from high levels of exclusion

Exclusion of children at each step of education – intake, completion or learning – leads to low levels of learning in most developing countries. Cumulatively, 250 million children do not acquire literacy skills, but not all children are similarly affected. Failure at any step of the process hits the poorest, most marginalized and vulnerable children hardest. UIS (2012) found that the children from the poorest quintile of households were four times more likely to be out of school compared with those from the wealthiest households (40 per cent versus 10 per cent). When multiple exclusion factors exist, the average numbers of years of education can decrease to virtually zero. No country can achieve universal primary education and high levels of learning without bringing all segments of its population to school and providing them with quality education.

▲ This third-grade student writes on the chalkboard in her school in Liberia. In later grades, girls are at risk of dropping out of school and becoming excluded from educational opportunities that provide them with the skills they need to lead productive lives.

Figure 12 shows the average years of education for different subgroups in 33 low-income countries. The dimensions of inequity include: wealth (poorest and wealthiest 20 per cent of the population), urban and rural location, sex and what is identified as the 'most deprived group' (e.g., the poorest rural girls from a specific ethnic group). This is the group with the lowest level of education. In most countries, each dimension has an impact, with poverty generally being the most determining factor of exclusion.

FIGURE 12: Average years of education at age 23–27 for 32 low-income countries, by subgroups*

Legend:
- Average
- Poor rural girls
- Poor rural boys
- Poor urban boys
- Wealthiest rural girls
- Wealthiest rural boys
- Wealthiest urban girls
- Wealthiest urban boys
- Most deprived group

* The 'most deprived group' may be related to income, location, gender or ethnicity.
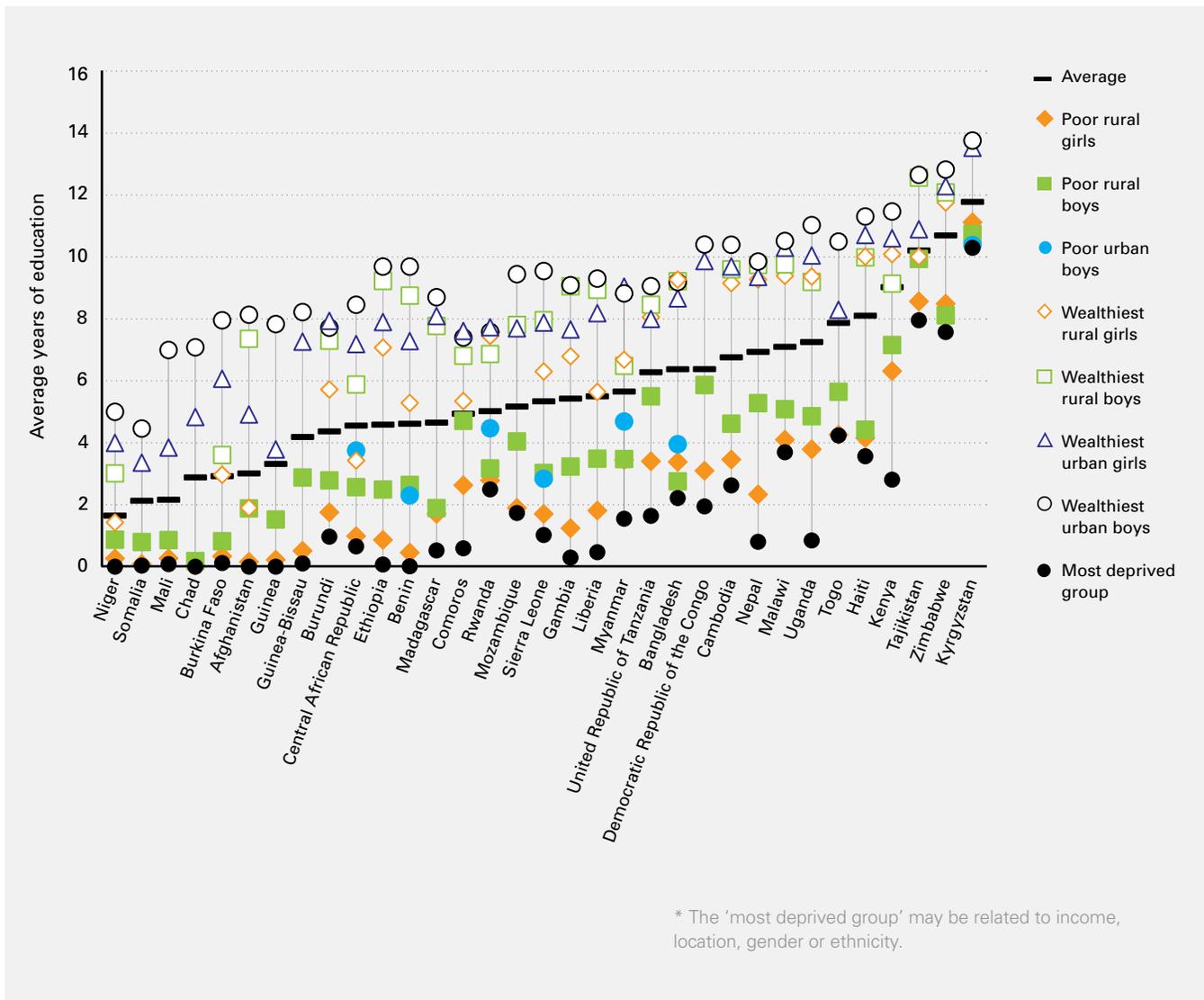
Source: Data from WIDE, accessed June 2014.

The most educated group tends to be wealthy males (mostly urban), followed by wealthy females; whereas poor rural females or particular ethnic groups are the least educated. In the worst cases, these subgroups have nearly zero years of average education, e.g., in Chad, Ethiopia, Guinea, Guinea-Bissau, Mali, Nepal, the Niger and Somalia. The most excluded ethnic groups tend to be nomadic, such as the Peulh/Pulaar or Fula in Benin, Burkina Faso, the Gambia and the Niger. Of the 33 countries, only in Kyrgyzstan, Tajikistan and Zimbabwe do the least-advantaged groups achieve, on average, six years or more of education. They are also the countries with the highest average number of years of education.

Wealth is a major issue affecting children's likelihood of dropping out of school.

Box 2: Unequal education outcomes: The example of Cambodia

UNESCO's Deprivation and Marginalization in Education database (GMR 2010) published tree graphs of education access in different countries. Here, we present one for Cambodia. The graph provides an acute image of inequality in school outcomes linked to factors of marginalization: poverty, rural residence and female sex, showing the compounding impact of these factors on education outcomes. In Cambodia, the average number of years of education was 6.0 years, based on education for young adults 17–22, but for wealthy children it was 8.2 years and for poor children it was 3.4 years. When location and gender are considered, disparities are even higher. On average, rich urban boys went to school for 9.2 years, while poor rural girls only went to school for 2.7 years.

Education inequity in Cambodia
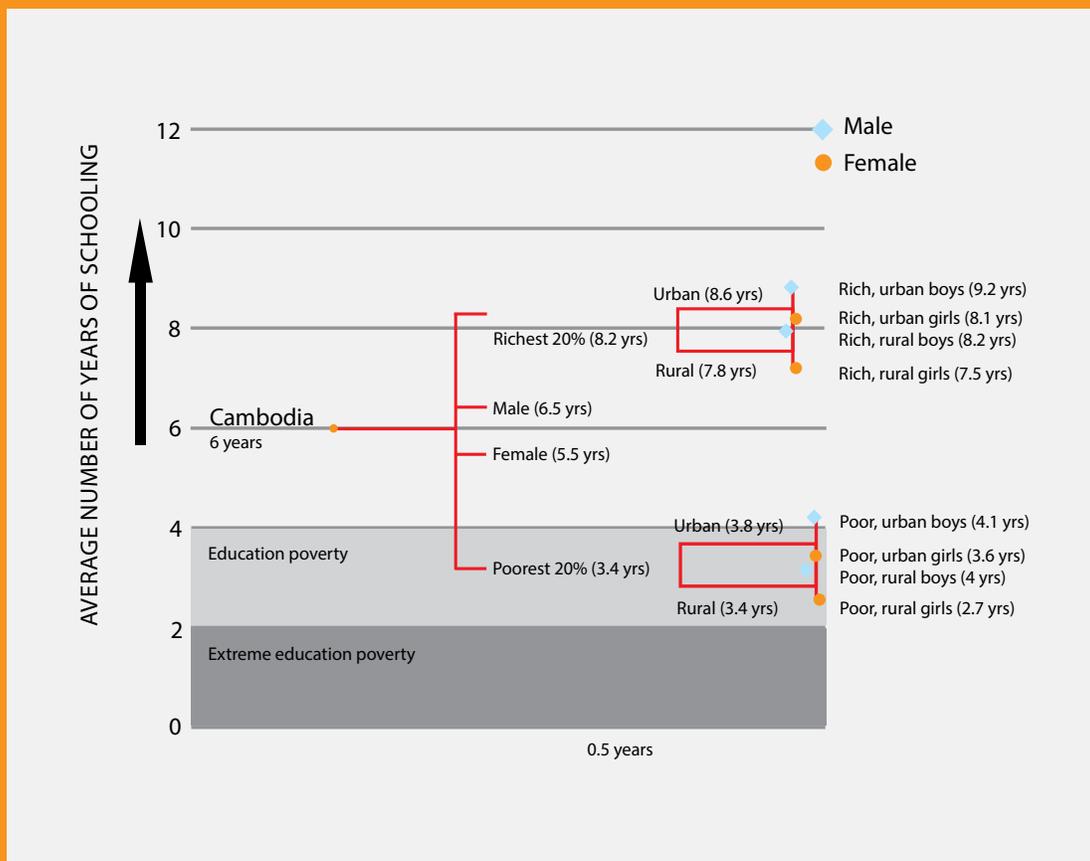
2.2.1 Inequality in intake to the first grade of primary school

Inequality starts with 'never entry'. As shown in Figure 13, never entry is virtually absent among children from the wealthiest 20 per cent of households, except in a few countries such as Burkina Faso, Côte d'Ivoire, Mali and the Niger. On the other hand, the never-entry rates for children of the poorest quintiles are extremely high in some countries, most of them in West Africa. In Guinea, 62 per cent of children from the 20 per cent poorest households will never enter school, nine times the percentage for children of the 20 per cent wealthiest households (7 per cent).

Figure 13 shows 28 countries where average never-entry rates exceeded 3 per cent.[18] Countries with the lowest average rates of never entry tend to have lower inequality levels than countries with high average rates of never entry. Other groups with high never-entry rates are rural children, nomadic or ethnic minorities (both often predominantly poor) and, in some countries, girls.

2.2.2 Inequality in dropout and completion

Wealth is a major issue affecting children's likelihood of dropping out of school. Figure 14 shows an estimate of the survival rate to the last grade of primary school for children from the wealthiest 20 per cent of households and children from the poorest 20 per cent[19] in 28 countries for which post-2010 data sets were available. Among the wealthiest children, more than 95 per cent of school entrants reach the end of primary education in just 12 of these countries. Between 80 per cent and 95 per cent complete primary education in nine countries, and below 80 per cent in six.

These numbers are troubling enough, but the values for poorer children are far worse. In Ethiopia, for instance, only 7 per cent of the poorest 17- to 22-year-olds who

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18 Adapted from the 2012 GPE Annual report (2012).
19 The estimate is retrospective, namely using the 17- to 22-year-olds who had reached the last grade of primary school among those who started first grade.

FIGURE 13: **Percentage of never entry, by wealth quintiles**

● Never entry poorest quintile   ● Never entry wealthiest quintile   ▬ Average
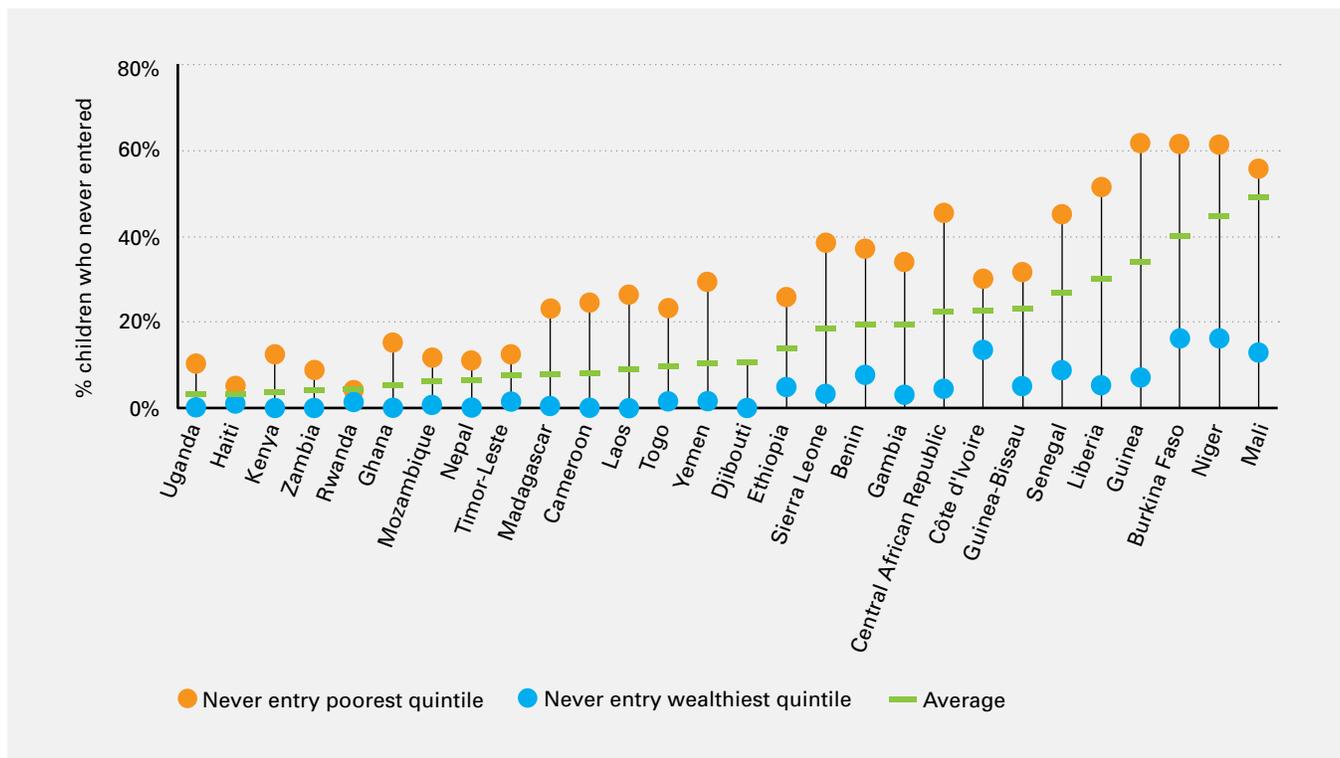
Source: Data computed from household surveys, 2006–2011.

started school had reached the end of primary; in Malawi, Mozambique, the Niger, Rwanda and Uganda, the figure was less than 25 per cent. The average share of the poorest school entrants reaching the last primary grade in these 28 countries is only 53 per cent. Again, countries with high average survival rates, such as Indonesia and Peru, also tend to be more equitable in terms of completion than those with low average survival rates.

Figure 15 illustrates the average survival rates between the last grade of primary education and the last grade of lower secondary education in 28 countries. In Mozambique and the United Republic of Tanzania, for the wealthiest quintile children, around one primary completer in two and one in three, respectively, makes it to the end of lower secondary education. In both countries, however, less than 1 in 30 among the children of the poorest quintile does. In the Lao People's Democratic Republic, 78 per cent of primary completers from the wealthiest quintile finish lower secondary education, while only 9 per cent of those from the poorest quintile do.

High levels of inequity at all levels of education combine, creating vast differences in lower secondary completion rates. In Mozambique and the United Republic of Tanzania, a third of the wealthiest children complete the lower secondary level of education, but in Mozambique less than 1 in 200 of the poorest children does and 1 in 70 does in the United Republic of Tanzania. In the Lao People's Democratic Republic, 75 per cent of the wealthiest children complete lower secondary education, but only 3 per cent of the poorest do. Inequalities are also severe in Honduras, where 87 per cent of the wealthiest children complete lower secondary education vs. 20 per cent of the poorest children.

Perhaps a more striking view of the difference between education progress for the wealthiest and poorest segments of society is how the current education levels and rates of progress translate into a population's achieving universal completion. Even in countries that have relatively high levels of education, such as Viet Nam, universal completion of lower secondary education for the poorest income groups would not

◄ This young girl's education has been interrupted by two years of violence in the Central African Republic. In November 2014 she hoped to return to school and to a more peaceful future.

FIGURE 14: Proportion of youth, aged 17–22, who have attended school and who reached at least the last grade of primary school, by income quintile (low-income and lower-middle income countries)

▲ Survived to the end of primary wealthiest quintile

▲ Survived poorest quintile   ▬ Average
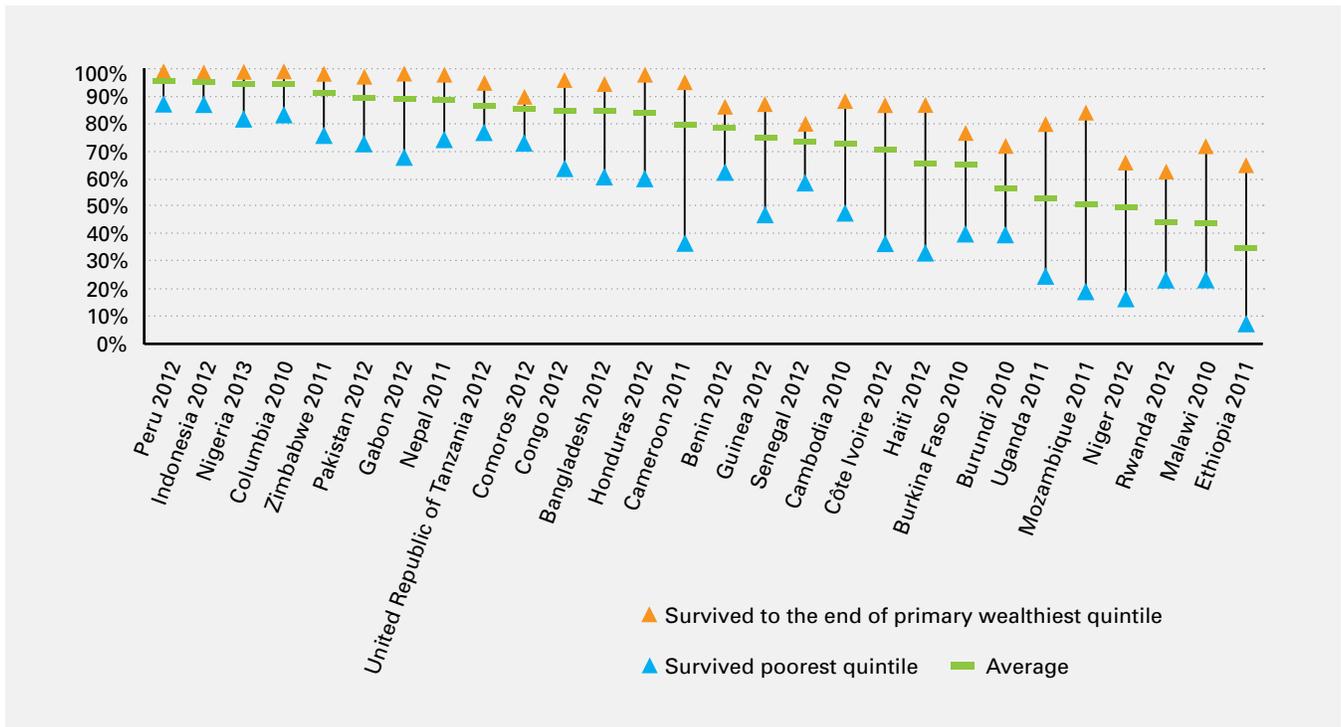
Source: Data compiled from DHS.

FIGURE 15: Share of primary completers who complete lower secondary education, by income quintile

● Proportion completing basic education among primary completers, poorest quintile

▲ Proportion completing basic education among primary completers, wealthiest quintile

▬ Average survival
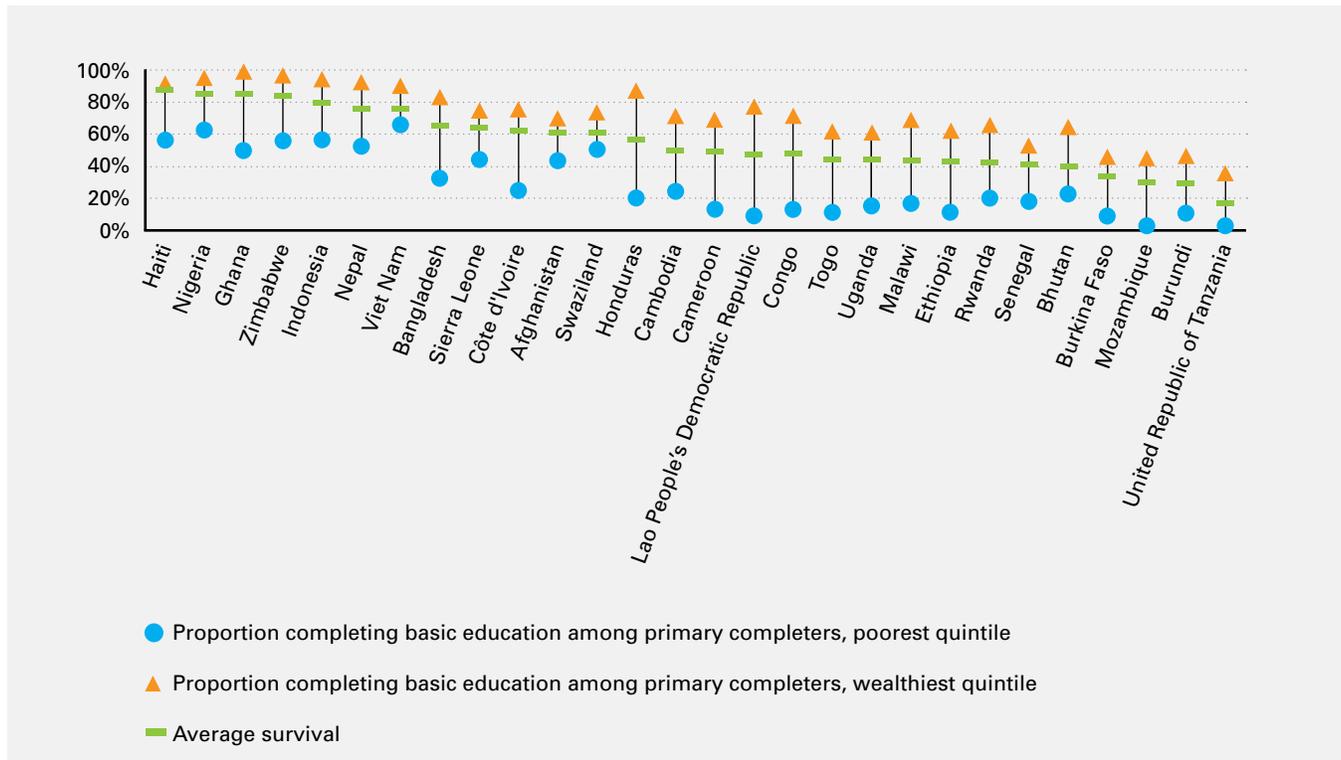
Source: Data from WIDE, accessed October 2014.

FIGURE 16: Expected year of achievement of universal lower secondary education, by income and gender
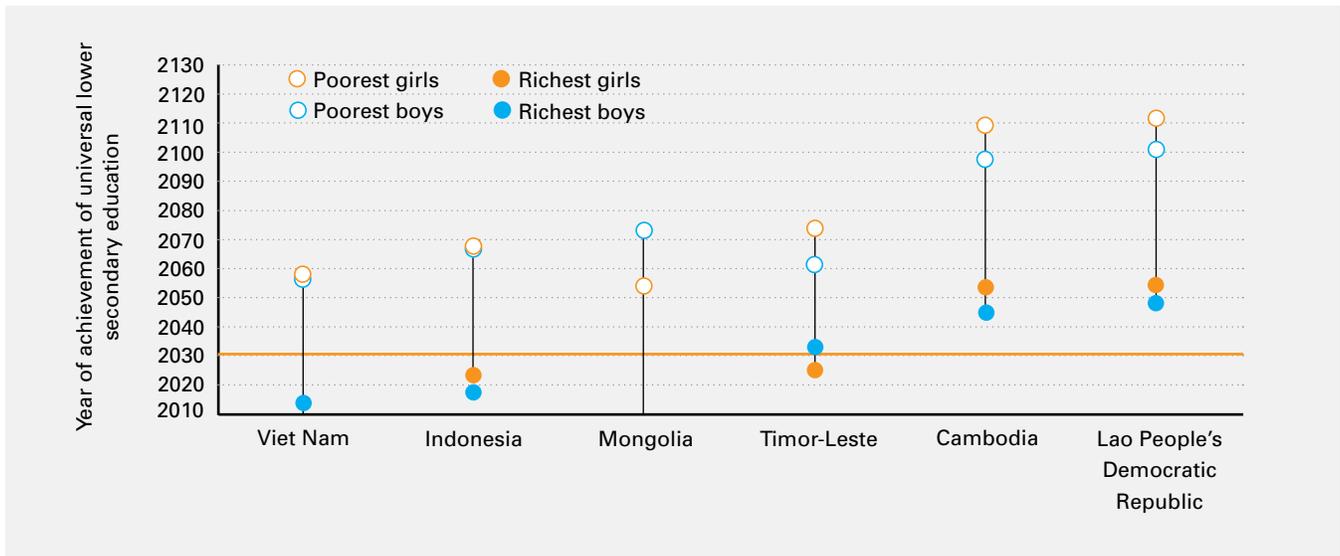
Source: EFA Global Monitoring Report team analysis in 2013, based on Lange 2014 (UNESCO 2014, 96).

FIGURE 17: Gender parity index* (GPI) for lower secondary education completion, by income quintile
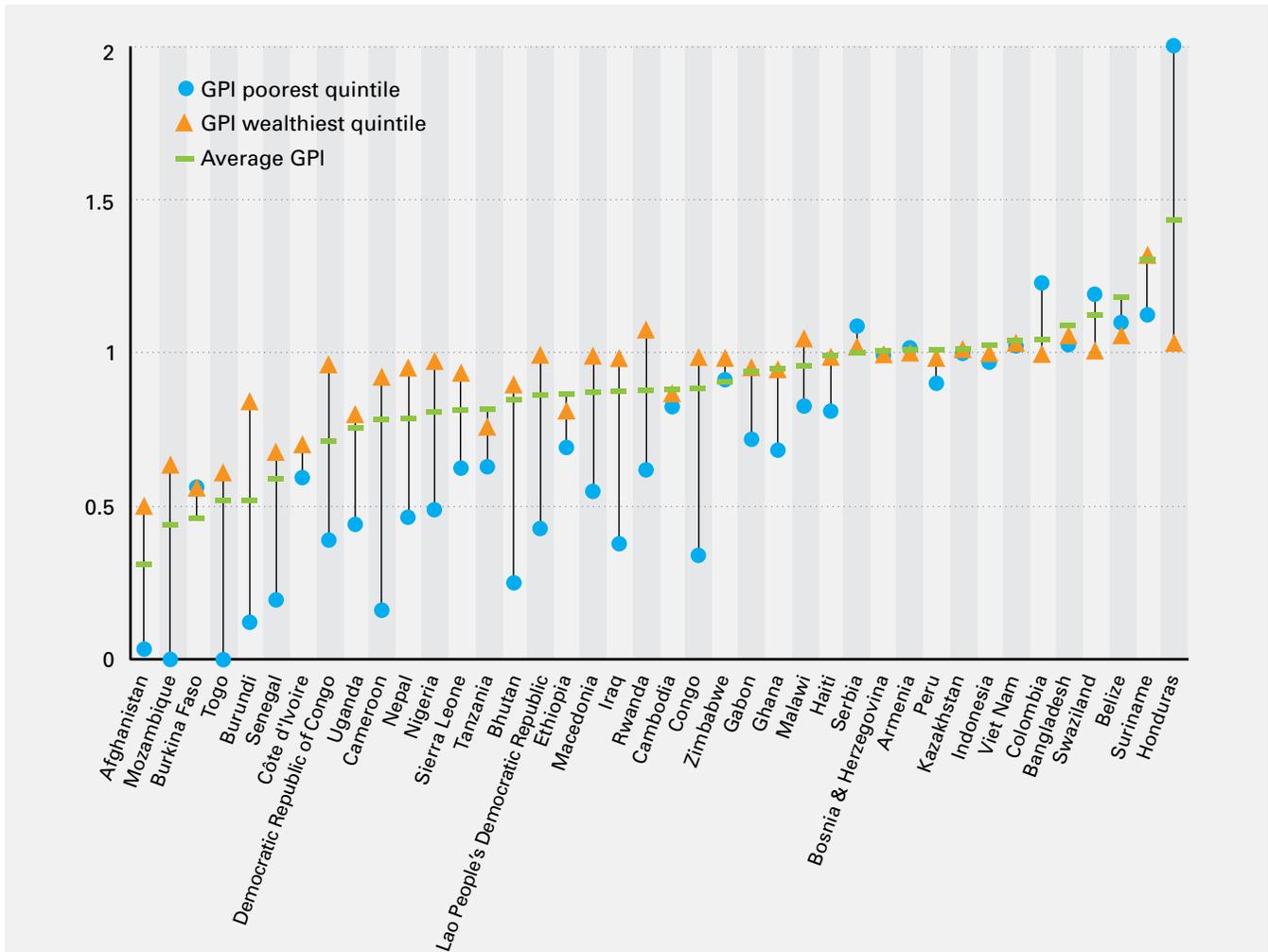
Source: Data from WIDE, accessed October 2014.   * The gender parity index corresponds to the ratio between girls' and boys' completion rates.

take place until 2060, while it is already achieved for the highest income groups, as shown in Figure 16.

Inequities also persist in many developed countries: In 2009, in the United States, the high school drop-out rate for students living in low-income families was about five times greater than the rate for their peers from high-income families. The average drop-out rates for black and Hispanic students were 2.0 and 2.4 times higher than those of white students, respectively (Chapman, Laird and Kewal Ramani 2012).

Gender is also a persistent source of exclusion. Inequalities related to gender disappear faster for the highest income quintiles than for the lowest income quintiles, as illustrated in Figure 17. Of the 40 countries shown, 15 had achieved gender parity in primary and lower secondary education completion for the highest income quintile, but only 5 had for the lowest income quintile. One salient example is Iraq, where wealthy

boys and girls had the same levels of lower secondary completion, while there were 2.6 times more boys than girls from the poorest income quintile completing lower secondary education.

In most regions, inequality disadvantages girls, but in some countries and regions, boys are at a disadvantage. This is true in Latin America and the Caribbean, where girls have higher levels of completion than boys in Belize, Honduras and Suriname. In Honduras, a poor girl from the lowest income quintile is twice as likely to finish lower secondary education as a poor boy.

A major report by the World Health Organization and the World Bank (2011) also notes that disability can be a barrier to enrolment.

▼ This 12-year-old girl walks home from school in a camp for Syrian refugees in Iraq. Though often considered of secondary importance in humanitarian crises, education provides safety, stability and a sense of normalcy when children's lives have been disrupted.

Conflict is another important factor for non-enrolment or non-completion. In 2010, children in conflict-affected countries were three times more likely to miss primary school than other children (World Bank 2011b). In 2006, more than 1 billion children lived in areas affected by conflict and violence (Office of the Secretary General and UNICEF 2009), and approximately 2.9 million primary-school-age children are refugees, with even more who are displaced.[20] As a consequence, more than half, or 28 million, of the world's out-of-school children of primary school age live in countries that are affected by conflict (GMR 2013). In 2011, this represented 50 per cent of all out-of-school children, a share that increased from 42 per cent in 2008 (GMR 2013), and only 79 per cent of the population in poor conflict-affected countries were literate, compared to 93 per cent in other poor countries.

Among the ethnic groups least likely to enter school, nomadic and herder communities such as the Karamajong, Peulh or Touareg drop out the most. According to the most recent data available, which is from 1989, there are an estimated 30–40 million nomadic people in the world today, with average enrolment rates much lower than the global average. A rough estimate is that 2–3 million children are not in school due to factors related to their nomadic cultures (GPE 2012). Approximately 3–5 per cent of the out-of-school population is from nomadic cultures, meaning that nomadic children are eight time more likely to be out of school than the average.

The data on dropouts from household surveys suggest that dropping out of school is strongly related to age. There are actually high survival rates across the board, including for the poorest children, until ages 10–12. After age 12, however, the poorer children start to leave school (*see Annex B for details*). It appears that at younger ages, when children have fewer competing responsibilities, opportunities, challenges and risks – for example, for girls, reaching puberty is associated with higher risks; for boys, the turning point is becoming strong enough to work in the fields – they will stay in school. This suggests that when children enter late (up to age 11), they are at an increased risk of dropping out.

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20 In 2013, the Office of the United Nations High Commissioner for Refugees estimated that there are 16.7 million refugees, of whom 50 per cent are children under 18. If the age distribution of the displaced children is the same as in developing countries overall, 35 per cent of displaced children, or 2.9 million, are approximately primary school age.

Box 3: Children with disabilities and exclusion

Balescut and Elkindh (2006) estimate that 90 per cent of children with disabilities in Africa are out of school. In addition, children with disabilities including learning, speech, physical, cognitive, sensory disabilities or emotional difficulties who are enrolled are likely to drop out.

Many children with disabilities who are in school are excluded from learning because the curriculum has not been adapted to their needs – or teachers do not have the capacity or time to make the necessary adaptations, and/or they do not have access to the assistive devices necessary for their learning needs (e.g., for children with low vision, eyeglasses and large-print textbooks). In addition, many of the children who are not enrolled in school could participate well if schools had the capacity in terms of knowledge, skills and equipment/facilities to respond to their specific needs, such as accessible buildings. Finally, there are children with severe disabilities who require additional specialized support.

The group of children with severe disabilities is usually a relatively small group (2–3 per cent). However, children with milder disabilities suffer from inequality in terms of access to education and retention.

◄ A school in Guinea Bissau serves this 7-year-old who was born with physical disabilities. A lack of systematic data about children with disabilities makes it difficult to develop effective education policies and opportunities for children with disabilities.

Box 4: The impact of repetition

The decision to oblige a pupil to repeat a year is not always fair, but often depends on a number of 'subjective' factors – including the student's relative position in the class, the school environment, the conditions of education and teacher's qualifications (PASEC, CONFEMEN 1999).

Its impact on learning achievement is not empirically proved, and no significant relationship between pupils' learning achievement and the frequency of repetitions has been found. At the individual level, except for those who are especially weak, students who are made to repeat a year do not make better progress by repeating than if they had moved up to the next grade (PASEC, CONFEMEN 1999, 2004).

Repetition, however, has been found to have a significant effect on pupils dropping out. In addition, it is costly, requiring the education system to invest in two years of study while only one year is validated for the student.

Source: Pôle de Dakar 2005.

Grade repetition is another related issue. Studies have estimated that 1.0 more percentage point of repeaters results in a 0.8 percentage point increase in the drop-out rate (Mingat and Sosale 2001; Pôle de Dakar 2002). These negative impacts are even more distinct among population groups that have a lower demand for education. For girls, 1.0 more percentage point in repetition is associated with an estimated 1.1 point increase in the drop-out rate. Yet many countries still have repetition rates that are significantly higher than 10 per cent. For example, according to UIS in Burundi and Timor-Leste, more than one in three children repeats first grade and more than 20 per cent of children repeat a grade in countries including the Central African Republic, Chad, the Congo, Equatorial Guinea, Guatemala, the Lao People's Democratic Republic, Madagascar, Malawi, Nepal, Sierra Leone and Togo. The high level of grade repetition leads to overcrowding in the early grades and increases the drop-out rate.

2.2.3   Inequality in learning

Even for children who do complete primary or basic education, inequity exists with regard to learning, with large differences in learning outcomes based on children's background. The *EFA Global Monitoring Report 2013/4* (UNESCO 2014) and the WIDE database have a wealth of examples that show how poverty, location, gender, ethnicity and linguistic ability can play a role in learning. The countries with the highest levels of learning inequality include India, where regional differences are extremely marked, and El Salvador and Yemen, where the most disadvantaged children are those who do not speak the language of instruction.

Figures 18 and 19 provide two detailed examples for sub-Saharan Africa examining learning and wealth, respectively, from the Southern and Eastern Africa Consortium for Monitoring Educational Quality

Even for children who do complete primary or basic education, inequity exists with regard to learning, with large differences in learning outcomes based on children's background.

FIGURE 18: Proportions of students with intermediate reading and math skills or higher (SACMEQ)
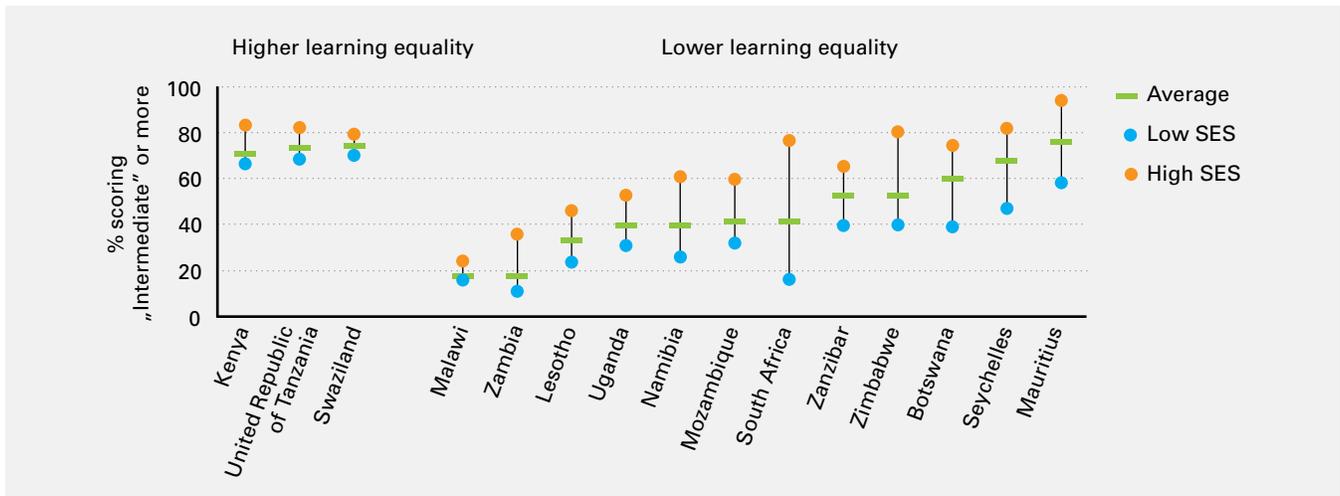
Data source: SACMEQ 2006.

FIGURE 19: Proportions of students with at least basic math (left) and reading (right) skills (PASEC)
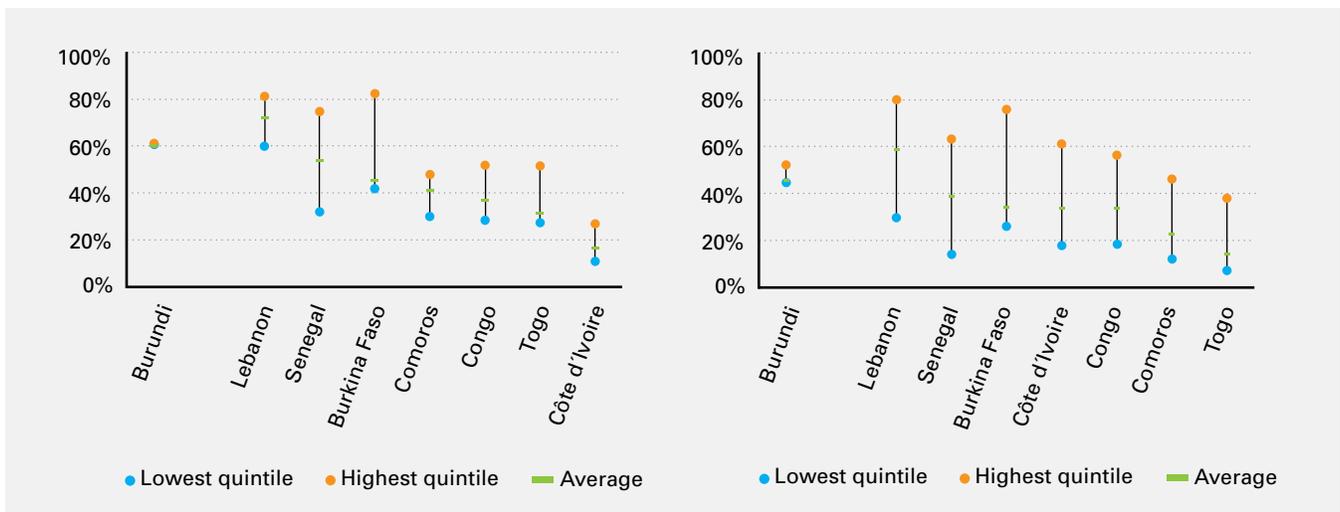
Source: Data from WIDE, and the most recent PASEC assessments, accessed October 2014.

(SACMEQ) and the Programme d'analyse des systèmes éducatifs de la CONFEMEN[21] (PASEC). They show the proportion of students who have at least intermediate skills (Figure 18) or at least basic skills (Figure 19) in math and reading[22] for children from the poorest and wealthiest households, according to quartiles for SACMEQ and quintiles for PASEC.

In the majority of countries, learning inequity is high. The proportion of children from the poorest group who have reached an intermediate standard can be half or less the proportion for the wealthiest group. In South Africa, for example, approximately 80 per cent of wealthy children have intermediate reading skills

or higher vs. only 20 per cent for the lowest income group. But this is not inevitable. Notable in the graphs are four countries with both relatively high learning and equity: Burundi, Kenya, Swaziland and the United Republic of Tanzania.[23] Given the right circumstances, learning outcomes of marginalized children can be as high as those of their less disadvantaged peers.

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21 Conference of the Ministers of Education of French-speaking countries.
22 The intermediate skill is a score of 4 out of 8.
23 In Malawi, there is also high equity, but poor and rich children appear to perform equally badly.

3.

Barriers to education progress and learning

There is a continuing crisis in education, and many children are excluded from access to education and learning, despite education's wide-ranging economic and social benefits.

A key factor that determines countries' ability to achieve the goals set out in the Education for All agenda is the level of available funding. Section 3.1 gives an idea of the country-level funding gap, and Section 3.2 analyses bottlenecks in funding to education, including domestic and external funding – showing that investment in education remains largely inadequate.

Section 3.3 examines the distribution of funding to the different levels of education, using an equity lens. It analyses the concentration of public education resources, the financial burden for households and the consequences for equity. Section 3.4, in turn, considers geographical inequity in resource allocation. One of its major messages is that the children who are most excluded from education are also those on whom governments spend the least. These children need affirmative policies and funding.

Finally, Section 3.5 considers the efficiency with which available funding per child is converted into higher enrolment or quality learning. Demand-side issues such as child labour or early marriage lead to the exclusion of many children from education. The transformation of resources into learning is also a challenge and points in particular to accountability issues.

▶ A boy in math class in Sudan raises his hand to answer a question. His school receives assistance from UNICEF for construction, water and sanitation facilities, textbooks, supplies and teacher training.

3.1 Funding gaps

All global education reports stress the continuing finance gaps for education in developing countries. For example, according to a recent policy paper by the EFA Global Monitoring Report (GMR 2014), the external funding needed to provide universal basic education to all children in 46 low-income countries was US$26 billion annually for the 2012–2015 period. (*See Box 5 below for an explanation of the GMR costing model.*[24]) The GPE came up with similar results (Mingat 2013).

The funding gap for a given level or sub-sector of education depends on the level of funding dedicated to the sub-sector vs. the level of needs. The level of funding dedicated to the education sector itself is a function of domestic resources (mainly through taxes) available in the government budget; the percentage of domestic resources directed to education, i.e., the share of education within the total government budget; and external aid allocated to education in the country. National education spending is then distributed to the different levels of education. Hence, when considering recurrent spending to a given education level, and assuming that external aid is primarily allocated to non-recurrent expenditures, the following equation can be written (here the example chosen is primary education, but the same equation can be used for all levels):

PrimGDP = Dom GDP * %ED * %Prim

PrimGDP denotes the level of recurrent primary funding as a share of GDP, *DomGDP* is the level of domestic resources as a share of GDP, %ED the share of education in the government budget and *%Prim* the share of primary within the education budget. A bottleneck at any of these levels will affect funding to primary education (or any other level being considered).

Financial needs, on the other hand, depend on the number of children to be educated and the public unit costs. Box 5 shows an equation relating to gross enrolment ratios, for a given level of education; recurrent funding, e.g., salaries, materials and additional costs of enrolling marginalized children; and capital expenditures, e.g., classroom construction/maintenance.

The model can be used to compute how much funding is needed to reach universal primary education compared to the amount of funding actually available by assuming full enrolment. It does not reflect current unit costs, but assumes a set of minimum or acceptable levels of salaries, pupil-teacher ratios, subsidies and construction costs, as well as acceptable levels of repetition and a reasonable share of private enrolment. The necessary funds can be compared to actual funding to assess the education finance gap.

/ There is a continuing crisis in education, and many children are excluded from access to education and learning, despite education's wide-ranging economic and social benefits.

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24 The GMR costing model is also explained in the *EFA Global Monitoring Report 2010*, on page 123 (UNESCO 2010a).

Box 5: Model to compute the financial allocations needed to achieve universal primary education

Funding for primary education (or any other level) is mathematically linked to enrolment levels through spending per child, which itself is linked to salary levels, non-salary expenditures, pupil-teacher ratios, private enrolment, and the demographic dependency ratio, i.e., the share of the population that is of primary school age. It is possible to express this relation in a mathematical manner:

GER = PrimGDP * PTR * (1-%nSal) / (SalGDP * (1 –%Priv) * Dem)

Here, *GER* denotes the gross enrolment rate; *PrimGDP* the level of recurrent primary funding as a share of GDP; *PTR* the pupil-teacher ratio in primary education; *SalGDP* teacher salaries as a share of GDP per capita; *%nSal* the proportion of non-teacher salary-related spending within recurrent expenditures, largely on materials and management; *%Priv* the share of private education; and *Dem* the proportion of primary-school-age children in the total population, or dependency ratio.

The equation above is for recurrent costs and does not consider extra costs to bring marginalized children to schools, either through subsidies or targeted policies. Additional costs per marginalized child, expressed as a percentage of recurrent costs for other children would be noted *Smg*, and *%M* would be the share among all students of marginalized children needing additional funding. The general model of education expenditures, if the purpose is to relate total funding on primary education to GER, also must include non-recurrent funding, particularly classroom costs. Here we need to introduce *C*, the cost of constructing one classroom, *L*, the average lifespan of a classroom, and if there is more than one teacher per class, *TCR*, the teacher-per-class ratio (this ratio is often 1 in the lower grades but greater than 1 if the model is applied to lower secondary education). The entire model follows the following equation:

$$\text{PrimGDP} = \text{GER} * \text{Dem} * \left(\frac{\text{SalGDP}}{\text{PTR}} * \frac{(1-\%\text{Priv})}{1-\%\text{nSal}} * (1+\%\text{M}*\text{Smg}) + \frac{C}{\text{GDPcap}} * \frac{1}{L} * \frac{1}{\text{TCR}} * \frac{1}{\text{PTR}} \right)$$

The parameter values used in the estimates here are largely based on the Global Monitoring Report costing model of 2010.

Note: The above is an 'accounting equation', meaning that it is mathematically true, but it does not follow from it that a change in one of the parameters on the right of the equation will automatically lead to a change in *GER*, as there may be concurrent changes in several parameters with opposite impact on *GER*.

Indicator	GMR costing model	This report
Teacher salary	4.5 times GDP/capita for sub-Saharan Africa, 3.0 otherwise	As GMR
Non-teacher salary costs	% of non-salary costs in recurrent spending: 33%	% of non-teacher salary costs in recurrent spending: 25%
Target pupil-teacher ratio	40	As GMR
Additional costs per marginalized child	5% of GDP per capita + 33% of other recurrent costs	50% of other recurrent costs
Share of marginalized children	% of young adults aged 15–24 with less than 4 years of education	As GMR
Costs per classroom; lifespan	$13,500	$11,000; 25-year lifespan (Theunynck 2002 and 2009)
Share of school-age population within total population	United Nations medium-term projection for 2015	United Nations medium projections
Private enrolment	10%	10%
Gross enrolment ratio	GER targets are country-specific but imply full enrolment of primary-school-age children with a maximum of 10% repetition.	When universal primary education is achieved, minimum of 110% and 100% + % repeaters to account for a maximum repetition level of 10% (same as the GMR).

▲ This teacher in Ethiopia provides instruction outside because of a lack of classroom space.

Figure 20 shows the funding needed for universal primary education for the 16 countries considered for discussion for the most recent year available, based on the model and parameters in Box 5. It assumes that efficiency gains from, for example, lower repetition rates have already been obtained. Funding needs are contrasted with actual primary education expenditures in the country.

Within this group of countries, only the Plurinational State of Bolivia and Nepal have sufficient education expenditure for universal primary education. Nepal has achieved 100 per cent primary completion (UIS Data Centre), so it seems logical that the country would have sufficient education expenditure. In the Plurinational State of Bolivia, however, primary completion is only 92 per cent (UIS Data Centre) – a result that seems to imply that other factors beyond a lack of resources are hampering the country's achievement of universal primary education.

The population age structure has a strong impact on financial needs. The Niger, for example, has much higher funding needs than Myanmar because 17 per cent of the total population is of primary school age, while in Myanmar it is only 8 per cent. If the Niger had the same demographic pressure as Myanmar, its current spending would be more than enough to meet its financial needs for primary education. In the short term, however, the share of the school-age population within the total population will continue to be large in many of the lowest-income countries.

Funding needs for education as a whole will remain high given the increasing demand for post-primary education as a result of children completing primary education in higher numbers, and also because of the social and economic demand for skills that cannot be fulfilled with just primary education.

Box 6 describes the analysis of expected school-age population and demographic pressure for each region of the world in 2030, with a comparison to today. It shows the increasing challenges that the lowest-income countries, in particular in sub-Saharan Africa, which today also have the lowest levels of education achievement, will face in the upcoming decades.

FIGURE 20: **Actual and needed primary education expenditures as a percentage of GDP**
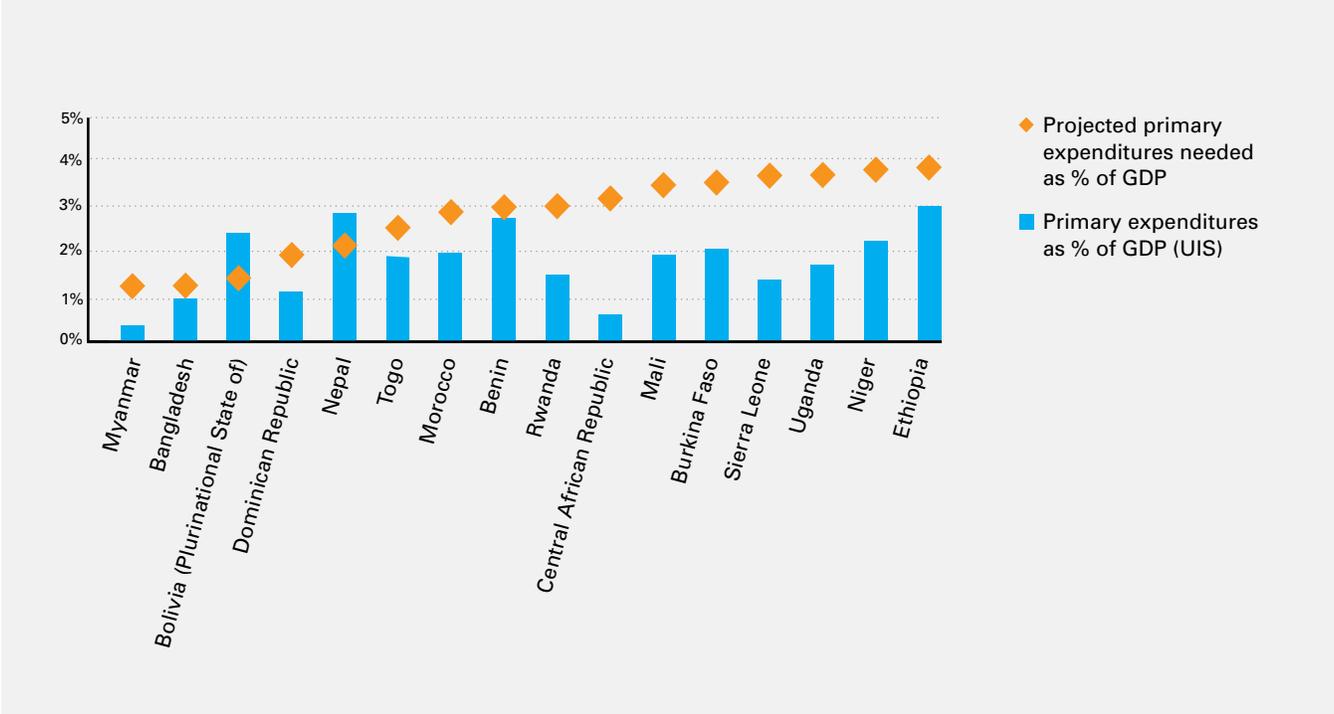
Source: Computations by the authors, based on World Bank, UIS Data Centre and GMR information.

Box 6: The challenge of demographics

Demographics are bound to present a major challenge to education progress in the 2015–2030 period for two reasons. First, in some regions, a high youth dependency ratio (many children relative to working adults who contribute to the government budget through taxes) means that each adult must 'finance' the education of more children. Second, the absolute increase in the number of children means that education systems must continually expand in order to provide them all with good-quality education.

Figure 21 shows that the demographic pressure is extremely high in some regions. In West and Central Africa and Eastern and Southern Africa, 35 and 34 per cent of the population, respectively, will be between 3 and 15 years old (roughly the ages of pre-primary to lower secondary education) in 2015. It will be 25 per cent in the Middle East and North Africa and in South Asia. Though demographic pressure is expected to decline globally between 2015 and 2030, the decline will not be larger than 4 percentage points. This will not change the magnitude of the challenge faced by sub-Saharan Africa and, to a lesser extent, the Middle East and North Africa and South Asia regions. Financing the education of such large proportions of children will be far more difficult than in regions with less demanding and more balanced demographic situations, including East Asia and the Pacific, Central and Eastern Europe and the Commonwealth of Independent States (CEE/CIS) and Latin America and the Caribbean.

Due to the continued population growth between 2015 and 2030 and the fact that there are still many out-of-school children and adolescents, education systems will have to respond to significantly increased needs in all regions except CEE/CIS. In 2030, in order to achieve basic education for all, the world will need to enrol 619 million additional children aged 3–5, and West and Central Africa will need to provide basic education to 233 million children. In comparison to the enrolment numbers in 2012, which were 75 million, this represents 158

FIGURE 21: Share of the population aged between 3 and 15 years old, for 2015 and 2030

Legend: ■ 2030 ■ 2015

Region	2030	2015
EAP	16%	18%
CEE/CIS	17%	18%
LAC	18%	22%
SA	21%	25%
MENA	22%	25%
ESA	31%	34%
WCA	34%	35%
World	20%	22%
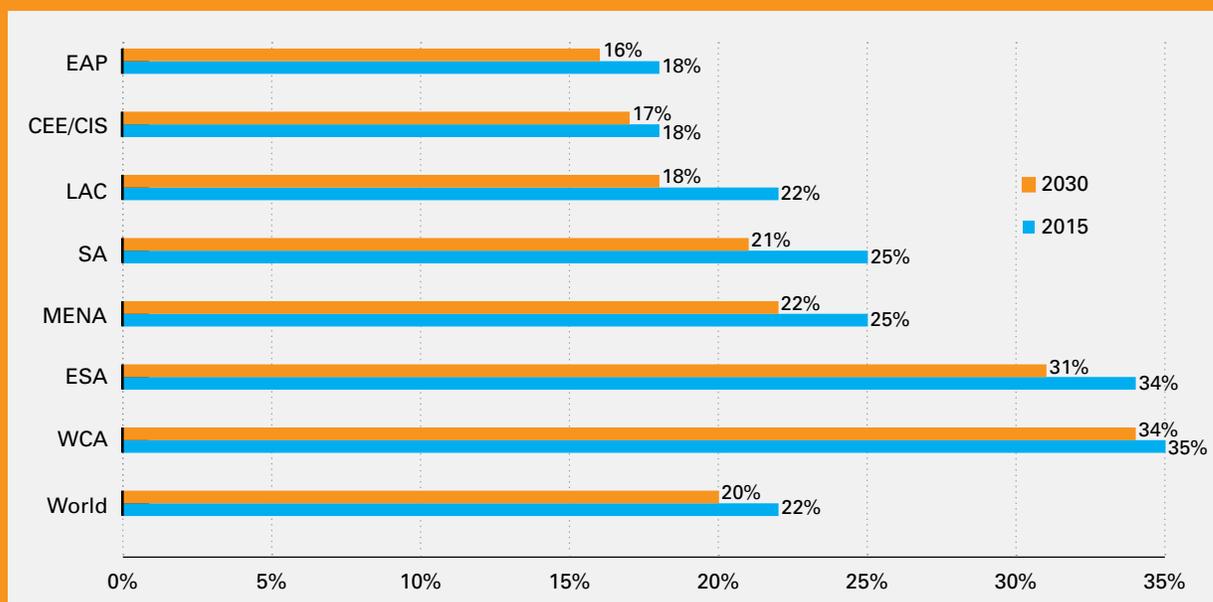
Note: EAP = East Asia and the Pacific, CEE/CIS = Central and Eastern Europe and Commonwealth of Independent States, LAC = Latin America and the Caribbean, SA = South Asia, MENA = Middle East and North Africa, EAP = East Asia and Pacific, WCA = West and Central Africa
Source: United Nations population database, 2012 revision, and authors' computations.

million additional children. Similarly, the Eastern and Southern Africa region will need to accommodate an additional 118 million children, corresponding to an increase of 126 per cent over 2015–2030. The Middle East and North Africa will have to respond to the additional needs of 55 million children, a 78 per cent increase; South Asia and East Asia and the Pacific will have to enrol 136 million and 81 million additional children, respectively, representing increases of 47 per cent and 30 per cent. And in Latin America and the Caribbean, there will be 22 million additional children, an 8 per cent increase.

The demographic burden will also vary largely across countries. In some countries – such as the Democratic Republic of the Congo, the Niger, Nigeria and the United Republic of Tanzania – the child population increase will be extremely high. The Niger, for example, will need to accommodate 6 million additional children in 2030, a number that should be added to the almost 4 million children of pre-primary, primary or lower secondary school age who are out of school today.

This is bound to put pressure on countries to build new schools and to train, recruit and finance large numbers of new teachers. The pressure will be the highest in sub-Saharan Africa, where there are comparatively lower proportions of educated adults who can qualify to become teachers.

FIGURE 22: Number of children enrolled in 2012 and projected number of children aged 3–15 in 2015 and 2030 – pre-primary, primary and lower secondary levels

- School-age population, 2030
- School-age population, 2015
- School-age enrolment, 2012

3.2 Challenges with the education funding envelope

3.2.1 Domestic resources as a percentage of GDP

The United Nations Development Programme (UNDP) estimates that in order to reach the Millennium Development Goals countries should devote approximately 20 per cent of their GDP to domestic expenditure (UNDP 2010). Many countries fall short of this mark, as illustrated in Figure 23, which shows the level of domestic resources that are available for the government budget as a percentage of GDP in 44 countries. There is a wide variation in resource levels. Countries with a large non-formal economy, which by definition is not taxed, and fewer natural resources (e.g., oil) tend to have low domestic resources as a percentage of GDP. At the bottom of

the distribution are a number of impoverished countries with large non-formal economies and no oil resources, including Afghanistan, the Central African Republic and Ethiopia, where government resources correspond to only 10–11 per cent of GDP.

Over the past decade, on average, there has been an increase in domestic public resources as a share of GDP in developing countries. In low-income countries, public resources have increased from an average of 11.5 per cent of GDP in 2002 to 14.5 per cent of GDP in 2011. In middle-income countries, public resources as a share of GDP increased from 17.0 per cent in 2005 to 19.0 per cent of GDP in 2011. However, as seen in Figure 23, many of the poorest countries still fall short of the estimated 20 per cent needed to achieve the Millennium Development Goals.

FIGURE 23: Domestic resources as a percentage of GDP in selected countries
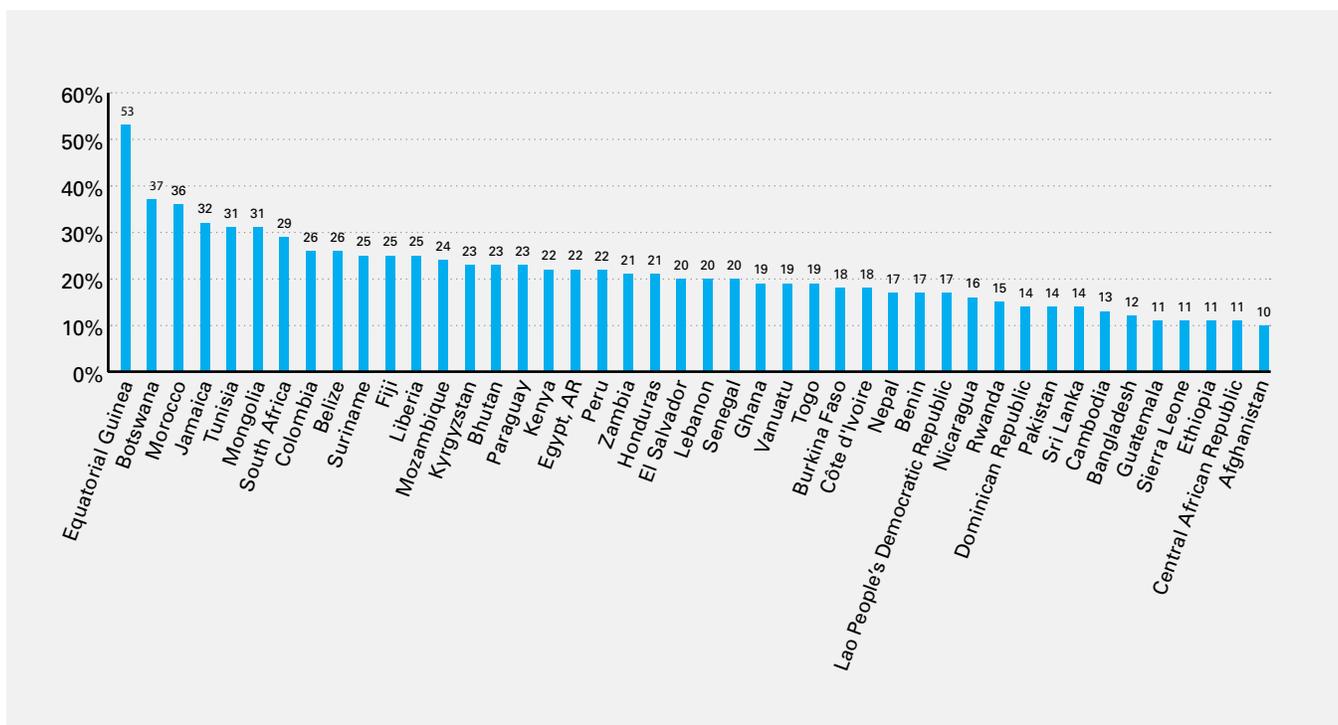
Source: World Bank database, accessed October 2014.

3.2.2 Priority given to education in government budgets

Once the total amount available for the national budget is set, governments must balance the competing demands of different sectors (health, education, etc.). The needs of the education sector and the political priority given to it will determine how much of the government budget will be directed towards education. Countries with lower percentages of children and youth or high government revenue do not need to devote the same proportion of their domestic resources to education as countries with higher demographic pressure or low government resources. The most commonly used international benchmark is that developing countries that seek to achieve universal primary education should, in line with policies in place for universal primary education in a set of best-performing countries, devote at least 20 per cent of their budget to education (Bruns, Mingat and Rakotamalala 2003).

Many developing countries, however, attribute far less than 20 per cent of domestic resources to education, as illustrated in Figure 24. According to the UIS Data Centre, in the past few years some low-income countries, such as Cambodia, Mali and Tajikistan, have increased the proportion of their government budget

allocated to education, but in other countries the share of the government budget devoted to education has stagnated at very low levels.

3.2.3 External funding to education

In a number of low-income countries, external funding constitutes a significant share of governments' total education budgets. In Afghanistan, Comoros, Guinea-Bissau, Liberia and Malawi, for example, it represents more than 30 per cent of the education budget (GMR 2014). It is essential to the achievement of universal basic education in these countries.

Figure 25 shows the evolution of official development assistance (ODA) to education and basic education between 2002 and 2012. In the first decade of the 2000s, donor funding to education more than doubled. Overall aid to education increased from US$6.5 billion in 2002, of which US$2.9 billion was dedicated to basic education, to a peak of US$13.9 billion, of which US$6.0 billion was for basic education, in 2010 (in constant 2011 US dollars). However, since 2010, there has been a decline in external aid to education of around 10 per cent (15 per cent for aid to basic

FIGURE 24: **Share of education in government budgets in 24 low-income countries with data**
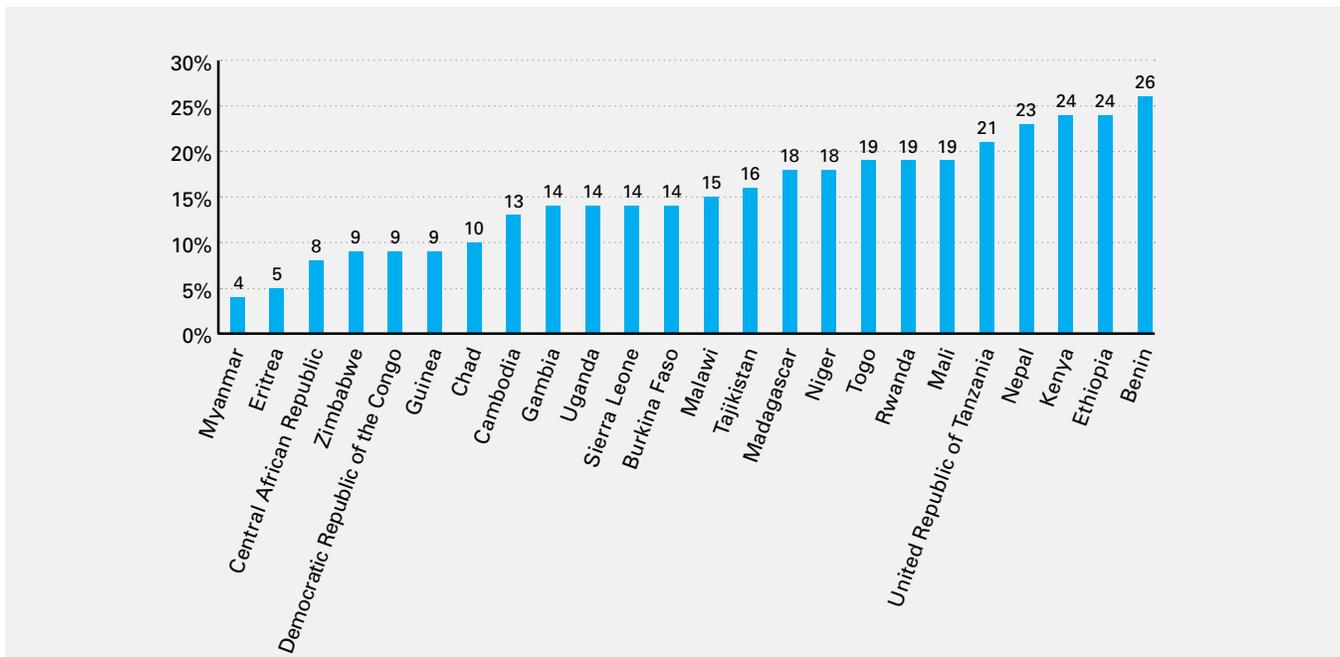
▲ Girls learn in a preschool in the United Republic of Tanzania. Good-quality pre-primary, primary and lower secondary education – basic education – has a significant influence on economic and human development in low-income countries.

FIGURE 25: **Aid to education, in US$ billions, 2002–2012**
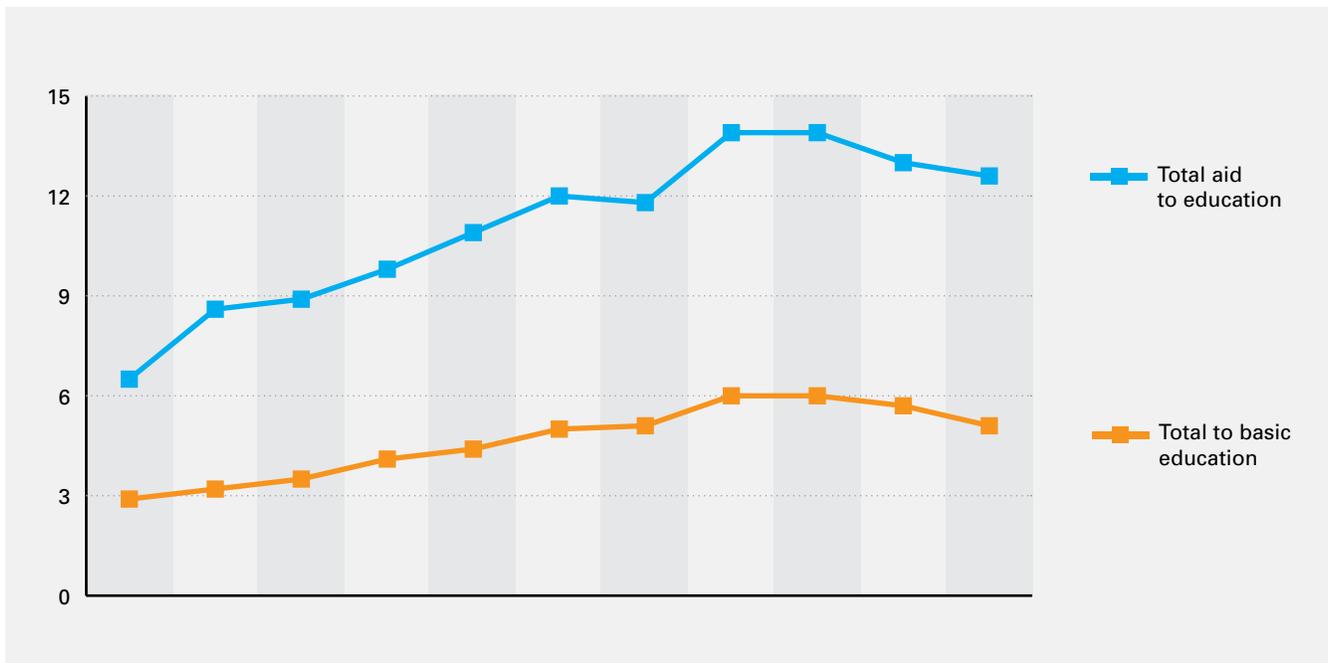
Source: Hattori 2014.

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education). Contributions to education in 2011 were US$13.0 billion, including US$5.7 billion for basic education, and fell further to US$12.6 billion in 2012, including US$5.1 billion for basic education. Yet, even the 2010 peak value was only a fraction of the estimated finance needs.

Although the level of total official development assistance (ODA) falls short of the United Nations target of 0.7 per cent of GDP, the perspective for an increase seems limited, particularly as slow economic growth has made donors more reluctant to provide aid. Actual and anticipated cuts to aid to education by some of the major donors such as the European Union, the Netherlands and the United States Agency for International Development are not expected to be offset through increases by other donors such as Germany, Japan and the World Bank (UNESCO 2014).

The greatest tragedy of these cuts is that they have affected the neediest low-income countries, which saw a decline of approximately US$100 million in aid to basic education from 2010–2012. In addition, within ODA, basic education receives lower prioritization than national governments give to the effort (*see, for example, GMR 2014 and UNESCO 2014*). Only 4 per cent of ODA was spent on basic education in 2012. This is much lower than what most donor governments spend on basic education within their own borders: Between 4 per cent and 12 per cent of their budget goes to basic education, with an average of close to 6 per cent.

▶ A girl looks out the window of her school in Sierra Leone, a country affected by the Ebola virus and recovering in the aftermath of years of conflict. There is growing evidence that education programmes can mitigate the causes of conflict and provide a foundation for more peaceful communities.

FIGURE 26: **Share of total ODA directed towards basic education, by major donor (those giving US$50 million or more in 2011)**

Donor	Value
United Kingdom	8
Ireland	8
World Bank (IDA)	7
New Zealand	7
Asian Development Bank*	7
Norway	6
Australia	6
Denmark	5
Canada	5
Netherlands	5
African Development Fund	4
Spain	4
Sweden	4
Germany	4
Finland	3
EU institutions	3
France	3
Greece	3
Republic of Korea	3
Portugal	3
Luxembourg	3
Italy	2
United States	2
Inter-American Development Bank*	2
Japan	2
Belgium	2
Austria	1
Switzerland	1

Source: UNESCO 2014.

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3.3 Equity in the allocation of education funding to different levels of education

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Once the amount of funding dedicated to education within countries is defined, governments make different choices in the way they distribute this funding across different levels of education. Their challenges and the need for trade-offs will be greater when resource needs are higher (e.g., in countries with high demographic dependency ratios) or resources are lower (e.g., a low tax base or low prioritization of education). In making their distribution decisions, governments often end up providing significantly more education resources to wealthier groups of children than to the poorest and most marginalized.

3.3.1 Distribution of public education spending across levels of education

As a general pattern, most low-income countries allocate a higher proportion of public education spending to primary education than middle- and high-income countries. This is mostly because the number of students who reach the secondary or tertiary levels is smaller and not because these countries spend much per pupil in primary. Spending tends to shift to secondary and tertiary education as countries move towards universal primary education and an increasing number of primary school completers aspire to lower and upper secondary education opportunities.

Some countries with low primary completion rates nevertheless dedicate a limited share of their education

resources to the primary level, which compromises their ability to achieve universal primary education, as indicated in Figure 27. These countries are on the lower end of the distribution in the graph and include examples such as Chad and Rwanda, which spend a small proportion of their budget, at around 40 per cent and 30 per cent of education spending, respectively, despite being far from universal primary completion. On the other hand, Burkina Faso, the Gambia, Guatemala and Nepal are spending more than average on primary education, at around 60 per cent of their education budgets.

Countries may similarly underinvest in lower secondary or other levels of education. Guatemala, for example, is near the top in spending for primary education. However, one child in two finishes lower secondary education, and 53 per cent of all secondary school pupils are in private institutions vs. only 10 per cent in primary education. With Guatemalan families shouldering such a significant proportion of lower secondary education costs, equity may be affected (*see Section 3.3.4 for more details on household expenditures*). The country devotes a mere 9 per cent of its resources to secondary education. Here, the emphasis has been put on primary education at the expense of the higher levels of education.

Countries with very low average education levels face a further finance challenge. If the size of their tertiary education sector is very small, this automatically results in less economy of scale and higher unit costs, hence,

a relatively high investment in tertiary education as compared with the number of students at those levels. It is necessary to balance the need for tertiary education with the requirement to give all children, including the vulnerable and marginalized, access to a full basic education. Achieving this balance may require weighing the needs of a vocal, educated and often urban minority against the needs of larger, less powerful marginalized groups that remain excluded from the lower levels of education, including pre-primary and primary education.

3.3.2 Unit cost by level of education

The results of underinvestment in education (and within education) at different levels of education are multiple and far-reaching: millions of children not in school and the quality of education in many countries far too low. Low expenditure per student may result in very large class sizes, and low investment in teachers or supportive materials can adversely affect the quality of education and learning outcomes.

One measure of relative underinvestment is the ratio of per-pupil expenditures by education level, i.e., the relative expenditure on each secondary or tertiary pupil compared with a primary pupil (*see Annex C for details*).

In most countries – lower- middle- and upper-income alike – expenditures per pupil in primary and in lower

FIGURE 27: **Share of public education expenditure going to primary against the primary school completion rate**
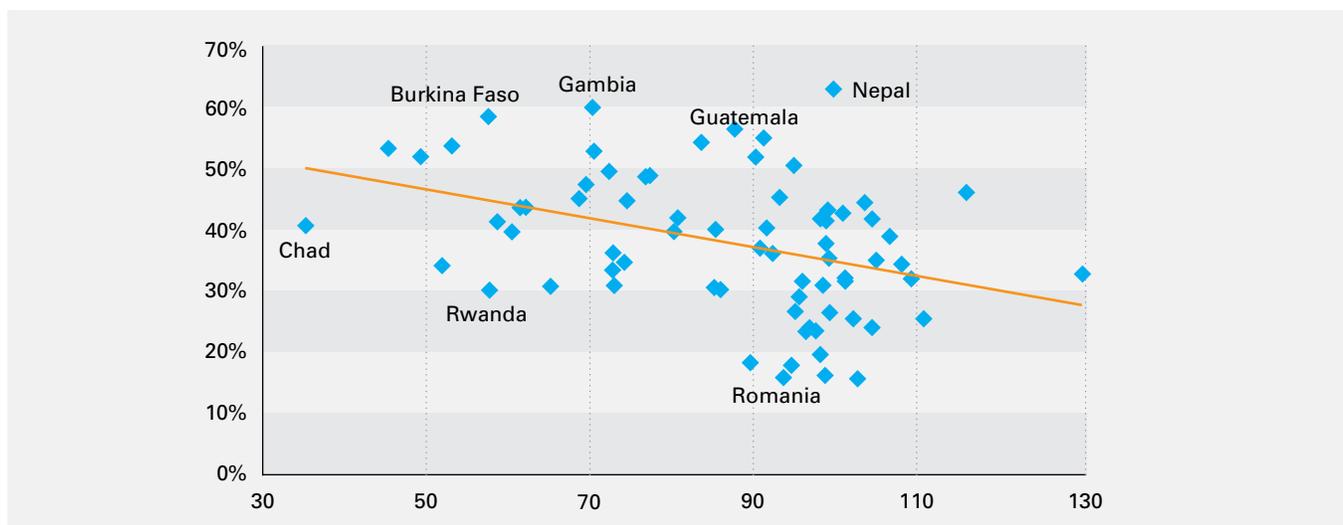
Source: Based on most recent year available from the UIS Data Centre, accessed October 2014.

secondary education are similar, at least within a factor of two of each other. Many countries, particularly upper-income countries, spend even more per primary pupil, mainly as the result of lower pupil-teacher ratios in lower grades. The same is true in some low-income countries, such as Ethiopia and Yemen. There, the per-pupil expenditures on primary education are significantly higher than for secondary. In the majority of lower-income countries, though, the opposite is true: Spending is significantly higher for secondary pupils. Countries that stand out in this respect are Bhutan, Cameroon, Chad, Malawi, the Niger and Rwanda.

It is notable that for the Niger, while unit expenditure in secondary is far higher than for primary, the country dedicates 52 per cent of its education budget to primary education. This apparent contradiction results because so few students make it to the secondary cycle.

Unit expenditures in tertiary exceed those for primary in most countries by a larger margin than secondary expenditures. There is a small group of countries, however, where the expenditures per tertiary student outstrip the expenditures on primary students by very high margins. Annual public expenditure per tertiary student is 25–225 times that spent on a child in primary school. Burundi, the Niger and Seychelles are among the countries in this group. At the outer extreme, Malawi spends 225 times as much per pupil in tertiary education (1,754 per cent GDP per capita) compared with each primary pupil (7.8 per cent of GDP per capita expenditure). In this context, subsidizing one more student for a year of tertiary education costs a year of education for more than 200 primary school students.

Students at the higher levels of education overwhelmingly tend to be from the highest income quintiles (*see Section 3.3.3*) while the first students to be affected by cuts at the primary education level will be from the lowest income quintiles (*see Chapter 1*). This has sweeping consequences for equity.

▼ A young boy at a school in India.

GUYANA

17% resources to top 10%

Cumulative % of expenditures

Cumulative % of cohort

MALAWI

72% resources to top 10%

Cumulative % of expenditures

Cumulative % of cohort
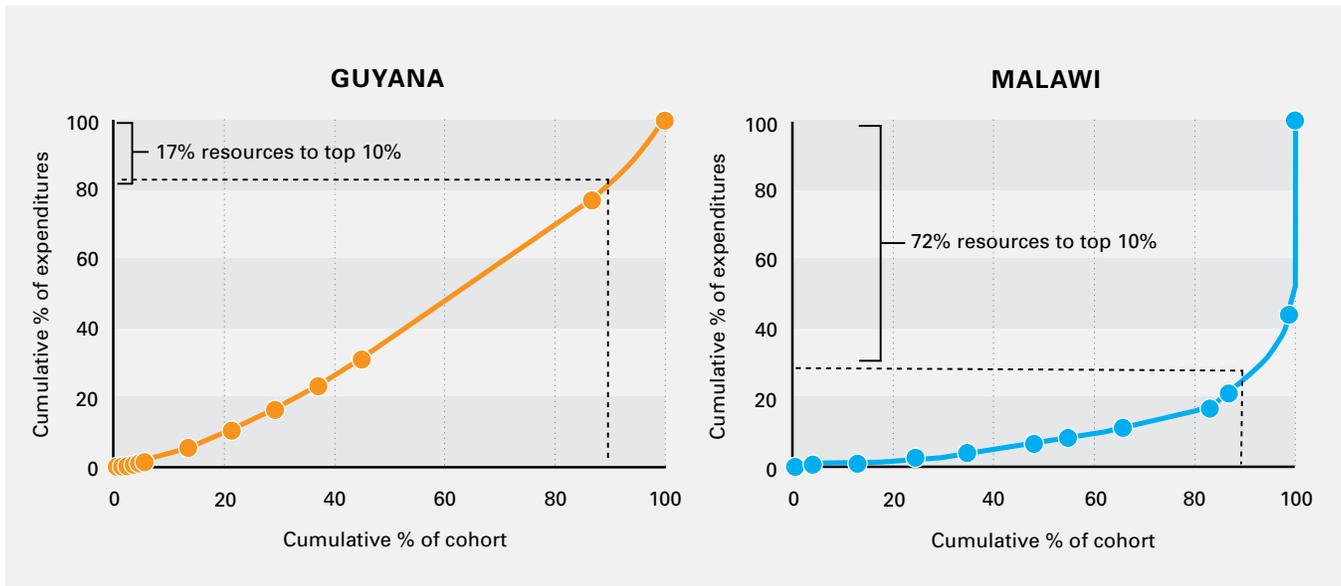
Source: Authors' computations based on data from Pôle de Dakar, World Bank 2010b; UIS Data Centre; and the Education Policy and Data Center (FHI 360), accessed in 2014.

One may argue that the limited size of tertiary education explains part of the inequity in spending. However, there is room for improvement in a number of countries. Equitable spending at the different levels of education is possible. In Cuba, for example, per-pupil spending only increases from 49 per cent of GDP in primary education to 52 per cent for secondary education and 63 per cent for tertiary education.

3.3.3 Concentration of education resources

The distribution of education expenditure across children can be computed by generalizing a technique developed for income distribution in economics by the Italian economist Corrado Gini. Basically, with this method, a curve (the Lorenz curve) is created that shows what proportion of total education funding goes to the X per cent least-educated of the population. If the Lorenz curve is a straight line, then the 10 per cent least-educated benefit from 10 per cent of the education budget, the 20 per cent least-educated benefit from 20 per cent of the education budget, and so on. The more marked the curvature of the Lorenz curve, the more unequal the distribution of education

resources. This distribution of resources is the consequence of both unequal levels of education among children and unequal distribution of funding at each level of education (UNESCO et al. 2014).

Figure 28 contrasts the Lorenz curves of Guyana, which has fairly equal education expenditure, to Malawi, which has unequal expenditure. In Guyana, the top 10 per cent of students use 17 per cent of the public resources for their education, whereas in Malawi, the top 10 per cent use 68 per cent of all public resources; this means that only 32 per cent in Malawi is used by the remaining 90 per cent.

Figure 29 shows the percentage of public funds used for the education of the most educated 10 per cent and the least educated 10 per cent of students in 18 countries. Table 5 (above) computes the average share of resources allocated to the education of the top 10 per cent most educated students by countries' income range. At the top of the figure is a group of countries where education resources are distributed relatively equally across children. In Peru, for example, the top 10 per cent of children benefit from 13 per cent of public funding and the bottom 10 per cent benefit from 3.5 per cent, a ratio of 3.7. At the other end of the spectrum, there is Malawi, where the top 10 per cent consume 68 per cent of public expenditure for their

FIGURE 29: **Percentage of public education resources going to the 10% most educated or 10% least educated students**
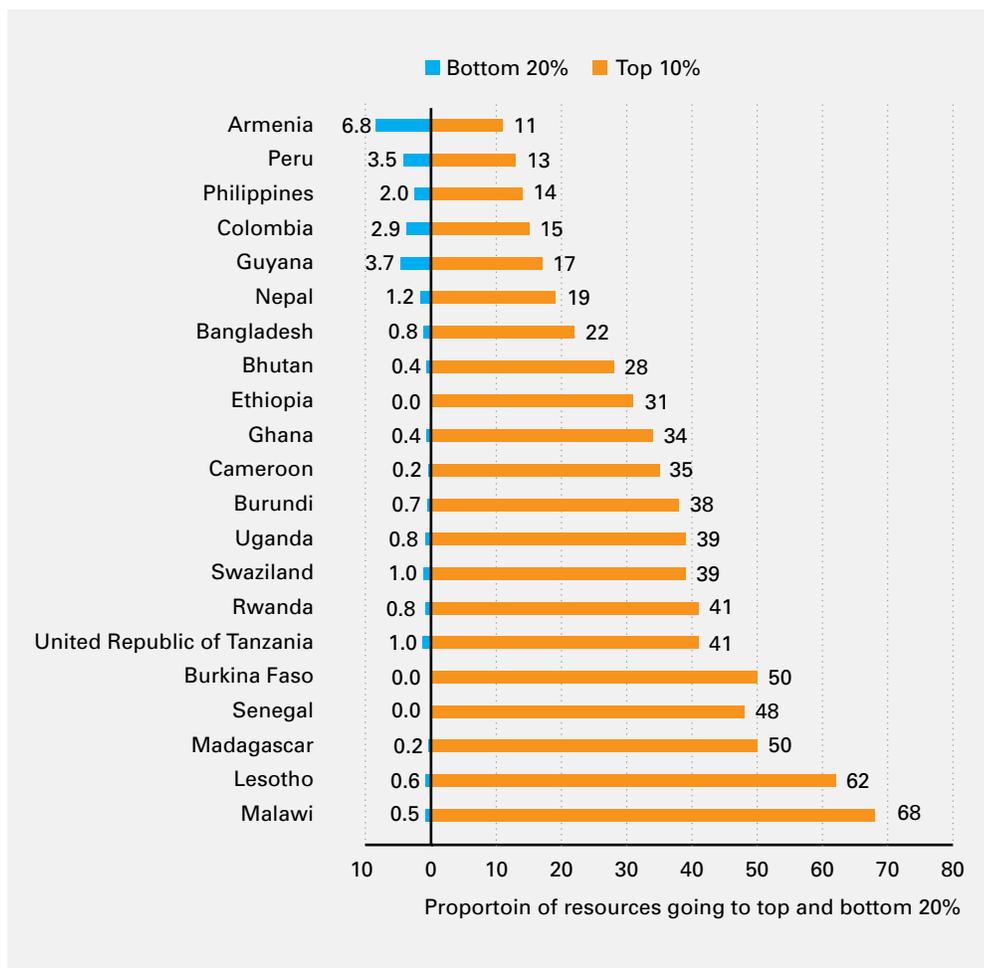
Source: Calculations based on most recent data available from the UIS Data Centre and the Education Policy and Data Center (FHI 360), accessed in 2014.

TABLE 5: **Average share of public education resources allocated to the education of the 10% most educated of students, per country income level**

Income range	% of allocated resources
Low-income countries	46%
Lower middle-income countries	26%
Upper middle-income and high-income countries	13%

Note: Income groups were defined using World Bank classifications. Countries with data represented 82% of low-income countries, 64% of lower-middle-income countries and 41% of upper-middle- or high-income countries, for a total of 108 countries with data.
Source: Calculations based on data from Pôle de Dakar, the UIS Data Centre, and the Education Policy and Data Center (FHI 360), accessed in 2014.

/ On average, in low-income countries, 46 per cent of public education resources are allocated to educate the 10 per cent of students who are most educated. In lower middle-income countries, the percentage is 26 and in upper middle-income and high-income countries, the percentage is 13.

education and the bottom 10 per cent only 0.5 per cent, meaning that the top 10 per cent benefit from 130 times more public funds for their education than the children at the bottom.

As shown in Table 5, on average, the poorer a country is, the higher the level of inequity. This greater level of inequity occurs in lower-income countries because of inequalities in educational attainment and the significantly higher unit costs of higher levels of education. The numbers are striking: On average, in low-income countries, 46 per cent of public education resources are allocated to educate the 10 per cent of students who are most educated. In lower middle-income countries, the percentage is 26 and in upper middle-income and high-income countries, the percentage is 13.

These inequities disproportionately favour children from the wealthiest households since children from the wealthiest households are heavily represented among the children with the highest levels of education. At the primary level, children from all quintiles tend to be more evenly represented, although in countries with incomplete primary access and completion, even at the primary level children from poorer quintiles are under-represented (*see Chapter 2*). The representation of poorer children drops off in lower secondary, and even more so in upper secondary school, until finally at the tertiary level, students from the wealthiest quintile of households represent 60–97 per cent of students.[25]

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25 UNICEF et al. 2014 includes a table showing the distribution of pupils at each level over the wealth quintiles. The range 60–97 per cent is taken from the set of the country education status reports prepared using this methodology and available online in March 2014.

◄ A student at work at the blackboard at a school in Ethiopia.

Pôle de Dakar has used information from household surveys to analyse the ratio of expenditures for children from the wealthiest 20 per cent of households compared with children from the poorest 20 per cent of households. Figure 30 shows this ratio in six African countries (*see the Education Sector Analysis Methodological Guidelines – UNESCO et al. 2014 – for a description of the methodology of the computation*).[26] In Madagascar, the wealthiest 20 per cent of children use seven times more public funding than children from the poorest 20 per cent for their education. In Mali, the wealthiest use 18 times more public education resources than the poorest. Ironically, public education – which is supposed to be an equalizing force – is a source of great inequality in these countries.

3.3.4   Household expenditures

Underinvestment in education by the public sector results in households' picking up large portions of their children's education bills. Households in low-income countries contribute 27 per cent of all costs, according to an unweighted average of countries (UIS and Pôle de Dakar data 2012). Private contributions to education can compensate for budget shortfalls in public education. If the wealthiest shoulder the costs, and public resources are mainly used to support poorer and less advantaged children, it can even have elements of a pro-equity solution. Unfortunately, this does not appear to be the case.

Figure 31 shows the average level of household expenditures for 15 sub-Saharan countries for each level of education. The share of total expenditures contributed by households is higher for the upper secondary level as opposed to the lower secondary level, and for the lower secondary level as compared with the primary level. However, it is the lowest at the tertiary education level, at 19 per cent of total expenditures, even though students in tertiary education are mostly among the wealthiest.

Parents' contribution to education costs include the hiring of teachers (generally with limited qualifications) to compensate for the absence of a publicly funded teacher. In 2002, 28.5 per cent of teachers in a set of 11 sub-Saharan countries were 'community teachers' funded by the parents (Mingat 2004). Even though several countries are now publicly subsidizing these teachers, many of them are still financed by the communities.

FIGURE 30:   **Estimated ratio of expenditures for children from the wealthiest quintile compared to children from the poorest quintile in six African countries**

Ratio of expenditures for children in the fifth vs. the first quintile

Source: Calculations based on education sector analyses (World Bank 2008b, 2010a, 2010b, 2010d, 2011b, 2011c, 2011d).
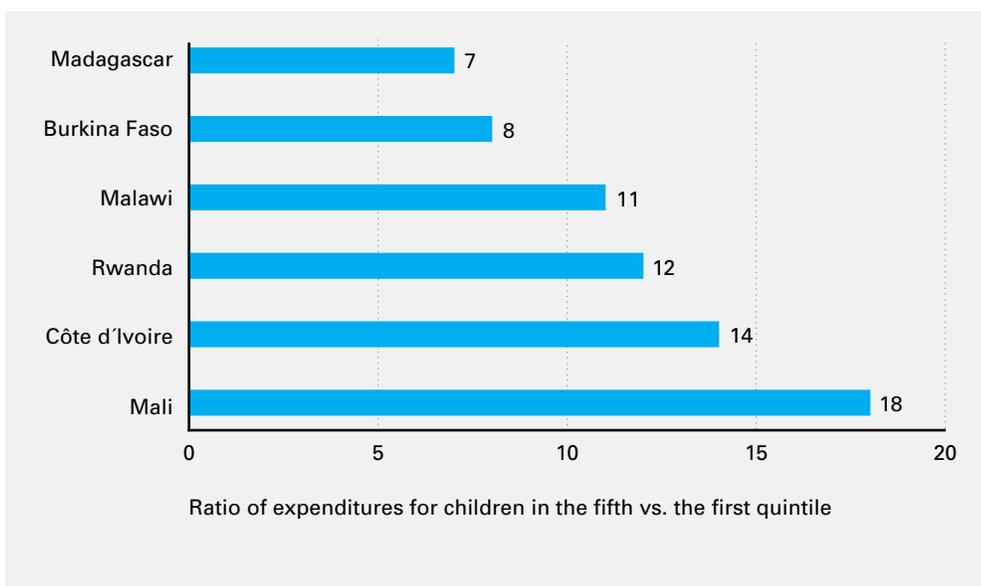
26 Some of these figures differ from those found in the country education status reports and in the UNESCO International Institute for Educational Planning (IIEP)/Pôle de Dakar database because countries used slight variations in the method of computation. In order to provide comparative numbers, these figures were all computed using the method provided to the author by UNESCO IIEP/Pôle de Dakar.

Figure 32 details private expenditures, by level of education, in 15 high-income and 15 low- and middle-income countries. In high-income countries, the relative contribution of households for tertiary is higher than for primary school, hence, wealthier households shoulder a higher proportion of education expenditures than poorer households. At the extreme, households pay for more than half of the tertiary costs in the Republic of Korea, the United Kingdom of Great Britain and Northern Ireland, the United States of America and Japan. Overall, this is a pro-equity situation, if there are subsidies for low-income students to access tertiary. On the other hand, private expenditures for primary school are in the low single digits in most of these high-income countries.

In low- and middle-income countries, the most common pattern is that household contributions are low to tertiary education, the most expensive level and the one where private returns to education are the highest (*see Chapter 1 regarding private returns to education*) – for example, at 4 per cent in Malawi, 7 per cent in Chad and 8 per cent in Mali. In 7 of the 15 countries, household contributions to tertiary education are lower than household contributions to primary school, despite the tertiary level being accessible almost exclusively to wealthier students.

In some low-income countries where tertiary education is almost completely subsidized by the state, e.g., Chad, Madagascar, Malawi and Mali, households shoulder a large portion of the primary education costs (18–34 per cent) due to a lack of prioritization of public resources on this level. Malawi and Madagascar were also in Figure 29 and were among the top three countries with the highest concentration of resources for the 10 per cent most educated. Such distributions of private household contributions to education are the result of highly regressive public funding of education.

In a number of low-income countries, external funding constitutes a significant share of governments' total education budgets.

FIGURE 31: **Percentage of public recurrent education expenditures contributed directly by households in 15 countries, 2004**
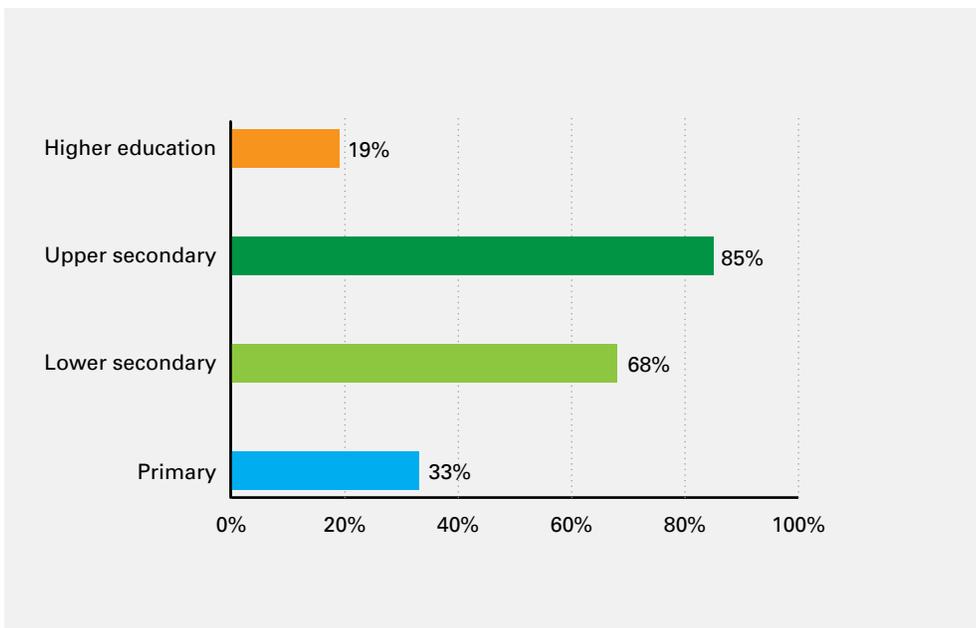
Source: Pôle de Dakar 2012.

FIGURE 32: Percentage of total education expenditures contributed directly by households in 30 countries, grouped by income level, high (upper graph) and low and middle (lower graph), most recent values 2004–2012
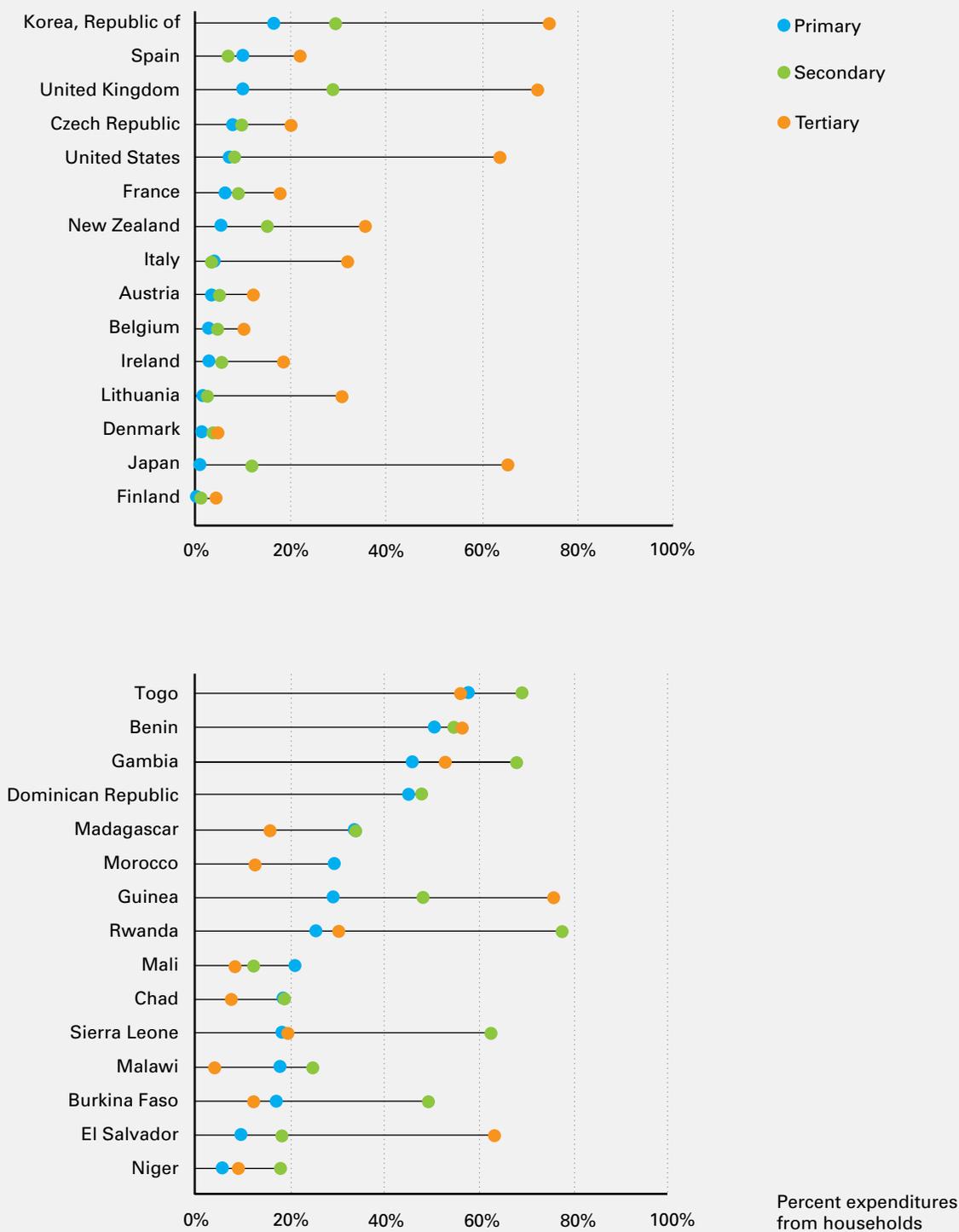
Source: UIS Data Centre and Pôle de Dakar V17.6, accessed in 2014.

3.4 Equity in resource distribution to regions, schools and grades

3.4.1 Geographical distribution issues

Funding by level of education has to be distributed to regions and schools. As teachers' salaries represent the largest share of primary education expenditures, it is possible to approximate geographical funding allocation by looking at how teachers are distributed. One way to visualize this distribution in relation to the number of pupils is with a cross-tabulation of the number of pupils and the number of teachers. If pupil-teacher ratios are the same across all schools, we should see a straight line. Instead, what is often the case is wide, unequal distribution. (*For a slightly different perspective that looks at funding and teachers per child, including out-of-school children, rather than teachers per pupil, refer to Annex D.*)

Figure 33 illustrates the distribution of teachers as compared with school enrolment in Burkina Faso. At the bottom of the figure, in schools with just one teacher, the pupil-teacher ratio ranges from a few to nearly 150. In schools with three teachers, the pupil-teacher ratio ranges from a few to approximately 100. The inequality continues for larger schools: In schools with 10 teachers, the pupil-teacher ratio ranges from less than 20 to more than 80.

The unequal allocation of teachers in Burkina Faso is typical of many countries in sub-Saharan Africa. One way to compare countries is by using a summary measure that reflects the equity of teacher distribution, more specifically, the proportion of teacher allocation that is not dependent on the number of pupils in the school. Table 6 shows this value for 25 countries in

FIGURE 33: Distribution of the number of students and teachers in Burkina Faso, 2006–2007
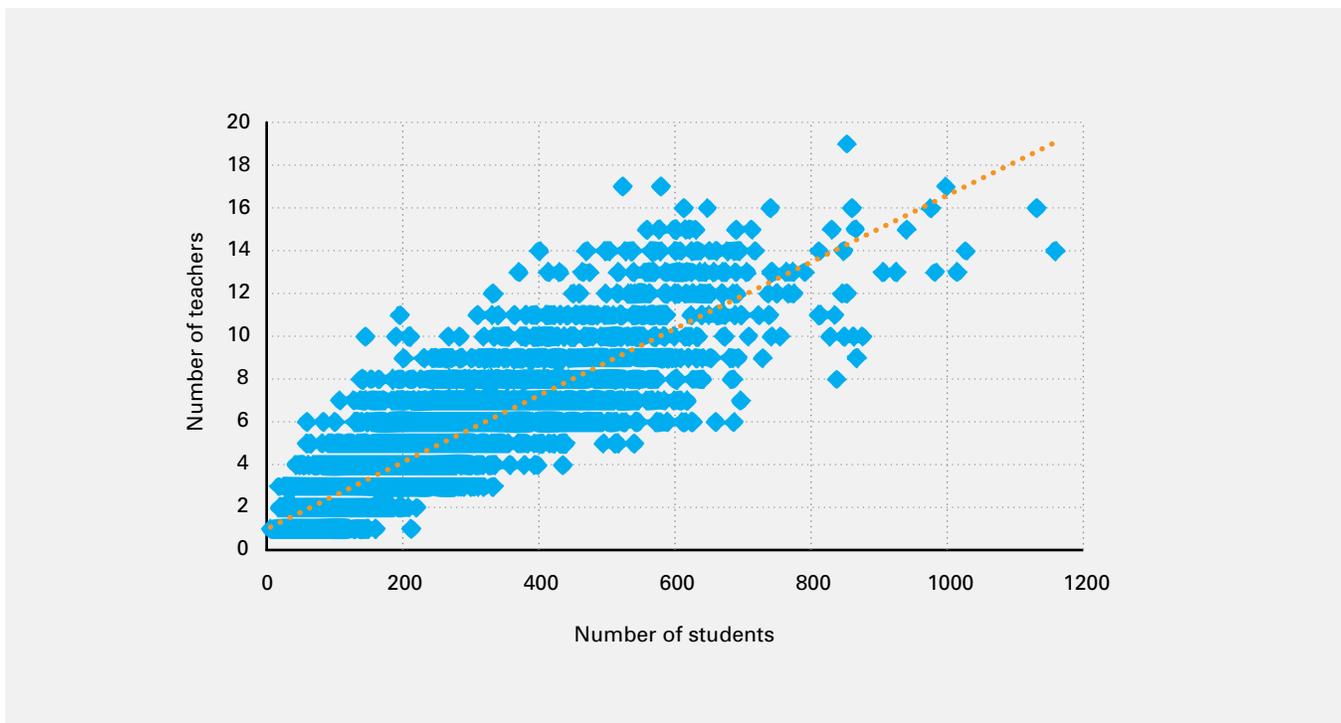
Source: Education sector analysis, World Bank, 2010a.

Africa where this kind of analysis has been systematized through the country education status report. There are only 6 countries out of the 25 where the value is below 20 per cent.

It is worth noting that the schools that benefit from more teachers are not usually in the most difficult contexts. Figure 34 presents the ratios of pupils to civil servant teachers in Benin for the various regions of the country compared with rates of extreme poverty. The first map presents the distribution of civil servant teachers and the second shows poverty levels, by region. The two areas with the highest number of civil servant teachers per pupil – Littoral and Ouémé – are also the location of the two major cities (Cotonou and Porto-Novo) and the regions with the lowest poverty incidences. On the other hand, Couffo, which has low numbers of teachers per pupil, is among the regions with the highest poverty incidences.

TABLE 6: **Proportion of the teacher allocation to schools not related to the number of pupils in 25 countries (expressed in percent)**

Country	Percentage	Country	Percentage	Country	Percentage
Cape Verde	4%	Mauritania	22%	United Republic of Tanzania	41%
Guinea	7%	Niger	22%	Malawi	42%
Djibouti	10%	Gabon	23%	Burundi	44%
Gambia	13%	Angola	31%	Central African Republic	46%
Sao Tome and Principe	13%	Chad	33%	Sierra Leone	48%
Comoros	15%	Mali	34%	Sudan	49%
Guinea-Bissau	20%	Congo	38%	Benin	52%
Burkina Faso	22%	Uganda	40%	Ghana	54%
				South Sudan	79%

Source: Pôle de Dakar database.

FIGURE 34: **Pupil-teacher ratios by region and poverty map for Benin**

Pupil to civil servant teacher ratio

Extreme poverty (% of the population)

- ■ Pupil teacher ratio > 80
- ■ 70 < Pupil teacher ratio < 80
- ■ Pupil teacher ratio < 70

- ■ 8.3–21.6
- ■ 21.6–35.0
- ■ 35.0–48.1
- ■ 48.4–61.7
- ■ 61.7–75.1
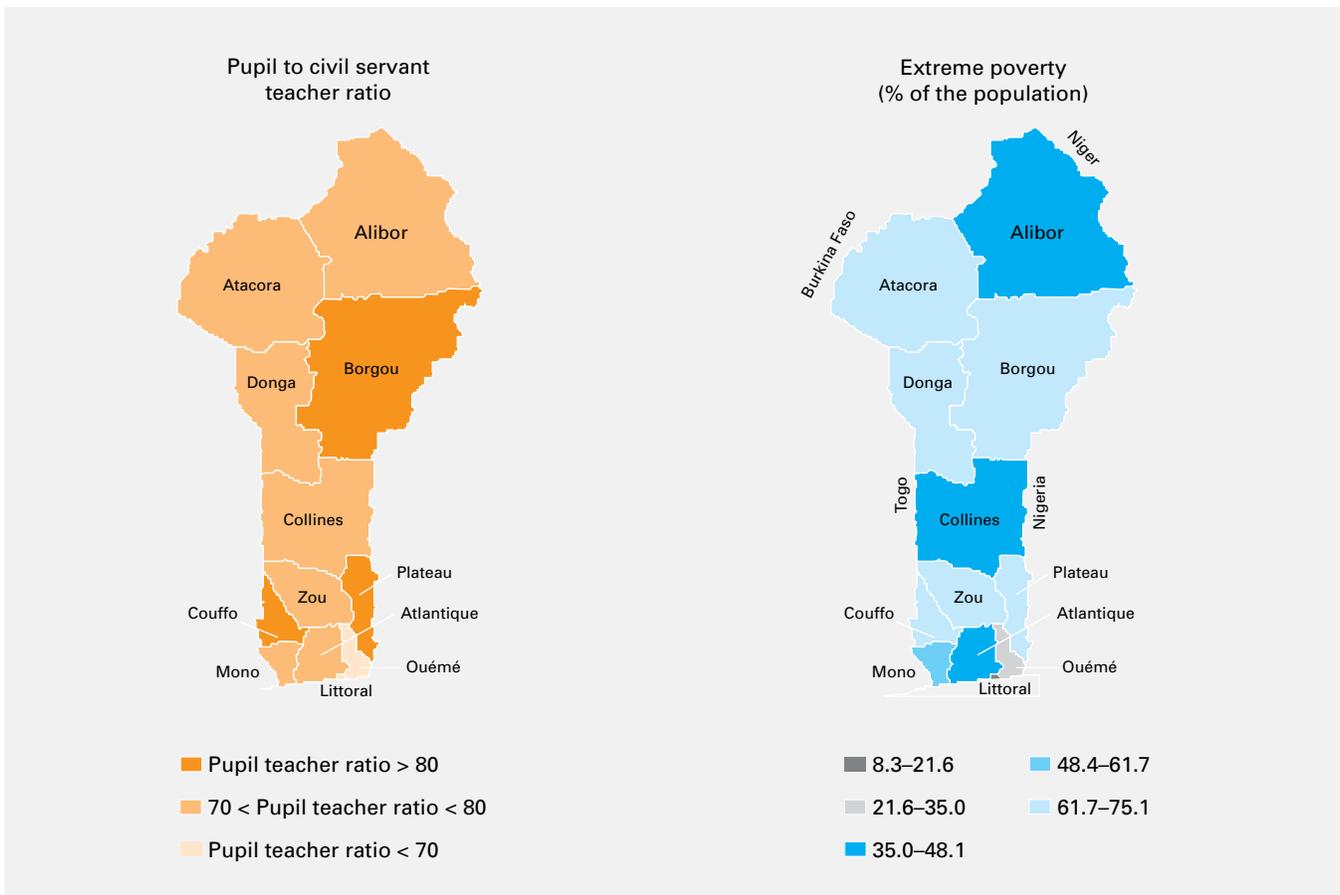
Source: UNESCO 2010a and UNDP 2009.

3.4.2 Distribution across grades within schools

Early learning sets the stage for all later learning, and those who do well in the early years go on to sustain and increase that advantage (Crouch 2012). This phenomenon is called the Matthew Effect and is often translated as 'rich get richer and the poor get poorer' or for education, the early readers get better and the late readers never catch up – and disparities increase as children move through grades. A well-known study in the United States (Good, Simmons and Smith 1998, in Crouch 2012) showed that children who are in the lowest 10 per cent of readers in Grade 1 fall further behind the top 10 per cent. By Grade 6, the slowest 10 per cent of readers are at a level where the best 10 per cent of readers were in Grade 3. Hence, prioritization of teacher allocation to the early grades is of utmost importance from an equity perspective. Unfortunately, the opposite is often the case.

As shown in Figure 35, with the exception of Sao Tome and Príncipe, in all 23 countries for which data on teachers per grade were collected by UIS for 2011 or 2012, pupil-teacher ratios are higher in the first grade than in the last grade of primary education.[27] In the two countries with the largest class sizes overall, Malawi and the Democratic Republic of the Congo, the first grade is, on average, twice as large as the last grade of primary school – first-grade teachers are responsible for an average of more than 100 children. In classes of this size, it will be nearly impossible for the majority of children to learn new skills related to reading and math, especially for children who do not understand the language of instruction. In addition, teacher qualifications tend to be higher in the later grades than in the earlier primary grades.

▶ This young girl child writes in her book at a primary school for girls in a camp for internally displaced people in Sudan. Education can foster cohesion in societies and help mend the social fabric that may be damaged by years of conflict.

27 Data were only collected by UIS for sub-Saharan African countries; hence, it has not been possible to include countries from other regions in this analysis.

3.4.3 Distribution inequity in textbook allocation

The analysis of teacher allocation is replicated for textbook allocation in the Education Sector Analysis Methodological Guidelines (UNESCO et al. 2014), with similar results in terms of inequity. Figure 36 provides the textbook-to-student ratio in public and community primary schools in Mali for the 2007/08 school year, and shows large inequities between regions. A further analysis of textbook distribution within regions found that there is also a high degree of randomness in the allocation of textbooks at the regional level. In the two areas with the most acute shortage of reading textbooks, Bamako and Gao, there is almost no correlation between the number of textbooks allocated to schools and the number of students in the school.

© UNICEF/SUDA2014-XX804/Noorani
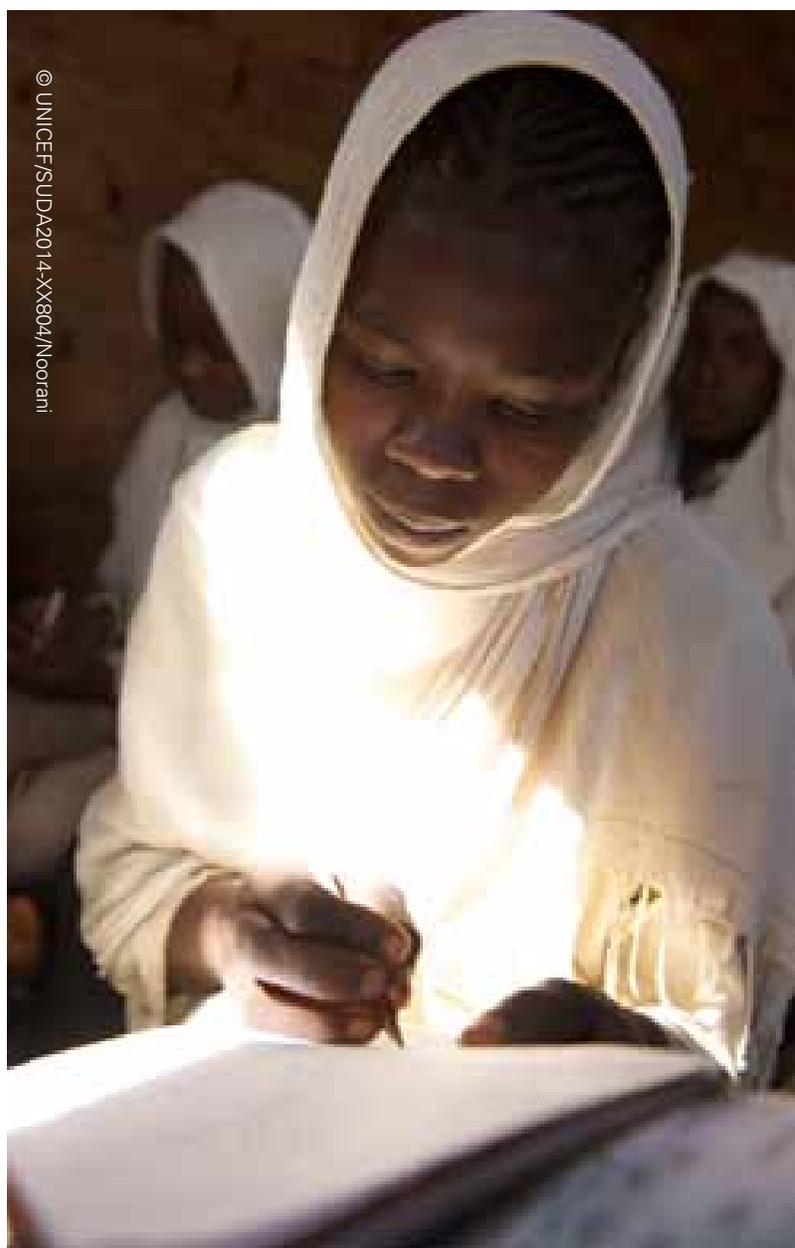
Class sizes in first and last grade of primary school in 23 countries in sub-Saharan Africa
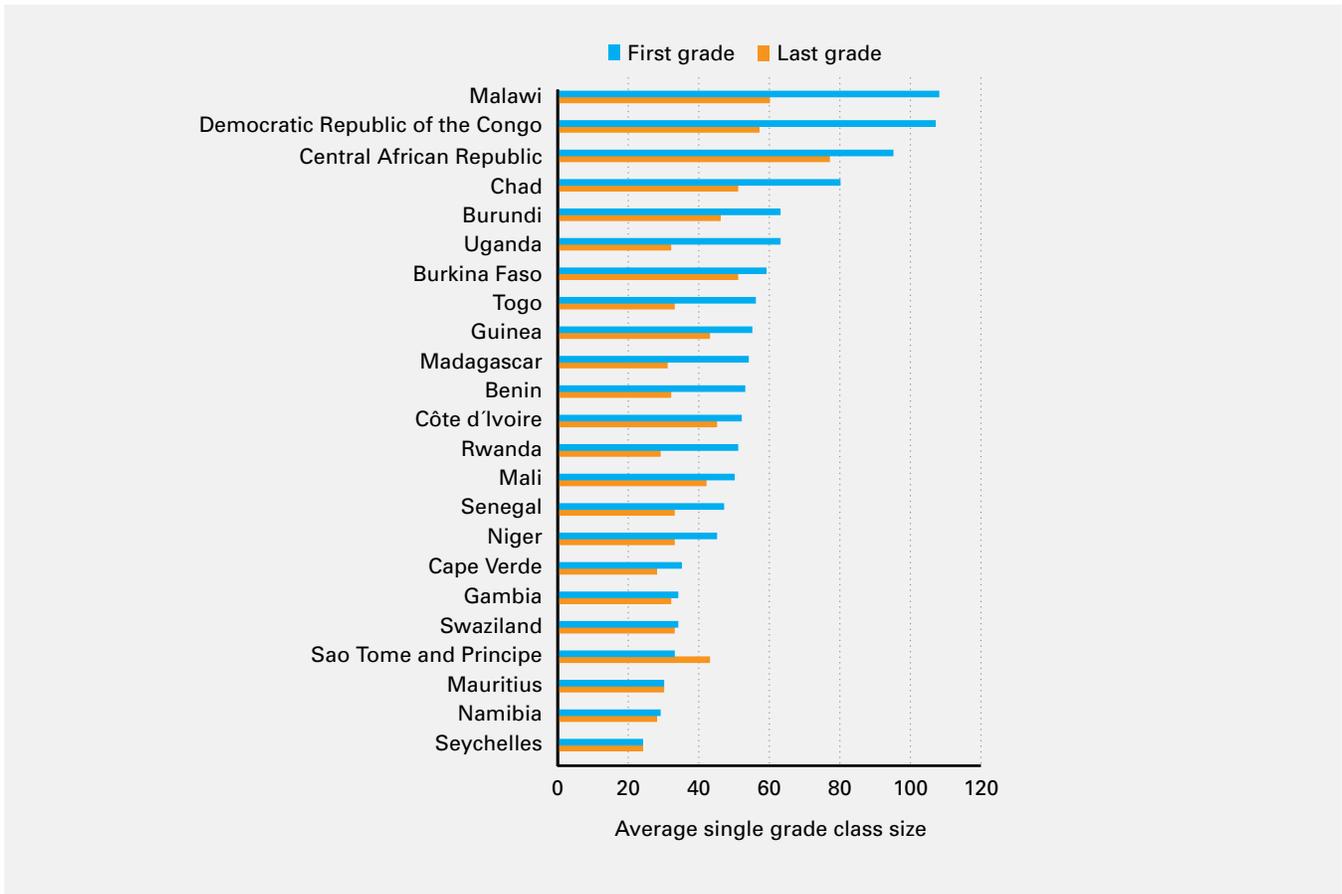
Source: UIS Data Centre, accessed March 2014.

Textbook allocation in Mali
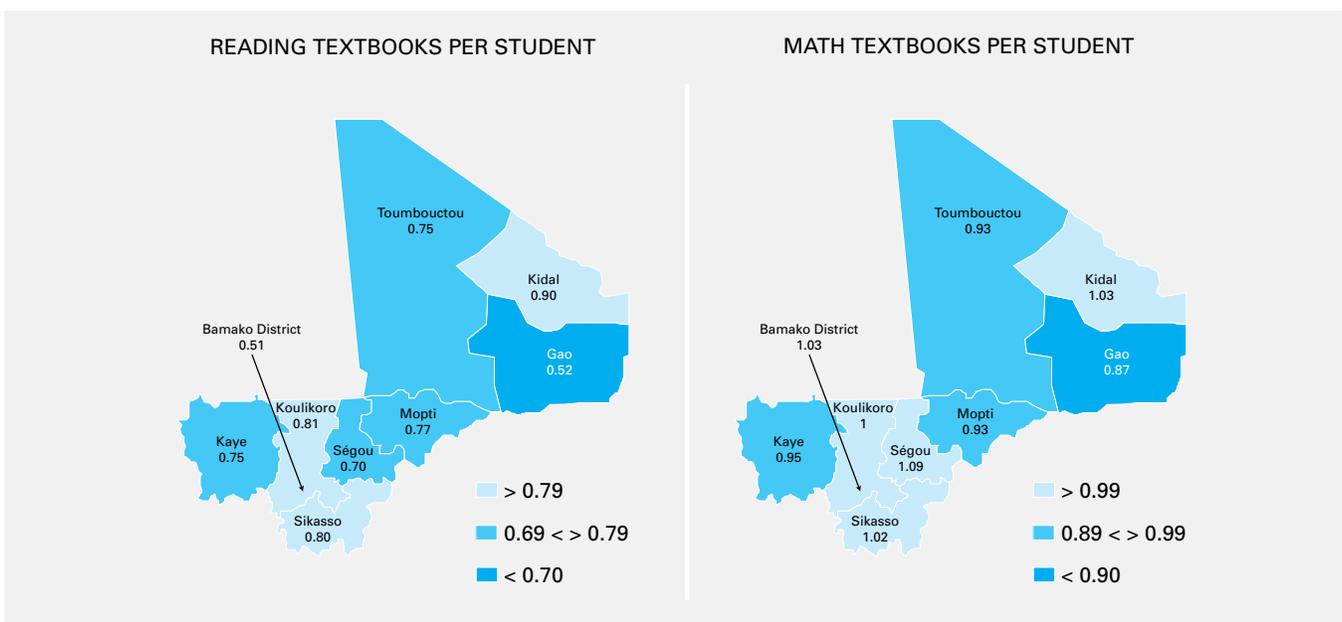
Source: :UNICEF et al. 2014.

3.5 Challenges with transforming resources into outcomes

Higher spending may not necessarily translate into education results, whether higher enrolment, completion or improved learning. This section looks into what affects value for money.

3.5.1 Demand-side challenges

Section 3.1 noted that having what appears to be a sufficient level of funding for education at a given level does not automatically imply that there is universal enrolment at that level. The levels of inequity in access and learning described in Chapter 2 may be due to multiple and often overlapping barriers to education faced by children.

Household surveys find many barriers on the supply side (*see Annex E*). These include a social or policy environment that keeps some children out of school; lack of schools, teachers and materials; schools, curricula and schedules that are not adapted to particular children's needs; and high costs of education. The surveys also highlight demand-side challenges: parents' objections to education for their children, e.g., opposition to girls' education; parents feeling that their children are too young; or competing needs for children's time, particularly among adolescents. These barriers are strongly related to income, geographical location, gender and minority status, and contribute to the high inequities in enrolment, completion and learning outcomes noted between different groups of children.

Studies also show that disability can be a significant barrier to enrolment, with higher disability levels being found in poorer environments (*see, for example, WHO and World Bank 2011*). Yet many disabilities are easily preventable or correctable with the appropriate interventions. Here, however, lack of systematic quality data on disability is a hindrance to developing a more precise understanding of the situation to support policymaking.

As noted in Chapter 2, more than half, or 28 million, of the world's out-of-school children of primary school age live in countries that are affected by conflict (GMR 2013). Studies show that half of the countries emerging from violent conflict will relapse into conflict within the next five years (United Nations 2005). At the same time, children in conflict-affected countries are three times more likely to miss primary school (World Bank 2011b). It is therefore impossible to address the issue of out-of-school children without investing in education that helps mitigate the risk of conflict and aims to meet the specific needs of children in conflict and emergency situations.

3.5.2 Financial inputs and learning outcomes

Figure 37 shows the correlation in Guinea between per-pupil expenditures, by school, and primary exam pass rates. Each school is represented by a dot. On the Y axis is the percentage of students who passed the primary school exam, and on the X axis are recurrent unit costs per student, in Guinean francs.

While this graph shows that recurrent unit costs per student vary greatly, hence, there is an issue of allocation equity, it also shows that there is limited correlation between investment and pass rates. Many schools with low funding are among the most successful, and many schools with higher than average funding are among the least successful. The graph suggests that there is not only an equity issue but, at least as importantly, an inability to consistently translate funding into learning.

Higher spending may not necessarily translate into education results, whether higher enrolment, completion or improved learning.

FIGURE 37: **Unit costs and exam pass rates, government schools, Guinea**
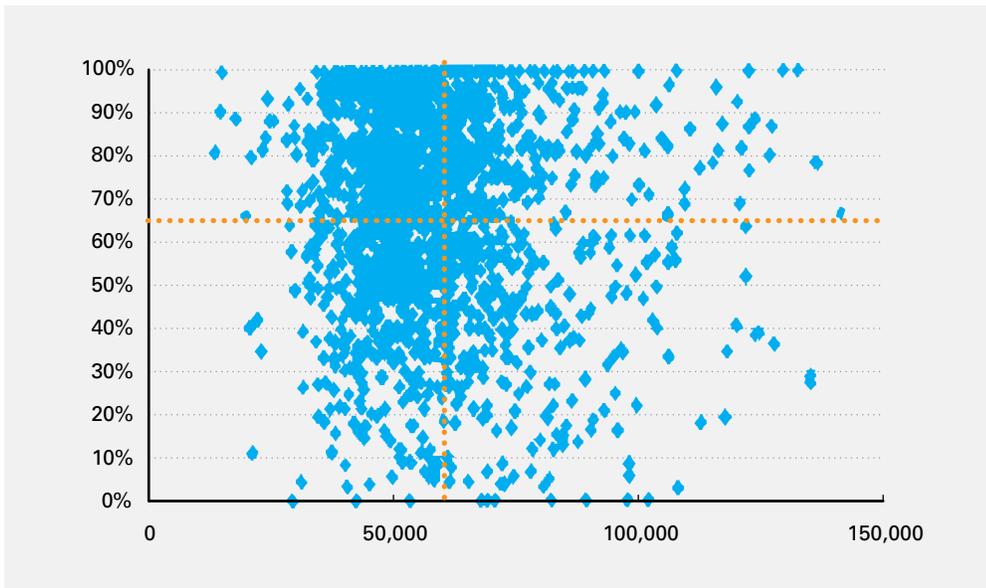
▲ This 8-year-old's school was destroyed by Typhoon Haiyan in the Philippines and repaired with international assistance. The school now holds emergency preparedness exercises.

Source: UNICEF et al. 2014.

◄ Education, especially girls' education, is one of the most effect tools for increasing individual and community prosperity, reducing conflict and creating more healthy and peaceful societies. This girl in Azerbaijan works on learning numbers.

In this context, it is important to consider what elements actually have an impact on students' achievement. Many analyses of international and national assessments have found that the link between resources per se and learning outcomes is tenuous. For example, PASEC studies of learning achievement, implemented in a number of Francophone African countries, show that only around 11 per cent of the variance in students' achievement can be explained by measurable characteristics – gender, education level, professional qualifications, experience – of the student, teacher or head teacher. As shown in Figure 38, about 40 per cent of the variance is related to the student's level at the start of the school year, itself a result of various school, teacher and student factors from the previous years. The remaining effect, however, explains more of the variance than measurable characteristics. This effect relates to differences in achievement between different classes or schools that have the same measurable characteristics, i.e., same teacher qualifications, experience, professional training, same textbooks and same costs, which is generally called the 'class/school effect'.[28]

FIGURE 38: **Determinants of learning outcomes in countries analysed by the PASEC**
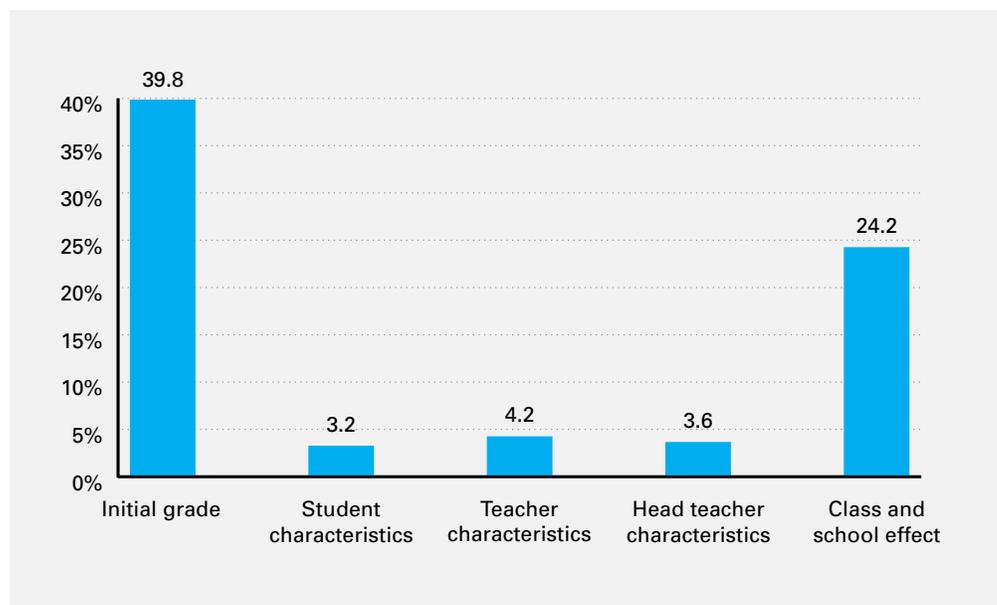
Source: Adapted from PASEC, final synthesis of PASEC VII, VIII and IX (PASEC, CONFEMEN 2011).

28 This effect does not relate to class size, which is already included in the 4.2 per cent impact related to measurable teacher-related characteristics, but rather to teachers or schools with the same measurable characteristics and resources having different impacts on children's learning.

A large proportion of students' learning is related to varying efficiency levels among teachers and schools that have the same resources, rather than to the measurable environment of the student, e.g., textbooks, teacher qualifications, experience or professional training.

The sections below look into two issues that may contribute to the 'class' or 'school' effect. Chapter 4 will go beyond these examples to discuss how UNICEF and other actors can address existing challenges and improve value for money in education, and where there is a need to strengthen the evidence to better identify the most cost-effective interventions to improve learning – among a wide array of options related to pedagogy, accountability, health/nutrition or financial support.

3.5.3 Actual instructional time

An important source of inefficiency in resource utilization is the loss of actual instructional time. This may be due to a number of factors, including teacher absenteeism; late start of the school year, as teacher posting decisions may be late or effective postings may be delayed; early suspension of classes to prepare for exams; and student absenteeism or time spent in class on non-instructional activities or activities that are not relevant to the curriculum.

Abadzi (2009) developed an analytical model of instructional time loss, which quantifies the reasons for the loss of effective teaching time in reference to the official number of school programme hours. Figure 39 shows an example of this analysis for Mali, for the 2009/10 school year, based on interviews, questionnaires and observations. Overall, the effective learning time in Malian primary schools is just 70.7 per cent of that foreseen in the official education ministry curriculum.

Studies in other countries by Abadzi (2007), Chaudhury et al. (2006), Kremer et al. (2005) and Rogers and Vegas (2009) showed that teacher absenteeism in developing countries ranged from 11 per cent in Peru to 27 per cent in Uganda, 17 per cent in Zambia and 25 per cent in 19 states in India. To the extent that a teacher is essential to the school learning experience, and when a teacher is absent, neither are the classrooms, their furniture, the schoolbooks and other materials used, this means that up to a quarter of all education resources are wasted due to teacher absenteeism.

FIGURE 39: **Official and effective learning time in Malian schools, 2009/10**

Official learning time	172
After school closures	167
After teacher absenteeism	155
After pupil absenteeism	138
After truncated weekly schedule	135
After truncated daily timetable	130
After time wasted in class	122
After writing exercises	91
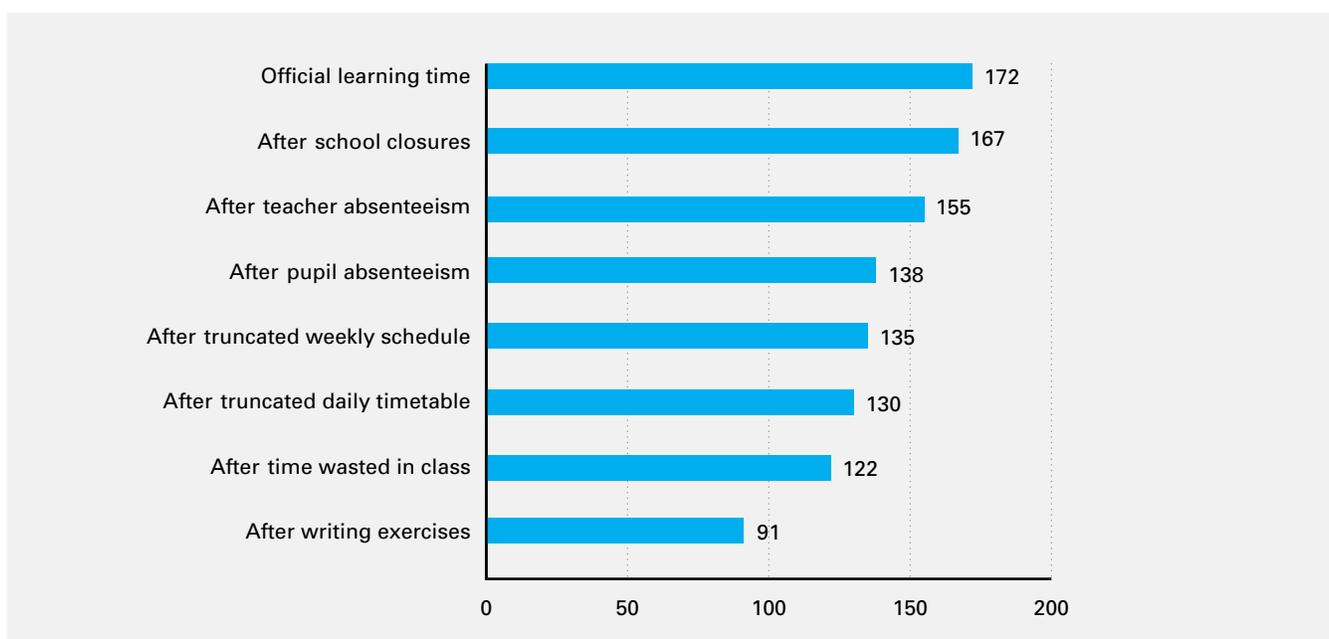
Source: UNICEF et al. 2014.

3.5.4 Support and supervision

Appropriate supervision and support are essential to the monitoring of teacher absenteeism and, more generally, school and teacher improvement. However, head teachers' time is often focused on administrative tasks rather than instructional leadership, while external monitoring and support is limited in frequency.

Mulkeen (2010), for example, found that in eight sub-Saharan countries, head teachers spent much of their time on relations with administrative authorities outside the school. The study also found that teacher-inspector ratios were generally very high, as shown in Table 7, and most schools were likely to be visited by an inspector less than once a year.

This situation is avoidable, however, as some countries established a more robust system of supervision and support. In the Gambia and Eritrea, for example, a system of cluster monitors (supervisors located in small clusters of schools) helped increase the frequency of visits.

It is impossible to remedy the issue of out-of-school children without investing in education that provides learning opportunities for children in conflict and emergency situations.

TABLE 7: **Number of teachers and inspectors for primary and secondary schools, 2010**

Country	Number of teachers	Number of inspectors	Teachers per inspector
Uganda	192,808	250	771
Lesotho	13,741	44	312
Zanzibar	8,261	30	275
Zambia	59,076	326	181
Gambia	7,707	54	143
Eritrea	10,862	165	66

Source: Mulkeen 2010.

4.

Moving forward

Chapter 1 detailed the far-reaching economic and human development returns of investing in education. Yet, as described in Chapter 2, progress has stalled. Additionally, there are both low learning outcomes and high levels of inequity in education. This chapter discusses ways to respond to the challenges facing education today, using the barriers identified in Chapter 3.

Contextualized solutions that ensure the implementation of sufficient, equitable and efficient education policies need to be based not just on international evidence but also on a thorough education sector analysis that is integrated into a nationally owned and relevant education sector plan. Accomplishing this goal requires that sufficient time and funding be devoted to analysis and sector-wide planning at the national level. This task is one of the requirements for funding from the Global Partnership for Education (GPE), which has recently approved an increase of its grant supporting national education sector plan development to a maximum of US$500,000, of which US$250,000 is earmarked for education sector analysis.

▼ This 15-year-old attends secondary school in the Niger. As part of an initiative to encourage adolescent girls to stay in school, she receives a scholarship that allows her to live with a host family because her home is too far from the school to walk every day.

4.1 Increasing overall funding to the education sector

4.1.1 Domestic resources and allocation to education

Section 3.1 projected the amount of financing needed, measured as a percentage of GDP, to fully fund primary education for all as compared with the actual budget. Most of the example countries exhibited a sizeable gap between needs and resources.

Recall that the anticipated needs assume a set of minimum or acceptable levels of salaries, pupil-teacher ratios, subsidies and construction costs, as well as acceptable levels of repetition and a reasonable share of private enrolment (*see Box 5, Section 3.1*). Note that such assumptions imply major policy changes in some countries, allowing them to meet the minimum requirement to achieve universal quality education, which often corresponds to substantial improvements in terms of efficiency. For example, based on the findings on the negative impact of high repetition rates highlighted in 2.2.1, such countries as Benin, Guinea and the Niger have successfully set up new repetition policies that organize the primary education level in three sub-cycles of two grades each. Repetition is allowed for the second grade of each sub-cycle but no longer for the first grade of the sub-cycle. The assumptions of the projection model outlined in Box 5 also respond to the incentives recently set up by the GPE in its new funding model for country grants[29]– including policy reforms aimed at improving efficiency, equity and learning outcomes.

Three different assumptions are tested here as a simulation exercise: (1) an increase in total domestic resources, which mostly depends on a country's ability to raise taxes, as a percentage of GDP; (2) an increase in the share of the government budget allocated to education; and (3) the implementation of both changes together. The effects of each of the three funding scenarios follow.

In regard to increasing domestic resources, the scenario assumes three levels of public resource mobilization:[30]

- For countries that mobilize less than 10 per cent of their GDP for the government budget today, it is assumed that they could only realistically increase this percentage to 14 per cent (over a period of 15 years).
- For countries for which this percentage is between 10 per cent and 15 per cent, it is assumed that it could rise to 18 per cent.
- For countries where it is between 15 per cent and 20 per cent, it is assumed that the share of their GDP mobilized for the national budget could reach 20 per cent.

These assumptions would, of course, need to be adjusted according to the specific situation of each country. And increasing the tax base in countries with large non-formal economies and limited natural resources (e.g., oil) is much more challenging than in countries where the formal sector is predominant. The scenario, however, gives an idea of the fiscal space that could be provided by focusing on improving countries' abilities to mobilize domestic resources.

All donors must increase overall levels of ODA, including the share for education, and target the education levels corresponding to the most urgent and cost-effective investment priorities.

[29] The country grant includes a variable portion that corresponds to 30 per cent of the maximum country allocation.

[30] Note that statistics for 131 countries with data show that the average increase in fiscal pressure was 0.26 per cent per year in the past 15 years for countries starting at 10 per cent or below 15 years ago, and 0.19 per cent per year for countries with fiscal pressure between 10 per cent and 15 per cent by the end of the 1990s.

Figure 40, below, provides a projection of the decrease in the financing gap for primary education for countries based on the above macroeconomic targets and using the model presented in Chapter 3 (*see Box 5*). With an increase in government resources, all other things being equal, Bangladesh, Benin and Ethiopia would be able to meet their funding gap for primary education. Excluding the Plurinational State of Bolivia and Nepal, for which there is currently no funding gap, on average, funding gaps would decrease by approximately 30 per cent – but most countries would still not be able to finance universal primary education.

Another way to increase education funding is to increase its share within the total government budget. The indicative benchmark of the EFA Fast Track Initiative for the share of the budget allocated to education was 20 per cent, and this is still widely accepted as a reasonable target. For example, during the 2014 GPE Replenishment Pledging Conference, a total of US$26 billion was committed by countries with their finance minister's approval (GPE 2014). In addition, 21 developing countries affirmed that their education budgets will be equal to 20 per cent

or more of the total national budget by 2018. This is also consistent with the outcome indicator target within the 2014–2017 UNICEF Strategic Plan.

For the calculations here, it has been assumed that all countries reach this goal. With this scenario, Bangladesh, the Dominican Republic and Myanmar would have enough funding to cover their primary education needs. The change in resources is largest in Myanmar, which currently dedicates only 4 per cent of its budget to education, according to the UIS Data Centre. On the other hand, a number of countries – including Benin, Ethiopia and Nepal – already devote 20 per cent or more of their overall budget for education, so for them the overall gap remains the same. With this change, funding gaps would decrease by approximately 30 per cent.[31]

Finally, if countries increased both overall domestic resources and their allocation to education, the average funding gap would decline by two thirds. Still, only 7 countries out of 16 would be able to meet their funding

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31 Excluding Benin and Nepal from the computation.

FIGURE 40: **Current primary expenditure, total funding needs, and estimated gains through increased domestic resource mobilization and allocation to education**
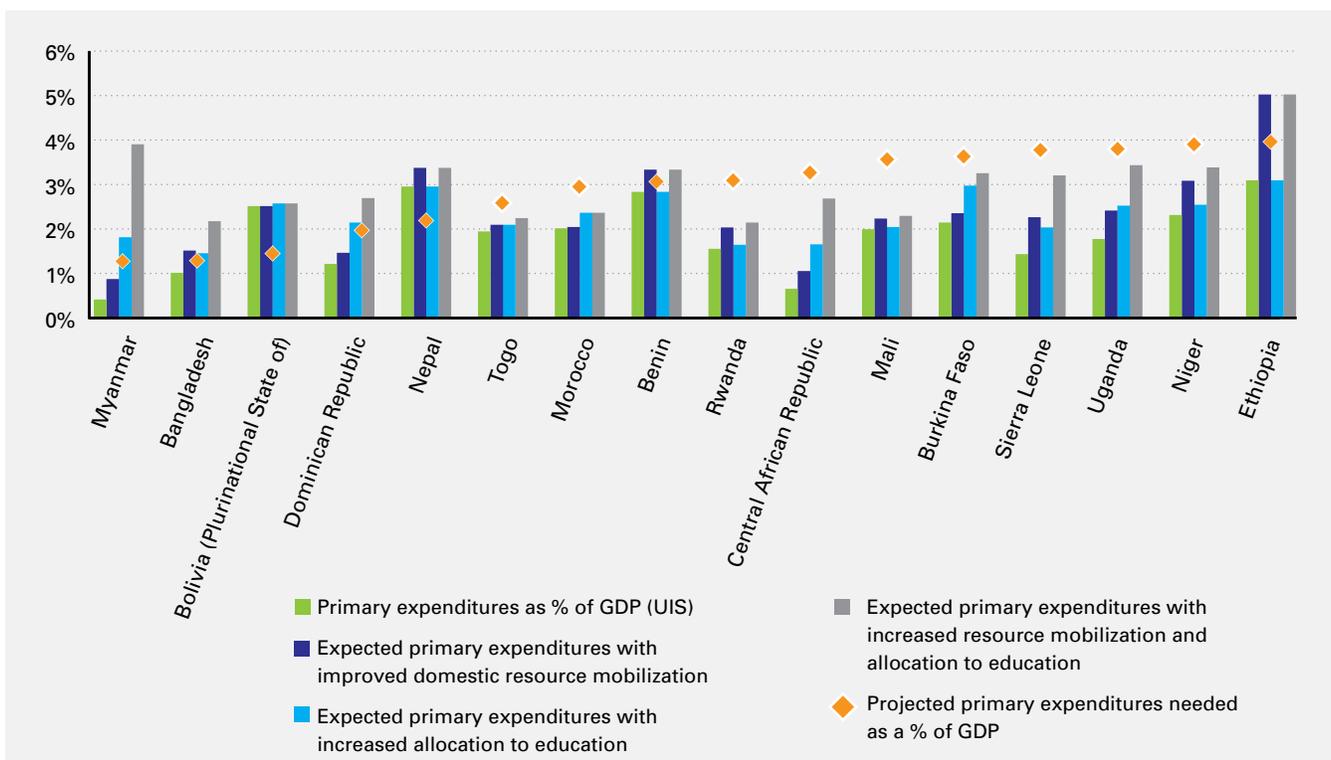
Source: Computations by the authors using World Bank, UIS Data Centre and GMR information.

needs for primary education, which is nonetheless an increase from the current situation in which only the Plurinational State of Bolivia and Nepal do not have a funding gap.

4.1.2 External aid to basic education

After increasing from 2002 to 2009–2010, external aid to education, and within that aid to basic education, has declined. If the current trend in foreign aid to education continues, it will be US$3.3 billion lower in 2017, or a cumulative loss of US$9.8 billion in five years. Aid to basic education would decline by US$2.8 billion by 2017, half of it related to the current trend of declining prioritization of basic education. The cumulative loss over five years would be US$8.3 billion for basic education. Such a drop would have sweeping consequences for countries' abilities to achieve education for all goals. All donors must increase overall levels of ODA, including the share for education, and target the education levels corresponding to the most urgent and cost-effective investment priorities.

Mobilization of non-traditional donors

If external donors maintain their current levels of aid to education or do not place enough of a priority on basic education, donor aid will not be sufficient to bridge the funding gap. Neither can increased domestic resources, as proposed in the section above, bridge the funding gaps in many countries.

In this context, mobilizing non-traditional donors, in particular from the private sector (internationally and domestically), may be required for the achievement of the Education for All goals including for the most vulnerable and marginalized. The average profits of the five most profitable firms on the May 2014 Forbes Global 2000 list were equal to US$251 billion. Five per cent of these profits is equal to US$12.6 billion, approximately the amount of annual ODA provided for education by traditional donors and more than twice the level of annual ODA to basic education.

In comparison, the estimated financing gap for basic education worldwide is US$26 billion annually. Therefore, 5 per cent of the profits from each of the five highest-earning public companies would bridge almost half of the external funding gap, and 5 per cent of the profits of the 15 most profitable firms would close the entire gap.

As a result, in addition to an increase in aid by traditional donors, it is critical to harness the potential ability of non-traditional donors to contribute to progress in education.

4.1.3 Support to education in humanitarian contexts

Half of the current out-of-school children live in fragile and conflict-affected countries. Therefore, it is also essential that donors increase the share of education within global humanitarian aid, as it currently stands below 2 per cent.[32] Providing education during conflict is not only desirable but also realistic. The United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), for example, has been providing support to Palestinian refugees for the past 65 years. It has achieved higher academic results in its schools, alongside gender equality, than in host government education institutions – despite protracted displacement and regular conflict outbreaks (World Bank 2015). To accomplish this, UNRWA allocates more than half of its budget to education (UNRWA 2014).

While lifesaving interventions are crucial, people who make it through the conflict or emergency need what education can give them: the ability to live with dignity. Additionally, there is growing evidence that education programmes in conflict-affected areas can mitigate the factors that cause conflict and perhaps prevent future conflicts.

The GPE advocates for humanitarian education funding, and, more broadly, a range of non-governmental organizations, United Nations agencies and other key actors have come together under the banner of 'Education Cannot Wait' – calling for a 4 per cent increase in overall humanitarian aid for education. UNICEF is even more ambitious and has called for a 10 per cent education target in humanitarian responses in its 2014–2017 Strategic Plan.[33]

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32 Financial Tracking Service, United Nations Office for the Coordination of Humanitarian Affairs, http://fts.unocha.org/pageloader.aspx?page=emerg-globalOverview&year=2014, considering only funding for which the sector to which it is allotted has been specified.
33 This value was determined based on internal consultations and is now part of UNICEF's Strategic Plan results framework approved by the Executive Board.

4.2 Using resources more equitably

4.2.1 Balancing the education budget by level of education with an equity perspective

The balance of public education expenditures by level of education has a major impact on equity. First, the poorest and most marginalized students are de facto excluded from the highest levels of education. In the lowest-income countries, marginalized groups do not even complete primary education. In other countries, the highest discrepancies are found at the lower secondary or upper secondary levels of education.

In this context, public funding at the highest levels of education, beyond the level at which poor and marginalized students drop out, disproportionately goes to the education of the wealthiest students and increases education inequity (*also see Chapter 3*).

At the same time, social returns are highest at the lower levels of education, while private returns to education are the highest in tertiary education in low-

▼ This young boy attends a school in the Plurinational State of Bolivia established to serve families in a mining community. The country has developed policies that allow children to learn in safe environments. But throughout the world, child labour is a major barrier to education.

income countries. Funding to basic education (or secondary education in middle-income countries) is not simply more equitably shared among all segments of society, but also brings more societal benefit. Conversely, although funding to tertiary education brings high income benefits to the (generally wealthy) individuals who complete it, it provides less economic benefits to society in low- and middle-income countries.

Finally, insufficient public funding per student is a driver of private costs. Low public funding in primary or lower secondary education disproportionately affects the children from the poorest households.

In this context, a stronger emphasis on public funding of lower rather than higher levels of education is a pro-equity priority in lower-income countries and when budgetary trade-offs have to be made. Which levels should be a focus depends on the country. As a rule, a particular emphasis is expected to be put on primary education in the lowest-income countries, where many students still do not complete primary education.

It was recommended by the EFA Fast Track Initiative that countries that are still far from universal primary completion should allocate at least 50 per cent of their education budget to primary education.[34] In some middle-income countries, education allocations may need to be shifted to lower secondary or upper secondary education, including for the development of skills necessary to succeed in a fast-changing and global labour market.

Figure 41, below, uses primary education as an example. This simulation increases the allocation to the primary level to 50 per cent of the education budget (if currently below that proportion) in all countries with a primary completion rate lower than 75 per cent.[35] In the group

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34 During the 2014 GPE Replenishment Pledging Conference, the governments of 12 developing countries committed to allocate at least 45 per cent of education budgets to primary education.
35 This omits countries that have already achieved universal primary education, are close to achieving it, or allocate more than half of their resources to primary education.

FIGURE 41: Current primary expenditures, total funding needs and estimated expenditures using all three options together to allocate more domestic resources to primary education
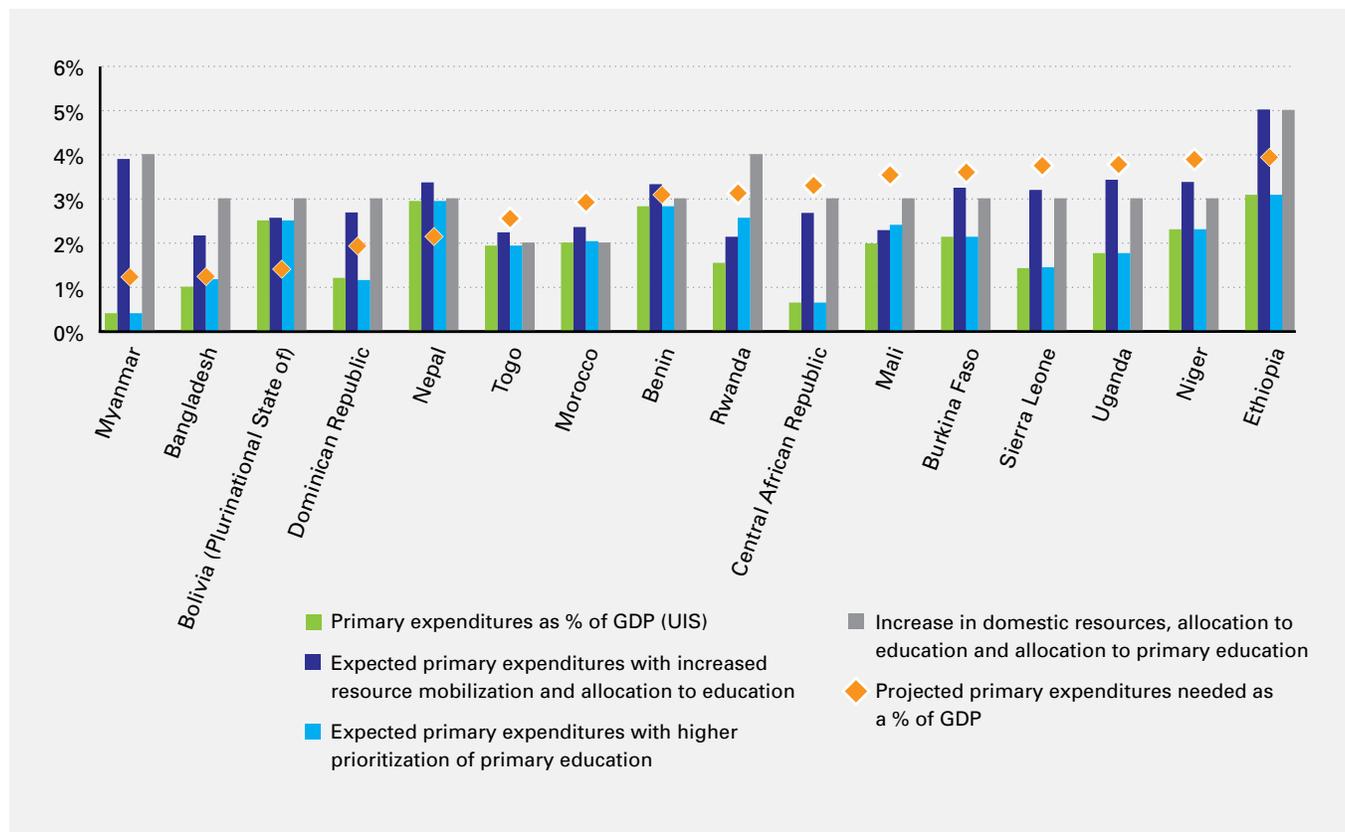
Primary expenditures as % of GDP (UIS)

Expected primary expenditures with increased resource mobilization and allocation to education

Expected primary expenditures with higher prioritization of primary education

Increase in domestic resources, allocation to education and allocation to primary education

Projected primary expenditures needed as a % of GDP

Source: Computations by the authors, based on World Bank, UIS Data Centre and GMR information.

of countries in Figure 41, only Bangladesh, Mali and Rwanda would be expected to increase the share of primary funding within their education budget. This increase could help decrease the primary education financing gap by approximately 70 per cent in Rwanda, which allocates only around a third of its education budget to the primary level. Note that a range of countries not shown in this figure, such as Angola, the Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Liberia and Malawi, could significantly reduce the funding gap by attributing 50 per cent of their education budget to primary education.

As with previous simulations, increasing the allocation to primary education alone is not sufficient to bridge the funding gap. Hence, this attempts to simulate how much funding could be mobilized by the combined effect of increasing the funding to education through domestic resource mobilization combined with increased allocation to the sector, and increasing the share of primary funding within education, as feasible. Figure 41 shows that, in around half of the countries, the financing gap may be bridged by using these three options together, while in the other half, even when mobilizing all available domestic resources, there would remain a financing gap. A similar exercise could be undertaken for other levels of education.

It is important to highlight the significance of early childhood education to promote higher enrolment, lower repetition, improved survival and increased learning outcomes in primary education.

In addition, the simulations discussed above focus on the formal education system. However, given the number of young illiterate adults, particularly women, and the number of children and adolescents who have already dropped out of the system, non-formal or 'second-chance' education should also be considered. Emphasizing second-chance education programmes allows the possibility of providing solutions for a current generation of children and youth. By educating the parents of today, it also allows for the possibility not to have to wait for a generation for the virtuous cycle of education to have an effect on children's health and education outcomes. This is particularly important for sub-Saharan Africa, where it is estimated that 49 per cent of adult women and 30 per cent of young people aged 15–24 are illiterate (UIS Data Centre).

Low public funding in primary or lower secondary education disproportionately affects the children from the poorest households.

If the current levels of intake, survival and learning are not addressed vigorously and successfully, in the 2030s and 2040s, more than a third of children in sub-Saharan Africa could be born to illiterate mothers (Fredriksen and Kagia 2013). This will have a major global impact because one in three births in 2050 will be in sub-Saharan Africa.

These simulation exercises are provided only as examples. They do not replace costing exercises at the country level, which take place in the context of the preparation or revision of education sector plans to help establish contextualized and realistic education goals and financing targets, specific to each country.

4.2.2   Targeting resources to reach the most vulnerable: Equitable allocation to regions and schools

The current balance of public funding to the various levels of education disproportionately benefits the wealthiest students in some countries. Moreover, within the same level of education, both regional and school-level allocations of resources can also sometimes disfavour the poorest and most marginalized children (e.g., Benin). Together, these two elements combine to create soaring levels of inequity between the wealthiest and the poorest, most vulnerable or marginalized students.

In light of this, even if the overall funding allocations to education were to increase, only minimal amounts would trickle down to the most disadvantaged students. It is therefore necessary to adopt pro-equity resource allocation policies that explicitly focus on the most vulnerable. In this context, it may be advisable to adopt pro-poor policies – allocating more resources to the most disadvantaged students and regions – to decrease the equity gap. At a minimum, allocation levels proportional to the student population are necessary.

A first element of allocation equity – and probably the most important one, given that teachers represent the highest share of education's recurrent budget – is to ensure equity in the way teachers are deployed to regions and schools in order to reach similar pupil-teacher ratios in all schools and within schools to different grades. While many countries currently have extremely high levels of allocation inequity, it is possible to obtain significant improvements in a limited amount of time. Togo offers one such example (Ministry of Primary and Secondary Education 2014).

83

Table 8 shows the distribution of teachers for different regions of Togo and different years, using R^2 as a way to measure allocation equity. If $R^2 = 1$, then the allocation of teachers to schools is entirely determined by the number of students in the school and, hence, the system is equalitarian in this respect. On the other hand, if $R^2 = 0$, there is no link between teacher and student numbers.

In Togo, analytical work alerted policymakers, including the Ministry of Education's human resources director, to the high level of inequity in teacher allocation. In response, an improvement plan was created within the education sector plan, which redeployed teaching staff within each region to minimize intra-regional disparities regarding pupil-teacher ratios in pre-primary and primary education, and teachers' teaching hours in secondary education.

At the same time, Togo organized the posting of newly appointed teachers in order to balance pupil-teacher ratios and teaching hours at the national level. The policy resulted in the redeployment of more than 900 teachers within regions in 2011 and the appointment of close to 6,000 new teachers, including civil servants and former volunteer teachers. This helped decrease the proportion of teacher allocation that is not dependent on the number of pupils in the school (1-R2) from 68

per cent in 2010–2011 to 54 per cent in 2011–2012. There was a further decrease to 50 per cent in 2012–2013, as shown in Table 8. Additionally, in 2010, Togo set up a school grant delivery scheme that allocates more resources to schools in the most vulnerable districts.

The example of Bangladesh (Steer et al. 2014) shows that 'positive discrimination' in spending policies can be enacted. Public education spending per student in Bangladesh is pro-poor: Average spending per student is US$18 in the wealthiest quintile of sub-districts, compared with US$27 in the poorest quintile. Efforts to nationalize registered non-government schools in the poorest districts, a change that was initiated in 2013, is expected to reinforce this positive discrimination policy.

Other options, such as the use of incentives to encourage teachers to relocate, may also help countries increase equity in the way they allocate teachers and other education resources. Focusing resources on the most disadvantaged is an important equity tool in all regions of the world, including industrialized countries – where the number of children living in poverty in the 41 most affluent countries has increased to 76.5 million since 2008 (UNICEF Office of Research – Innocenti 2014) and 2.6 million primary-school-age children were not in school as of 2012 (UIS Data Centre).

TABLE 8: **Improving teacher allocation, regionally and nationally, in Togo**

Region	R² before redeployment (2010–2011)	2011/12 school year	2012/13 school year	2013/14 school year
Golfe/Lome	0.159	0.256	0.270	-
Maritime	0.408	0.525	0.482	-
Plateaux	0.319	0.370	0.355	-
Centrale	0.448	0.493	0.531	-
Kara	0.491	0.524	0.580	-
Savanes	0.510	0.675	0.744	-
R² (national level)	0.319	0.461	0.495	0.580 (target)
1 – R2 (national level)	68%	54%	50%	42% (target)

4.3 Using resources effectively to increase access, retention and learning

4.3.1 Interventions to increase access and survival

A number of barriers to access and completion have been identified, including poverty-related factors, age, distance to school, gender and ethnicity (*see Section 3.5.1*). This suggests that interventions such as school fee abolition, a decrease in repetition, school proximity, mother tongue education or female teachers might help get better results. However, all interventions are unlikely to be equally effective.

Figure 42 shows the effect of different interventions from the complementary perspectives of school access and survival, as found in various studies. It includes both the results from individual studies and the pooled effect, i.e., the average effect once all studies are combined. The effect is expressed as a 'percentage of gap closed', which represents a decreased likelihood

▼ A girl in Grade 3 received school supplies when her school opened in Damascus. Education can help children, communities and systems become resilient during conflict by teaching skills that can help manage and resolve tensions.

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FIGURE 42: Effect sizes of interventions to increase primary enrolment and survival rates, measured in percentage of the gap towards intended goal covered by intervention

● Average effect size   ● Specific study values

Effect sizes on access

Scholarship
Preschool
School proximity
Fee abolition
Cash transfers
Free school uniforms
School feeding
Conditional cash transfers
PTA financial support
Community incentives

Effect sizes on survival

Preschool
Cash transfers
Mother-tongue instruction
Fee abolition
School proximity
Reduce repetition
School feeding
Free school uniforms
Female teachers
PTA financial support
Pupil-teacher ratio
Textbooks
Teachers, volunteer

-100   0   100

Percentage of gaps closed

Note: The 'effect size' reflected in this graph corresponds to a percentage of the 'gap' closed by the intervention, the gap being defined as the share of students who do not access school without the intervention (for the effect size on access) or the share of students who drop out before the end of primary education (for the effect size on survival).
Source: SEE database (*see Annex F for a brief description*).

▶ Floodwaters washed away this 13-year-old girl's home and many of her school materials. Though lifesaving interventions are crucial during emergencies, education is also critical.

of being out of school for the target group of the intervention. For school proximity, for example, the average impact of building a school nearby (for a child for whom school distance is an issue) is a decrease in the gap of 51 per cent. This means that building a school nearby, usually within a 30-minute walk, decreases the likelihood that this child will be out of school by approximately half.

Two points are noteworthy. First, the impact of an intervention is expressed as a percentage of the gap closed for a target population. This means that the same intervention may have different levels of influence in different contexts: If the education gap is large, the impact of the intervention will be greater. This dynamic can even cause the relative effectiveness of interventions to shift from one context to another. For example, there is a large 'gap' related to difficulties with paying for school fees in a country, but school distance is not a problem. In this context, fee abolition may be a more effective intervention than building more schools closer to students, even though the Figure 42 shows that, on average, school proximity closes a larger proportion of the gap than fee abolition.

Second, the graph shows that, in different contexts or applied in a different manner, the impact of the same intervention may vary widely. For example, cash transfers have had a large variety of consequences in different studies – in all likelihood because this is a broad category, covering qualitatively very different interventions. Both observations call for deliberate consideration of the context of the interventions to determine the effectiveness in a specific country or region or for particular population groups.

The figure suggests that scholarships, preschool, school proximity, fee abolition, cash transfers and mother tongue instruction are among the most effective interventions to increase access and survival. Arnold et al. (2006) suggest that preschool changes children's and parents' attitudes and motivation, making children more ready to go to school and making parents perceive and support them as learners. Children who have gone to preschool have a 74 per cent lower chance of not being enrolled in school. Fee abolition decreases the likelihood that a child will drop out by 41 per cent. Finally, on average, the drop-out rates of children who receive instruction in their mother tongue are 36 per cent lower than children who do not.

Intervention cost-effectiveness

The description of the absolute effects of various interventions needs to be complemented with information on costs. It is not simply the benefits that are important, but also how much benefit a dollar spent on each intervention can bring – especially in financially constrained environments.

Tables 9 and 10 present the interventions to improve enrolment and survival noted in Figure 42, ordered from the highest to the lowest benefit-to-cost ratio. As explained earlier, it should be noted that benefits may vary from context to context or study to study, and intervention costs may also depend on the format of the intervention and the country context. Hence, it has been deemed preferable to divide the benefits, costs and benefit-to-cost ratios in broad categories rather than precise values, which could mislead about their precision. Details on the values used for the computations and their sources are available in Annex G.

Adding costs shifts the relative value of the interventions. Table 9 ranks nine interventions that increase enrolment. When only the absolute benefit of each intervention is considered, as in Figure 42, the most cost-effective intervention is scholarships. However, once costs are added, less expensive interventions rise to the top: On average, free school uniforms, preschool and abolishing school fees are the most cost-effective. School feeding, financial support to parent-teacher associations and various forms of cash transfer are less cost-effective. On the other hand, scholarships are far less effective interventions to bring increased enrolment, at least with the cost included in the model.[36] In addition, building schools close to the students has a low immediate benefit-to-cost ratio (the year the school is constructed), but in terms of annualized unit costs, taking into account

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[36] Note that McEwan (2014) has examples of lower costs in Kenya that, if the same level of benefits was reaped there as in the Bangladesh example from the SEE, would make the provision of scholarships 'highly' effective.

TABLE 9: Cost-benefit analysis for nine interventions to reduce the gap in school enrolment

Intervention	Average benefit of the intervention	Cost	Benefit-to-cost ratio
Free school uniforms	++	+	Very high
School proximity (annualized costs)	+++	++	Very high
Preschool	+++	++	Very high
Fee abolition	++	+++	High
School feeding	+	++	Moderate
Parent-teacher association (PTA) financial support	+	+	Moderate
Cash transfers	++	+++	Moderate
Conditional cash transfers	+	+++	Moderate
School proximity (immediate cost benefit)	+++	++++	Low
Scholarships	+++	++++ (variable)	Low (variable)

Codes for benefits (in percentage of gap closed): 0-25: +, 25-5-: ++, 50 and above: +++.
Codes for costs (in dollars): 0-10: +, 10-25: ++, 25-50: +++, 50 and above: ++++
Codes for benefit to cost ratios (in percentage of gap closed per dollar spent):
above 2: very high, 1-2: high, 0.5-1 moderate, below 0.5: low

Source: SEE database; UNESCO 2014; Theunynck 2002 and 2009.

the fact that one school can serve children for many years, the intervention is highly cost-effective.

Table 10 shows the benefit-to-cost ratio for interventions that increase survival (drop-out reduction). The most cost-effective measure to improve survival is an intervention that actually saves money and also provides more financial space to increase enrolment: a decline in repetition rates. For a country such as Burundi, where 33 per cent of repeaters are in primary school, repetition takes up to a third of the country's education resources, while at the same time leading to a decline in school survival. Female teachers, mother tongue instruction, free school uniforms and the construction of schools to increase proximity (in annualized costs) are also highly cost-effective in decreasing the drop-out rate. School feeding, fee abolition, textbooks and the provision of financial support (support to parent-teacher associations and cash transfers) are moderately cost-effective. Finally, decreasing the pupil-teacher ratio is the least cost-effective intervention.

In line with the analysis above, and as reflected in its Strategic Plan, UNICEF education programmes are prioritizing the promotion of quality early childhood development, including pre-primary education, right-age enrolment (which includes on-time entry and low repetition rates) and mother tongue instruction. Standards for quality pre-primary education include safe facilities, child friendliness, active learning, linkages between preschool and primary education, screening of children for developmental delays, high success rates on school-readiness assessments and community participation (UNICEF Executive Board 2013).

In addition to the actions analysed above, there are potentially high-impact and cost-effective interventions not well covered in the literature, including the treatment of disability. Millions of children are not in school because of visual or hearing problems that could be inexpensively prevented, treated or corrected. Some mobility disabilities (e.g., clubfoot) are easily treated in early childhood. Many mental disabilities are preventable.

TABLE 10: **Cost-benefit analysis for twelve interventions to reduce the gap in survival**

Intervention name	Average benefit of the intervention	Cost	Benefit-to-cost ratio
Reduce repetition	++	Important savings	Very high (saves money)
Mother tongue instruction	++	+	Very high
Female teachers	+	0 to limited costs	Very high
Free school uniforms	+	+	Very high
School proximity (annualized costs)	++	++	Very high
Preschool	+++	++	Very high
School feeding	+	++	High
Fee abolition	++	+++	Moderate
Textbooks	+	+	Moderate
PTA financial support	+	+	Moderate
Cash transfers	++	+++	Moderate
School proximity (immediate cost benefit)	++	++++	Low
Pupil-teacher ratio	+	++++	Low

SEE TABLE 9 FOR CODES

Source: SEE database, GMR 2014 and Theunynck 2002 and 2009.

▲ This fourth grader comes from the Khmu ethnic group, one of the many ethnic groups in the Lao People's Democratic Republic. The school he attends has programmes to ensure that children are not left out of learning opportunities because of their ethnic origin.

Research in this area would be important to demonstrate to policymakers the effectiveness of such interventions. In the meantime, much can already be done. In this context, UNICEF is working to ensure that Education Management Information Systems and the Multiple Indicator Cluster Surveys (MICS) contain more data on children with disabilities and related information on the school environment and facilities for disabled children. It also supports the development of inclusive education policies with explicit mention of children with disabilities and training of teachers and staff (*see Annex I*).

There is a high variability in the effectiveness level from study to study, even within highly effective interventions. This likely reflects more than broad definitions (e.g., of cash transfer) and a variety in contexts. There are also a number of different challenges that hamper implementation of otherwise cost-effective interventions. They include:

- **Building schools:** Though building schools may seem like one of the most straightforward interventions, there are obstacles. Building schools near students in sparsely populated areas means very low class size, which will make costs skyrocket, or requires that schools are organized into multi-grade classes. For multi-grade classes to work, resistance to the idea must be overcome and teachers must be trained.

- **Mother tongue instruction:** Mother tongue instruction requires political will and truly bilingual teachers. Bilingual teachers are especially necessary to manage the transition between mother tongue instruction and the language used in upper primary and post-primary educational settings.

- **Procurement practices:** The practices with regard to procurement, disbursement and use of funds might reduce the interventions' effectiveness.

Procurement systems, for example systems for textbooks or construction, have been widely studied,

with findings showing that different types of systems may lead to widely different unit costs. Disbursement of planned amounts may not be done in a timely manner, and sometimes only a share of funding planned is effectively disbursed. Even when the planned amounts are disbursed to buy and distribute textbooks, such issues as funding leakage may occur before the resources reach schools, further reducing effective supply at the school level. For example, Leathes et al. (2011) using the results of Theunynck (2009), compared the average costs of school construction by method of procurement in sub-Saharan Africa and found very different unit costs. The costs were an average of US$17,485 a classroom for a Central Ministry International competitive bid, US$12,285 for a Central Ministry National competitive bid, and only US$5,200–$6,695 if procurement was delegated to communities.

Some studies (Read 2014) suggest there is leakage of up to 50 per cent in textbooks. In addition, when the first public expenditure tracking survey was implemented, in Uganda, in the mid-1990s, the World Bank (2013) found that from 1991 to 1995 an average of only 13 per cent of grants made it to the schools. In Peru, the public expenditure tracking survey (Reinikka and Smith 2004) found that schools did not receive payments for electricity in 25 per cent of the schools that the entity authorized to execute funds claimed to have paid; for water, 30 per cent of schools did not receive the money.

These situations can be addressed, but they require extensive reform of transparency and accountability systems. In Uganda, a wave of reforms – which included publishing, broadcasting and posting of monthly transfers of public funds to the school districts in newspapers, on radio stations and in primary schools – helped increase the percentage of grant money that was received for schools to about 80 per cent in early 2001 (World Bank 2013).

4.3.2 Interventions to improve learning

Intervention effectiveness comparison

There is a wide array of interventions that may also support improved learning. These include support to early childhood development; pedagogic interventions, such as reading methods; health- and nutrition-related interventions, e.g., school feeding, malaria prevention and eyeglasses; and financial or material input such scholarships, textbooks and school proximity.

Interventions from the UNICEF Simulations for Equity in Education (SEE) model and from reviews by Glewwe et al. (2011), McEwan (2014), Conn (2014) and Dhaliwal et al. (2012) were collated and grouped by level of effectiveness. Costs were then estimated and compared. However, the large variety of interventions (some possibly covering extremely diverse implementation modalities), contexts and costs make it difficult to compare the interventions' cost-effectiveness with precision. Therefore, the computations are provided in Annex H.

It is crucial to strengthen evidence-based research to determine which interventions best improve learning. Below are some of the main findings regarding impact without consideration of costs.

In a review of 77 randomized experiments that evaluated the effects of school-based interventions in primary schools in developing countries, McEwan (2014) found that the largest mean effect sizes were associated with computers or instructional technology, teacher training, smaller classes, smaller learning groups or ability grouping, contract or volunteer teachers, performance incentives and instructional materials. Despite the variety of interventions considered in the sample, one finding was that nearly all successful instructional interventions incorporated at least a minimal attempt to develop teachers' capacities for effective instruction in the classroom. Though not surprising, this finding is important because it emphasizes the crucial role that teachers must play in any attempt to improve learning outcomes.

McEwan's review also highlighted the importance of the complementarity of interventions, e.g., combining a reduction in class sizes with additional teacher training. This finding is echoed in Dhaliwal et al. (2012), which states that providing 'more of the same' resources is generally insufficient to improve learning when unaccompanied by other reforms. Similar conclusions are drawn from a review of 79 studies that examined the impact of student and teacher characteristics on learning in which local capacities, demands and processes dramatically altered the effectiveness of educational inputs (Glewwe et al. 2011).

The State
Politicians | Policymakers

Long route
of accountability

Compact

Voice

Citizens/clients
Coalitions/inclusion
Nonpoor | Poor

Short route

Client power

Providers
Management
Frontline | Organization

Services
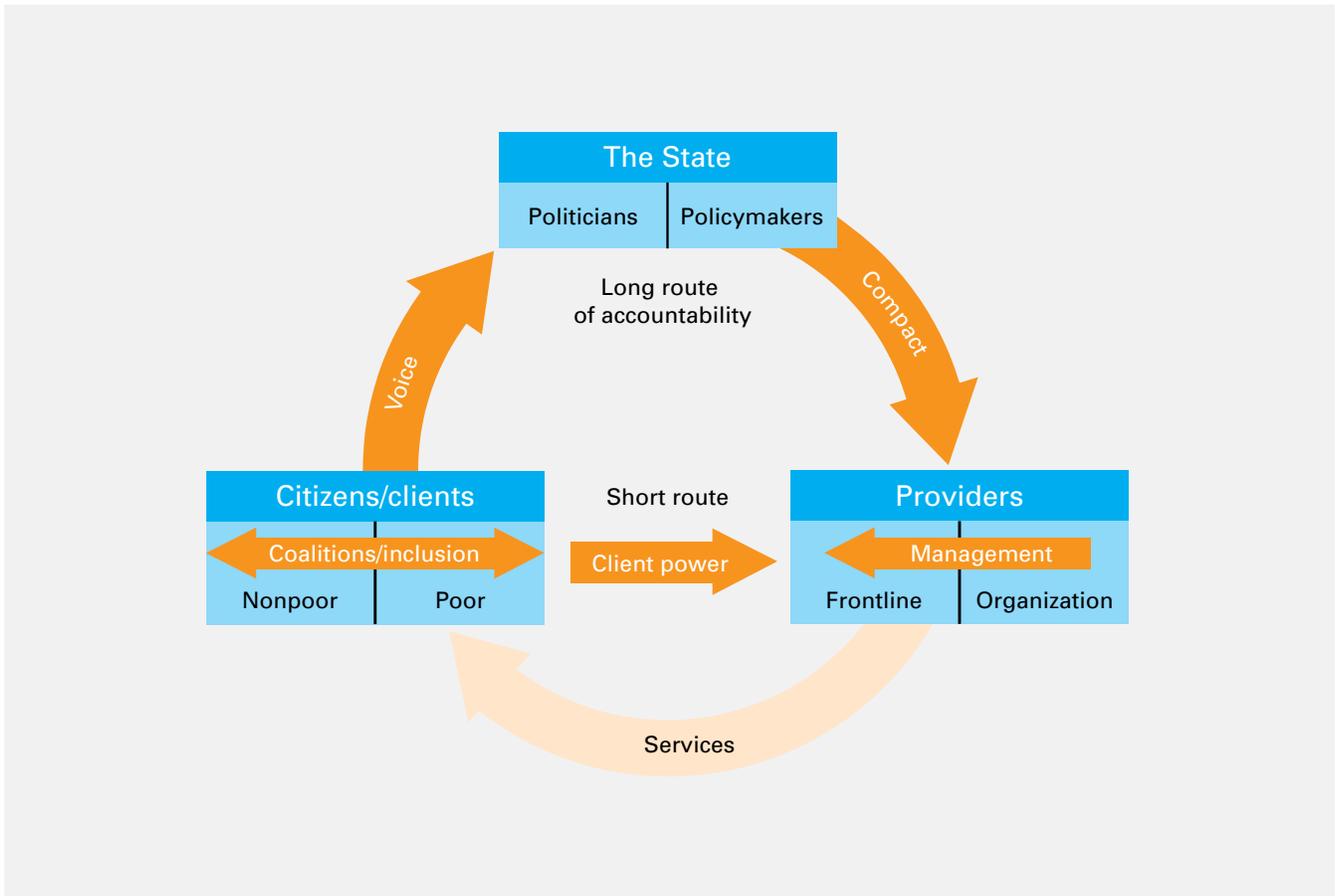
Source: World Bank 2003a, 65.

Addressing the weakness of association between resources and learning at school level

There is little correlation between resources and results. In some countries, the most costly (and most easily measurable) education inputs have only a limited effect on learning achievement, with a large share of the variance in achievement unexplained.

Lack of school-level accountability likely impedes the transformation of resources into tangible learning results. As explained in the *World Development Report 2004*, and reflected in Figure 43, the route of accountability between social service beneficiaries (in education, the children and, indirectly, their parents) and the front-line providers (teachers and school management) is often too long, particularly in centralized systems that do not encourage school-based management and local community empowerment. The report states: "Too often, services fail poor people – in access, in quantity, in quality. But the fact that there are strong examples

where services do work means governments and citizens can do better. How? By putting poor people at the centre of service provision: by enabling them to monitor and discipline service providers, by amplifying their voice in policymaking, and by strengthening the incentives for providers to serve the poor" (World Bank 2003a, 1).

Resources such as school funding, teachers and teaching time and textbooks are not always received or used as intended. Challenges highlighted in Section 3.5 include low actual instructional time because of late postings, school closures, teacher and student absenteeism and limited time on task. There is also a lack of support and supervision of teachers, with generally under-resourced inspection and accountability systems.

There are two key types of interventions, however, that could lead to improvement, which are endorsed by the UNICEF Strategic Plan (*see Annex I*) and supported by strong evidence (*see, for example, Bruns, Filmer and Patrinos 2011*).
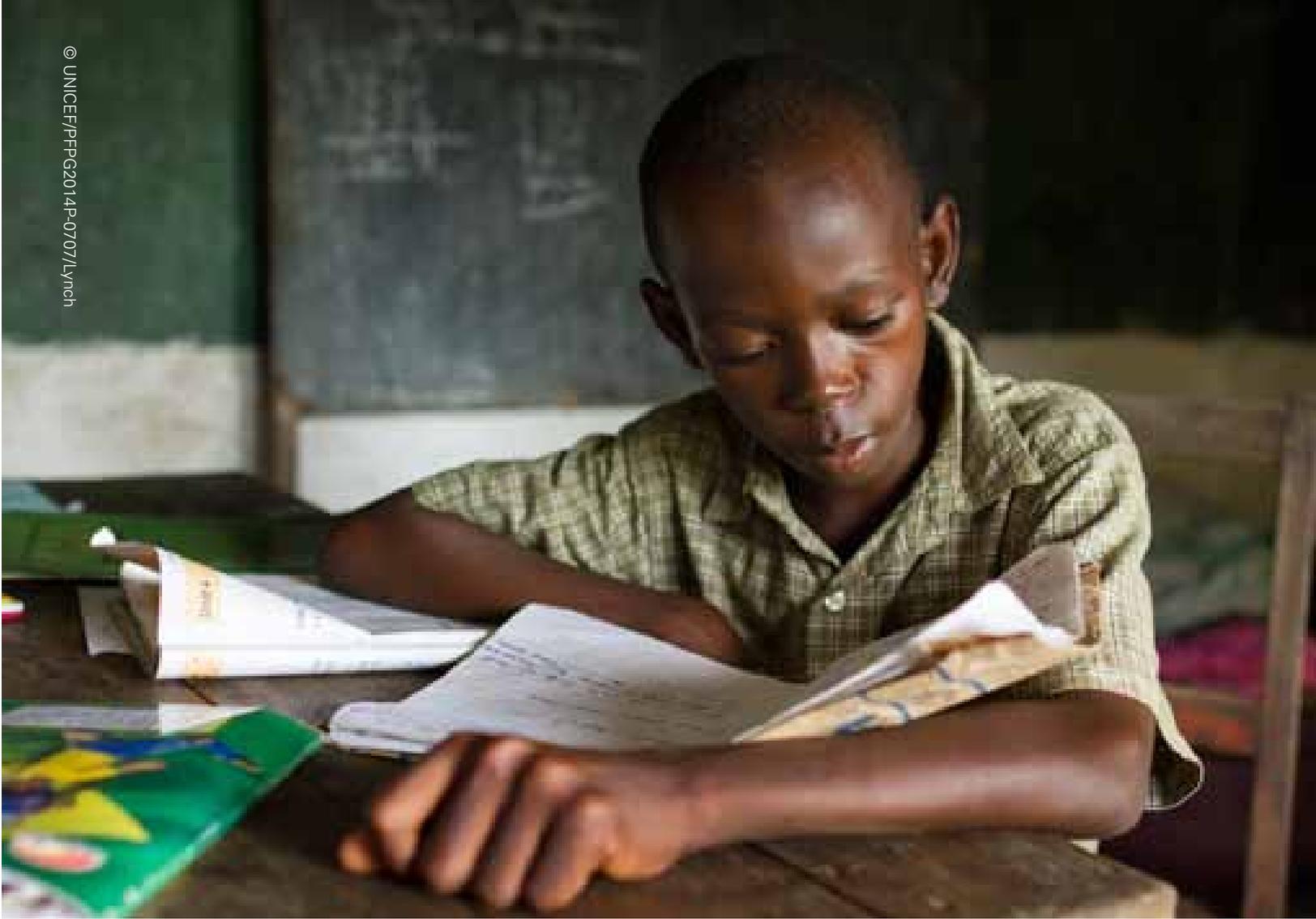
First, school-based management that includes the participation and empowerment of local communities must be promoted. The creation of direct accountability mechanisms, such as school management committees, allows parents and communities to have a direct say in the functioning of their children's schools. This strengthens results-based management at the school level and shortens the accountability route, which will improve school performance, particularly for learning.

Second, as noted in the World Development Report 2004, "Perhaps the most powerful means of increasing the voice of poor citizens in policymaking is better information" (World Bank 2003a, 7). As an example, when the Government of Uganda learned that only 13 per cent of school grants were arriving in primary schools, it launched a monthly newspaper campaign about the transfer of funds and asked school principals to post the entire budget on the schoolroom door. As a result of this information reform, the reception rate of school grants jumped to more than 80 per cent (World Bank 2013).

▲ This 12-year-old boy attends school in Sierra Leone. Primary school completion followed by secondary school is essential to equip children and youth with the skills they need to participate in a globalized economy.

Mechanisms such as school profile cards, which have equipped local communities with comparative information about their school's resources and performance, have also proved to be effective. In Pakistan's Punjab Province, for example, the development and distribution of report cards to parents of public- and private-school students was associated with an increase in learning achievement in low-performing schools by 0.1 to 0.3 standard deviations and a 21 per cent decrease in the fees charged by higher-performing private schools (Bruns, Filmer and Patrinos 2011).

A call
for action

There are about 1 billion children and adolescents of primary and lower secondary school age, and the young population is growing. When including pre-primary age children, the figure is closer to 1.4 billion. Education is a human right for all of them. Yet far too many remain out of school. Many of the children who are excluded are poor and vulnerable. Many face discrimination because of gender, ethnic origin or disability. Many live in conflict-afflicted areas. Often, the children excluded from school are affected by multiple factors. In addition, an estimated 130 million children do not learn the basics of literacy and numeracy despite reaching Grade 4.

The demand for education will only grow. By 2030, 619 million additional children aged 3–15 will need to be enrolled in school in order to provide education from pre-primary to lower secondary for all children.

Education is a powerful tool to break the cycle of poverty and disadvantage for individuals, families and countries. It has the power to improve incomes, health and behaviour. Yet the potential of education is currently unrealized.

How can so many children be denied their right to an education? One reason is a lack of resources allocated to education, hence, a call for increased domestic and external funding to education, including private-sector involvement. Just 5 per cent of the annual profits of the five highest-earning public companies in the world would be sufficient to raise US$12.6 billion annually – almost half of the estimated gap in external funding for basic education. Five per cent of the profits of the 15 highest-earning public companies would suffice to close the entire gap.

Another reason children are denied their right to an education is that governments and their development partners sometimes fail to put enough emphasis on disadvantaged children. For example, though many children live in conflict areas, education represents less than 2 per cent of global humanitarian aid. The UNICEF target is 10 per cent. In addition, insufficient public funding is allocated to the levels of education that the world's most vulnerable are most likely to access, and which are also the levels of education that would most benefit society. As a consequence, a disproportionate burden is often placed on the families at the lowest level of education. In many countries, the wealthiest quintile benefits from 5–10 times more public education resources than the poorest quintile. In some countries, even within public resources available for a given level

Insufficient public funding is allocated to the levels of education that the world's most vulnerable are most likely to access, and which are also the levels of education that would most benefit society.

of education, a more important share is used to educate the wealthier or more advantaged segments of society to the detriment of the poorest. Geographical allocation also tends to exacerbate inequitable spending patterns because higher resources, especially higher numbers of teachers, are generally distributed to the wealthiest areas of countries.

For education to keep its promise, governments and their development partners must increase their financial contributions and promote more pro-equity policies and funding. In some cases, this means turning current habits upside down and allocating more to the lower levels of education – the levels predominantly attended by the poorest children – and to the early grades, which are the most important for future learning. Targeting resources to reach the poorest areas and schools is also essential. Here, UNICEF has many programmes targeted specifically to support preschool and early grade education.

But providing educational opportunities alone will not suffice to increase access to education. Getting children into school also requires interventions to actively remove the numerous barriers and risks that disadvantaged children face: child labour, child marriage, violence and discrimination.

Some of the most cost-effective interventions include providing school uniforms and preschools and abolishing school fees. But there also needs to be a better understanding of the situations and environments of the most vulnerable children. That requires the integration of more data into household surveys and national data systems, particularly data on children with disabilities. To this end, UNICEF is working on a new MICS module on children with disabilities and their school environment, and on supporting governments to include disability-related data in their Education Management Information System.

Finally, resources are not always used efficiently and learning is often low in developing countries. Solutions for improved, more equitable and efficient policies for education and learning need to be contextualized based on in-depth education sector analyses that identify the specific challenges and constraints that countries face. The analyses should inform comprehensive education sector plans in which evidence is translated into implementable policies that are locally owned and relevant. Learning assessment systems at the country level, particularly in the early grades, will also empower national governments to make informed decisions. For this reason, UNICEF is supporting the improvement of learning data and is a co-chair of the Learning Metrics Task Force.

Strong evidence also shows that increasing transparency, community participation and accountability – as learned from the experience in Uganda described in Chapter 4 – has a significant impact on improving learning outcomes and reducing drop-out rates.

Multiple and wide-ranging efforts are needed to finally give all children their birthright: quality education. But to achieve this goal, governments and their development partners must affirm their commitment to equitable, inclusive and effective education.

/ Annexes

Annex A. Human development benefits of education

Human development benefits of education vary by country. Figure A.1 provides the human development benefit-to-cost ratios, per year of education, for four different education levels – primary, lower secondary, upper secondary and tertiary education – in 10 sub-Saharan African countries for which analyses were published. Benefit-to-cost ratios have been normed so that they are equal to 100 for primary education. Note that primary education generally brings the highest returns, followed by lower secondary, upper secondary and then tertiary education. In the Gambia, however, lower secondary education actually brings the highest returns.

The figures below show three different types of human development benefits for child health for a number of countries with data. Figure A.2 shows the percentage of children under age 5 with no vaccines. In Benin, the Dominican Republic and the Philippines, there is a massive reduction in the percentage of unvaccinated children when the mother has primary education as compared with no education. In Ethiopia, there is a reduction of more than 50 per cent in the percentage of unvaccinated children when mothers have a primary education as compared with no education. The percentage of unvaccinated children then drops to almost zero when mothers have a secondary education or higher.

FIGURE A.1: Ratio of human development benefits to cost for 10 sub-Saharan African countries (ratio normalized at 100 for primary education)
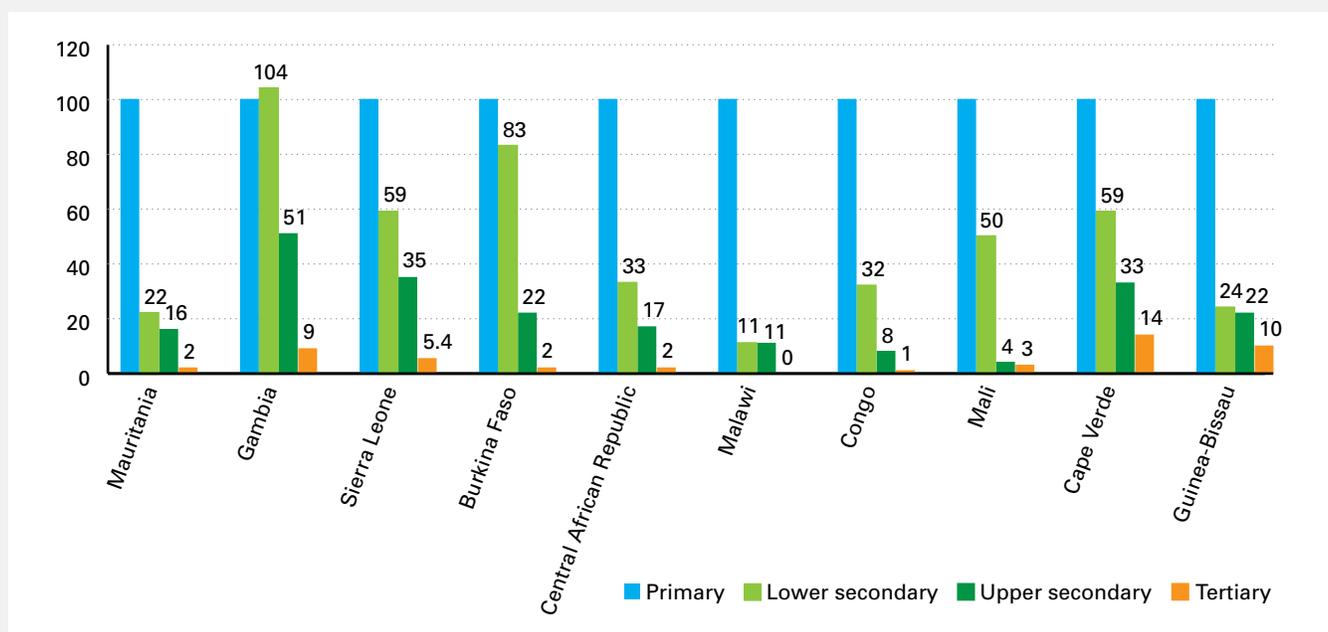
Figure A.3 shows the percentage of children with low weight for their age. In Jordan, the largest difference is found between mothers with no education and mothers with primary education, with rates of 12 per cent and 3 per cent of children, respectively; the rate of children with low weight for age with mothers with secondary education or higher is the same as for mothers with primary education, at 4 per cent. In Rwanda, the rates of children with low weight for age are 19 per cent, 17 per cent and 5 per cent for children of mothers with no education, primary education, or secondary education or higher, respectively – and the largest impact is associated with secondary education or higher.

FIGURE A.2: Percentage of children with no vaccines, by education level of the mother
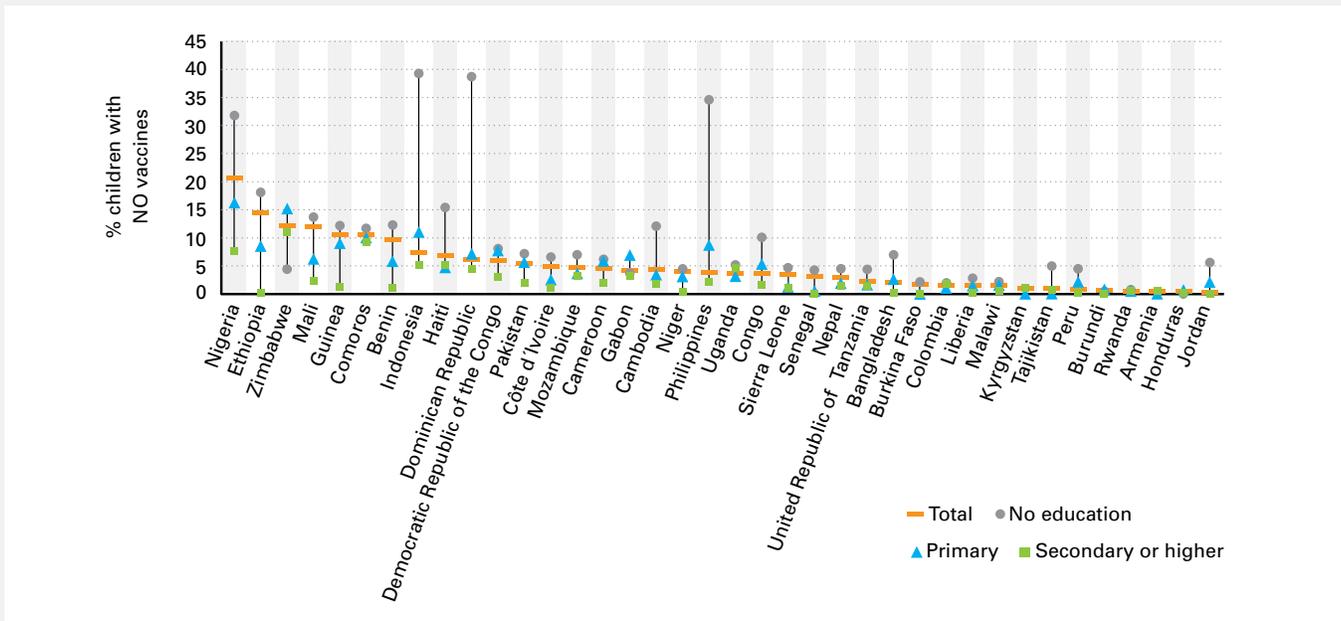
FIGURE A.3: Percentage of children with low weight for age (below 2 or more standard deviations), by education level of the mother
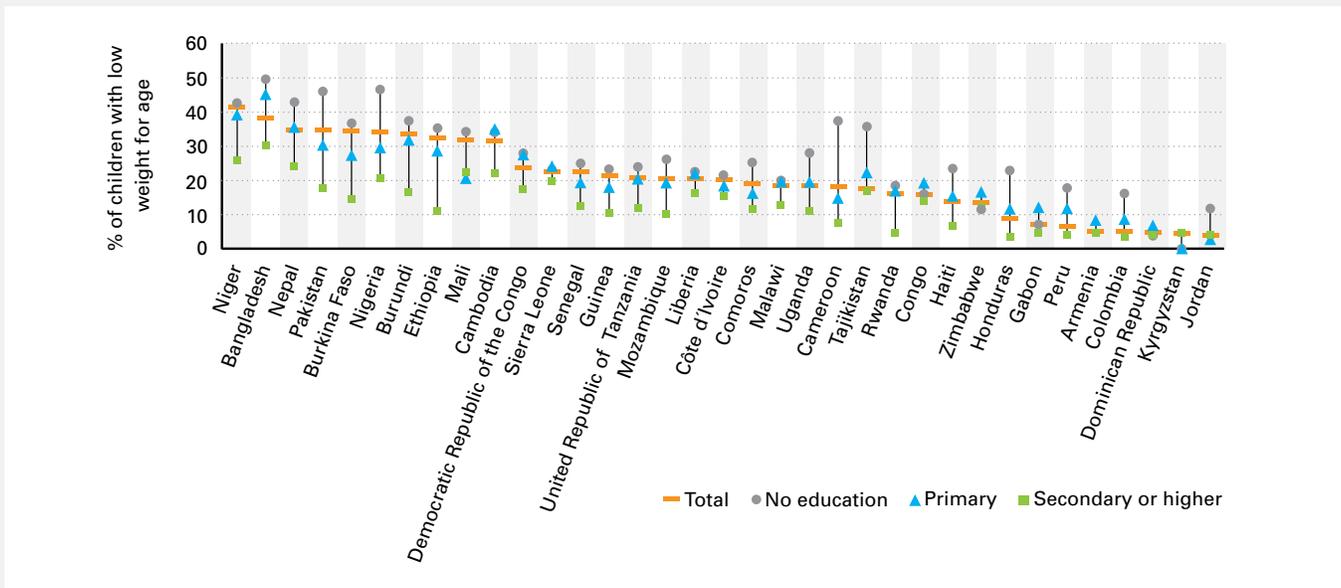
Source: Authors' computations based on DHS.

Figure A.4 shows under-five mortality rates by level of education. As was the case with the two previous indicators, primary education is the level that has the strongest impact on child mortality in some countries – including the Dominican Republic, where child mortality decreases from 91 for uneducated mothers to 35 for mothers with a primary education, and is 31 for mothers with a secondary education or higher. In other countries, it is secondary education that has the largest influence: In Burundi, child mortality decreases from 141 to 118 for a mother with primary education as compared with a mother with no education, but it drops to 47 for a mother with secondary education or higher.

FIGURE A.4: Under-five mortality rate, by education level of the mother
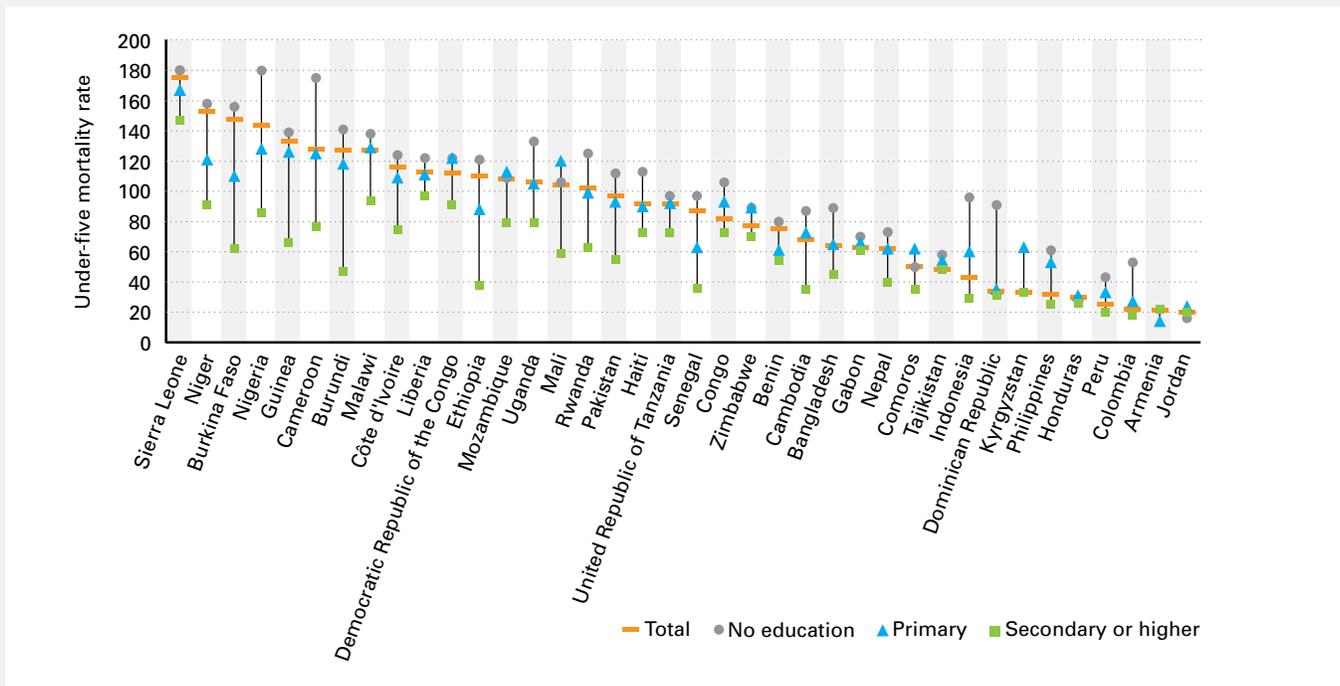
Source: Authors' computations based on DHS.

Figure A.5 illustrates another example of the effects of education: Women with no education are less likely to have a say over how their earnings are used – among 45 low- and middle-income countries, women with no education were 35 per cent more likely to have no say over earnings, on average, compared to women with primary education, and 150 per cent more likely to have no say over earnings compared to women with secondary education or more. There are considerable differences between countries as factors other than education also influence women's status.

FIGURE A.5: Percentage of women who had no say over their earnings, by education level, in 45 countries
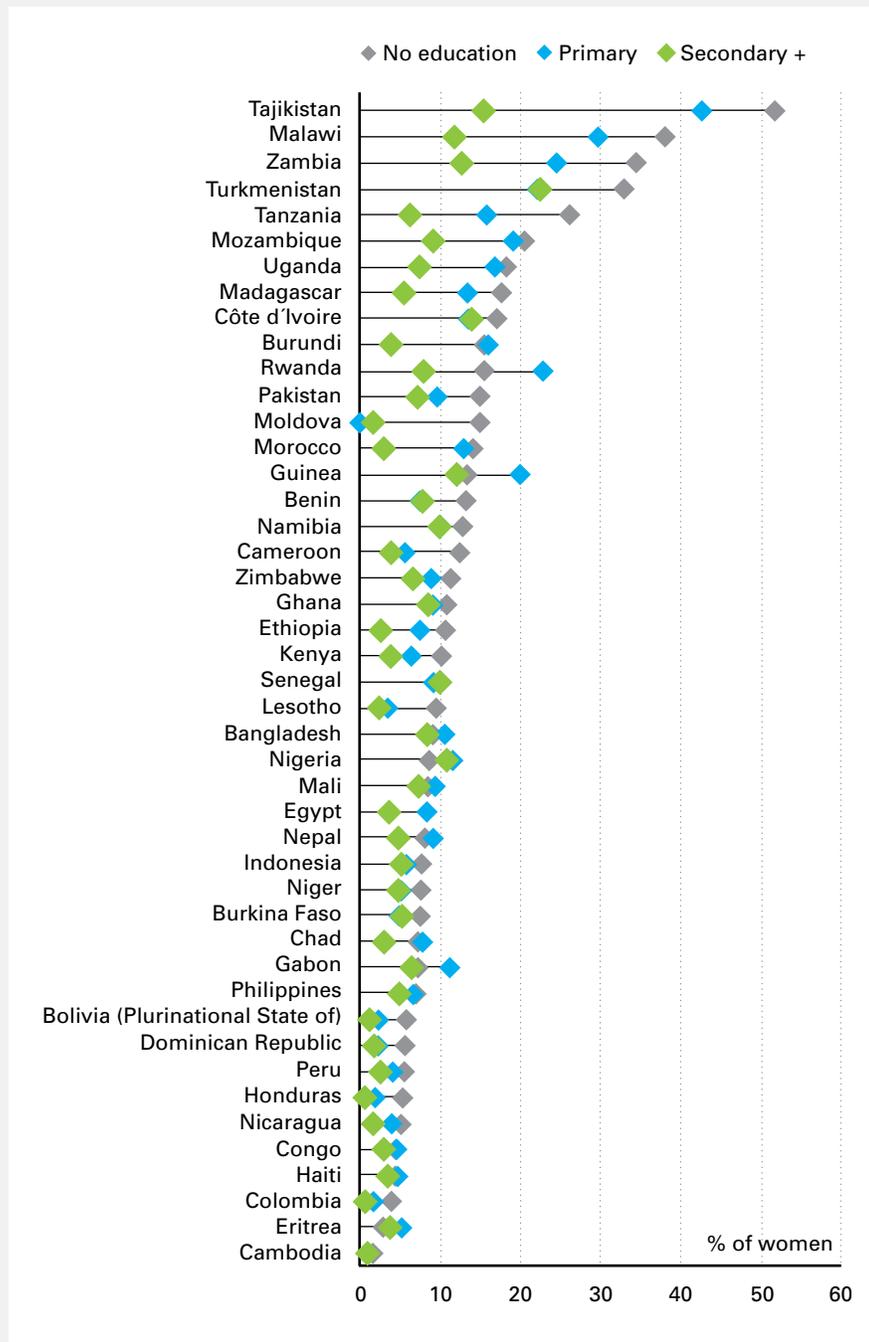
Source: Data extracted from DHS STATcompiler.

Finally, as shown in Figure A.6, the percentage of female respondents who had a favourable view of genital mutilation/cutting declines with education. The figure shows the ratings in four African countries by women's education: the Central African Republic, the Gambia, Mauritania and Sierra Leone. The differences in attitudes by education are particularly strong in Mauritania and the Central African Republic. In Mauritania, where 79 per cent of unschooled women aged 15–49 viewed female genital mutilation/cutting favourably, only 41 per cent of those with lower secondary education and 21 per cent of those with tertiary education viewed the practice favourably. In the Central African Republic, the percentages are 41, 13 and 6, respectively. The figures for the Central African Republic are for young women aged 20–29; in general, the practice is viewed less favourably among younger women in Africa – who, overall, have more education.

FIGURE A.6: Percentage of women who have a favourable view of female genital mutilation/cutting
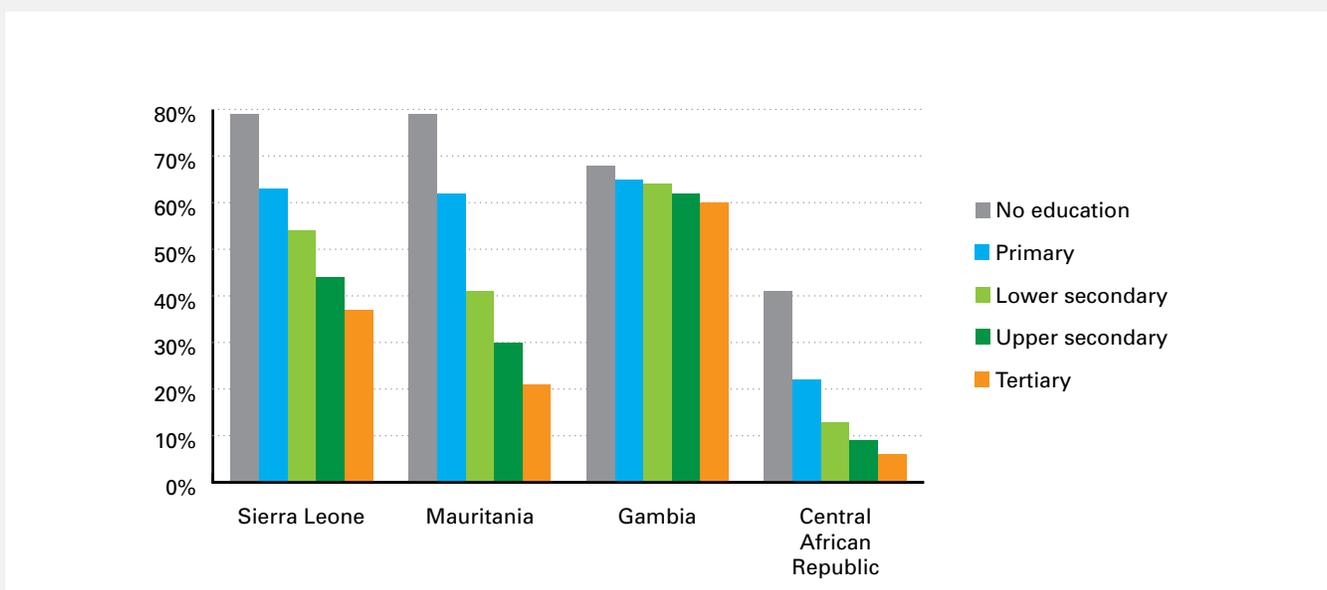
Source: Education sector analyses (Pôle de Dakar 2010b; Pôle de Dakar et al. 2013; World Bank 2008a, 2011a).

Annex B. Age and dropout

As explained in Section 2.2.2, age is strongly related to dropout. Figure B shows the percentage of children who had entered school but dropped out, by age. Up to age 11 in all countries, the percentage of dropouts is very low. If they had been attending school and then drop out, children tend to stay in school until they reach early or mid-adolescence.

A deeper investigation of these data reveals that the adolescents who are dropping out are far more likely to be from poor households. After age 12, the poorer children often start to leave school. It appears that at younger ages, when children have fewer competing responsibilities, opportunities, challenges and risks (e.g., for girls, the age of puberty is associated with higher risks, and for boys, when they become strong enough to work in the fields), they will stay in school. This phenomenon means that when children enter school overage – and an immense proportion of children in developing countries do – they will reach adolescence before they reach the end of primary and are at an increased risk of dropping out of primary school.

FIGURE B: Percentage of children who entered school but dropped out, by age group, in 41 countries (based on DHS and MICS data, 2005–2011)
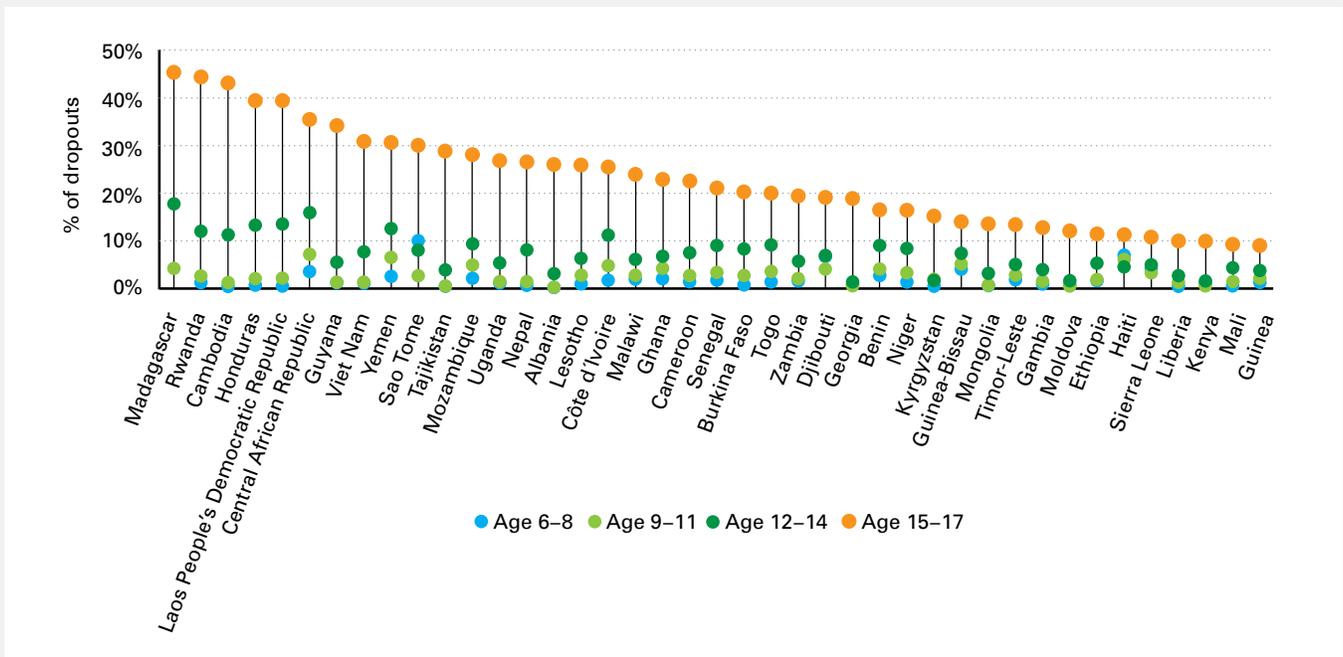
Source: GPE 2012, 66.

Annex C. Per pupil expenditures in secondary and tertiary vs. primary education

Figures C.1 and C.2 show the ratios of per pupil expenditures in secondary vs. primary education and in tertiary vs. primary education.

FIGURE C.1: Ratio of per-pupil expenditures in secondary education vs. primary education
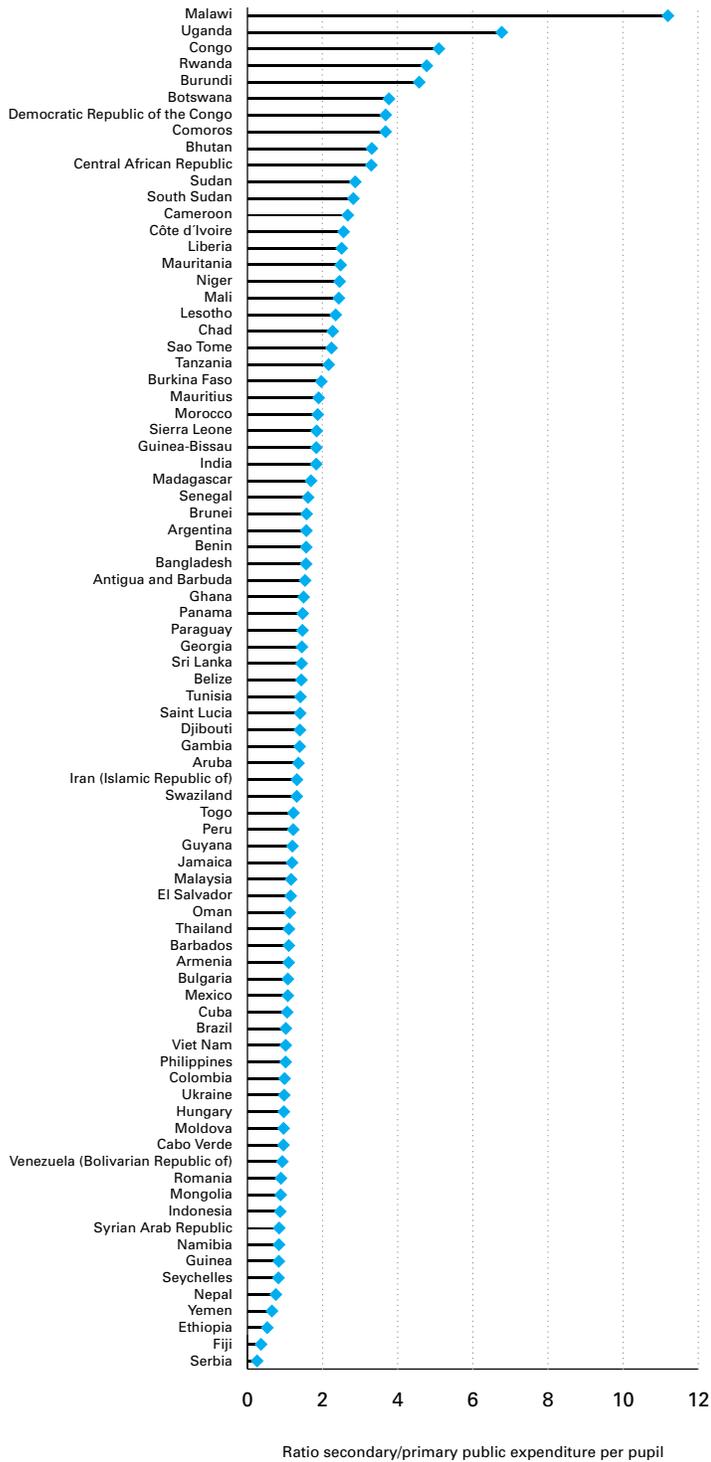
FIGURE C.2: Ratio of per-pupil expenditures in tertiary education vs. primary education

Ratio secondary/primary public expenditure per pupil

Ratio tertiary/primary public expenditure per pupil
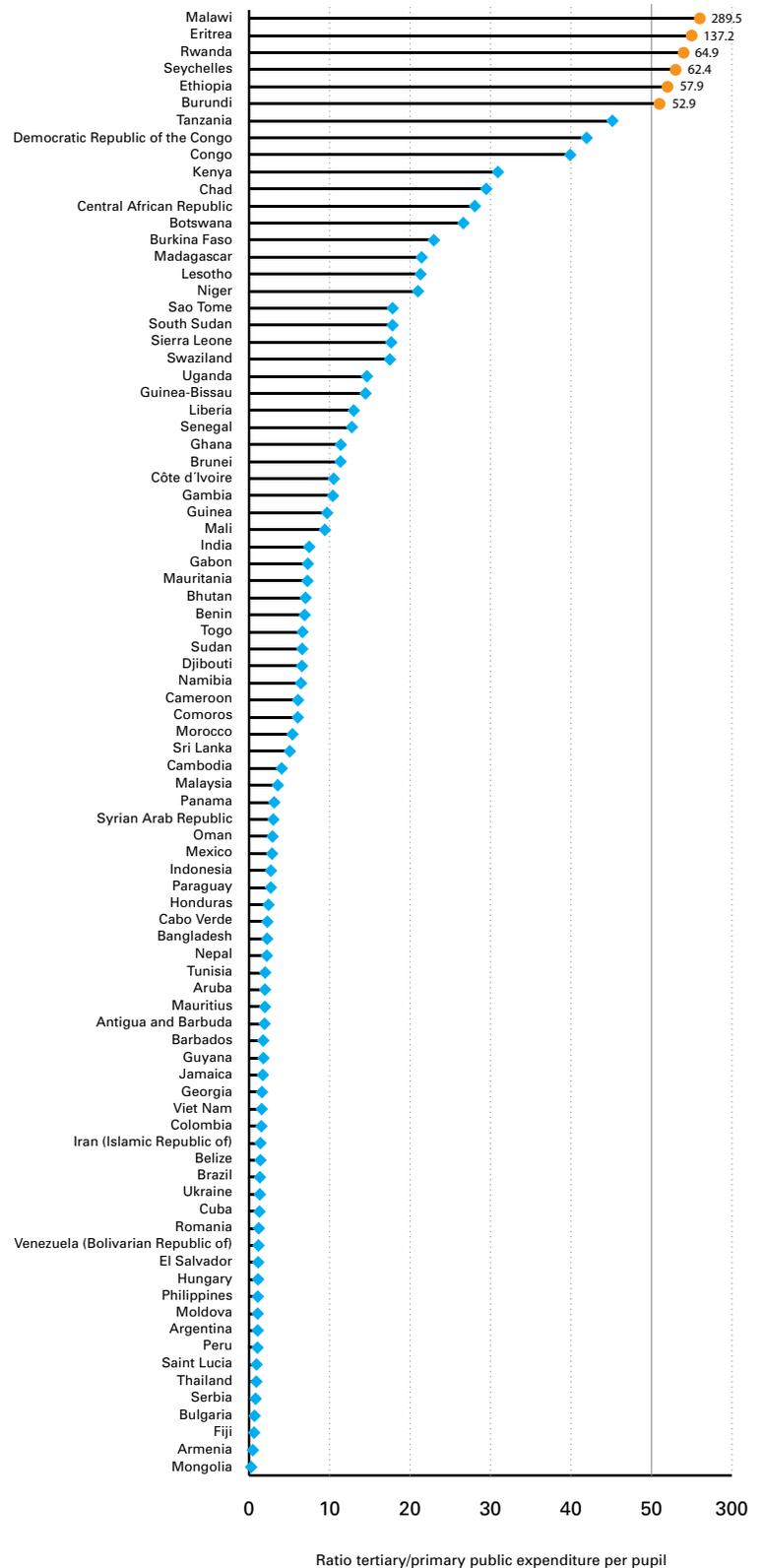
Source: UIS/Edstats, accessed March 2014, and Pôle de Dakar databases.

Annex D. Geographical distribution of funding and teachers per child

Most analyses look into the geographical distribution of resources – generally teachers, as this is the most important recurrent cost, particularly at the primary level – as compared with the number of students in schools. One alternative way of looking into geographical distribution consists of analysing resources per child, in school or out of school. This reflects the discrepancy between current resource distribution and what would be equitable if all children were in school.

This type of analysis can be powerful for highlighting supply issues that may be hidden when looking at resources per pupil. At the same time, if demand issues predominate – e.g., building more schools and putting more teachers in a region will not be sufficient to bring children to school – solving access issues will require more than equal resources for every child.

Figure D identifies the child-to-teacher ratio by sub-national region in Burkina Faso and the Congo. In Burkina Faso, the difference between the most resourced region and the least is about 2:1, and in the Congo it is 4:1. In both cases, the best-resourced region is the capital region. These two anecdotal cases suggest that geographical inequity of spending is not uncommon.

FIGURE D: Ratio of school-age children to teachers in Burkina Faso and the Congo
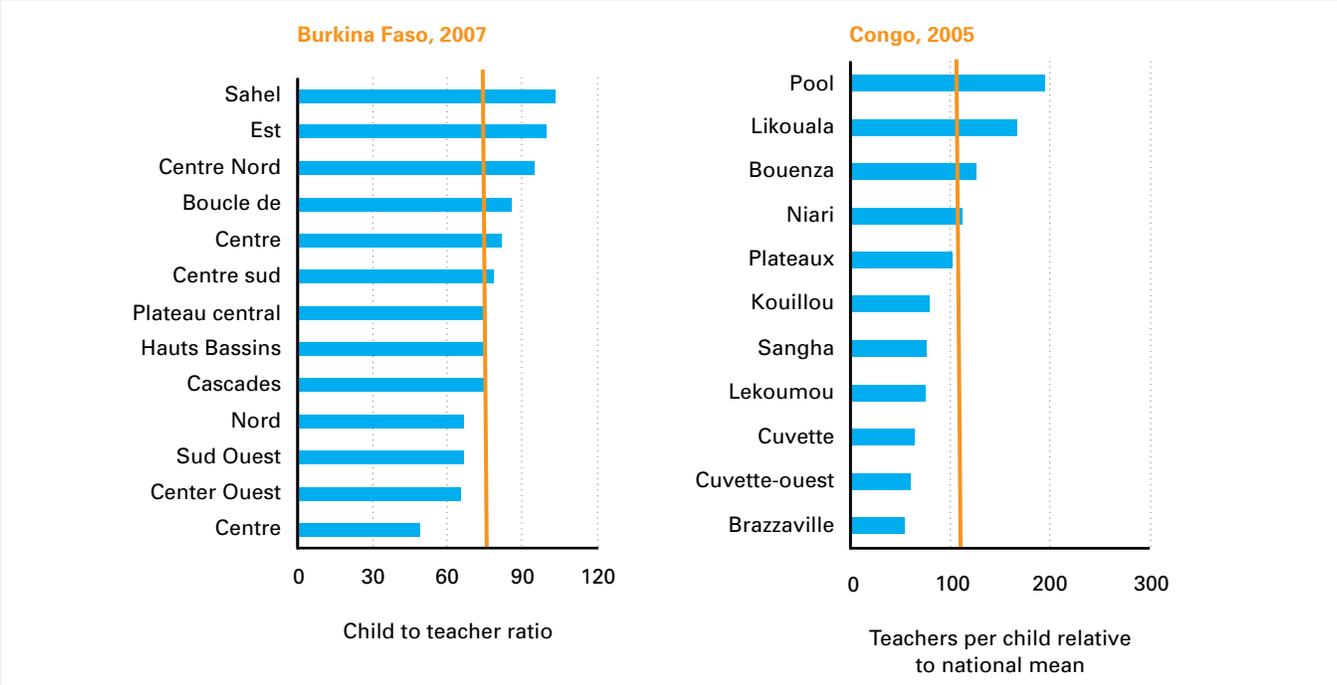
Source: Education sector analysis country reports (World Bank 2010c and 2010a).

Annex E. Reasons for not being in school

Table E identifies reasons cited by parents to explain why their children are not in school in four countries. In these household surveys, parents said that school costs too much or that the child is needed to work (school means foregone earnings or 'opportunity costs'); schools are too far; the child is too young; or a group of other reasons related to religion, marriage and the usefulness of education – a category perhaps reflecting social norms or the perception of school and education service delivery as it is provided.

TABLE E: Reasons provided for not entering or attending school in four countries, based on recent household surveys, by percentage of respondents for each reason)

Country	Work or school too expensive	School too far	Child too young	Other, e.g., religious, gender, not useful
Democratic Republic of the Congo[a] (never entered)	70%	21%	19%	Various in report
Uganda[b] (non-attendance)	10%	1%	62%	20%
Gambia[c] (non-attendance)	26%	2%	13%	60%
India poor[b] (non-attendance)	33%	3%	16%	47%

a. UIS and UNICEF, 2013.   **b.** GPE 2012 based on B. Wils' original data from household survey.   **c.** World Bank 2011a

There is a wide variety of responses according to countries. This is expected given that the answers are highly dependent on a number of elements – including poverty levels, costs of education, geographical location of school, terrain, safety issues (school distance is more of an issue when safety is a concern), and cultural and religious perspectives, which vary widely from country to country.

Annex F. The SEE database

The Simulations for Equity in Education (SEE) project is a collaboration between UNICEF and the World Bank to identify cost-effective strategies for reaching children who are excluded or underserved by education systems. SEE is intended to help countries identify cost-effective, pro-equity education strategies, and to serve as a global tool for developing evidence-based documentation of and advocacy for such strategies. The SEE Excel-based tool allows users to project the costs of interventions to reach different groups of excluded children and improvements in school outcomes as a result of these interventions.

In line with this, a database on the effectiveness of education interventions around the world has been developed. The SEE database, which has been described elsewhere in greater detail by UNICEF and World Bank (2013a, 2013b), includes data from more than 200 studies and reports focused on education interventions in developing countries. Most of the studies are randomized trials and econometric research, for example, from education sector analyses by governments, usually supported by IIEP/Pôle de Dakar, the World Bank and UNICEF. The database also includes some pre-post as well as transversal studies. Although these types of studies are generally considered to be less robust, some are included if they were carefully executed and provide information on an intervention and outcome combination that had little coverage through other studies.

All the effect sizes – the ratio of the difference and the original learning gap – were recorded either as standard deviations or percentage point changes, depending on how they were published. The data were then translated into a common measure: the reduction of gaps through the treatment. The concept of 'gaps' assumes a target value – i.e., entry, enrolment, or survival rates of 100 – or a particular target learning level that was identified in the study, e.g., score 500 on an analysis, can read a story, read 60 words a minute. The absolute impact is the difference in the percentage of children who do not reach the target with and without the treatment.

The SEE database includes three measures of access: (1) entry, which is counted as the percentage of children who enter school by a particular age, or gross or net intake rates; (2) enrolment, generally gross enrolment, although some studies use net enrolment or attendance or age-specific attendance rates; and (3) survival rate, often measured as the survival to a particular grade, but sometimes measured as the transition from one grade to the next.

Given that interventions to improve entry also appear among the interventions to improve enrolment and survival, Table F focuses on enrolment and survival/retention, and details the number of studies and types of interventions in the SEE database for these measures.

TABLE F: Type and number of studies and interventions in the SEE database for enrolment rate and survival/retention

Type	Enrolment	Survival
Studies	40	32
Interventions	14	19
Names of interventions	Cash transfers, Conditional cash transfers, Fee abolition, Free uniforms, Scholarships, School feeding, Health training, Supplements, Providing aids and appliances to children with disabilities, School proximity, Preschool, PTA financial support, Community incentives, Decentralization	Reduce repetition, Cash transfers, Fee abolition, Free school uniforms, School feeding, Mother tongue instruction, Preschool, Latrines, Materials and buildings, Single vs. multi-grade, PTA financial support, Textbooks, Water source in school, School proximity, School with all primary grades, Female teachers, Pupil-teacher ratio, Teacher qualified, Teachers, volunteer
Types of studies*	Randomized controlled trial – 15 Econometric – 15 Pre-post – 8 Matching – 2	Randomized controlled trial – 7 Econometric – 14 Pre-post – 5 Matching – 6

* 'Randomized controlled trial' includes all such trials; 'Econometric' includes regression discontinuity design, fixed effects models, instrumental variable models and multivariate regression analyses; 'Pre-post' includes difference-in-difference and difference-in-difference-in-difference, and natural experiments with location-specific trend analysis; and 'Matching' includes propensity score matching.

Annex G. Interventions to increase access

Tables G.1, G.2 and G.3 summarize the cost-benefit analysis for interventions to increase access, including actions to increase school entry (not reproduced in the main text, as the most effective interventions for school entry are mostly among the most effective to improve enrolment and/or survival).

When these interventions were reflected in 4.3.1, the following coding was used:

- Codes for benefits (in percentage of gap closed):
  0-25: +, **25-5-**: ++, **50 and above**: +++.

- Codes for costs (in dollars):
  0-10: +, **10-25**: ++, **25-50**: +++, **50 and above**: ++++

- Codes for benefit-to-cost ratios (in percentage of gap closed per dollar spent):
  above 2: very high, **1-2**: high, **0.5-1**: moderate, **below 0.5**: low

The values for the benefits and most of the values for costs come from the SEE database (see Annex F).

TABLE G.1: Cost-benefit analysis for three interventions to reduce the school entry gap

Intervention name	Average benefit of the intervention (% of gap closed)	Cost	Benefit to cost ratio	Source
School proximity (annualized costs)	39.96	$11	3.6	In line with Chapter 4 simulations ($11,000 per classroom, 40 students per class, 25 years lifespan)
Preschool	73.62	$25	3.0	SEE database for community preschool
School feeding	22.27	$24	0.9	SEE database (average of several values)
School proximity (immediate cost benefit)	39.96	$275	0.1	In line with Chapter 4 simulations ($11,000 per classroom, 40 students per class, 25 years lifespan)

TABLE G.2: Cost-benefit analysis for nine interventions to reduce the gap in school enrolment

Intervention name	Average benefit of the intervention (% of gap closed)	Cost	Benefit to cost ratio	Source
Free school uniforms	33.33	$6	5.6	SEE database
School proximity (annualized costs)	50.92	$11	4.6	In line with Chapter 4 simulations ($11,000 per classroom, 40 students per class, 25-year lifespan)

Intervention name	Average benefit of the intervention (% of gap closed)	Cost	Benefit to cost ratio	Source
Preschool	67.59	$25	2.7	SEE database for community preschool
Fee abolition	41.14	$30	1.4	SEE database (GH¢94.41 – Ghana)
School feeding	22.68	$24	0.9	SEE database (average of several values)
PTA financial support	7.14	$8	0.9	SEE database + 500 students per school
Cash transfers	40.90	$50	0.8	SEE database
Conditional cash transfers	13.41	$27	0.5	SEE database
School proximity (immediate cost benefit)	50.92	$275	0.2	In line with Chapter 4 simulations ($11,000 per classroom, 40 students per class, 25 years lifespan)
Scholarship	67.71	$877 ($36 merit)	0.1 (1.9)	SEE database (Bangladesh) McEwan 2014 (Kenya)

TABLE G.3: Cost-benefit analysis for 12 interventions to reduce the gap in survival

Intervention name	Average benefit of the intervention (% of gap closed)	Cost	Benefit to cost ratio	Source
Reduce repetition	26.01	$(430)	Saves money	Unweighted average of primary costs for sub-Saharan countries with data (UIS Data Centre)
Mother tongue instruction (once in place)	35.72	Variable	Very high once in place	Added cost linked to less economies of scale (e.g., textbook printing if there are many languages in the country). Estimated the impact assuming a doubling of textbook costs.
Female teachers	12.87	From 0 to some costs	Very high to high	Depends on ways to ensure there are more female teachers: acceptance of female candidates with slightly lower academic qualifications (no financial implication)? Outreach to female candidates (low cost)? Incentives for more appropriate deployment of females (more costly)?
Free school uniforms	19.19	$6	3.2	SEE database
School proximity (annualized costs)	26.40	$11	2.4	In line with Chapter 4 simulations ($11,000 per classroom, 40 students per class, 25 years lifespan)
Preschool	56.27	$25	2.3	Unweighted average for sub-Saharan African countries with data (UIS Data Centre)
School feeding	24.27	$24	1.0	SEE database (average of several values)
Fee abolition	27.53	$30	0.9	SEE database (GH¢94.41 – Ghana)
Textbooks	4.12	$5	0.9	Education Sector Analysis guide (UNESCO et al. 2014): 1,200 in local currency per year per textbook, 2 textbooks per student.
PTA financial support	6.94	$8	0.9	SEE database + 500 students per school
Cash transfers	36.56	$50	0.7	per student per year
School proximity (immediate cost benefit)	26.40	$275	0.1	In line with Chapter 4 simulations ($ 11,000 per classroom, 40 students per class, 25 years lifespan)
Pupil-teacher ratio	4.56	$81	0.1	Assuming a reduction in PTR of 10 points, with the impact on teacher salary costs only (UIS average primary unit costs as above)

Annex H. Interventions to increase learning: Full intervention list and cost estimates

Table H.1 presents the full list of interventions included in the Simulations for Equity in Education (SEE) model, provided the results of at least three different studies were available, and in four reviews: Glewwe et al. (2011), McEwan (2014), Conn (2014) and Dhaliwal et al. (2012). Each intervention is classified with regard to its 'high', 'moderate' or 'low' impact on the learning gap.

TABLE G.3: Cost-benefit analysis for 12 interventions to reduce the gap in survival

High Impact	
Scholarship	Computer-assisted learning
Preschool parent training	SMRS teaching method
Preschool	EGRA teaching method
Preschool micronutrients	Pedagogical interventions
Antimalarial	Mother tongue instruction
School feeding, parent-teacher partnerships	School proximity
Student report cards	Salaried teacher
Information for parents	Teacher knowledge
Reduce repetition	Principal experience
Teaching materials, parent-teacher partnerships	PTR, contract teacher, school based mgt
Latrines	PTR, school based management
Radio mathematics lessons	PTR, contract teacher
Other teaching methods	

Moderate impact (1-2)	
Conditional cash transfers	Tracking
Student incentives	Interactive teaching
Eyeglasses	Other reading method
Micronutrients	Regular homework
Principal info. on anaemia, grant	Group work
Deworming	Remedial ed.

Moderate impact (1-2), continued	
School report cards (SRC)	Homework help
SRC, district & school mgt training	Increase teacher attendance
Information	Teachers, contract
Textbooks	Teacher incentives
Materials and buildings	Teacher education
Electricity	Teachers, volunteer
School infrastructure index	Teacher qualified
Textbook usage	Instructional time
Infrastructure, add inputs	Student attendance

Lower impact (2-3)	
School grants	Computers
Cost of attending	Library
Cash transfers	Desks/tables/chairs
Cost reduction interventions	Blackboard/flipchart
School feeding	Total school enrolment
School feeding, micronutrients	Expenditure/pupil
Principal information on anaemia, grant, performance incentive	Flip charts
Menstrual cups	Pen and pencils
Improve child health	Water in school
Health treatments	School supplies and provision
Information for parents, health	Teacher in service training
Performance feedback to teachers	Teacher experience
SRC, school mgt training	Female teachers
SRC, district mgt training	PTR
Information for students	Teacher quality index
Testing	Principal education
School committee	Pre-service training
Single vs. multi-grade classes	Teacher attitude
School mgt training, grants	Remove multiple shifts
Mgt intervention	

Note: SRC = school report cards, Mgt = Management, PTR = Pupil-teacher ratio
Source: SEE database; Glewwe et al. 2011; McEwan 2014; Conn 2014; and Dhaliwal et al. 2012.

For interventions in the high and moderate impact range and for which this was possible, the costs of the interventions were estimated using a variety of sources, as indicated in Table H.2. Only single interventions, e.g., 'teaching materials', as opposed to 'teaching materials, parent-teacher partnerships', for which it is difficult to disentangle the impact of the two interventions, were included. Interventions for which the intervention was too broad or the costs were too difficult to assess were also removed from the list.

TABLE H.2: Interventions to improve learning – table of costs and sources

Intervention	Cost range*	Source	Impact
Scholarship	Moderate to very high	$18.80 (SEE learning), 877 (SEE access Bangladesh), 35.65 McEwan (2014)	High
Preschool parent training	Low	Limited training costs	High
Preschool	Moderate	$24.70 (SEE)	High
Preschool micronutrients	Moderate	School feeding costs around $20 on average (SEE)	High
Antimalarial medicine	Low	Around $2.50 per child per year (mosquito nets) – source: UNICEF	High
Student report cards	Low	McEwan puts costs related to information / school-based management below $2 per student	High
Information for parents	Low	McEwan puts costs related to information / school based management below $2 per student	High
Reduce repetition	Saves funds	Savings estimated by authors based on UIS Data Centre information	High
Latrines	Low (immediate and annualized)	$4,624 on average to equip a school with latrines (in Africa), Theunynck (2009). The assumption here is that the school has approximately 500 students.	High
Radio mathematics lessons	Low	High economies of scale	High
Computer-assisted learning	Moderate to very high	$14.64 (SEE), ($89.1 McEwan)	High
SMRS teaching method	Low	Some training, 0 once in place (unless requires additional materials - books, computers)	High
Early Grade Reading Assessment teaching method	Low	Some training, 0 once in place (unless requires additional materials - books, computers)	High
Mother tongue instruction	Low	Once in place, costs relate to less economies of scale	High
School proximity	Very high (immediate), moderate (annualized)	Construction costs GMR, duration Theunynck (2002)	High
Salaried teacher	High to very high	Bourdon and Nkengné-Nkengné (2007) estimate that civil servant teacher salaries, in Africa, are approximately twice the salary of state-financed contract teachers (5.6 times GDP per capita vs. 2.8 times GDP per capita).	High
Conditional cash transfers	High	SEE: $27	Moderate
Eyeglasses	Low	$15, vision international provision of glasses in China, http://ageconsearch.umn.edu/bitstream/120032/2/WP12-2.pdf, here it is assumed that eyeglasses are kept for at least 2 years.	Moderate
Micronutrients	Moderate	School feeding costs around $20 on average (SEE)	Moderate
Deworming	Low	$2.6 (SEE)	Moderate
School report cards	Low	McEwan puts costs related to information / school based management below $2 per student	Moderate
Textbooks	Low	$4.68 SEE ($8.36 McEwan)	Moderate
Textbook usage	Low	Close to 0	Moderate

Intervention	Cost range*	Source	Impact
Tracking	Low	$1.17 McEwan	Moderate
Interactive teaching	Low	Some training, 0 once in place (unless requires additional materials - books, computers)	Moderate
Regular homework	Low	No cost	Moderate
Group work	Low	Some training, 0 once in place (unless requires additional materials - books, computers)	Moderate
Remedial education	Low to Moderate	$2.25 SEE, $12.81 McEwan	Moderate
Homework help	Low		Moderate
Increase teacher attendance	Moderate	$21.04 McEwan	Moderate
Teachers, contract	Low/saves money	Even when contract teachers do not replace normal teachers, their costs are low	Moderate
Teacher incentives	Low	$6.98 SEE (averaged), $2.00 & $3.53 McEwan	Moderate
Teachers, volunteer	Low/saves money	Even when contract teachers do not replace normal teachers, their costs are low	Moderate
Instructional time	Low	Teacher training (in-class time), monitoring	Moderate
Student attendance	Low	Cost of monitoring	Moderate

* Coding for cost range: low = inferior to US$10 per student per year; moderate = inferior to US$25; high = US$25–50; very high = above US$50.

Finally, interventions to improve learning have been categorized using both the benefits they bring and their relative cost. Note that in some cases, because impacts have been assessed in a variety of contexts, there are apparent contradictions, e.g., salaried teacher (hiring a civil servant) and contract teachers are both listed as potentially positive interventions. This, once more, underlines the need for contextualization of interventions to improve learning.

TABLE H3: Benefit-cost comparisons for interventions with high or moderate impact on students' learning

Intervention cost	High Impact	Moderate impact
Saves money	Reduce repetition	Contract or volunteer teachers
Low cost	Preschool parent training Student report cards Information for parents Mother tongue instruction Antimalarial medicines Latrines Principal experience SMRS teaching method Early Grade Reading Assessment teacher method Radio mathematics lessons	School report cards Instructional time Student attendance Teacher incentives Textbook usage Interactive teaching Regular homework Homework help Interactive teaching Group work Tracking Eyeglasses Deworming
Moderate cost	Preschool Preschool micronutrients School proximity	Remedial education (low to moderate) Increase teacher attendance Micronutrients
High or very high cost	Scholarship (moderate to very high) Computer assisted learning (moderate to very high) Salaried teacher (high to very high)	Conditional cash transfers

Source: For impact, the SEE database (UNICEF and World Bank 2013a, 2013b) and McEwan 2014, Glewwe et al. 2011, Conn 2014 and Dhaliwal et al. 2012; for costs, various sources (*see Table H.2, above*).

Annex I. UNICEF's Strategic Plan 2014–2017 and results framework for education

The education outcome delineated in UNICEF's Strategic Plan is "improved learning outcomes and equitable and inclusive education." The six corresponding outputs are:

1. Enhanced support to communities with disadvantaged and excluded children to start schooling at the right age and attend regularly.

2. Increased national capacity to provide access to early learning opportunities and quality primary and secondary education.

3. Strengthened political commitment, accountability and national capacity to legislate, plan and budget for scaling up quality and inclusive education.

4. Increased country capacity and delivery of services to ensure that girls and boys have access to safe and secure forms of education and critical information for their own well-being in humanitarian situations.

5. Increased capacity of governments and partners, as duty bearers, to identify and respond to key human rights and gender equality dimensions of school readiness and performance.

6. Enhanced global and regional capacity to accelerate progress in education.

The related impact, outcome and output indicators are reflected, along with baselines and targets, in the results framework (UNICEF Executive Board 2014), as shown in Table I.

TABLE I: UNICEF results framework for education

IMPACT: REALIZING THE RIGHTS OF EVERY CHILD, ESPECIALLY THE MOST DISADVANTAGED		
Impact indicators	Baseline	Target
OUTCOME 5: Education		
5a. Number of primary-school-age children out of school and related gender parity index (GPI)	T= 57.8 million F = 30.5 million M = 27.3 million GPI = 0.89 (2012)	T= 29.2 million F = 14.6 million M = 14.6 million GPI = 1.00
5b. Primary completion rate (expressed as gross intake ratio in the last grade of primary) and related GPI	T = 92% F =91% M = 93% GPI = 0.98 (2012)	T = 98% F = 98% M = 98% GPI = 1.00

Outcome indicators	Baseline	Target
OUTCOME: Improved learning outcomes and equitable and inclusive education		
P5.1 Countries with primary/lower secondary school age out-of-school rate below 5%	Primary T = 44% (51/117) F = 36% (40/111) M = 41% (45/111) Lower Secondary T = 24% (22/91) F = 21% (17/82) M = 22% (18/82) (2008–latest)	Primary T = 57% F = 50% M = 50% Lower Secondary T = 27% F = 27% M = 27%
P5.2 Countries with increasing learning outcomes	T = 66% (33/50) F = 64% (28/44) M = 64% (28/44)	T = 75% F = 75% M = 75%
P5.3 Countries with at least 20% of government expenditure on education	20% (21/103) (2008–2013)	25%
P5.4 Countries with poorest quintile attendance rate: - above 80% in primary education - above 25% in early childhood education	Primary 48% (32/67) Early childhood 17% (9/53)	Primary 60% (40/67) Early childhood 42% (22/53)
P.5.5 Programme countries in which at least 80% of children aged 36–59 months have been engaged in activities with an adult to promote learning and school readiness	31% (16/52) (2005–latest)	60% (31/52)
P5.6 Number and percentage of all partners-targeted children in humanitarian situations accessing formal or non-formal basic education ('reached')	Not available	At least 80% of targeted population
P5.7 Percentage for education in global humanitarian funding	1.9% (2013)	At least 10% of targeted population

Output indicators	Baseline	Target
OUTPUT A: Enhanced support to communities with disadvantaged and excluded children to start schooling at the right age and attend regularly		
P5.a.1 Countries with functional school management committees at primary and secondary level	51/136	115/136
P5.a.2 Countries in which the Education Management Information System feeds finding back to communities or school management committees	30/125	102/125
OUTPUT B: Increased national capacity to provide access to early learning opportunities and quality primary and secondary education		
P5.b.1 Countries with innovative approaches at scale to improve access to education and learning outcomes for the most disadvantaged and excluded children	43/134	98/134

Output indicators	Baseline	Target
P5.b.2 Countries with quality standards consistent with child-friendly schools/education or similar models developed or revised	54/136	125/136
P5.c.1 Countries with well-functioning student learning assessment system, especially for early grades	60/136	117/136
P5.c.2 Countries with effective early learning policies and quality early learning programmes	54/135	111/135
P5.c.3 Countries with an education sector plan/policy that includes risk assessment and risk management	23/105	80/105
OUTPUT D: Increased country capacity and delivery of services to ensure that girls and boys have access to safe and secure forms of education and critical information for their own well-being in humanitarian situation		
P5.d.1 Number and percentage of UNICEF-targeted children in humanitarian situations accessing formal or non-formal basic education ('reached')	59% Reached: 5,980,443 Targeted: 10,209,33	At least 80% of targeted population
P5.d.3 Countries in humanitarian action where country cluster or sector coordination mechanism for education meet the Core Commitments for Children standards for coordination	29/32	32/32
OUTPUT E: increased capacity of governments and partners, as duty bearers, to identify and respond to key human rights and gender equality dimensions of school readiness and performance		
P5.e.1 Countries with gender parity (between 0.97 and 1.03) in lower secondary education	48/128	60/128
P5.e.2 Countries with Education Management Information Systems providing disaggregated data that allow identification of barriers and bottlenecks that inhibit realization of the rights of disadvantaged children	47/134	121/134
P5.e.3 Countries with policies on inclusive education covering children with disabilities	52/135	119/135
P5.e.4 Countries with an education sector policies or plans that specify prevention and response mechanisms to address gender-based violence in and around schools	30/107	78/107
OUTPUT F: Enhanced global and regional capacity to accelerate progress in education		
P5.f.1 Number of key global and regional education sector initiatives in which UNICEF is the co-chair or provides coordination support	18	20
P5.f.2 Number of peer-reviewed journal or research publications by UNICEF on education	0	5

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