

Strategies for Sustainable Financing of Secondary Education in Sub-Saharan Africa



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Keith M. Lewin

Secondary Education in Africa (SEIA)
Africa Region Human Development Department



THE WORLD BANK
Washington, D.C.

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Manufactured in the United States of America
First Printing: February 2008



printed on recycled paper

1 2 3 4 5 11 10 09 08

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ISBN-13: 978-0-8213-7115-2

eISBN: 978-0-8213-7116-9

ISSN: 1726-5878

DOI: 10.1596/978-0-8213-7115-2

Cover photo by Jacob Bregman (Mengo Secondary School, Kampala, Uganda, July 2007)

Library of Congress Cataloging-in-Publication Data

Lewin, Keith.

Strategies for sustainable financing of secondary education in Sub-Saharan Africa / Keith M. Lewin.

p. cm. — (Working paper series)

ISBN-10: 0-8213-7115-0

ISBN-13: 978-0-8213-7115-2

ISBN-13: 978-0-8213-7116-9 (e-book)

1. Education, Secondary—Economic aspects—Africa, Sub-Saharan. 2. Education, Secondary—Africa, Sub-Saharan—Finance. 3. Sustainable development—Africa, Sub-Saharan. I. Title.

LC67.58.A357L48 2008

379.1'130967—dc22

2007047632

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Foreword

The role of education and human capital in promoting the growth of economies and improvements in human well-being is broadly recognized. The contribution of primary education is well documented. Recent research findings also highlight the significant additional contributions to economic growth and social outcomes that secondary education and training can make. Conversely, sustained economic growth is essential if the resources necessary for accelerated secondary education development are to be mobilized.

Economies in Africa grew about 6 percent annually over the past few years, as the benefits from reforms and a more peaceful environment play out in expanded economic activity. The World Bank's Africa Region Action Plan aims to accelerate progress toward the Millennium Development Goals (MDGs), based on economic growth. This includes the achievement of universal primary education of good quality, which is well underway in many SSA countries. Growing numbers of primary graduates are knocking at the doors of junior and senior secondary education schools. The challenge is not only in the quantity of participation, but also in the quality and relevance of what is taught and learned.

The Secondary Education and Training in Africa (SEIA) study program is an initiative of the Africa Human Development Department (AFTHD) and is led by Jacob Bregman (Lead Education Specialist). The SEIA program aims to assist countries to develop sustainable strategies for expansion and quality improvements in secondary education and training. In cooperation with education teams from Sub-Saharan countries and international institutions, the SEIA program produced eight thematic studies and a Synthesis Report in 2007. These studies were discussed at regional SEIA conferences (Uganda in 2003, Senegal in 2005, and Ghana in 2007), in which over 38 countries participated. All SEIA reports are available at www.worldbank.org/afr/seia.

This thematic study discusses "*Strategies for sustainable financing of secondary education in Sub-Saharan Africa*." It was compiled by Professor Keith Lewin from the University of Sussex, with national teams from Sub-Saharan countries. The report provides insight into options for financing the expansion of secondary education and training in Africa. This comes with a hefty price tag and points to the need to undertake fundamental reforms swiftly. The messages are clear: secondary education and training in Sub-Saharan Africa faces the challenge of improved efficiency and improved quality simultaneously with a fast growing demand. Sustainable financing will also require more effective Public-Private Partnerships, because governments have many priorities and do not have a lot of room for significant additional public funding of post-primary systems. Hopefully, this report will make a timely and useful contribution.

Yaw Ansu

Director, Human Development Department
Africa Region
The World Bank

Acknowledgments

This SEIA thematic report was produced by Professor Keith Lewin (University of Sussex, Centre for International Education, UK), who also directed the country-case studies (which are provided on CD with this publication). This thematic report deals with “*Strategies for sustainable financing of secondary education in Sub-Saharan Africa.*” It was prepared on a contract-basis for the SEIA Program of the Africa Human Development Department (AFTHD) in the World Bank.

A draft version of this report was presented and discussed at the SEIA Regional Conference in Dakar, Senegal in June 2005 with representatives from African country teams and international development partners. The final draft report was reviewed by international education specialists. In addition, Jacob Bregman (Lead Education Specialist and SEIA Team leader, AFTHD) and Adriaan Verspoor (Senior Education Specialist, SEIA) provided extensive comments during several rounds of review.

The report benefited from the following country-case studies:

- (1) Cost and financing of secondary education in Benin: a situational analysis; by Djibril Debourou, Aimé Gnimadi, Françoise Caillods, and K. Abraham;
- (2) Cost and financing of secondary education in Ghana; by K Akyeampong;
- (3) Cost and financing of secondary education in Zambia; by Paul Bennell, with Gideon Bulwani, and Moses Musikanga.

This SEIA thematic study was co-financed by the Norwegian Education Trust Fund (NETF), which is gratefully acknowledged.

Many people commented on drafts, on parts of this work presented at Conferences and Seminars, and in conversation. I am grateful to all those who assisted in many different ways including Kwame Akyeampong, Richard Arden, Paul Bennell, Desmond Bermingham, Jo Bourne, Jacob Bregman, Gideon Bulwani, Albert Byaugisha, Françoise Caillods, Djibril Debourou, Leon Filmer, Aimé Gnimadi, Don Hamilton, Keith Hinchliffe, Richard Johanson, Sachiko Kataoke, David Levesque, Angela Little, Paud Murphy, Moses Musikanga, Harriet Nanyonjo, Susy Ndaruhutse, Mamadou Ndoeye and colleagues associated with ADEA, Yusuf Nsubuga, Robinson Nsumba-Lyazi, Pai Obanya, Pauline Rose, John Rutaisire, Yusuf Sayed, Harvey Smith, Adrian Verspoor, Michael Ward, Claver Yisa, and others too numerous to list. Kasha Klosowska (Education Specialist, SEIA, World Bank) assisted in making the final draft report ready for publication. My thanks also go to many other staff of Ministries of Education in Benin, Ghana, Tanzania, Rwanda, Uganda, and Zambia, and in country offices of the World Bank and DFID, who assisted with the case studies and projections.

Keith Lewin
University of Sussex

Acronyms and Abbreviations

ADEA	Association for the Development of Education in Africa
APU	academic production units
BECE	Basic Education Certificate Examination
BEPC	First Level Elementary Certificate
BESA	Socio-administrative Capital Budget
BESSIP	Basic Education Sub-Sector Investment Programme
CE	elementary course
CEE	Common Entrance Examination
CEG	General Education Middle Schools
CEP	Primary Study Certificate
CM	middle course
CP	introductory or preparatory course
CPU	University Technical College
CSO	Central Statistical Office
CTIS	Specialized Intervention Technical Commissions
DEO	District Education Office
DHS	Demographic and Health Surveys
DPP	Department of Programming and Prospective
ECZ	Examination Council of Zambia
EFA	Education for All
EGE	Education Convention
EMIS	Education Management Information System
ERRC	Education Reform Review Committee
FTI	Fast Track Initiative
GA	grant-aided
GAR	gross attendance rate
GDP	gross domestic product
GECs	general education middle schools
GER	gross enrollment ratio
GER1	gross primary enrollment rate
GER2	gross secondary enrollment rate
GER2L	gross lower-secondary enrollment rate
GER2U	gross upper-secondary enrollment rate
GES	Ghana Education Service
GET	Ghana Educational Trust
GLSS	Ghana Living Standards Survey
GOG	Government of Ghana
GPI	gender parity index
GPI1	gender parity index at primary level
GPI2	gender parity index at secondary level
GRZ	Government of the Republic of Zambia
HDI	Human Development Index

HIPC	Heavily Indebted Poor Countries
HS	high school
INFRE	National Institute for Training and Research in Education
JSS	junior secondary school
KIE	Kigali Institute of Education, Rwanda
LCMS	Living Conditions Monitoring Survey
MDGs	Millennium Development Goals
MENRS	Ministry of National Education and Scientific Research
MEPS	Ministry of Primary and Secondary Education
METEP	Ministry of Technical Education and Professional Training
MOE	Ministry of Education
MOESS	Ministry of Education, Science and Sports
MOYES	Ministry of Education, Youth, and Sports
NAR	net attendance rate
NEF	national education reform
NER	net enrollment rate
NGO	nongovernmental organization
NICT	new information and communication technologies
NTC	national teacher college
OPM	Oxford Policy Management
PASE	Education Sector Support Project
PIP	public investment programme
PNDC	Provisional National Defence Council
PPET	postprimary education and training
PRSP	Poverty Reduction Strategy Paper
PSLE	primary school selection and leaving examination
PTA	parent-teacher association
PTR	pupil-teacher ratio
RGPH	General Population and Housing Census
SC	school certificate
SEDP	Secondary Education Development Programme
SEIA	Secondary Education in Africa
SP	Strategic Plan
SSA	Sub-Saharan Africa
SSS	senior secondary school
STA	agricultural sciences and techniques
STAG	administrative and management sciences and techniques
STBS	biological and social sciences and techniques
STI	industrial sciences and techniques
TEVETA	Technical Education, Vocational and Entrepreneurship Authority
TTC	teacher training college
TVE	technical and vocational education
TVET	technical and vocational education and training
UB	upper basic
UCS	unit cost study
UIS	UNESCO Institute of Statistics

UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Children's Emergency Fund
UNPD	United Nations Development Programme
UNPF	United Nations Population Fund
UNZA	University of Zambia
UPE	universal primary enrollment
USAID	United States Agency for International Development
VTET	vocational and technical education
WAEC	West African Examinations Council
WAEMU	West African Economic and Monetary Union

Executive Summary

Secondary schools in Sub-Saharan Africa (SSA) enroll just 25 million of the region's 93 million children of secondary-school age—and many of them attend irregularly and fail to complete lower-secondary school. For the region as a whole, less than one-third of the cohort enrolls in upper-secondary grades. In 35 countries the secondary gross enrollment rate (GER2) is less than 40 percent; in 15 countries it is less than 20 percent.

The gap in secondary enrollment rates between SSA and other developing regions increased between 1990 and 2000, though it is slowly beginning to narrow. In 2002 the average for SSA (25 percent) was well below that for South and Southwest Asia (52 percent), the Middle East and North Africa (60 percent), East Asia and the Pacific (65 percent), and Latin America and the Caribbean (83 percent). This gap is likely to have serious consequences for competitiveness and economic growth. The Association for the Development of Education in Africa (ADEA), many national governments and bilateral development agencies, and the World Bank now recognize that increased enrollment in secondary schooling is a priority for much of SSA.

Educational reforms are needed to expand enrollment in secondary schooling in affordable ways. These reforms will contribute to poverty reduction by increasing the levels of knowledge, skills, and capability; diminishing inequalities in access that limit social mobility and skew income distribution; and contributing to the achievement of the Millennium Development Goals (MDGs) that relate to education.

Secondary schooling in low-enrollment countries is expensive relative to per capita GDP. As a proportion of the number of working-age adults who can generate the revenue to finance schools, the number of school-age children in the region is high. Efficiency and effectiveness gains are

needed to reduce the costs per pupil to levels that allow mass enrollment and to promote knowledge and skill that can reduce poverty and support economic growth. Greater budgetary prioritization of investment in secondary schooling and increased assistance is needed to transform prospects for growth, improve equity, and diminish poverty.

MAPPING NEEDS

Policy makers in the region need to review policy and practice for secondary schooling for six main reasons:

1. *The output of primary school systems is set to at least double over the next 10 years in low-enrollment countries, as universal primary enrollment and completion is approached.* Transition rates into lower-secondary school will fall unless access to lower-secondary schooling is expanded. Mass enrollment will require new methods of financing that allow children from poorer households to enroll in school.
2. *Meeting the education-related MDGs requires increasing secondary enrollment.* Achieving universal primary enrollment requires an adequate flow of qualified secondary-school graduates into primary teaching. Ensuring this flow will be difficult where secondary enrollment rates are low. Achieving universal primary enrollment also depends on sustained demand for primary schooling, which will falter if transition rates into secondary school fall.

The MDGs also commit countries to achieve gender equity in primary and secondary schooling. The evidence from SSA makes it clear that this is rarely achieved where GER2 does not exceed 50 percent. Central problems are persistent differences in enrollment in grade 1 between boys and girls and over-age enrollment in higher grades, which disadvantages girls more than boys.

3. *HIV/AIDS has decimated the active labor force and undermined prospects for economic growth in some SSA countries.* The evidence suggests that people with secondary schooling are at less risk than those with lower levels of educational achievement, both because they are in school and because they are likely to be more receptive to health education messages. Violent conflict has seriously degraded capabilities in some countries. Both causes have reduced human capital, which has to be replenished if prospects for recovery are to be realized.
4. *Poverty reduction will stall unless increases in enrollment are accompanied by greater equity.* Successful completion of secondary school is becoming the major determinant of life outcomes in much of SSA.

In low-enrollment countries, few children from households outside the top income quintile attend secondary school. In some countries, most students enter primary school, independent of household income. In other countries, wide disparities begin in grade 1. For SSA as a whole, children from the richest quintile are 11 times more likely to be enrolled in grade 9 than those from the poorest quintile. This exclusion must be reversed if national pools of talent are to be fully accessed, equality of educational opportunities is to improve, and social mobility out of poverty is to be available to larger proportions of the population.

5. *Competitiveness, especially in high value-added and knowledge-based sectors of the economy, depends on knowledge, skills, and competencies associated with abstract reasoning, analysis, language and communication skills, and the application of science and technology.* These assets are acquired most efficiently through secondary schooling. Greater economic growth is associated with balanced patterns of public educational investment. Countries that have grown fastest have more-balanced patterns of investment across different levels of education than those with heavily skewed distributions, and they have higher secondary enrollment levels at early stages of their growth.
6. *Curriculum reform at the secondary level is essential, both because it has been widely neglected and because expanded access will enroll children with different learning needs and capabilities.* Increasing enrollment without ensuring that learning and teaching are more relevant, effective, and efficient will not meet the needs of students. It may result in increased failure rates in examinations and create more problems than it solves.

Increased secondary enrollment within current cost structures is severely constrained. Low-enrollment countries in the region allocate relatively small amounts of public expenditure to secondary education (sometimes less than 10 percent). In these countries, where the average GER2 can be less than 15 percent, increasing enrollment to, say, 60 percent without cost-cutting reforms would require at least a quadrupling of allocations to secondary education. Increases of this magnitude are not plausible, especially where Education for All (EFA) and Fast Track Initiative (FTI) commitments protect spending on primary education.

Public expenditure per pupil at the lower-secondary level averages about three times that at the primary level and about six times that at the upper-secondary level. These ratios may be several times higher for specialized technical and vocational institutions. Cost per pupil averages at least 30 percent of per capita GDP for lower-secondary and 60 percent of

per capita GDP for upper-secondary school. In low-enrollment countries, the cost of a secondary school place may be as much as 100 percent of per capita GDP and more than 10 times as much as a place at primary school.

These costs mean that substantial increases in access will be difficult to finance in a sustainable way without reforms. Relative costs per pupil will have to fall to levels closer to those found in high-enrollment countries, where secondary places usually cost less than twice as much as primary places. Costs per pupil will have to fall toward 20 percent of per capita GDP at lower-secondary and 40 percent at upper-secondary schools. Investment in secondary schooling as a proportion of national education budgets will have to increase if the development gains associated with expansion are to be achieved.

THE CONTEXT FOR EXPANDING ENROLLMENT

Education systems in SSA are diverse. Most countries maintain a six-year primary cycle (the range is four to eight years). Secondary schooling varies in length from four to seven years, including three or four years of lower-secondary and two or three years of upper-secondary school. The complete school cycle is 12 years in 22 countries, 13 years in 20 countries, and 11 years in 4 countries. An increasing number of countries are moving toward defining three- or four-year lower-secondary school as part of a basic education cycle. This diversity generates different cost structures. Longer systems with longer secondary cycles will be more expensive to expand.

In most of the region, the number of children admitted to secondary education is limited by the number of places available and the direct costs of enrollment to households, not by primary-leaving examinations. Supply-side constraints are most prominent in the lowest-enrollment countries. Demand-side constraints increase in importance as enrollment rates grow. Admissions policy, which determines selection into secondary schools, is varied. Some countries operate quotas to ensure representation from marginalized groups. Others use criteria designed to maintain the character of schools (imposing, for example, faith-related conditions). Some systems are centralized; others localized or school based. Managing the flow of new students into expanded secondary schooling is critical to planned growth, especially if it is to increase equity and reduce exclusion related to poverty.

Demographic conditions vary widely across the region. The number of school-age children is growing at an average rate of about 2 percent a year in SSA, ranging from -1.4 percent to more than 5.0 percent a year. The school-age population ranges from less than 20 percent of the population in some countries to nearly 40 percent in others, where it can be as large

as the active labor force. Demographic transition to low population growth (less than 1 percent) has occurred in some countries, but high growth (of more than 3 percent) continues in others. In some countries, normal patterns have been severely affected by HIV/AIDS and conflict. For the region as a whole, the primary school-age population is set to increase by about 35 percent, from an estimated 207 million in 2001 to 280 million in 2015. The number of lower-secondary-school-age children will increase from about 49 million to 66 million, with the number of upper-secondary-school-age children rising from 45 million to 61 million.

Universal primary enrollment is likely to require a gross primary enrollment rate (GER1) of 110 percent in much of the region (to account for modest levels of repetition and over-age enrollment). Without increases in the size of the population, achieving GER1 of 110 percent would require increasing the number of primary places by about 30 percent over the 2001 level. If the school population continues to grow at current rates, on average the number of places needed would have to rise by 80 percent by 2015. Achieving lower-secondary enrollment of 100 percent would require, relative to 2001, the number of places to increase by a factor of 4.0 immediately and by a factor of 5.6 by 2015. Achieving upper-secondary enrollment of 100 percent would require increasing the number of places by a factor of 10.9 immediately and 15.5 by 2015.

Increasing enrollment will require many new teachers if pupil: teacher ratios (PTRs) are not to increase significantly. Establishing PTRs of 40:1 at the primary, 35:1 at the lower-secondary, and 25:1 at the upper-secondary level and meeting enrollment targets of 100 percent for lower-secondary and 50 percent for upper-secondary school would require most countries in the region to increase the number of teachers by more than 10 percent a year every year until 2015. In many countries, achieving this level of enrollment would require at least doubling teacher training output in the near future and in many cases much more. It would also require limiting the employment of public sector employees to recognize macroeconomic stability.

Five main conclusions emerge from the analysis in this volume:

1. The total number of primary places needs to increase by more than 30 percent between 2001 and 2015 in about 70 percent of the countries in the data set and much more in some low-enrollment countries.
2. Only 11 countries (Botswana, Cape Verde, Ghana, Lesotho, Mauritius, Namibia, São Tomé and Príncipe, the Seychelles, South Africa, Swaziland, Togo, and Zimbabwe) are likely to universalize lower-secondary education if the maximum sustainable rate of increase in lower-secondary enrollment is 10 percent a year. If the maximum rate is 5 percent, only

- five countries (Botswana, Cape Verde, Mauritius, the Seychelles, and South Africa) will achieve this goal.
3. Targets of less than 100 percent may have to be set for gross lower-secondary enrollment (GER2L) if they are to be achievable; these targets differ depending on countries' prioritization of increased access at the primary and secondary levels, available resources, and the costs of expansion.
 4. It will be difficult for most countries to maintain primary–secondary transition rates if all primary entrants complete the last year of primary school. Half the countries in the data set will not be able to maintain these rates unless lower-secondary enrollments grow at an average rate of 10 percent a year through 2015.
 5. GER2L can continue to rise if growth is planned to ensure this outcome, even if primary–secondary transition rates fall for a period.

PROFILING THE CHALLENGES FOR EXPANDING ENROLLMENT

Strategies for expanding access to secondary education depend on existing patterns of enrollment and the rate of progress toward target levels of enrollment. SSA countries fall into five broad groups:

- Group 1: High enrollment in primary and secondary school and low rates of repetition and dropout
- Group 2: Very high initial enrollment rates in primary school but high dropout and repetition and low completion rates, with low transition rates into secondary school and low secondary-school enrollment
- Group 3: High primary-school entry rates and moderate levels of repetition, dropout, completion, and secondary-school enrollment
- Group 4: Less than universal primary-school entry rates and low primary- and secondary-school enrollment rates
- Group 5: Very low primary-school entry rates and very low enrollment through primary and secondary school.

No one strategy of investment will suit all countries or country groups. Policy has to clearly prioritize investment at different levels to reflect national development strategies to achieve universal primary enrollment and expand secondary enrollment (table 1). Most countries will not be able to afford substantially expanded secondary enrollment without increasing the total budget envelope available to the education sector, increasing the share of that expenditure allocated to the secondary-school subsector, and implementing cost-saving reforms that reduce costs per pupil and increase efficiency.

Table 1 Challenges for Expanding Secondary Education, by Country Group

Group	Description	Countries	Prognosis
1	High GER1, high GER2L and GER2U, low attrition. High participation rates at all levels and low population growth. Mostly higher-income countries.	Botswana, Mauritius, Namibia, Seychelles, South Africa, Swaziland Zimbabwe ^a	Secondary expansion needed is modest and likely to be well within domestic resources. Future investment needed in quality improvement and improved age-grade progression with lower repetition.
2	Very high GER1, very low GER2L and GER2U, high attrition. High over-enrollment in grade 1, high dropout and low primary completion rates. Low transition to secondary school.	Madagascar, Malawi, Mozambique, Rwanda, Tanzania, Uganda	Urgent need to improve on-age enrollment rates in grade 1 and reduce repetition and attrition through the primary grades. Secondary expansion is initially limited by the small number of primary graduates. Transition rates into secondary are likely to fall as larger numbers of primary entrants flow through to the last grade of primary school. Financing of secondary expansion is problematic, even with cost-saving reforms. Strategic planning is needed to balance secondary expansion with continuing needs to improve primary-school quality and completion rates.
3	High GER1, moderate GER2L and GER2U, moderate attrition. Moderate primary completion rates and transition to secondary school.	Benin, Cameroon, Lesotho, Nigeria, São Tomé and Príncipe, Togo	Substantial progress toward universalizing primary education. It will be difficult to maintain transition rates into secondary if primary completion rates increase. Secondary expansion is needed to enroll more than 50 percent of students through lower-secondary school. Financing of secondary expansion is feasible but requires reforms.
4	Moderate GER1, low GER2L and GER2U, moderate attrition; GER1 below 100, with substantial numbers not enrolling in or completing primary school. Moderate attrition reflects low initial enrollment and high repetition and dropout rates. Transition rates are moderate, but participation in secondary school is low.	Comoros, the Democratic Republic of Congo, Côte d'Ivoire, The Gambia, Ghana, Kenya, Zambia	Primary entry and completion rates require investment and reforms. Substantial secondary expansion is needed to reach 50 percent GER2L. Financing of secondary expansion is challenging and competes with need for more investment to increase GER1. Balanced growth strategies needed to improve primary participation and completion rates alongside affordable expansion of lower secondary education.

(continued)

Table 1 Challenges for Expanding Secondary Education, by Country Group (continued)

Group	Description	Countries	Prognosis
5	Low GER1, very low GER2L and GER2U, moderate attrition, reflecting low entry rates and high repetition and dropout rates; very low secondary-school participation.	Burkina Faso, Burundi, Chad, Eritrea, Ethiopia, Guinea, Guinea-Bissau, Mali, Niger, Senegal, Tanzania	Priority remains to increase primary participation and completion rates. Secondary expansion limited by numbers of successful primary completers. Massive expansion needed to reach 50 percent GER2L; effort may be premature. Balanced growth strategies needed to improve primary participation and completion rates alongside affordable expansion of lower-secondary education.

Source: Author.

a. Zimbabwe's position may have changed since 2001, as a result of austerity and migration.

THE RESOURCES NEEDED

The financial resources needed to support expanded access depend on the targets set for enrollment. For much of low-enrollment SSA, GER1 of 110 percent, GER2L of 60 percent, and gross upper-secondary enrollment (GER2U) of 30 percent are appropriate initial targets for 2015. Achieving these targets would support universal primary enrollment and increase secondary-school enrollment significantly.

The implications of increasing enrollment to these levels are modeled for 45 countries, using demographic and enrollment data linked to existing primary- and secondary-school systems. Costs per pupil are set at 12 percent of per capita GDP for primary school, 30 percent for lower-secondary school, and 60 percent for upper-secondary school. Higher education and other education subsectors are assumed to consume 20 percent of total public education spending.

On average, 2.3 percent of GDP is needed to support primary school, 1.5 percent is needed to support lower-secondary school, and 1.2 percent is needed to support upper-secondary schooling at the projected enrollment rates across low-income SSA. This level of spending is equivalent to about \$3.7 billion, \$2.4 billion, and \$2.0 billion a year in 2001 and \$5.0 billion, \$3.2 billion, and \$2.7 billion (in constant 2001 dollars) in 2015 (taking into account the growth in the number of school-age children). Total expenditure on education would need to be about 6.3 percent of GDP on average to sustain systems with a GER1 of 110 percent, GER2L of 60 percent, and GER2U of 30 percent. This level of spending is equivalent to about \$10.2 billion in 2001 and \$13.5 billion by 2015 if higher education is included.

Educational expenditure in low-income countries in the region averaged about 3.9 percent of GDP in 2004, equivalent to \$6.4 billion for countries with per capita GDP below \$1,500. This is about \$3.8 billion less than needed to sustain systems with the targeted enrollment rates. Angola, Côte d'Ivoire, Cameroon, Madagascar, Nigeria, Senegal, Tanzania, and Uganda account for more than 70 percent of the \$3.8 billion in additional spending required.

Several countries are developing plans to universalize lower-secondary education. The projections were therefore rerun to establish the effect of targeting GER1 of 110 percent, GER2L of 100 percent, and GER2U of 50 percent. The results suggest that on average, 2.3 percent of GDP needs to be allocated to primary, 2.6 percent to lower-secondary, and 2.0 percent to upper-secondary schooling. This is equivalent to about \$3.7 billion, \$4.1 billion, and \$3.3 billion a year in 2001 and \$4.9 billion,

\$5.4 billion, and \$4.5 billion in 2015. Total expenditure on education would need to be about 8.6 percent of GDP on average, equivalent to about \$13.9 billion in 2001 and \$18.5 billion in 2015. This is about \$7.5 billion more than was spent in 2002.

This method of indicating the additional recurrent financial resources needed compares what would be necessary with what is currently allocated across all education sectors. Individual countries may not be allocating resources to primary, lower-secondary, and upper-secondary education in the proportions they need to achieve a GER1 of 110 percent, GER2L of 60 percent, and GER2U of 30 percent. In the data set, nine countries are already spending as much or more than they need to support the target enrollment rates, but not all of them are achieving the desired outcomes, because of unbalanced expenditure allocation patterns.

If packages of cost-saving and efficiency reforms could reduce recurrent costs per pupil to 12 percent of per capita GDP at the primary, 20 percent at the lower-secondary, and 40 percent at the upper-secondary level, the amounts needed for education would fall to about 5 percent of GDP and the recurrent shortfall to about \$1.5 billion a year. If the higher enrollment targets are used, 6.3 percent of GDP would be needed, with a recurrent shortfall of about \$3.8 billion a year. These estimates assume substantial reductions in the costs of higher education and other recurrent expenditures, from 20 percent to about 15 percent of the total education budget. These lower cost levels imply dramatic reductions in expenditure per secondary-school student, especially in low-enrollment countries. Efficiency gains of this magnitude would take several years to achieve and may be beyond reach in the short term.

These costs are for recurrent expenditures only. The development costs needed across SSA to support expanded enrollment lie largely in the construction of buildings and classrooms. At \$10,000 per classroom, about \$39.2 billion would be needed to reach GER1 of 110 percent, GER2L of 60 percent, and GER2U of 30 percent, of which \$18.9 billion would be for secondary-school expansion. Alternatively, if estimates of 20, 30, and 40 times per capita GDP are used as the cost per primary, lower-secondary, and upper-secondary classroom, \$18.5 billion would be needed (\$14.8 billion for secondary school alone). These costs are projected over the period 2002–15 and thus would amount to nearly \$3 billion a year (more if incurred over a shorter period). If higher enrollment rate targets are chosen (GER2L of 100 percent and GER2U of 50 percent), \$20.4 billion would be needed for primary-school, \$20.3 billion for lower-secondary, and \$17.8 billion for upper-secondary school expansion, totaling \$58.5 billion by 2015, or at least \$4 billion a year, using the \$10,000 per classroom figure.

Other development costs are impossible to estimate without detailed information on particular systems. In 2001/02 about 25 million pupils were enrolled in secondary school in the region. By 2015 this number is projected to rise to nearly 50 million if a GER2 of 60 percent and GER2U of 30 percent are achieved. If four books are provided at an average cost of \$5, books last five years, and the book per pupil ratio is 2:1, the cost of books would be at least \$1.1 billion. At the primary level, enrollment is projected to rise from about 90 million in 2001/02 to 130 million in 2015. Providing every student with a \$10 set of textbooks would cost about \$1.7 billion a year. These are very rough estimates, but they give some indication of the magnitude needed. The amounts needed could easily be doubled with higher enrollments and shorter book life. Thus, other development costs for primary and secondary school are on the order of \$2.8 billion a year.

In summary, without cost-reducing reforms, universalizing primary education and achieving GERs of 60 percent for lower-secondary and 30 percent for upper-secondary school would require additional recurrent and development costs of about \$10 billion a year. Achieving GERs of 100 percent at the lower-secondary and 50 percent at the upper-secondary level would require as much as \$15 billion a year. Radical reforms that reduce costs per pupil by as much as 33 percent at the secondary level but leave costs per pupil at the primary level unchanged would result in shortfalls in funding of about \$7 billion a year (\$11 billion if the higher enrollment targets are chosen). These shortfalls would have to be met from a combination of increased allocation to education as a share of GDP and from external assistance.

OPTIONS FOR REFORMS

A wide range of options could increase enrollment at affordable costs (table 2). The contribution each option can make is system specific and depends on starting points, political will, and financial and nonfinancial constraints on growth. Prioritization will also be influenced by the existing patterns of enrollment at different levels and the distances students need to travel if target enrollment levels are to be met.

Countries with low secondary-school enrollment need to reconsider policy in 11 areas: reallocating resources for education, changing education structures, containing recurrent costs, improving the flow of students, improving teacher deployment and utilization, enhancing school management, reinforcing curricula, reforming teacher education, improving facilities and buildings, increasing cost recovery, and utilizing nongovernment providers (table 2). Each of these areas invites policy review and presents opportunities to introduce reforms that could make expanded enrollments more affordable and likely to be sustained.

Table 2 Summary of Affordable Options for Expanding Secondary Education

Strategy	Options
Reallocate budget resources	<p>Increase share of GDP allocated to education toward 5 percent of GDP.</p> <p>Increase education's share of public expenditure toward 25 percent.</p> <p>Increase share for secondary to more than 30 percent of total education spending.</p> <p>Agree on secondary-sector development plans with development partners, and seek additional support.</p>
Make structural changes	<p>Shorten the length of the education cycle to 12 years where it is longer; consider 6:3:3 or 6:4:2 systems.</p> <p>Extend primary schools to include lower-secondary grades on the same school site.</p> <p>Increase average secondary-school size to 500 or more where population density allows. Limit the range of optional subjects. Develop multigrade teaching methods for small schools.</p> <p>Expand lower-secondary enrollment before upper-secondary; retain selection into upper-secondary school.</p> <p>Double-shift schools in high population density areas.</p> <p>Limit boarding schools to low-population areas, and increase the proportion of day schools. Progressively withdraw boarding subsidies, with safeguards for disadvantaged groups.</p> <p>Limit high-cost technical and vocational schools to upper-secondary level. Locate specific job-related training close to or in work places. Identify and support essential upper-secondary specialized institutions.</p>
Contain recurrent costs	<p>Review salary structures in relation to local labor markets and productivity. Move toward salary costs of 3.5, 4.5, and 6.0 times GDP per capita for primary, lower-secondary, and upper-secondary teachers. Review nonsalary benefits to provide incentives in difficult areas.</p> <p>Review nonteaching salary expenditure, which can account for up to 40 percent of salary budgets; redeploy qualified staff back into the classroom as teachers. Establish norms for secondary nonteaching salary budgets, constraining it to less than 20 percent of total recurrent expenditure in day schools.</p> <p>Review nonsalary costs if they represent more than 20 percent of total costs. Protect learning material expenditure. Consider replacing flat-rate subsidies for food, books, and other items with needs-based subsidies. Establish norms for nonsalary costs of less than 15 percent of total recurrent expenditure in day schools.</p> <p>Develop norm-based funding systems (related to pupil, teacher, and school characteristics) to increase efficiency and equity; provide pro-poor subsidies to improve access. Develop effective capitation grant systems for nonsalary expenditure.</p> <p>Develop quality improvement grant systems.</p>

Table 2 (continued)

Strategy	Options
Improve the flow of students	<p>Reduce repetition rates to less than 5 percent. Introduce management incentive systems that reward higher achievement and lower repetition. Reduce the range of ages within grades to less than two years.</p> <p>Identify reasons for dropout and act accordingly. Reduce barriers to enrollment, improve the attractiveness of curricula, ensure safety, support school feeding, and identify effective incentives to remain enrolled.</p> <p>Reduce direct costs to poor households. Rather than provide universal fee-free secondary education, use means-tested fee waivers and scholarship schemes. Discourage elite capture of subsidies, including by locating fee waivers and scholarships in low-fee schools and using selection quotas linked to poverty indicators.</p> <p>Adopt measures to monitor and improve attendance to ensure that learning opportunities are maximized. Make schools more child friendly and child seeking (i.e., more accountable for ensuring attendance and proactive in following up children out of school).</p> <p>Improve the reliability and validity of selection examinations. Consider automatic promotion within primary and lower-secondary cycles. Reduce incentives and limit opportunities to retake selection examinations. Integrate measures to improve flows into school management systems.</p>
Improve teacher deployment and utilization	<p>Increase pupil: teacher ratios (PTRs) to a maximum of 40:1 in lower-secondary and 35:1 in upper-secondary schools.</p> <p>Reduce teacher: class ratios in secondary school to less than 2:1. Use more-efficient timetabling and grouping.</p> <p>Monitor variation in school inputs and performance indicators. Use formula funding to reduce variance across schools on PTRs, proportion of untrained teachers, class: teacher ratios, and textbooks per student. Aim to restrict variations in indicators to 10 percent of the average for all schools.</p> <p>Encourage recruitment of lower-cost teachers within career structures that allow development and promotion. Extend use of experienced teachers by using team teaching, parallel classes, and common lesson planning. Use experienced teachers to support less-experienced ones. Employ contract teachers strategically.</p> <p>Adopt more-flexible learning strategies, especially for older students, through peer learning, materials-based self-instruction, and conventional and information technology-based distance programs if they are cost-effective for learning outcomes.</p>
Enhance school management	<p>Review national, regional, district, and school-level allocation and spending procedures. Develop incentives for budget holders to increase efficiency, especially in relation to teacher deployment and other major cost drivers.</p> <p>Review conditions of service. Limit penalty-free casual leave. Reward continuous teacher attendance with bonuses.</p> <p>Increase student learning time through better classroom management and pedagogy. Monitor time on task through school and district supervision systems.</p>

(continued)

Table 2 Summary of Affordable Options for Expanding Secondary Education (continued)

Strategy	Options
Reform curricula	Review teaching workloads. Profile workloads of more- and less-qualified and experienced teachers. Distribute loads more evenly across staff, so that more-experienced teachers teach as much as less-experienced ones.
	Introduce core curricula at lower-secondary level with a restricted range of subjects. Identify core specializations at upper-secondary level. Design curricula that are more outcome based. Link upper-secondary curricula to opportunities in the labor market and higher education and training.
	Develop modularized learning to recognize attendance patterns of teachers and pupils. Ensure new curricula are teachable in small schools.
	Adopt multigrade approaches in small schools that are pedagogically effective and cost-efficient.
	Develop low-cost learning materials that are suited to new learners.
	Devise effective methods for distributing textbooks and other learning material, using the private sector where appropriate.
Reform teacher education	Invest in revolving textbook funds and encourage some cost recovery at affordable levels. Share learning material costs across several generations of pupils.
	Set entry qualifications at levels that provide an adequate supply of applicants. Encourage graduates to enter teaching directly; upgrade their skills with in-service training. Permit nontraditional routes into teaching.
	Reduce the length of initial teacher training. Increase opportunities for training on-the-job, mixed mode (college- and school-based training) training, and distance programs.
	Reduce training costs with more-efficient teaching methods. Increase trainee: staff ratios where they are low. Use teachers in schools as training associates. Increase college utilization throughout all months of the year.
Improve facilities and buildings	Train secondary teachers to teach two or three subjects, not one.
	Develop standardized school and classroom procurement systems. Design low-cost secondary schools.
	Explore multiuse designs for new buildings.
Increase cost recovery	Undertake school mapping exercises to locate new schools in areas of need.
	Identify specifications and needs for specialized facilities at upper-secondary level.
	Charge fees to those who can afford to pay, provide subsidies and waivers for those who cannot pay. Provide scholarships for low-income students.
	Reduce subsidies to high fee-charging government schools. Offer grants-in-aid to nongovernment schools that are partly self-financing and meet criteria for accountability and quality.
	Regulate nontuition fee costs in public schools, and make them transparent and accountable.

Table 2 (continued)

Strategy	Options
Use nongovernment providers	Develop mechanisms to fund learning materials with contributions from the community.
	Use full cost recovery for nonessential boarding.
	Encourage fundraising by parent-teacher associations, alumni, and school development societies to supplement nonsalary expenditure and fund additional teachers.
	Reduce subsidies on school meals, except where there is evidence of inadequate nutrition.
	Encourage parental and community contributions of labor for construction and maintenance, linked to systems of quality assurance.
	Encourage agricultural and workshop production.
	Charge for use of school facilities by community and other groups outside school hours.
	Levy marginal taxes on salaried employees, taxes on local production or sales, or both.
	Support low-interest loans to finance the private costs of schooling.
	Facilitate legitimate nongovernment providers within a clear legal and governance framework, with adequate registration and licensing, monitoring, quality assurance systems, and financial transparency. Direct subsidies to low-cost providers.
Regulate nongovernmental providers to protect the public interest. Discourage destructive interaction between public and private sectors (such as sharing teachers). Ensure accountability for public funds.	
Make low-cost and subsidized learning materials available to nongovernment schools, except those that charge high fees.	
Allow nongovernment teachers to participate in in-service training related to national curricula at subsidized costs.	

Source: Author.

DEVELOPING A ROAD MAP FOR EXPANDING SECONDARY EDUCATION

Education sector reviews should integrate investment strategies at the secondary level into their plans. Doing so requires national prioritization and realistic dialogues with development partners. It also assumes that Poverty Reduction Strategy Papers (PRSPs) include the links between investment in secondary education and general development objectives. National strategies for secondary expansion need to be developed that are pro-poor and make more-efficient and equitable use of public resources. A combination of new policies is needed to address systems in which participation rates are low, access is highly skewed to the relatively wealthy, primary–secondary transition rates are likely to fall as the number of primary leavers increases, and provision has high costs and internal inefficiencies. Costed plans for the development of secondary education have to be developed and must shape agreed Medium-Term Expenditure Frameworks that allocate resources. Expansion of secondary schooling at current cost levels has implications for budget shares that need systematic anticipation, policy consensus, and inclusion in annual finance bills.

Key questions for policy makers and planners include the following:

- Which subsectoral allocation patterns are most likely to result in achievement of the MDGs? How should the competing demands for investment at different levels be resolved?
- How should efficiency gains be achieved that will allow expansion at affordable levels of cost without unacceptable diminution of quality? Which aspects of school funding systems, teacher deployment, and non-salary expenditure might be most open to reforms that increase internal efficiency and learning effectiveness?
- How can cost-recovery systems be profiled to allow expansion with more equitable participation that is propoor? What are the limits of affordability that will constrain effective demand for secondary schooling as those who participate are drawn from lower-income households? What options might lessen the limits on access this imposes?
- To what extent are nongovernment providers willing and able to complement publicly subsidized secondary schooling in ways that are propoor, based on appraisals of current provision and likely future developments? What mechanisms can or should be used to subsidize nongovernment providers, bearing in mind the opportunity costs for public systems?

- How much development expenditure needs to be budgeted to service planned expansion and to replenish stock and infrastructure where they have been underfunded in the recent past?

Qualitative reforms are needed in the structure, content, and process of secondary schooling designed to meet the needs and capabilities of students drawn from a wide range of backgrounds. School leavers are entering changing labor markets, where new knowledge and skills are needed; increasing numbers will be employed outside the public sector.

WAYS FORWARD

Possible ways forward are likely to include most of the following elements. These generic suggestions need adapting to country circumstances.

A national coordinating body is needed to manage and develop secondary schooling. This body needs close articulation with planning for primary and postsecondary education. Where basic education includes lower-secondary school, a decision is needed on organizational location, overlapping responsibilities, and coordination with upper-secondary development. The coordinating body has to be closely linked to the Ministry of Finance so that it can work within realistic resource envelopes. It should also involve key stakeholders, including those with responsibilities for curriculum, teacher education, school building, production and distribution of learning materials, and examinations and selection. The body could also involve teachers unions, community representatives, and nongovernment providers.

A programmatic approach to the development of expanded access to secondary schooling is needed that depends on the formulation of short- (3–5 years) and medium- (5–10 years) term policy objectives specific to particular systems. These objectives need to specify goals, identify resource envelopes, and reconcile the two; identify gaps that may exist; and assess the key nonfinancial constraints on growth. This process is the basis for medium-term planning, which can be developed into an implementation strategy.

At least five other organizational capabilities are needed to generate coherent medium-term plans. These capabilities may be specially constituted or drawn from existing organizational capabilities. The groups include the following:

- *Finance and Planning Task Group.* Managed expansion depends on robust information about system characteristics, including school census data on flows of pupils, teacher deployment, school location,

and facilities, which can be used to project resource demands under different policy regimes. Such information can anticipate how expansion can and should evolve, profile liabilities arising from expansion, and identify choices that require policy dialogue.

- *Construction and Procurement Task Group.* Expanded capacity requires classroom and school building, organized in ways that maximize access and create durable structures to appropriate specifications in a timely manner. Nonfinancial constraints on growth may limit the rate at which capacity can be expanded. A construction and procurement task group would identify future needs and schedule construction in advance of the need for additional school places.
- *Curriculum Development Task Group.* Curriculum reform should be a rolling process designed to renew periodically learning specifications and material in a sequential way, based on consistent pedagogic principles. Core curricula, effective teacher education, and relevant teaching and learning have to build from systematic curriculum development.
- *Teacher Education Task Group.* To ensure the adequate supply of teachers, teacher training must be modified and adapted to the qualifications and competencies of new entrants. Curriculum reform to meet the needs of expanded groups of secondary pupils needs planned in-service support for existing teachers.
- *Educational Management Task Group.* School effectiveness is primarily a school management concern. Changed management practices will be needed to increase efficiency and effectiveness, improve the quality of learning, and ensure that expanded provision results in good educational outcomes. School financing and quality assurance mechanisms may also need reconfiguring.

Indicative benchmarks may be useful to develop appropriate targets and other guidelines to shape secondary expansion. A suggested list, based on the analysis in this volume, is shown in table 3.

CONCLUDING REMARKS

Expanding secondary enrollment in SSA will help the region meet the education-related MDGs and Dakar targets and close the education gap with other regions. The challenge for policy makers is to determine how to finance and manage this growth in ways that increase equity and efficiency and that recognize the nonfinancial constraints on enrollment growth. Increased enrollment also needs to improve the quality and relevance of education, so that graduates are better prepared to enter increasingly competitive national and international labor markets.

Table 3 Benchmarks and Indicators for Increasing Secondary Enrollment

Benchmark/indicator	Comment
<i>Service delivery indicators</i>	
Increase pupil: teacher ratios (PTRs) to no more than 40:1 in lower-secondary and 35: 1 in upper-secondary school.	Lower ratios increase costs and reduce access.
Reduce variation in PTRs across secondary schools to less than 10% of mean value for all schools.	Large variations in staffing ratios disadvantage pupils and reduce cost-effectiveness.
Raise teacher: class ratios to 1.5:1 in lower-secondary and 2:1 in upper-secondary schools.	Higher ratios indicate inefficient teacher deployment and excessively light teaching loads.
Set a minimum of 500 students per secondary school.	Smaller schools suffer diseconomies of scale. They have to have restricted curricula options and multigrade teaching to be cost-effective.
Increase secondary enrollments by 5 percent a year plus the rate of GDP growth.	Higher rates of growth are unlikely to be financially sustainable for more than a short period (three years or less) or manageable (because of lack of classrooms and other physical constraints).
Increase number of teachers by less than 10% a year.	Higher rates are unlikely to be sustainable.
<i>Gender indicators</i>	
Achieve gender parity in all grades.	GER2 must exceed 50% before gender parity is likely.
Reduce over-age enrollment among girls to less than 10%; reduce over-age entry in grade 1 to less than 5%.	Over-age enrollment results in higher rates of dropout and noncompletion among girls.
<i>Costs and finance</i>	
Reduce per pupil costs to 20%–30% of per capita GDP in lower-secondary school and 40%–60% in upper-secondary school.	Higher costs preclude mass access; lower costs allow more access within the same financial limits.
Contain the costs of technical and vocational education (TVET) at less than 1.5 times that of general secondary schools.	Where TVET costs per pupil are more than 50% more than general secondary schools, it is unlikely that the public benefits outweigh the costs.
Cap the ratio of lower-secondary: primary spending at less than 2:1 and the ratio of upper-secondary: primary at less than 4:1.	Higher cost ratios preclude mass access; lower ratios facilitate higher enrollment rates.

(continued)

Table 3 Benchmarks and Indicators for Increasing Secondary Enrollment (*continued*)

Benchmark/indicator	Comment
Where GER2L = 60% and GER2U = 30% are targeted, allocate at least 25% of the recurrent education budget to lower-secondary and at least 20% to upper-secondary (total allocation to secondary of at least 45%)	Benchmarks subject to cycle length and cost per student.
Where GER2L = 100% and GER2U = 50% are targeted, allocate at least 30% of the recurrent education budget to lower-secondary and at least 24% to upper-secondary (total allocation to secondary of at least 55%).	Benchmarks subject to cycle length and cost per student.
Allocate 2%–3% of GDP to secondary education.	Level depends on costs per pupil and enrollment rate targets.
Cap teacher salaries at less than five times per capita GDP for lower-secondary and less than six times per capita GDP for upper-secondary school.	Higher rates create unsustainable costs or require very high PTRs.
Cap nonteacher recurrent costs at less than 25% of total recurrent spending for lower-secondary and less than 35% of total recurrent spending for upper-secondary school.	Higher proportions restrict access by inflating costs per pupil; more day schools should reduce nonteacher costs.
Allocate at least 10% of recurrent costs to learning materials in lower-secondary school.	Lower allocations will result in low levels of textbook provision and compromise learning outcomes.
Allocate less than 10% of total expenditure to boarding schools.	Subsidized boarding should be provided only for students with no access to day schools.
Privately financed secondary schooling 25% unsubsidized private provision.	Unsubsidized good-quality schools cannot be financed from fees paid by households below top quartile of household income.
<i>Building costs</i>	
Allocate no more than \$10,000 per classroom for construction.	Subject to realistic local cost accounting
Adopt low-cost school designs that cost less than \$100,000 per four-classroom school.	Subject to realistic local cost accounting
<i>Teacher training</i>	
Keep teacher training costs below twice the cost of educating an upper-secondary school student.	Higher costs reduce the numbers of teachers that can be trained, with little evidence that more-expensive training is more effective.
Require that teachers have at least two more years of education than the level they teach.	Less than two years' additional education is likely to result in poor grasp of secondary curriculum content.
Provide no more than two years of training before employment.	Longer periods of preservice training are unlikely to be cost-effective.

Source: Author.

The role and magnitude of external support that should be committed to enhancing enrollment at the secondary level depends on a consensus about the importance of investment in the subsector. This consensus will be shaped by the length of time over which enrollment goals are to be met, the balance of existing domestic investment across education subsectors, and the priorities set for external assistance from multilateral and bilateral sources, which differ across countries.

Sustaining GER1 of 110 percent, GER2L of 60 percent, and GER2U of 30 percent across the region would require more than \$3.8 billion a year over existing allocations to recurrent expenditure on education (\$6.8 billion if higher enrollment targets are chosen). Another \$6–\$8 billion a year may be required for development expenditures, depending on the targets chosen. Some of these resources can come from domestic resources. In the poorest and lowest-enrollment countries, external assistance will be essential. The central issues are how to finance and manage this growth in ways that are more equitable and efficient; recognize the nonfinancial constraints on enrollment growth; and offer the prospect of improved quality, competence, and relevance to those who enter national and international labor markets.

The MDGs and Dakar goals will be met only through a balanced approach that recognizes that investment above the primary-school level interacts with the development of universal primary policies, that gender equity is more likely with higher rates of participation at the secondary level, and that finance and cost structures for secondary invite serious reform if there is to be much prospect of mass secondary participation. Expansion without attention to financial realities will jeopardize quality and achievement, generate disillusionment with the costs and benefits of postprimary schooling, and miss opportunities to close the educational achievement gap between SSA and other regions. The sustainability of EFA will depend on consistent economic growth. This is much more likely with the strategic development of secondary schooling than without it.

Résumé Analytique

INTRODUCTION

Les établissements scolaires en Afrique subsaharienne n'accueillent pas la plupart des 93 millions d'enfants en âge de fréquenter les établissements d'enseignement secondaire. Environ 25 millions d'entre eux sont officiellement inscrits dans des établissements scolaires et plusieurs les fréquentent de façon irrégulière et ne parviennent pas au terme du premier cycle de l'enseignement secondaire. Moins du tiers de ces enfants parviennent à s'inscrire dans les classes du second cycle. Trente-cinq pays d'Afrique subsaharienne présentent des taux d'inscription bruts dans l'enseignement secondaire (TIB2) inférieurs à 40%, et 15 de ces pays ont un taux de moins de 20%. L'écart entre les taux d'inscription bruts en Afrique subsaharienne et ceux des autres régions en développement s'est accru depuis 1990. La moyenne de 25% en Afrique subsaharienne est actuellement bien en deçà de celle des États arabes et des pays d'Afrique du Nord (60%), d'Asie du Sud et du Sud Ouest (52%), d'Asie de l'Est et du Pacifique (65%) et d'Amérique latine et des Caraïbes (83%). Il est fort probable que ce fossé grandissant ait des conséquences sur la compétitivité et la croissance économique en Afrique subsaharienne. L'Association pour le développement de l'éducation en Afrique (ADEA), bon nombre de pouvoirs publics des pays et d'institutions bilatérales de développement ainsi que la Banque mondiale acceptent aujourd'hui qu'une plus grande fréquentation des établissements secondaires est une priorité pour la plupart des pays d'Afrique subsaharienne.

Des réformes dans le domaine de l'éducation sont indispensables à l'extension de la fréquentation des établissements secondaires en Afrique subsaharienne de manière acceptable. Ces réformes contribueront à la réduction de la pauvreté grâce à des niveaux élevés de connaissances, de

compétences techniques et de capacités, réduiront les inégalités d'accès qui freinent la mobilité sociale et biaisent la distribution des revenus, et contribueront à la réalisation des objectifs de développement pour le Millénaire (ODM) ayant un rapport avec l'éducation.

Rapporté au PIB par habitant, l'enseignement secondaire dans les pays d'Afrique subsaharienne à faible taux de fréquentation coûte cher. Le nombre d'enfants en âge scolaire est élevé par rapport à la proportion des adultes en âge de travailler qui peuvent générer les revenus visant à financer les établissements scolaires. Des gains d'efficacité et d'efficacités sont indispensables à la réduction des coûts par élève de la prestation de service à des niveaux permettant la participation en masse à des coûts accessibles, et qui sont en faveur des connaissances et des habilités techniques susceptibles de réduire la pauvreté et de soutenir la croissance économique. Une meilleure détermination de la priorité accordée dans le budget à l'investissement dans l'enseignement secondaire, et un accroissement de l'aide extérieure à l'enseignement secondaire et à la formation est indispensable à la transformation des perspectives de croissance, à l'amélioration de l'équité et à la réduction de la pauvreté.

BESOINS D'ÉLABORATION D'UNE CARTE SCOLAIRE

Il existe six raisons principales de revoir la politique et la pratique en matière d'enseignement secondaire en Afrique subsaharienne.

- Premièrement, le rendement des systèmes d'enseignement primaire doit être multiplié par deux ou plus dans les dix prochaines années dans les pays à faible taux de scolarisation au fur et à mesure que l'on s'approche de la généralisation des inscriptions et de l'achèvement des études dans l'enseignement primaire. Les taux de transition dans le premier cycle du secondaire risquent de baisser à moins d'élargir son accessibilité. La participation de masse nécessiterait la mise en oeuvre de nouveaux programmes scolaires et méthodes de financement permettant aux plus pauvres de participer.
- Deuxièmement, l'atteinte des objectifs de formation en rapport avec les ODM requiert que la généralisation des inscriptions dans l'enseignement secondaire soit réalisée. Cette politique repose sur l'affectation en quantité suffisante comme enseignants dans les établissements primaires, de titulaires de diplômes de l'enseignement secondaire. Il sera difficile de réaliser cet objectif dans les régions où les taux de

scolarisation dans l'enseignement secondaire sont bas. Tout dépend également d'une demande durable dans l'enseignement primaire. Cette demande connaîtra un recul si les taux de passage dans l'enseignement secondaire chutent. Les ODM engagent les pays à assurer la parité entre les sexes en matière de fréquentation des établissements primaires et secondaires. Il est de toute évidence clair en Afrique subsaharienne que cet objectif peut en toute probabilité être atteint là où les taux de scolarisation bruts dans le secondaire (TIB2) sont supérieurs à 50 %. Il est rarement atteint là où les taux de scolarisation sont plus bas. Au centre des problèmes, il y a des différences persistantes en matière d'inscription au niveau I entre les garçons et les filles et selon l'âge d'inscription qui désavantage les filles plus que les garçons.

- Troisièmement, le VIH et le SIDA ont décimé la population active et sapé les perspectives de croissance économique dans certains pays d'Afrique subsaharienne. Il est évidemment suggéré que ceux qui ont suivi des études secondaires courent moins de risques que ceux qui ont un niveau d'instruction inférieur, à la fois parce qu'ils fréquentent l'école et parce qu'ils peuvent être plus réceptifs aux messages de l'éducation sanitaire. Dans d'autres pays, les conflits ont sérieusement réduit ces capacités. Dans les deux cas, le capital humain que l'on a perdu doit être remplacé pour que les perspectives de reprise portent des fruits.
- Quatrièmement, la réduction de la pauvreté va s'enliser à moins que l'on ne prenne en considération la croissance et la distribution. L'accès à l'enseignement secondaire et le fait de terminer ces études avec succès devient le mécanisme clé donnant la chance de sa vie à chacun dans la plupart des pays d'Afrique subsaharienne. L'enseignement secondaire exclut la plupart de ceux qui sont en dessous du 20^e point de pourcentage des revenus des ménages dans les pays d'Afrique subsaharienne à faible taux de scolarisation. Les modèles varient de manière frappante d'un pays à l'autre (voir *Annexe 1*). Cette mise à l'écart doit être inversée pour que l'on ait accès sans restriction aux réservoirs nationaux de talents, que l'égalité de chances dans le domaine de l'éducation s'améliore, et que la mobilité sociale consistant à sortir de la pauvreté intéresse de plus grandes proportions de la population.
- Cinquièmement, la compétitivité, notamment dans les secteurs de l'économie à haute valeur ajoutée et axés sur le savoir, repose sur les connaissances, les compétences techniques et les aptitudes associées au raisonnement abstrait, à l'analyse, aux compétences linguistiques et

en matière de communication. Elle repose enfin sur la mise en application des sciences et de la technologie. Ces aptitudes sont plus facilement acquises dans l'enseignement secondaire. Il existe une relation entre une plus grande croissance économique et des modèles équilibrés d'investissement public dans l'éducation. Les pays qui se sont développés le plus rapidement disposent de modèles équilibrés d'investissement à différents niveaux du système de formation, comparativement à ceux qui pratiquent des affectations détournées de ressources, et ont eu des niveaux de fréquentation plus élevés des établissements d'enseignement secondaire au début de leur période de croissance.

- Sixièmement, la réforme des programmes au niveau de l'enseignement secondaire est capitale à la fois parce qu'elle a été négligée jusqu'à présent et parce qu'un meilleur accès permettra l'inscription des enfants ayant des capacités et des besoins de formation différents. Une participation accrue sans davantage de formation et d'enseignement pertinents, efficaces et efficients ne cadrera pas avec l'objectif et peut engendrer plus de problèmes qu'elle n'en résout.

En Afrique subsaharienne, la participation de plus en plus grande à l'enseignement secondaire dans le cadre des structures actuelles des coûts subit de graves contraintes. L'arithmétique de base de ce dilemme est sans détours. Les modèles de budgétisation types dans les pays peu scolarisés d'Afrique subsaharienne affectent les montants relativement bas de dépenses publiques dans l'enseignement secondaire, qui s'élèvent parfois à moins de 10 %. Dans ces pays où le taux de scolarisation brut dans le secondaire (TIB2) se situe à moins de 15 %, une augmentation du nombre d'inscrits de l'ordre de 60 % sans des réformes nécessitera tout au moins le quadruplement des ressources affectées à l'enseignement secondaire. Ceci pose un problème, particulièrement là où existent des engagements en faveur de l'Initiative Éducation pour tous (EPT) et de l'Initiative pour l'accélération du programme Éducation pour tous (EFA-FTI) qui visent à rationaliser la dépense dans l'enseignement primaire.

Les dépenses publiques par élève du premier cycle de l'enseignement secondaire dans les pays d'Afrique subsaharienne sont trois fois supérieures à celles du primaire, et six fois celles du second cycle du secondaire. Ces ratios peuvent être encore plus élevés en ce qui concerne les établissements techniques et professionnels spécialisés. Le coût par élève dans le secondaire en Afrique subsaharienne se chiffre en moyenne à moins de 30 % et à 60 % du PIB par habitant pour le premier cycle et le

second cycle du secondaire. Dans les pays d'Afrique subsaharienne qui ont les taux de scolarisation les plus bas, le coût d'une place dans un établissement d'enseignement secondaire peut atteindre 100 % du PIB par habitant et plus de dix fois le coût d'une place dans un établissement d'enseignement primaire. Cela signifie qu'en l'absence de réformes, il sera difficile de financer durablement l'élargissement de l'accès. Les coûts relatifs par élève devraient chuter aux niveaux proches de ceux que l'on trouve dans les pays à taux de scolarisation élevé où les places dans le secondaire représentent souvent moins du double du coût des places dans le primaire. Les coûts par élève dans le premier cycle et le second cycle du secondaire devront augmenter, pour se situer autour de 20 % et 40 % du PIB par habitant. L'investissement dans l'enseignement secondaire, calculé sous forme de part des budgets de l'éducation nationale, devra augmenter pour que les gains de développement liés à l'expansion soient réalisés.

LE TRAIN DE MESURES VARIÉES

Les systèmes éducatifs des pays d'Afrique subsaharienne sont très variés, comme le sont les défis qu'ils doivent relever pour élargir l'accès aux établissements d'enseignement secondaire. La plupart des pays maintiennent un cycle d'études primaires de six ans, bien qu'il y ait un champ libre de quatre à huit ans. Dans les systèmes types, le premier cycle du secondaire se déroule en trois ou quatre ans alors que le second cycle a une durée de deux ou trois ans. Dans l'enseignement secondaire, la formation dure entre trois et sept ans en tout. De manière plus générale, le cycle complet d'études est de 12 ans (22 niveaux), mais un grand nombre de cycles dure 13 ans (20 niveaux). Les systèmes les plus courts courent sur 11 ans (4 niveaux). Un nombre de plus en plus grand de pays prévoit d'instaurer un premier cycle du secondaire d'une durée de trois à quatre ans, et faisant partie d'un cycle de formation de base d'une durée de neuf à dix ans.

Dans la plupart des pays d'Afrique subsaharienne, le nombre d'enfants admis dans l'enseignement secondaire est limité par le nombre de places disponibles et les coûts directs de la contribution des ménages, et non par le nombre d'enfants qui passent avec succès les examens de fin d'études primaires. Parfois, des quotas d'admission sont utilisés dans les établissements scolaires publics (situation géographique, groupe ethnique, sexe). Les établissements autres que ceux du public appliquent des critères d'admission plus souples en rapport avec l'appartenance aux confessions religieuses et la capacité à payer des frais de scolarité dans des

établissements privés à but lucratif. Les contraintes liées à l'offre ont une plus grande importance dans les pays à faible taux de scolarisation. Celles liées à la demande revêtent une importance grandissante au fur et à mesure que les taux de contribution augmentent.

Ces éléments structurels sont significatifs en ce qui concerne la participation et les coûts, et doivent être pris en compte lors de la planification des réformes. Il en va également ainsi des caractéristiques démographiques fondamentales qui détermineront le nombre de places à pourvoir plus tard, en fonction des taux de scolarisation donnés.

Le nombre d'enfants en âge scolaire dans les pays d'Afrique subsaharienne augmente en moyenne d'environ de 2 %, avec une variation comprise entre 1,4 % et plus de 5 %. La population en âge scolaire représente diverses proportions de la population totale des différents pays, avec un taux qui se situe entre moins de 20 % et presque 40 %. La transition démographique vers une faible croissance de la population (moins de 1 %) s'est opérée dans certains pays d'Afrique subsaharienne, mais une croissance élevée (plus de 3 %) s'est maintenue dans d'autres. Dans certains pays, les modèles normaux ont été sérieusement affectés par le VIH et le SIDA ainsi que les conflits armés. *L'Annexe 2* indique le pourcentage d'enfants d'âge scolaire au sein de la population ainsi que les taux de croissance de la population d'âge scolaire dans les pays d'Afrique subsaharienne. Les taux de croissance du groupe d'âge remplissant les conditions d'admission à l'école primaire ont été utilisés pour faire une estimation de la croissance globale à l'horizon 2015. Il en résulte que l'ensemble de la population en âge scolaire devrait passer de 207 à 280 millions, soit une augmentation de 35 % environ. Le nombre d'enfants en âge de fréquenter le premier cycle du secondaire se situera de 49,2 millions environ à 66,2 millions alors que ceux du second cycle passeront de 45,1 millions à 60,9 millions.

Il est probable que l'enseignement primaire universel nécessite un TIB1 égal à 110 % dans la plupart des pays d'Afrique subsaharienne pour expliquer les redoublements et les inscriptions des élèves trop âgés aux niveaux inférieurs. Pour que cela se réalise, le nombre de places doit déjà augmenter de 1,3 fois en moyenne par rapport aux places disponibles en 2001. Si la croissance de la population scolaire se poursuit au rythme actuel, les besoins seront 1,8 fois supérieurs d'ici 2015. Si le premier cycle du secondaire admettait 100 % des enfants ayant l'âge officiel d'admission, on aurait besoin en moyenne de quatre fois plus de places que le nombre de places disponibles en 2001, avec une augmentation de 5,6 fois à l'horizon 2015. Pour un taux d'inscriptions au second cycle du secondaire de 100 %, les chiffres sont de 10,9 et 15,5 fois. Il est clair que

pour bon nombre de pays, il sera difficile de parvenir à des niveaux de 100 % d'inscriptions au premier cycle, à moins que l'on note un accroissement massif des capacités d'accueil (voir *Annexe 2*).

L'accroissement des inscriptions va nécessiter l'embauche de plusieurs nouveaux enseignants, si le taux d'encadrement [rapport enseignant/élèves] n'augmente pas rapidement. Si l'on estime le taux d'encadrement au primaire, au premier cycle et au second cycle du secondaire respectivement à 40/1, 35/1 et 25/1, le taux de croissance annuel du nombre d'enseignants dont on aura besoin sera bien au dessus de 10 % dans la plupart des pays d'Afrique subsaharienne. Ceci n'est possible que dans le cas où l'objectif visé du taux du nombre d'élèves de TIB2P (premier cycle du secondaire) est de 100 % et celui de TIB2S (second cycle du secondaire) de 50 % (voir *Annexe 2*). Dans bon nombre de systèmes, cette situation nécessite le doublement ou plus des opportunités de formation des enseignants dans un avenir proche.

L'analyse conduit à la conclusion que :

- Selon les données disponibles, le nombre total de places dans le primaire doit être augmenté de plus de 30 % à l'horizon 2015 dans presque 70 % de pays. Dans certains cas, les augmentations dont on a besoin approcheront les 100 %.
- Il n'y a que 11 pays qui vraisemblablement peuvent universaliser l'éducation dans le premier cycle du secondaire au cas où le taux maximum durable d'augmentation des inscriptions dans l'enseignement secondaire est de 10 % l'an ; au cas où le taux maximum est fixé à 5 %, cinq pays seulement réaliseront cet objectif.
- Si les élèves admis dans le primaire parviennent à la dernière année du cycle primaire, la plupart des pays auront des difficultés à maintenir constants les taux de passage du primaire au secondaire. Selon les données disponibles, la moitié des pays ne seront pas en mesure de réaliser cet objectif, à moins que le nombre d'élèves du premier cycle du secondaire augmente à un taux moyen de 10 % par an d'ici 2015.
- Des cibles inférieures à un TIB2P égal à 100 % et un TIB2S égal à 50 % devront être fixés pour qu'il y ait des chances de les atteindre. Ces cibles varieront d'un pays à l'autre, en fonction de la détermination par chacun des priorités en matière d'élargissement de l'accès à l'enseignement primaire et à l'enseignement secondaire, de disponibilité des ressources et des coûts d'expansion. Si l'on a prévu de parvenir à ce résultat, le TIB2P peut continuer à augmenter, même si les taux de transition chutent pendant un temps.

CONCEPTUALISATION DU DÉFI À RELEVER

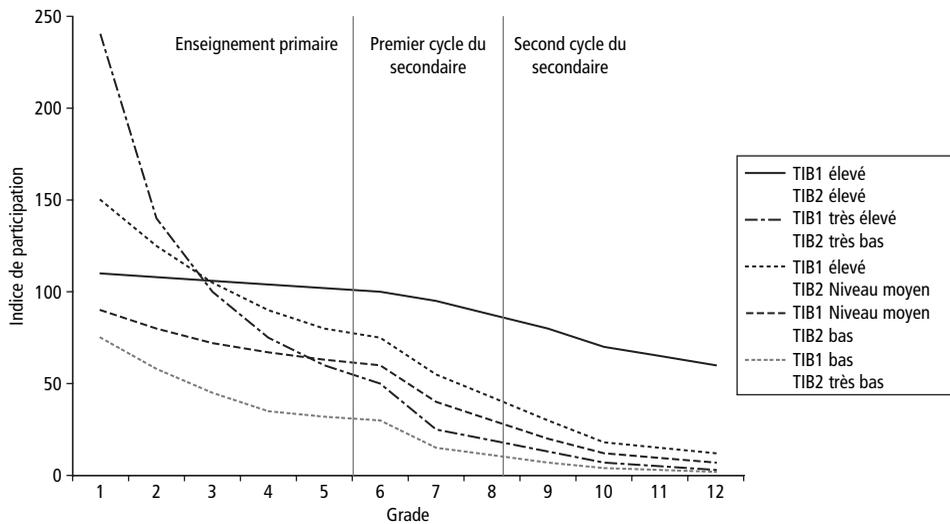
Les stratégies pour l'élargissement de l'accès à l'enseignement secondaire reposent sur des modèles existants de participation et le taux de progression vers les niveaux cibles du nombre d'inscrits. Les pays d'Afrique subsaharienne se répartissent dans cinq grands groupes, en fonction des modèles d'accès existants (voir Annexe 3). Il s'agit de :

- taux élevé de fréquentation du primaire et du secondaire, avec des faibles taux de redoublement et d'abandon scolaire ;
- taux initiaux d'inscription très élevés dans le primaire, mais taux d'abandon scolaire et de redoublement élevés, assortis de taux de fin d'études bas, et régression des taux de passage dans l'enseignement secondaire et faible participation dans le secondaire ;
- taux élevés d'inscription dans le primaire et taux de participation au secondaire de niveau moyen ;
- taux d'admission dans le primaire inférieurs aux standards universels, et faibles taux d'inscription dans le primaire et le secondaire ;
- très faibles taux d'admission et très faible participation dans les établissements primaires et secondaires.

Ces cas de figure sont très différents et sont à l'origine de points de départ différents en ce qui concerne l'investissement pour un plus large accès à l'enseignement secondaire. Là où l'indice de participation (nombre d'inscrits/effectif du groupe d'âge d'un niveau donné) est d'environ 100 % jusqu'au niveau 9, la plupart des enfants sont déjà inscrits dans le premier cycle du secondaire (type 1). Dans le type 2, les admissions initiales sont supérieures au nombre d'enfants ayant l'âge du niveau 1. La participation chute cependant rapidement, de telle sorte que vers le niveau 6, le nombre d'inscrits n'est que de 20 % environ du groupe d'âge. Les pays du type 3 comptent moins d'élèves trop âgés au niveau 1 et s'arrangent à garder la plupart d'entre eux jusqu'au niveau 9, à la différence du type 2. Dans les systèmes de types 4 et 5, on n'arrive pas inscrire de nombreux enfants au niveau 1, et on a des taux de participation faibles et très faibles au niveau 9. Les pays de types 4 et 5 peuvent ressembler à ceux du type 2, à condition que les programmes d'inscription universelle dans le primaire soient introduits très tôt. La consolidation de ces modèles fait l'objet de l'illustration ci-dessous, avec un tableau présentant chaque type dans les détails.

- équilibrent les progrès réalisés dans les domaines de l'élargissement de l'accès et l'achèvement du cycle primaire, avec la nécessité d'accroître la fréquentation du secondaire et d'améliorer la parité entre les sexes,

GRAPHIQUE GÉNÉRIQUE DE CINQ TYPES DE MODÈLES D'INSCRIPTION



- acceptent les interactions entre le développement du primaire et celui du secondaire (notamment dans les domaines de l'affectation des enseignants et des taux de transition),
- établissent un lien entre l'augmentation du nombre d'inscrits dans le second cycle du secondaire et les besoins du marché du travail ainsi que ceux qui concernent l'éducation et la formation post scolaire.
- définissent des cadres viables visant à fournir des ressources financières.

LES RESSOURCES NÉCESSAIRES

Les ressources financières indispensables au soutien d'un accès élargi dépendent des objectifs fixés pour parvenir à des niveaux d'inscriptions souhaitables. Pour la plupart des pays d'Afrique subsaharienne à faible taux de scolarisation, une cote du TIB1 = 110 %, TIB2P = 60 % et TIB2S = 30 % constitue un bon objectif initial à réaliser d'ici 2015. Ceci appuiera l'inscription universelle dans le primaire et facilitera considérablement l'inscription d'un plus grand nombre dans le premier cycle et le second cycle du secondaire. Ces implications ont fait l'objet d'une modélisation dans 45 pays utilisant des données qui ont un lien avec la démographie et les inscriptions et qui sont en rapport avec les systèmes d'enseignement primaire et secondaires existants. Dans un premier cas, les coûts par élève ont été fixés à 12 %, 30 % et 60 % du PIB par habitant pour le primaire, le premier cycle et le second cycle du secondaire respectivement. On est parti de l'hypothèse que les coûts de l'enseignement supérieur et d'autres

Typologie des défis à relever pour le développement de l'enseignement secondaire en ASS

	Description	Pays	Pronostic
1	TIB1 élevé, TIB2P élevé et TIB2S bas Attrition faible	Seychelles, Afrique du Sud, Botswana, Maurice, Namibie, Zimbabwe, Swaziland	Taux de participation élevés à tous les niveaux et faible taux de croissance de la population. Pour la plupart à revenus élevés. Le niveau de développement du secondaire dont on a besoin est modeste et a des chances d'être dans les moyens du pays.
2	TIB1 élevé, TIB2P et TIB2S faibles, Attrition élevée	Ouganda, Rwanda, Malawi, Madagascar, Mozambique	TIB1 élevé mais niveau d'attrition élevé au cours des premiers niveaux. Les taux de transition risquent de baisser, étant donné que de gros effectifs d'enfants admis au primaire parviennent jusqu'au dernier niveau du primaire. Des taux très élevés de développement du secondaire sont nécessaires pour les taux de transition. Le financement du développement de l'enseignement secondaire est problématique, même avec des réformes. Il est indispensable d'avoir davantage d'investissements dans la qualité, des redoublements en nombre réduit et un taux élevé de ceux qui terminent leurs études.
3	TIB1 élevé, TIB2P et TIB2S de niveau moyen, Attrition de niveau moyen	Togo, Lesotho, Sao Tomé-et-Principe, Nigéria, Bénin, Cameroun	GER 1 élevé avec un taux d'attrition moyen tout au long du primaire. Difficile de maintenir les taux de transition au cas où les taux de ceux qui terminent leurs études augmentent Développement du secondaire indispensables à l'inscription de plus de 50 % dans le premier cycle du secondaire. Le financement du développement du secondaire est possible, mais il faut des réformes.
4	TIB1 de niveau moyen, TIB2P et TIB2S faibles, Attrition de niveau moyen	Gambie, Zambie, Kenya, Comores, Congo, Ghana, Côte d'Ivoire	TIB1 en dessous de 100 avec un grand nombre de personnes qui ne s'inscrivent pas ou ne terminent pas leurs études. Le taux moyen d'attrition reflète un taux d'inscriptions initiales faible et un taux élevé de redoublement et d'abandon scolaire. Les taux de transition sont de niveau moyen, mais la participation au secondaire est faible. Pour un développement substantiel, il faudrait un taux de 50 % au premier cycle du secondaire. Le financement du développement du secondaire représente un défi et est en concurrence avec le besoin de plus d'investissements pour augmenter le TIB1. Besoin d'un intérêt stratégique.
5	TIB1 faible, TIB2P et TIB2S très faibles, Attrition de niveau moyen	Guinée, Tanzanie, Érythrée, Éthiopie, Sénégal, Mali, Guinée-Bissau, Burundi, Tchad, Burkina Faso, Niger	GER 1 faible avec la plupart qui ne terminent pas leurs études primaires. Le taux moyen i d'attrition reflète de faibles taux d'inscription et des taux élevés de redoublement et d'abandon scolaire. Taux de transition de niveau moyen mais taux de participation dans le secondaire faible. Développement important nécessaire pour atteindre 50 % de GER dans le premier cycle du secondaire. Le financement d'une participation accrue au primaire risque d'être la priorité, bien avant les taux modestes du développement stratégique axé sur le secondaire.

sous-secteurs du système de formation représentent environ 20 % des dépenses publiques totales.

En moyenne, on a besoin de 2,3 %, 1,5 % et 1,2 % du PIB par habitant pour aider le primaire, le premier cycle et le second cycle du secondaire à parvenir aux taux d'inscription escomptés dans les pays d'Afrique subsaharienne à faibles revenus. Ceci est l'équivalent d'environ 3,7 milliards, 2,4 milliards et 2,0 milliards de dollars par an, avec une augmentation de 5,0 milliards, 3,2 milliards et 2,7 milliards de dollars d'ici 2015¹.

Le dépenses totales en faveur de l'éducation devraient s'élever à environ 6,3 % du PIB pour maintenir des systèmes ayant un TIB1 = 110 %, un TIB2P = 60 % et un TIB2S = 30 %. Ceci équivaut à 10,2 milliards et peut atteindre 13,5 milliards par an à l'horizon de 2015.

L'ensemble des dépenses actuelles dans les pays à faible revenus d'Afrique subsaharienne avoisine 3,9 % du PIB, soit 6,4 milliards pour les pays ayant un PIB par habitant inférieur à 1 500 dollars. Cela représente environ 3,8 milliards de moins que ce dont a besoin pour maintenir des systèmes ayant des objectifs de taux d'inscriptions élevés. Plus de 70 % de ce montant est à mettre à l'actif du Nigéria, du Cameroun, de l'Ouganda, de la Tanzanie, de l'Angola, de la Côte d'Ivoire, de Madagascar et du Sénégal. Les résultats auxquels sont parvenus chacun de ces pays figurent dans le texte.

Bon nombre de pays d'Afrique subsaharienne envisagent de généraliser l'accès de tous au premier cycle de l'enseignement secondaire. Les projections ont été refaites afin de mesurer les conséquences de la fixation des objectifs suivants : TIB1 = 110 %, TIB2P = 100 % et TIB2S = 50 %. Il en résulte qu'en moyenne des taux de 2,3 %, 2,6 % et 2,0 % du PIB par habitant sont nécessaires pour aider le premier cycle et le second cycle du secondaire à atteindre les taux d'inscriptions projetés. Ceci équivaut à environ 3,7 milliards, 4,1 milliards et 3,3 milliards par an en 2001, et à 4,9 milliards, 5,4 milliards et 4,5 milliards à l'horizon 2015.

Les dépenses totales en faveur de l'éducation devront représenter en moyenne près de 8,6 % environ du PIB, ce qui permettrait de maintenir les systèmes de TIB1 = 110 %, TIB2P = 100 % et TIB2S = 50 % dans les pays d'Afrique subsaharienne à faibles revenus. Ceci équivaut à près de 13,9 milliards, avec une augmentation à 18,5 milliards par an d'ici 2015. Cela représente environ 7,5 milliards (aux cours de 2001) de plus que ce que l'on trouve dans la nomenclature actuelle des dépenses. Ces résultats figurent à l'Annexe 4.

La méthode consistant à indiquer les ressources financières récurrentes dont on a besoin compare les besoins à ce qui est actuellement affecté de manière globale. Il se pourrait que chacun des pays ne soit pas en train

d'affecter des ressources au primaire, secondaire et supérieur dans les proportions souhaitées pour réaliser les objectifs suivants : TIB1 = 110 %, TIB2P = 60 % et TIB2S = 30 %. Selon les données disponibles, neuf pays dépensent déjà autant sinon plus que nécessaire afin de garantir ces résultats, mais tous ne les réalisent pas pour la même raison.

Si les charges récurrentes par élève pouvaient être réduites à 12 %, 20 % et 40 % du PIB par habitant grâce à un train de réformes, les montants nécessaires pour l'éducation baisseraient d'environ 5 % du PIB et les déficits récurrents passeraient à 1,5 milliards par an. Si l'on prend en compte les objectifs d'inscription les plus optimistes, on aurait besoin de 6,3 % du PIB, avec un déficit récurrent d'environ 3,8 milliards par an (voir *Annexe 4*). Ces estimations permettent des réductions substantielles des coûts de l'enseignement supérieur et d'autres charges récurrentes de l'ordre de 20 % à environ 15 % du budget total de l'éducation. Ces faibles niveaux de coût impliquent des réductions drastiques de dépenses par élève au secondaire par rapport aux niveaux actuels, particulièrement dans les pays à faible taux de scolarisation. Il faudra plusieurs années pour réaliser des gains d'efficacité de cette envergure, ce qui pourrait ne pas être réalisé dans le court terme.

Ces coûts ne reposent que sur les charges récurrentes. Les coûts de développement dont on a besoin à travers l'Afrique subsaharienne pour maintenir un accroissement des inscriptions portent surtout sur la construction des bâtiments et des salles de classe. On peut estimer les coûts de la construction des salles de classe de deux manières : i) une moyenne de 10 000 dollars par salle de classe et ii) un multiple moyen du PIB par habitant. L'on a adopté les dimensions de 40/1, 35/1 et 25/1 pour les salles de classe du primaire, du premier cycle du secondaire et du second cycle du secondaire afin de faire les devis des bâtiments dont on a besoin.

Il en résulte que sur la base de 10 000 dollars par salle de classe, il faudrait un budget d'environ 39,2 milliards de dollars, dont 18,9 milliards seraient consacrés au développement de l'enseignement secondaire. Si l'on utilise 20, 30 et 40 fois le PIB par habitant pour le primaire, le premier cycle du secondaire et le second cycle du secondaire comme coût d'une salle de classe, le budget s'élèverait alors à 18,5 milliards, avec 14,8 milliards de dollars pour l'enseignement secondaire uniquement. Ces coûts sont projetés sur la période 2002-2015 et s'élèveraient ainsi à près de 3 milliards de dollars par an, ou davantage si les dépenses sont effectuées sur une période plus courte. Si l'on opte pour des objectifs d'un taux d'inscription plus élevé, il faudrait alors 20,4 milliards, 20,3 milliards et 17,8 milliards de dollars pour le primaire, le premier cycle et le second cycle du secondaire respectivement, soit un total de 58,5 milliards de

dollars d'ici 2015, ou tout au moins 4 milliards de dollars par an, en utilisant 10 000 dollars par salle de classe. Les coûts de construction peuvent connaître une baisse grâce aux contributions de la communauté et à l'appel à la concurrence dans la passation des marchés. Cependant, ces estimations de coût ne prennent pas en compte les coûts additionnels de la baisse des ratios actuels élèves/salle de classe là où ils sont élevés, ou moins les coûts de réhabilitation et d'entretien des installations selon des normes modestes.

Il est impossible d'évaluer les autres coûts de développement, du fait de l'absence d'une planification détaillée de chacun des systèmes. Si la fourniture du matériel didactique fait partie des dépenses de développement, les coûts additionnels pourraient alors être importants. En 2001-2002, 25 millions d'élèves environ se sont inscrits dans l'enseignement secondaire en Afrique subsaharienne. D'ici 2015, ce chiffre passera à près de 50 millions, au cas où les objectifs de 60 % pour TIB2P et de 30 % pour un TIB2S sont atteints. Si quatre livres étaient fournis pour un coût moyen de 5 dollars, les livres ayant une durée de vie de cinq ans et le ratio livre par élève étant de 2/1, le coût total minimum serait alors de 1,1 milliards de dollars. Au niveau de l'enseignement primaire, il est prévu que les chiffres passent de 90 millions à 130 millions. À dix dollars pour un lot de cahiers par élève, l'on a besoin d'un montant total d'environ 1,7 milliards de dollars chaque année. Ces estimations sont très approximatives, mais donnent une indication de l'ordre de grandeur. Les sommes nécessaires peuvent facilement doubler à cause du relèvement du nombre d'inscrits et d'une durée de vie plus courte des livres. Ainsi, d'autres coûts de développement se chiffrent à 3 milliards de dollars environ par an.

CHOIX DE RÉFORMES POUR DÉVELOPPER LA PARTICIPATION AU SECONDAIRE

Il existe un large éventail d'options pouvant aboutir à un relèvement de la participation à des coûts accessibles. Une liste d'options est présentée dans l'*Annexe 5*. La contribution qu'apporte chaque option est spécifique au système et dépend des points de départ, de la volonté politique et des contraintes financières et non financières sur la croissance. La détermination des priorités sera elle aussi influencée par les modèles d'inscription en place à différents niveaux et la distance à parcourir pour parvenir à des niveaux d'inscription ciblés de TIB1 = 110 %, TIB2P = 60 % et TIB2S = 30 % d'ici 2015 pour tous les pays des groupes 2, 3, 4 et 5.

Douze défis clés en rapport avec la politique et les choix afférents peuvent être identifiés. Ils s'appliquent dans une plus ou moins large mesure

à tous les pays d'Afrique subsaharienne à faible taux de scolarisation dans l'enseignement secondaire.

Premièrement, l'affectation des ressources nationales à l'éducation doit être reconsidérée. L'analyse montre que d'une manière générale, l'accroissement du nombre d'inscrits dans le secondaire risque de ne pas être financièrement viable en ce qui concerne les charges récurrentes, à moins que plus de 5 % du PIB ne soit affecté à l'éducation. Ces montants peuvent même atteindre un taux de 8,6 % du PIB. Dans les pays ayant des cycles du secondaire plus longs et des ratios plus élevés de coûts de l'enseignement secondaire en tant que part du PIB par habitant, l'on aura besoin de bien plus. Ainsi, des réformes sont nécessaires pour faire diminuer les coûts, étant donné que ces niveaux sont bien supérieurs aux niveaux actuels d'affectation de ressources.

Deuxièmement, les coûts salariaux et non salariaux par élève doivent connaître une baisse dans la plupart des pays d'Afrique subsaharienne afin que des niveaux de participation plus élevés soient financièrement viables. Pour le premier cycle et le second cycle du secondaire, les charges publiques par élève doivent passer en dessous de 30 % et 60 % du PIB par habitant. Des niveaux aussi bas que 20 % et 40 % du PIB par habitant mettront les objectifs de TIB1 = 110 %, TIB2P = 60 % et TIB2S = 30 % à la portée de plusieurs pays, sans que l'on affecte plus de 5 % du PIB à l'éducation et dans l'hypothèse d'une répartition budgétaire visant à réaliser cet objectif.

Troisièmement, on doit pouvoir arriver à un équilibre entre les taux d'élargissement vers des objectifs d'inscription au primaire, au premier cycle et au second cycle du secondaire. Ce qui convient est un choix de politique déterminé en partie non seulement par les modèles actuels (notamment ce qui reste à faire pour universaliser l'enseignement primaire), mais également par la détermination des priorités nationales (notamment le choix d'élargir l'accès au premier cycle du secondaire tout en restreignant la croissance du second cycle du secondaire financée sur fonds publics).

Quatrièmement, des transformations structurelles dans certains pays peuvent aider à ramener les taux d'inscription au second cycle du secondaire et à des coûts abordables. Les choix les plus importants consistent à réduire le nombre d'internats électifs et/ou à mettre fin aux subventions des internats (sauf lorsque cela est indispensable) grâce à une transition progressive vers le système d'externat, les classes alternées quand cela peut réduire les contraintes liées à la capacité d'accueil de l'établissement en attendant de nouvelles constructions, et un examen minutieux des avantages-coûts afférents aux établissements d'enseignement secondaire spécialisés qui coûtent chers, comparativement à l'alternative de l'enseignement secondaire général.

Cinquièmement, une meilleure gestion du flux d'élèves pourrait accroître le nombre d'élèves terminant leurs études, réduire les coûts par élève ayant terminé ses études, et améliorer la parité entre les sexes. Ceci implique une intervention stratégique visant à réduire les redoublements et l'abandon scolaire, faire tomber les barrières sexospécifiques à l'inscription et à la progression, baisser les coûts directs pour les ménages pauvres, et revoir les principes de sélection et de promotion afférents aux examens publics.

Sixièmement, un meilleur déploiement des enseignants peut revêtir une importance capitale pour une expansion réussie. Un plus grand nombre d'accès pourrait être offert dans certains systèmes si des normes pour les rapports élèves/enseignant (par exemple 35/1 au premier cycle et 25/1 au second cycle du secondaire) pouvaient être appliquées ; de même, les rapports enseignants/classe au niveau du secondaire pourraient être réduits à moins de 2/1 (dans certains systèmes un ratio de 3/1 est courant dans les établissements secondaires). Dans les deux cas, les variations entre les établissements scolaires peuvent être ramenées à plus ou moins 10 % de la moyenne, ce qui améliore l'équité.

Septièmement, un accroissement de l'offre d'enseignants formés sera d'une importance capitale pour le développement de l'enseignement secondaire. Là où la demande est la plus forte, et où la formation initiale est longue et coûteuse, d'autres méthodes devront être examinées. Il s'agira d'écourter la formation initiale, de recourir beaucoup plus à la formation en cours d'emploi et à la formation en mode mixte, et de s'accorder sur les niveaux acceptables de qualification des nouveaux enseignants du secondaire, ce qui peut différer du passé.

Huitièmement, des modifications apportées dans la gestion des établissements devraient être prises en compte et offrir des incitations pour une gestion efficace des ressources humaines et matérielles. On pourrait avantageusement lier ceci avec un changement des mécanismes de financement des établissements qui introduit davantage d'éléments de financement, de capitalisation, de responsabilisation au niveau local et de stratégies de développement des établissements scolaires.

Neuvièmement, le développement de l'enseignement secondaire sans une réforme des contenus pédagogiques court le risque de la non pertinence et du gaspillage. Les nouvelles populations d'élèves demandent des programmes d'études qui répondent à leurs besoins et aux circonstances économiques et sociales en pleine mutation, et reconnaissent l'existence de contraintes en matière de ressources. Il est indispensable de disposer de programmes de base bien conçus et susceptibles d'être suivis de manière efficace dans tous les établissements en vue de l'acquisition des connaissances, des habilités techniques et des compétences appréciées.

Dixièmement, le développement des capacités physiques a besoin d'être planifié en vue de l'optimisation de l'élargissement de l'accès. Ceci implique l'élaboration effective d'une carte scolaire, un système de passation des marchés efficace et une planification à moyen terme des programmes de construction de nouvelles salles de classe et de nouveaux établissements scolaires.

Onzièmement, l'élargissement de l'accès à l'enseignement secondaire tirera considérablement profit de bons mécanismes permettant l'appui des communautés que les établissements servent. Il existe plusieurs méthodes possibles de partage des coûts et de recouvrement des coûts qui doivent et devraient être encouragées. Elles doivent être développées. Elles doivent également être liées à la capacité des ménages à supporter les frais et à apporter des contributions, de telle sorte que cela ne soit pas source d'exclusion.

Finalement, il faudrait envisager la mise en place de partenariats avec les prestataires privés, afin de déterminer la contribution qu'ils peuvent apporter pour élargir l'accès. Les questions centrales en ce qui concerne la politique se résument à savoir quels rapports devraient être facilités, comment devraient-ils être régulés et dans quelle mesure les subventions publiques devraient-elles être orientées vers les types de prestataires privés ?

ÉLABORATION D'UNE FEUILLE DE ROUTE POUR LE DÉVELOPPEMENT DE L'ENSEIGNEMENT SECONDAIRE EN AFRIQUE SUBSAHARIENNE

Le financement du développement de l'enseignement secondaire est une question majeure en Afrique subsaharienne. Sans prêter attention aux implications de ressource en vue de l'élargissement de l'accès, les cibles des ODM ne seront pas atteintes et les résultats espérés resteront évasifs. Les exigences essentielles sont les suivantes :

- Les revues du secteur de l'éducation devraient intégrer les stratégies d'investissement au niveau secondaire dans leurs processus de planification et les Documents de stratégie pour la réduction de la pauvreté, ce qui nécessite la détermination des priorités nationale et des concertations réalistes avec les partenaires au développement.
- Il est indispensable d'élaborer des stratégies nationales qui soient axées sur les pauvres et qui utilisent les ressources publiques de manière efficace et équitable. Il faudrait une combinaison de nouvelles politiques là où les taux de participation sont bas, où l'accès est uniquement

réservé à ceux qui sont relativement riches, où il est probable que les taux de transition baissent avec l'augmentation du nombre d'élèves quittant le primaire, et où tout porte à croire que les modèles de prestation ont des coûts élevés en rapport aux insuffisances internes.

- L'évaluation du coût des plans de développement de l'enseignement secondaire doit être réalisée et donner forme aux cadres de dépenses à moyen terme et aux approches sectorielles. Ces plans doivent être lancés dans le cadre d'une vision intégrée des investissements dans l'éducation à travers tous les niveaux et donner lieu à une affectation appropriée des ressources.

Parmi les questions clés que se posent les décideurs et les planificateurs, on peut citer ce qui suit :

- Quels modèles d'affectation de ressources au sous-secteur ont de fortes chances de réaliser les ODM ? Comment devraient être traitées les demandes concurrentes d'investissement à différents niveaux ?
- Comment devrait-on réaliser les gains économiques qui permettront le développement à des niveaux de coût accessibles, sans une diminution inacceptable de la qualité ? Quels sont les aspects des systèmes de financement des établissements, du déploiement des enseignants et des dépenses non salariales qui devraient le plus faire l'objet de réformes qui améliorent l'efficacité et l'efficacité de la formation ? Quelles sont les interventions qui auront plus d'impact sur la réduction des inégalités entre les sexes ?
- Comment peut-on profiler les systèmes de recouvrement des coûts pour permettre l'expansion et une participation équitable axée sur les pauvres ? Quelles sont les limites de la capacité financière qui constituent un frein à la demande effective d'établissements d'enseignement secondaire ? Quels sont les choix qui pourraient réduire la limitation d'accès qui s'impose ?
- Dans quelle mesure les prestataires privés acceptent et sont capables de subventionner publiquement eux aussi l'enseignement secondaire d'une manière axée vers les pauvres, sur la base des évaluations des provisions actuelles et de l'éventualité des évolutions futures ? À quels mécanismes peut-on et doit-on recourir pour subventionner les prestataires privés, en ayant à l'esprit les coûts d'opportunité des systèmes publics ?
- Quel est le montant des dépenses de développement qui doivent être budgétisées en vue du financement de l'expansion envisagée, du réapprovisionnement des stocks et de l'entretien des infrastructures ?

- Quels objectifs devraient être fixés dans le cadre des différents systèmes en ce qui concerne les taux de participation et de fin de formation dans l'enseignement secondaire ?

Il est nécessaire d'entreprendre des réformes qualitatives dans les domaines de la structure, du contenu et du processus de l'enseignement secondaire, afin de répondre aux besoins et de tenir compte des aptitudes des élèves provenant d'un éventail de milieux plus large que ce qui a été le cas jusqu'ici. Il y a lieu de reconnaître que ceux qui terminent leurs études rejoindront les marchés du travail en mutation dans lesquels on a besoin de nouveaux savoirs et de nouvelles compétences techniques. La majorité d'entre eux non seulement ne trouveront pas des moyens d'existence et des emplois dans le secteur public, mais ne parviendront pas non plus aux études du niveau de la licence. La réforme et l'élaboration des programmes, la pédagogie, le matériel didactique, ainsi que les systèmes d'évaluation et de sélection sont tous nécessaires, de telle sorte qu'ils correspondent au but recherché. Lorsque les moyens de progresser sont définis, il faudrait en déterminer le coût et les planifier. En l'absence d'une interprétation claire des implications de ressources, des réformes peuvent encore voir le jour.

MOYENS D'AVANCER

Les principales questions qui nécessitent des décisions d'orientation générale ont été posées. L'approche programmatique pour un accès élargi à l'enseignement secondaire repose sur la formulation d'objectifs à court terme (3 à 5 ans) et à long terme (5 à 10 ans) et qui sont spécifiques à un système. Il faudrait préciser les objectifs, indiquer les enveloppes budgétaires et les faire concorder avec les besoins de ressources, ce qui permettrait d'identifier les écarts possibles, et d'évaluer les contraintes non financières à la croissance. Ceci peut ensuite constituer la base de la planification à moyen terme à intégrer dans la stratégie de mise en œuvre.

En Afrique subsaharienne, les systèmes d'orientation générale, les responsabilités institutionnelles et les capacités varient considérablement d'un pays à l'autre. Il n'existe donc pas de modèle adapté à toutes les situations. Cependant, il est possible d'identifier un moyen général de réaliser des progrès afin d'encourager la discussion pour savoir comment une approche systématique pourrait conduire à un développement planifié de l'enseignement secondaire.

L'on a d'abord besoin d'une **structure nationale de coordination** chargée de gérer et de développer l'enseignement secondaire et le TVET qui s'y rattache. Il faudrait donc une solide articulation avec la planification de l'enseignement primaire et post-secondaire. Cette structure de

coordination doit participer étroitement à la définition de la politique de développement du secteur et connaître l'enveloppe budgétaire mise à sa disposition par le ministère des Finances. Cette structure doit comprendre plusieurs parties prenantes, notamment des personnes chargées des programmes d'études, de la formation des enseignants, de la construction des établissements scolaires, de la production et la distribution du matériel didactique, des examens et de la sélection, et pourraient comprendre des syndicats d'enseignants, des représentants de la communauté et des prestataires privés.

Enfin, il faudrait des capacités organisationnelles ayant pour but de produire à moyen terme des plans cohérents pouvant être mis en œuvre. Il s'agit de :

- **Groupe d'étude sur les finances et la planification.** La gestion de l'expansion repose sur des informations fiables sur les caractéristiques du système, notamment les données de l'enquête réalisée au sein de l'établissement sur le flux d'élèves, le déploiement des enseignants, l'emplacement de l'établissement, les installations, etc. qui peuvent servir à faire des projections sur les besoins futurs de ressources dans le cadre de différents régimes de politique.
- **Groupe d'étude sur la construction et la passation des marchés.** Les capacités de développement exigent que la construction des salles de classe et des établissements soit organisée de manière à maximiser l'accès et à construire à temps des structures durables respectant les caractéristiques techniques appropriées. Une croissance planifiée identifiera les besoins futurs et établira à l'avance un calendrier de construction des capacités d'accueil dont ont besoin les établissements.
- **Groupe d'étude sur l'élaboration des programmes d'études.** La réforme des programmes d'études devrait être un processus rotatif destiné à revoir périodiquement les cahiers des charges et le matériel didactique de la formation, de manière séquentielle et selon des principes pédagogiques conformes. Les programmes de base, la formation effective des enseignants et la pertinence de l'enseignement et de la formation doivent s'inspirer d'une élaboration systémique des programmes d'études.
- **Groupe d'étude sur la formation des enseignants.** Si l'on veut que l'offre d'enseignants formés soit suffisante, les méthodes de formation doivent être capables de produire assez d'enseignants formés, bien avant que l'on en ait besoin. La formation initiale et la formation en cours d'emploi doivent être adaptées aux qualifications et aux compétences que les nouveaux venus ont acquises et aux nouveaux programmes d'études.

- **Groupe d'étude sur la gestion de l'éducation.** L'efficacité de l'enseignement est d'abord une préoccupation concernant la gestion de l'éducation. La modification des pratiques de gestion peut s'avérer indispensable à l'accroissement de l'efficacité et de l'efficacités, à l'amélioration de la qualité de l'enseignement. Elle permet de s'assurer que l'augmentation de la provision aboutit à de bons résultats. Il sera sans doute nécessaire de reconfigurer le financement des écoles et les mécanismes d'assurance qualité.

REMARQUES FINALES

La participation au niveau du secondaire dans les pays d'Afrique subsaharienne va croître et permettre d'atteindre les Cibles de Dakar et de réaliser les ODM relatifs à l'éducation. Il n'en demeure pas moins que la question centrale est de savoir comment financer et gérer cette croissance, de manière à ce qu'elle soit plus équitable et plus efficace, ce qui admet qu'il existe des facteurs limitatifs non financiers à la croissance du nombre d'inscrits. Il s'agit également de garantir la perspective d'une amélioration de la qualité, de la compétence et de la pertinence de ceux qui rejoignent en grand nombre les marchés du travail compétitifs au niveau national ou international.

Le rôle et l'importance de l'aide extérieure qui doit être mobilisée pour améliorer la participation au niveau du secondaire relève d'un consensus autour du caractère primordial de l'investissement dans le sous-secteur, du délai de réalisation des objectifs d'effectifs, du caractère équilibré de l'investissement national actuel dans les sous-secteurs de l'éducation, et des priorités qui ont été fixées en vue d'une aide extérieure provenant de sources multilatérales et bilatérales. Ces éléments varient d'un pays de l'Afrique subsaharienne à l'autre.

D'une manière globale, la pérennisation des objectifs de TIB1 110 %, TIB2L 60 % et TIB2S 30 % dans les pays d'Afrique subsaharienne nécessitera plus de 3,8 milliards de dollars par, en plus des affectations de crédits à l'éducation pour les charges récurrentes, ou alors 7,5 milliards de dollars si des taux d'inscription plus élevés sont choisis. Un supplément de 6 à 8 milliards de dollars sera nécessaire pour couvrir annuellement les dépenses de développement, en fonction des cibles choisies. Il en faudrait moins si les gains d'efficacité sont importants, ce qui réduirait le déficit de financement au cas où sont mises en oeuvre des réformes radicales en vue de la réalisation des économies sur les coûts. Il en faudrait plus si le fait d'étendre l'enseignement secondaire aux populations encore non servies s'avère bien plus coûteux, comparativement aux provisions actuelles, et si l'universalisation

de l'enseignement primaire nécessite davantage de ressources que ce qui est présentement envisagé. Une partie de ces ressources peut provenir des ressources nationales, au cas où le montant des crédits alloués à l'éducation est bas. Dans les pays les plus pauvres qui de surcroît ont les taux de scolarisation les plus faibles, l'aide extérieure sera capitale.

Il est indispensable de disposer d'une meilleure estimation des coûts basée sur des données qui proviennent de chaque système et qui ont un rapport avec des programmes de réformes réalisables et conçus pour maximiser de manière plus équitable un élargissement de l'accès, et préserver la qualité. Le rôle et l'importance de l'aide extérieure qui devrait être mobilisée pour améliorer la participation au niveau du secondaire repose sur un consensus autour du caractère primordial de l'investissement dans le sous-secteur, du délai de réalisation des objectifs d'effectifs, du caractère équilibré de l'investissement national actuel dans les sous-secteurs de l'éducation, et du type d'aide extérieure provenant de sources multilatérales et bilatérales.

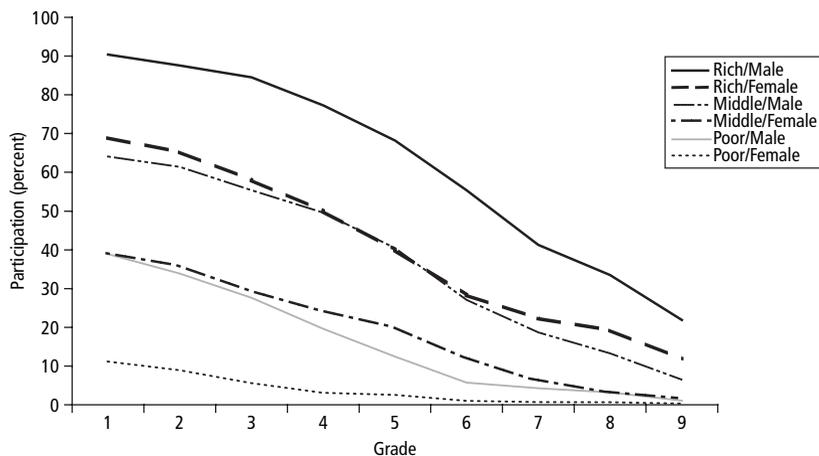
Le présent document fournit un programme de discussion dans un domaine de la politique qui deviendra de plus en plus important au cours des dix prochaines années. Le cas qui nous préoccupe est que les ODM et les Objectifs de Dakar ne pourront être réalisés que grâce à une approche équilibrée qui reconnaît que l'investissement au dessus du niveau de l'enseignement primaire influence l'élaboration des politiques universelles de l'enseignement primaire. Il faudrait également reconnaître que la parité homme/femme a plus de chances de se réaliser avec des taux de participation plus élevés au niveau de l'enseignement secondaire, et que les finances et les structures des coûts pour le secondaire appellent de sérieuses réformes au cas où il y aurait de grandes perspectives d'une participation de masse à l'enseignement secondaire en Afrique subsaharienne. Toute politique d'expansion qui n'accorde pas attention aux réalités d'ordre financier compromettra la qualité et l'exécution, engendrera la désillusion en ce qui concerne les coûts et avantages de l'enseignement post primaire, et manquera l'occasion de réduire le fossé qui sépare l'Afrique subsaharienne et les autres régions du globe en matière de dotations d'éducation pour ses populations. La viabilité de l'initiative éducation pour tous (EPT) sera fonction du retour à une croissance économique conséquente. Il y a des chances que cela se produise davantage avec le développement stratégique de l'enseignement secondaire que sans lui.

NOTE

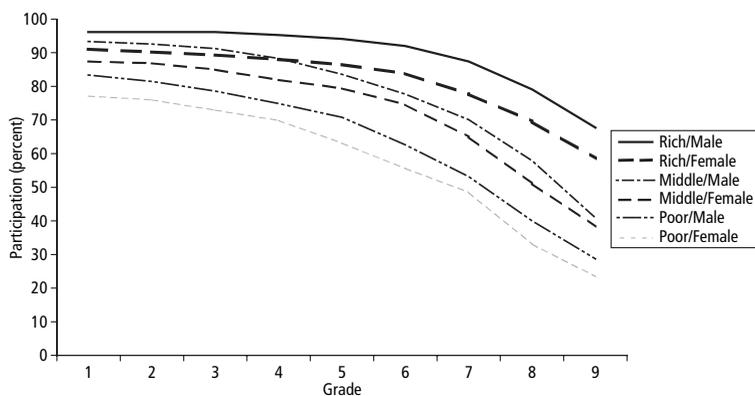
1. En dollars constants de 2001 et incluant la croissance de la population d'enfants d'âge scolaire.

ANNEXE 1: PARTICIPATION SELON LA RICHESSE ET LE SEXE EN ASS

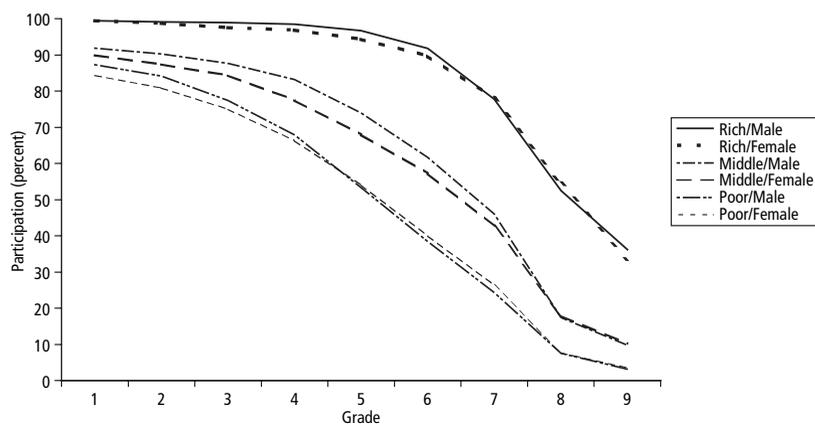
Bénin – Participation selon la richesse et le sexe



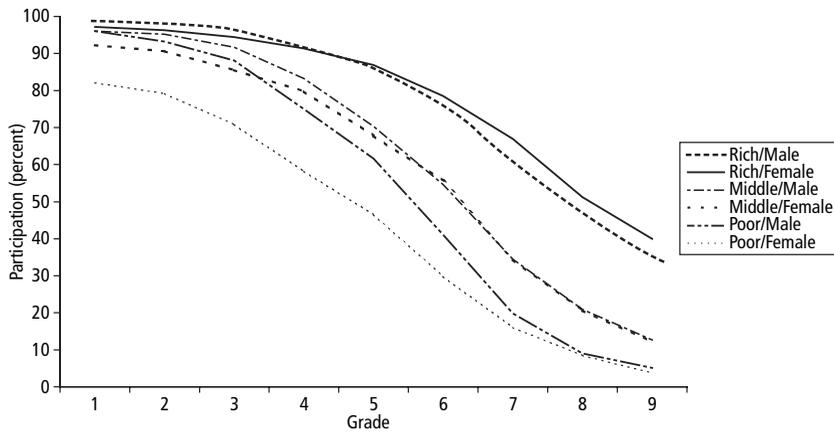
Ghana – Participation selon la richesse et le sexe



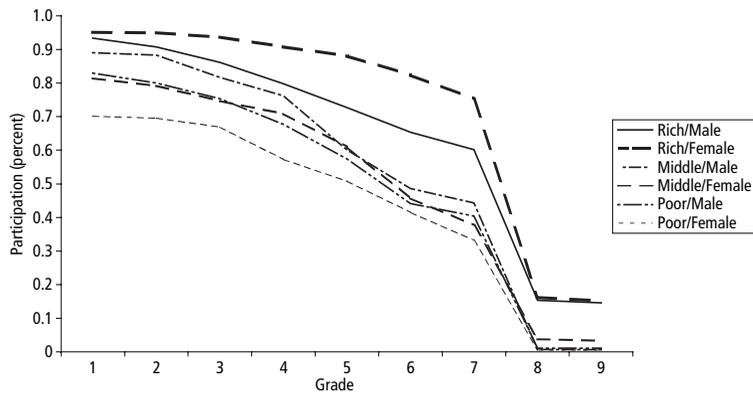
Zambie – Participation selon la richesse et le sexe



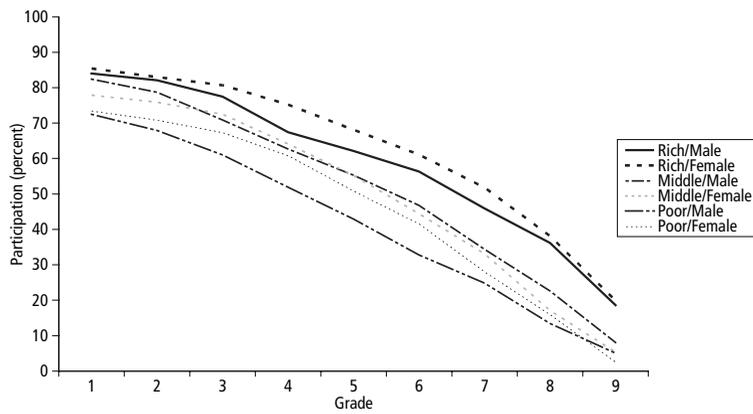
Ouganda – Participation selon la richesse et le sexe



Tanzanie – Participation selon la richesse et le sexe

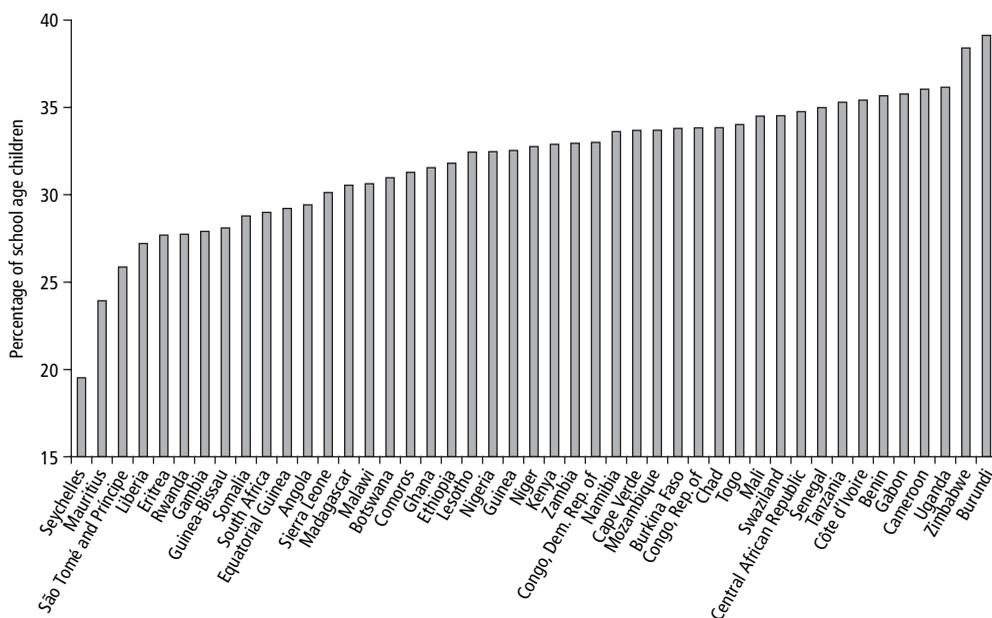


Rwanda – Participation selon la richesse et le sexe

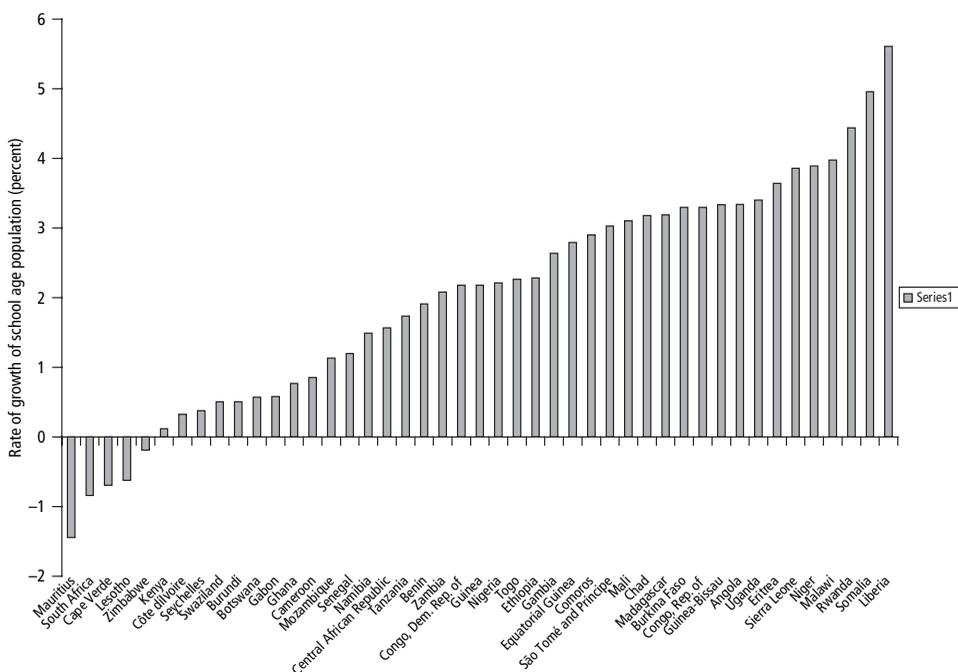


ANNEXE 2: CROISSANCE DE LA POPULATION ET AUGMENTATIONS DU NOMBRE DE PLACES DANS LES ÉTABLISSEMENTS ET DES BESOINS EN ENSEIGNANTS EN ASS

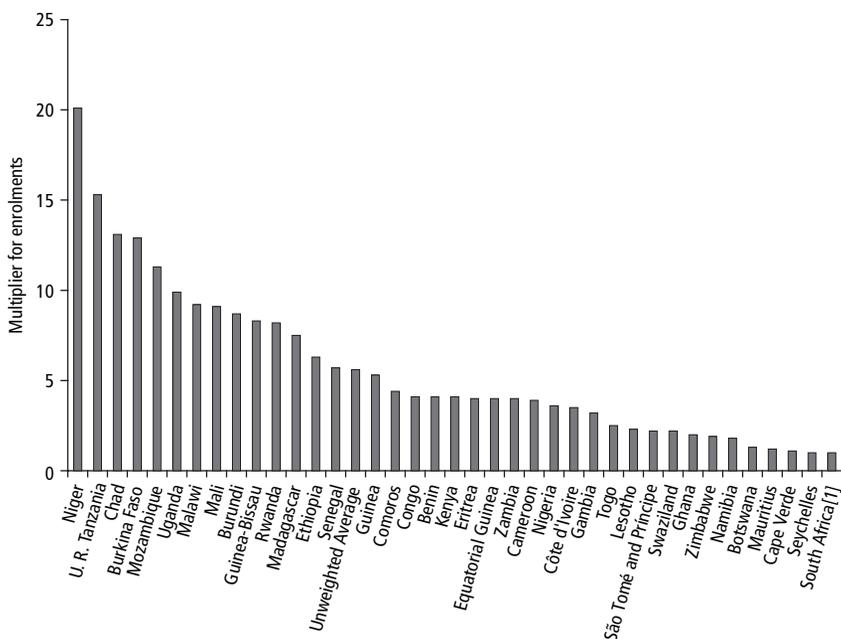
Pourcentage des enfants en âge scolaire au sein de la population en ASS



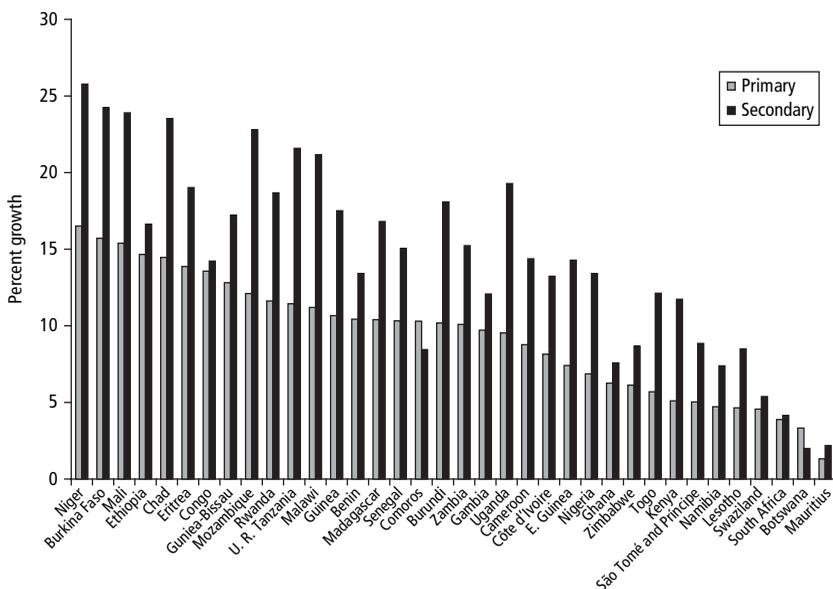
Taux de croissance de la population en âge scolaire en ASS



Accroissement nécessaire du nombre de places au premier cycle du secondaire pour réaliser l'objectif TIB2P = 100% d'ici 2015

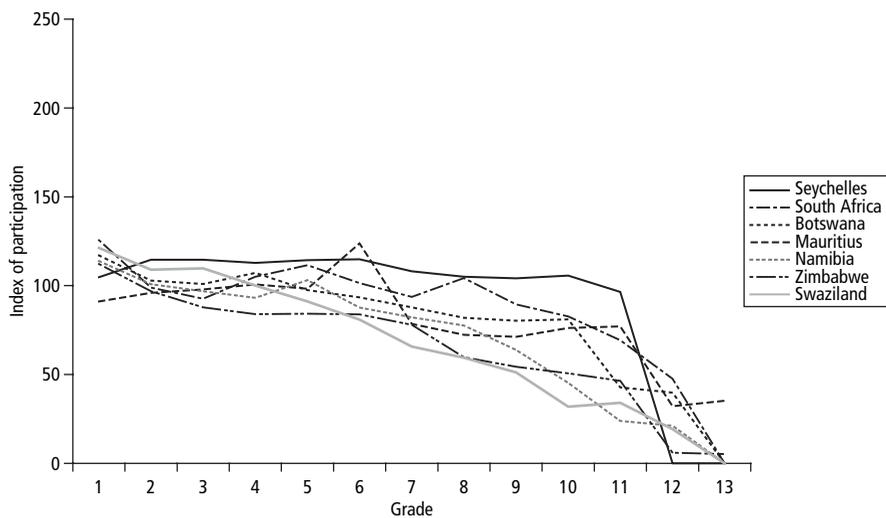


Taux de croissance annuel du nombre d'enseignants du primaire et du secondaire nécessaires pour réaliser l'objectif TIB1=110%, TIB2P 100%, et TIB2S 50% en 2015

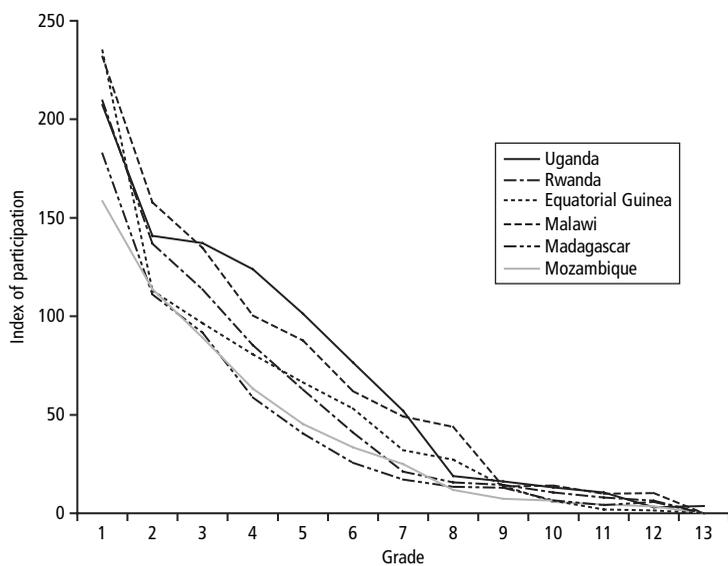


ANNEXE 3: MODÈLES D'INSCRIPTIONS EN ASS – TYPOLOGIE DES PAYS

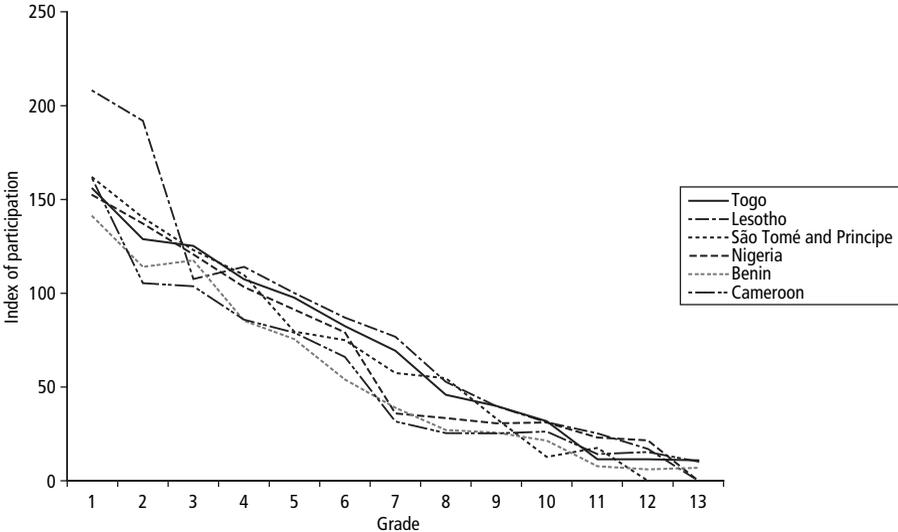
Groupe 1; TIB1 élevé, TIB2S élevé et TIB2S faible Taux d'attrition élevé



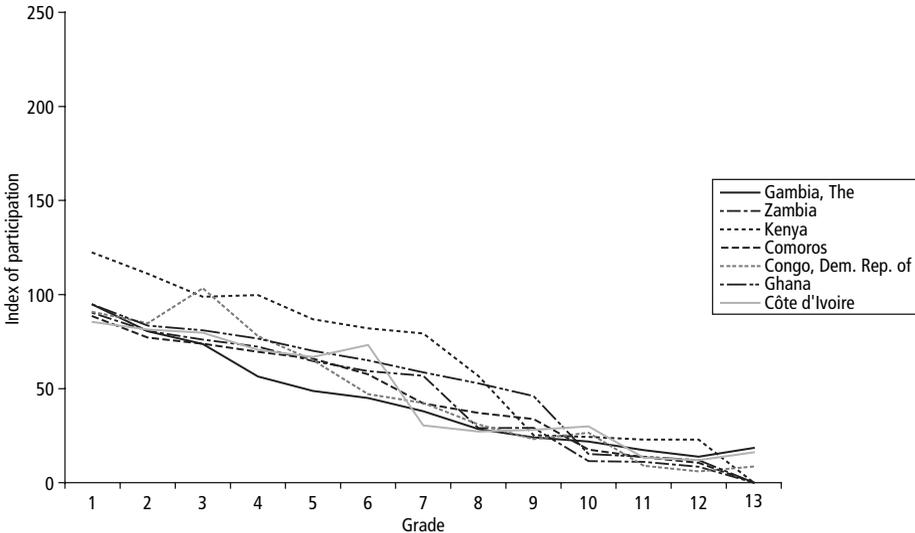
TIB1 élevé, TIB2P et TIB2S faibles, Taux d'attrition élevé

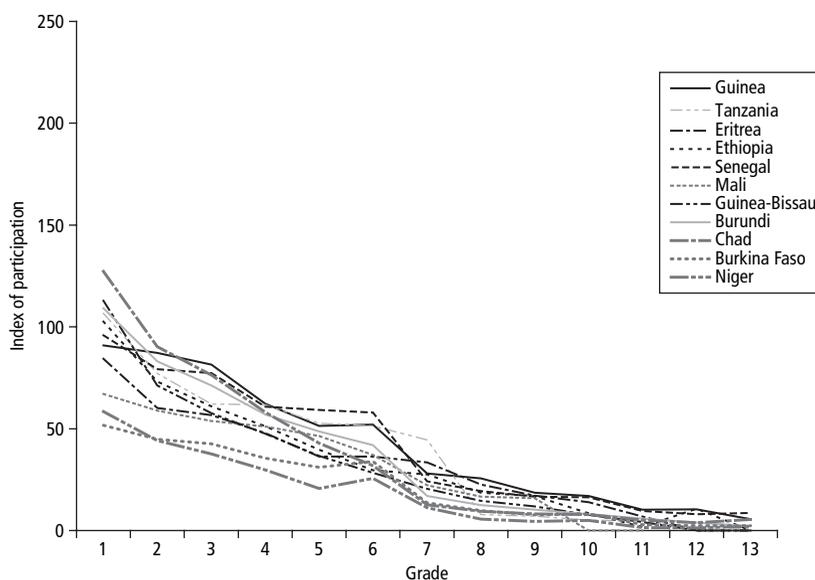


Groupe 3; TIB1 élevé, TIB2P et TIB2S moyens; Taux d'attrition moyen



Groupe 4; TIB1 moyen, TIB2P TIB2S faibles; Taux d'attrition moyen



Groupe 5; TIB1 faible, TIB2P et TIB2S très faibles, Taux d'attrition moyen**ANNEXE 4: COÛTS DU DÉVELOPPEMENT DU SECONDAIRE****TIB1 = 110, TIB2P = 60, TIB2S = 30**Coût par élève - Primaire = 12% PIB/hab; 1^{er} cycle Sec = 30% PIB/hab; 2^e cycle Sec = 60% PIB/hab, ES + 20%

	% PIB nécessaire 2002	Montant nécessaire USD 2002 000	Montant nécessaire USD 2015 000	% PIB disponible 2002	Montant disponible USD 2002 000	Déficit annuel USD 2002 000
Primaire	2,3%	3 746 766	4 953 269			
1 ^{er} cycle secondaire	1,5%	2 432 571	3 221 321			
2 ^e cycle secondaire	1,2%	2 007 447	2 670 555			
Autre y compris ES	1,3%	2 046 696	2 711 286			
Total	6,3%	10 233 479	13 556 431	3,9%	6 390 486	3 842 993

TIB1 = 110, TIB2P = 100, TIB2S = 50Coût par élève - Primaire = 12% PIB/hab; 1^{er} cycle = 30% PIB/hab; 2^e cycle = 60% PIB/hab, ES + 20%

	% PIB nécessaire 2002	Montant nécessaire USD 2002 000	Montant nécessaire USD 2015 000	% PIB disponible 2002	Montant disponible USD 2002 000	Déficit annuel USD 2002 000
Primaire	2,3%	3 746 766	4 953 269			
1 ^{er} cycle secondaire	2,6%	4 054 284	5 368 868			
2 ^e cycle secondaire	2,0%	3 345 745	4 450 925			
Autre y compris ES	1,7%	2 786 699	3 693 265			
Total	8,6%	13 933 494	18 466 327	3,9%	6 390 486	7 543 008

Objectifs de base du nombre d'inscrits, Réformes pr économies des coûts

TIB1 = 110, TIB2P = 60, TIB2S = 30Coût par élève - Primaire = 12% PIB/hab; 1^{er} cycle Sec = 20% PIB/hab; 2^e Sec cycle Sec = 40% PIB/hab, ES+ = 15%

	% PIB nécessaire 2002	Montant nécessaire USD 2002 000	Montant nécessaire USD 2015 000	% PIB disponible 2002	Montant disponible USD 2002 000	Déficit annuel USD 2002 000
Primaire	2,3%	3 746 766	4 953 269			
1 ^{er} cycle secondaire	1,0%	1 621 714	2 147 547			
2 ^e cycle secondaire	0,8%	1 338 298	1 780 370			
Autre y compris ES	0,7%	1 183 746	1 567 529			
Total	4,8%	7 890 524	10 448 715	3,9%	6 390 486	1 500 037

Objectifs élevé du nombre d'inscrits, Réformes pr économies de coûts

TIB1 = 110, TIB2P = 100, TIB2S = 50Coût par élève – Primaire=12% PIB/hab; 1^{er} cycle Sec = 20% PIB/hab; 2^e cycle Sec=40% PIB/hab, ES+ = 15%

	% PIB nécessaire 2002	Montant nécessaire USD 2002 000	Montant nécessaire USD 2015 000	% PIB disponible 2002	Montant disponible USD 2002 000	Déficit annuel USD 2002 000
Primaire	2,3%	3 746 766	4 953 269			
1 ^{er} cycle secondaire	1,7%	2 702 856	3 579 245			
2 ^e cycle secondaire	1,3%	2 230 497	2 967 283			
Autre y compris ES	0,9%	1 532 041	2 029 714			
Total	6,3%	10 212 160	13 529 512	3,9%	6 390 486	3 821 673

ANNEXE 5: TABLEAU SYNOPTIQUE DES OPTIONS POUR LE DÉVELOPPEMENT DE L'ENSEIGNEMENT SECONDAIRE À DES COÛTS ACCESSIBLES

Topic	Options	Options	Options	Options	Options
Affectation des ressources nationales	Augmenter la part du PIB pour l'éducation en l'état actuel	Augmenter la part de l'éducation dans les dépenses publiques	Augmenter les crédits pour le secondaire dans le cadre des dépenses publiques	Augmenter l'aide extérieure pour le financement de l'éducation	
Structures	Écourter la longueur des cycles d'études là où elle est de 13 ans ; prendre en compte les modèles 6/3/3 ou 6/4/2	Élargir les écoles primaires vers le haut afin qu'elles couvrent le 1 ^{er} cycle du secondaire	Limiter le nombre d'inscrits dans les onéreux établissements d'enseignement technique et professionnel en rapport avec la demande du marché du travail	Augmenter la taille moyenne des établissements, notamment dans le secondaire	Développement par phases du 1 ^{er} cycle du secondaire avant croissance du 2 ^e cycle du secondaire
	Classes alternées là où la densité de la population est élevée	Réduire le nombre d'internats subventionnés non indispensables			
Financement de l'éducation	Revoir les salaires et les catégories des enseignants, ainsi que les ratios des coûts salariaux sous forme de % du PIB	Réduire les budgets des salaires des non enseignants s'ils sont excessifs	Réduire les coûts non salariaux mais protéger les dépenses pour le matériel didactique	Financement de l'éducation basée sur des formules en vue de plus d'équité et de fonds en direction des établissements scolaires	Subventions pour l'amélioration de la formation ciblant l'amélioration de la qualité
Amélioration du flux d'élèves	Réduire les redoublements afin de libérer des places pour les nouveaux ; étudier la possibilité de la promotion automatique	Réduire les abandons scolaires afin d'augmenter le nombre de ceux qui terminent leurs études; réduire les coûts directs supportés par les ménages au cas où c'est la cause des abandons	Changer les méthodes de sélection et de promotion en augmentant le flux d'élèves; Revoir la politique de promotion et de sélection	Porter le taux de fréquentation scolaire à 90 % ou plus afin de maximiser les opportunités de formation	Bourses d'études pour les pauvres afin d'encourager la participation des ménages à faibles revenus

ANNEXE 5 (continued)

Topic	Options	Options	Options	Options	Options
Déploiement des enseignants	Relever le taux d'encadrement s'ils sont bas pour un maximum de 35:1 au 1 ^{er} cycle et 25/1 au 2 ^e cycle du secondaire	Réduire le rapport enseignant/classe là où ils sont élevés pour les ramener en dessous de 2/1 dans le secondaire	Réduire la variation des rapports enseignant/élèves et des taux d'encadrement entre les établissements en la faisant passer à +/- 10 % de la moyenne	Augmenter la proportion des maîtres assistants et des enseignants temporaires là où ils peuvent venir en complément des enseignants formés ; encourager les jeunes enseignants à rester dans l'enseignement	Inclure des périodes d'auto formation, l'apprentissage entre pairs, la formation à distance et le mode mixte de transmission des connaissances pour les grands élèves
Gestion des établissements	Fournir des incitations afin d'accroître l'efficacité de la gestion des ressources humaines et matérielles au niveau de l'établissement	Réduire le taux d'absence des enseignants à moins de 5 %	Augmenter le temps passé à la tâche par les élèves grâce de meilleurs emplois du temps à la pleine occupation des jours d'enseignement dans l'année	Augmentation du nombre d'heures de cours, contact avec les élèves grâce à de meilleurs emplois du temps et au suivi des normes en matière de charge de travail	
Programmes et pédagogie réformés; Plus de matériel didactique	Réforme systématique des programmes du 1 ^{er} et 2 ^e cycle du secondaire en vue d'une plus grande pertinence	Plus de modularisation dans la formation, recours éventuel au système de la classe unique, davantage d'accent sur les résultats	Élaborer des programmes de base avec un nombre réduit de matières, produire du matériel didactique de base à faible coût	Mettre sur pied des méthodes efficaces pour financer et distribuer le matériel didactique en vue des ratios cahiers par élève pour les matières de base	Envisager la mise en place de plans de crédits pour l'achat des cahiers et des fonds de roulement permettant de constituer des stocks de matériel didactique
Formation restructure des enseignants	Revoir les structures de formation des enseignants afin de s'assurer qu'elles peuvent répondre à la forte demande à des coûts accessibles	Arrêter une combinaison de niveaux de qualification des enseignants (Enseignement secondaire et +, Licence, etc.)	Examiner la possibilité d'une formation initiale plus courte avec en supplément un soutien en cours d'emploi, mode mixte de formation	Revoir les programmes de formation des enseignants et arrêter une combinaison pour la valorisation des matières et la formation pédagogique	Former les enseignants à enseigner plusieurs matières

(continued)

ANNEXE 5: TABLEAU SYNOPTIQUE DES OPTIONS POUR LE DÉVELOPPEMENT DE L'ENSEIGNEMENT SECONDAIRE À DES COÛTS ACCESSIBLES *(continued)*

Topic	Options	Options	Options	Options	Options
Construction	Concevoir un système de passation des marchés en vue d'un programme de construction d'établissements scolaires et de salles de classe	Concevoir des plans normalisés d'établissements et de salles de classe à des coûts accessibles	Effectuer des exercices d'élaboration de la carte scolaire afin de situer de nouveaux établissements secondaires dans les zones qui en ont besoin	Définir les cahiers des charges et les besoins des installations spécialisées, notamment au second cycle du secondaire	Explorer les plans à usage multiple pour les nouveaux bâtiments
Recouvrement des coûts	Revoir la politique des frais de scolarité au secondaire ; envisager la dispense et les bourses d'études comme alternative au non paiement des frais	Revoir la politique sur les installations, les commissions et d'autres prélèvements afin de déterminer les coûts de présence et les besoins de subvention des ménages à faibles revenus	Envisager des programmes de prêt pour l'achat de cahiers et des fonds de roulement pour le matériel didactique	Mettre un terme aux subventions aux internats non indispensables	Encourager la collecte volontaire des fonds par les communautés et les établissements ; envisager des dons réciproques
	Faciliter les aides en nature aux établissements : programme d'alimentation, main d'oeuvre et matériaux de construction	Faciliter les activités génératrices de revenus le cas échéant ex. vente des biens et des services, redevances pour l'utilisation des installations	Faciliter les relations avec les employeurs locaux et les promoteurs	Examiner l'efficacité des taxes sur l'éducation	Examiner l'efficacité des plans de prêts du financement par microcrédit
Prestataires privés	Localiser les prestataires privés dans la stratégie de développement et dresser la carte des contributions qu'ils peuvent faire, afin d'accroître la provision pour différents groupes de revenus des ménages	Définir quel niveau et quel type de facilitation sont adaptés aux prestataires privés (à but et sans but lucratif)	Arrêter la réglementation souhaitable et nécessaire pour les prestataires privés ; déterminer les coûts-avantages	Envisager de fournir l'accès au matériel didactique subventionné et bon marché aux prestataires privés	Examiner l'ampleur de l'accès aux services publics ex. formation en cours d'emploi, pour des prestataires privés

Introduction

Secondary education in Sub-Saharan Africa (SSA) faces many challenges. Demand for access is increasing dramatically, as primary enrollment is becoming universal. Achievement of the Dakar and Millennium Development Goals (MDGs) depends in part on expanding secondary systems. Economic growth is widely believed to depend on knowledge and skill acquired beyond primary education. Secondary schooling can provide access to abstract thinking and analytic competencies that enhance competitiveness in knowledge-based economic activity in a climate of technological change and globalized trading of goods and services.

SSA lags behind other regions in the proportion of its labor force completing secondary school. It needs to narrow this gap and replenish the human capital it has lost to HIV/AIDS and violent conflict. Investment in secondary education has been the missing link in many recent education development plans.

The need to find sustainable strategies to expand access to and reform secondary-school systems was voiced strongly at the First and Second Regional Conferences on Secondary Education in Africa (SEIA), held in Kampala in 2003 and Dakar in 2004, and at the SEIA meeting for Development Agencies in Amsterdam in 2004 (<http://www.worldbank.org/afr/seia/>). As the Executive Secretary of the Association for the Development of Education in Africa (ADEA) noted:

I am convinced that basic education for all is still indisputably a priority for Africa. Nevertheless, the very fact that it is still a priority calls strongly for increased attention and greater efforts with regard to other levels of the system. . . . Clearly from this perspective secondary education is a leading concern for several reasons . . . First, basic

education is increasingly viewed with a long-term vision that would extend compulsory schooling to the age of 16, thus including the first cycle of secondary education. Second, the progress made toward universal primary education directly results in greater pressure on secondary education and heightened demand from pupils and their families in both quantitative and qualitative terms. A third reason is that the continually increased complexity of human existence and the world of work, spurred along by the information society and our knowledge based economy, demand a level of preparation for young Africans that goes far beyond five or six years of primary education. . . . This is why we advocate a significant expansion of access to secondary education. The African governments and their development partners urgently need to provide proper responses to this need, or else risk breakdowns and inadequacies that will create social and political tensions and conflicts that will prove increasingly difficult to handle.

These concerns were reinforced at the Third Regional SEIA Conference, held in Accra in 2007. As the director of Human Development for the World Bank's Africa Region noted:

the demand for secondary education is rising very fast in Africa; faster than for primary education and faster than any other region of the world. . . . there is a strong desire to become competitive in today's globalized world, so our economies will grow faster and improve the lives of our people. But the global economy of today is increasingly based on knowledge, technology and skill. . . . While we continue to seek progress on primary education, we need also to increase our focus on secondary education. We need to expand access, improve quality and relevance, and improve equity—both between boys and girls, between urban and rural areas, between the rich and the poor, and across regions within countries. . . . Africa spends roughly the same percent of GDP on education as the East Asian countries. . . . But the outcomes are very different, mainly because of the efficiency in the use of resources. (Ansu 2007)

Several countries are now actively developing new policies. Ghana has recently introduced a new set of educational reforms affecting secondary schooling. Kenya is embarking on secondary-school expansion. Rwanda is introducing nine-year basic education. Tanzania has reached agreement with the World Bank on a Secondary Education Development Program. Uganda is implementing its new strategy for postprimary

education and training. Zambia is developing its plans for upper-basic and high schools.

The World Bank now recognizes that

secondary education is back on the agenda of developing countries, after a period of historical neglect. Far from being the weakest link in education systems, it is now emerging as the cornerstone of the transformational process of education. We have to acknowledge that over the past two decades our education strategy has given less attention to secondary education than to primary and tertiary education, and we are focusing anew on the important links between all levels of education. (World Bank 2005a: xi)

This study of the costs and financing of secondary education in SSA was commissioned by the SEIA program of the World Bank. It has several components. The main report synthesizes the issues and draws policy implications from the analysis. Chapter 1 reviews the case for enhanced investment in secondary education systems to support the Education for All (EFA) process and achieve the relevant MDGs. In some SSA countries, this case has already been made and accepted; in other countries, where investment in secondary schooling has stalled, the case still needs making. Some development partner agencies also remain unconvinced of the need to increase secondary-school enrollment. Chapter 2 describes the status of secondary schooling, highlighting patterns of enrollment, structures of provision, and the diversity of starting points for improved access, more-equitable participation, and improved quality. Chapter 3 explores patterns of growth and the resources needed to manage growth in sustainable ways. Chapter 4 models different patterns of secondary expansion, identifies groups of countries that face similar challenges for lower and upper-secondary schooling, and indicates the magnitude of the financial resources needed to achieve different outcomes by 2015. Chapter 5 identifies 11 policy changes and suggests options for addressing them. Chapter 6 highlights key issues for policy dialogue and the steps necessary to develop a roadmap for implementing reform.

The main report is accompanied by a study of the projected cost and financing of secondary school expansion in Tanzania, Uganda, and Rwanda, presented in appendix 2, and three detailed country case studies, of Benin, Ghana, and Zambia; all appendixes are presented in the accompanying CD. These studies explore the policy context, the status, and aspects of the costs and financing secondary education. They identify key issues for policy dialogue and strategic planning.

Why Secondary Education?

I ncreasing access to secondary education in Sub-Saharan Africa (SSA) is vital, for a variety of reasons. Across the region, the number of primary graduates is rising rapidly, as a result of successful Education for All (EFA) programs. The Millennium Development Goals (MDGs) commit countries to greater educational access to basic education, which generally includes lower-secondary grades. HIV/AIDS and violent conflict have degraded human resources, which need to be replenished. Poverty reduction requires more-equitable distribution of educational opportunities. Economic growth depends on investment in higher levels of knowledge and skills, enhanced by lower- and upper-secondary schooling. And curricula, learning, and teaching have to be reformed to improve relevance and increase effectiveness so that expanded enrollments contribute directly to development goals.

Secondary education has been an area of policy neglect. An analysis of 28 Poverty Reduction Strategy Papers (PRSPs) from SSA (World Bank 2005a) confirms that policy on secondary education is often an afterthought and a residual consideration at best and absent at worst. More than half of these PRSPs devote little or no attention to secondary expansion. Seven refer to the need to expand secondary and improve quality without linking development to the competing demands of other educational levels or to resource implications. The remainder include some aspirational targets, most often related to increased primary to secondary transition rates. None appears to project costs or necessary budget shares for secondary education, to recognize the nonfinancial constraints on secondary expansion, or to acknowledge the need to reform the structure and content of secondary education in moving toward mass enrollment. These shortcomings confirm the findings of Caillods and Hallak (2004), who document the uneven treatment of secondary education across PRSPs.

What is needed and what is possible depend on current patterns of enrollment, clearly articulated development strategies for the education sector, and appropriate allocation of resources. Priorities will differ for countries that still have low primary gross enrollment rates (GER1) and those that are approaching near universal levels of access, as well as across countries with different mixes of enrollments in secondary schools.

The length of primary and secondary cycles varies widely across the region, creating different financial challenges for expansion. In many countries, six years of primary school is the norm. Lower secondary schooling of two to four years is increasingly seen as part of the basic education cycle that should be universalized, with a single core curriculum. Upper-secondary school in most of SSA remains selective and specialized, with a focus on preparation for higher education. In some systems, technical and vocational institutions are separate from general secondary schools; in others they are more integrated. The mix of public and private financing at different levels is also extremely diverse.

This variegated landscape means that a “one size fits all” approach to reform is not appropriate. It invites new analysis of the challenges confronting secondary education in different countries.

REASONS FOR REVISITING INVESTMENT POLICY IN SECONDARY EDUCATION

There are six main reasons why it is timely to revisit investment policy for secondary schooling. Policy should be crafted in ways that complement and support the achievement of universal primary education, gender equity, poverty reduction, and economic growth.

EXPANDING PRIMARY EDUCATION

The programs to universalize primary education launched at the Jomtien and Dakar conferences are leading to rapid increases in the numbers of students completing primary school in much of SSA. If all children in grade 1 in 2002 were to reach grade 6, the number of students leaving primary school seeking access to secondary would more than double in SSA by 2008, with much larger increases in some countries, according to one analysis in this volume. If those not currently enrolled are included, the number of primary-school leavers could increase by 250 percent soon after 2010. If all primary-school leavers were to enroll in lower-secondary school, the number of places at this level would need to increase by a factor of four to seven. If projected increases in entry and completion rates

take place, the number of primary-school-leavers will increase from about 110,000 to 260,000 in Rwanda, from 450,000 to 1.2 million in Tanzania, and from 400,000 to more than 1 million in Uganda between 2004 and 2010. Secondary-school systems in SSA cannot absorb such large increases without reform and new patterns of financing.

Access to secondary school will become a major political and social preoccupation in countries with low secondary-school enrollment rates and successful EFA programs that universalize primary schooling. Students will leave primary school before the age of legal employment and will need access to education and training opportunities through at least the age of 15. Policy responses are needed that can manage secondary expansion in light of these pressures and needs.

ACHIEVING THE MILLENNIUM DEVELOPMENT GOALS

Expanded access is necessary because achieving universal primary education (the second MDG) and promoting gender equality and empowering women by eliminating gender disparities in primary and secondary schools (the third MDG) are unachievable without expanding secondary schooling. Expanded access is also necessary if the other MDGs and the Dakar Goals are to be met.¹

Universalizing primary schooling depends on maintaining or increasing transition rates to secondary school. If these rates fall dramatically, retention in upper-primary school will decrease and completion rates will fall, as it becomes clear that the chances of progression to higher educational levels are diminishing. Analysis of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute of Statistics databases on SSA suggests that transition rates to secondary school have been static over the past decade in much of SSA and appear to have fallen where primary growth has been fastest.

Universalization of primary school depends on an adequate supply of qualified primary-school teachers (Lewin and Stuart 2003). Quality, achievement, and persistence will decline unless adequate numbers of students successfully complete secondary schooling and elect to train as teachers. The number of pupils per (qualified) teacher will remain high. Ghana, for example, would have to triple its output of primary teachers if it were to reach universal primary completion at current pupil: teacher ratios (PTRs). To meet demand for teachers, Malawi continues to accept into primary teacher training candidates with only two years of secondary schooling. In Rwanda more than 85 percent of primary schools are double-shifted in grades 1–3 as a result of teacher shortages. The

insufficient supply of primary-school teachers and their low educational levels are widely seen as constraints on effective universal primary education.

The third MDG cannot be reached without increasing enrollments of girls at the secondary level. Gender equity at secondary school can be achieved only if enrollment rates for girls rise faster than rates for boys (assuming reducing enrollment rates for boys is not an option). Girls will not remain in primary schools if few girls access secondary school, especially if transition rates fall. In only two countries in SSA with secondary gross enrollment rates (GER2) of less than 50 percent (Lesotho and Swaziland) are more girls than boys enrolled in secondary school—and out-migration by boys at least partly explains their dominance in these countries (see figure 2.5 in chapter 2). All other low-enrollment countries enroll more boys than girls.

Girls need role models to inspire them to continue their education and to reap the personal and social development benefits that can result from empowerment. Gender differences in enrollment rates in favor of boys at the secondary level are almost always larger than differences at the primary level. Achievement differences between boys and girls also often widen at the secondary level. Achieving the MDGs implies not only equal enrollment but also more-equal levels of achievement, which is more likely with higher levels of enrollment.² Meeting the MDGs is also likely to depend on reducing the percentage of over-age enrollment, especially among girls.

CONTAINING THE SPREAD OF HIV/AIDS

HIV/AIDS is damaging prospects for development, especially in the worst-affected countries, where it has reached epidemic proportions. The consequences of HIV/AIDS permeate all aspects of development. The disease increases morbidity and mortality among teachers; creates unprecedented numbers of orphans, in and out of school;³ undermines regular school attendance, especially among girls; and suppresses economic growth through its impact on labor force productivity.

Secondary schooling has a special role to play in influencing informed choice about sexual behavior, increasing tolerance and support for people with HIV/AIDS, and reducing the risk of infection. Seropositive rates generally peak in the mid- to late 20s (earlier for women than men). Rates for secondary-school-age children tend to be much lower than for youth in their early 20s; people with more education tend to have lower rates of infection than those with less education;⁴ and in many countries, teachers (who have higher levels of education than the general population) are at lower risk than others the same age.

Young people in school, especially girls, are at less risk of HIV/AIDS than those who are out of school and HIV prevalence rates are lower among teenagers who are in school in Burundi, Eritrea, Mozambique, Tanzania, and Zimbabwe (Gregson, Waddell, and Chandiwana 2001). Several mechanisms—reduced opportunity for casual sex, greater understanding of the causes and effects of the disease, recognition of safer-sex messages, and greater motivation to remain healthy and to invest in the future may generate these outcomes. Whatever the mechanism, the conclusion is straightforward: everything else equal, expanding access to secondary schooling should reduce HIV/AIDS infection rates, assuming current patterns of infection related to educational level persist. Expanding access may also reduce teacher mortality, because more primary teachers will have higher levels of education, and reduce teacher attrition, making it easier to meet increased demand for teachers, which is central to sustaining expanded access.

INCREASING EQUITY AND SOCIAL MOBILITY

Poverty reduction has direct links with investment and enrollment at the secondary level. As primary schooling becomes universalized, secondary schooling will become a major determinant of life chances—and a major source of inequity. Access to, and success in, secondary school will continue to be highly correlated with employment and income distribution patterns. For many marginalized groups, the high direct costs of secondary education, the absence of nearby schools, and other historic disadvantages keep them from sending their children to school.

In much of SSA, households that are not in the top two income deciles are unable to afford to send a single child to government or private secondary schools. In Tanzania enrollment rates among the richest 20 percent of households are more than 20 times those among the poorest 40 percent of households (Lewin 2004). In Uganda children from households below the 20th percentile of income are unlikely to be enrolled in school (Lewin 2003a).

In Zambia children from the top income quintile are at least 10 times as likely to attend secondary school as children from the bottom 40 percent of households. In Ghana 40 percent of entrants to the University of Ghana originated from just 5 percent of secondary schools, many of which are private schools charging high fees. These patterns of enrollment appear to be becoming more skewed, as pressure for access increases (Addae-Mensah 2000).

Current patterns of public investment in secondary schooling in SSA are usually regressive (that is, rich households receive a disproportionate share of the benefits). If the public subsidy is regressive, the solution is not to restrict access, which would worsen income distribution and increase exclusion. Poverty reduction is more likely to occur with expanded access, which can redistribute opportunity and lead to real improvements in the upward mobility of the poor.⁵ For this to happen, the direct costs of secondary school have to fall to levels that are widely affordable, subsidies need to be directed to students from poor households, and fair means of selection need to be adopted that recognize disadvantage.

PROMOTING ECONOMIC GROWTH AND CREATING HUMAN CAPITAL

National competitiveness, especially in high value-added economic activity in the modern sectors, depends on knowledge, skills, and competencies associated with abstract reasoning, analysis, language and communication skills, and the application of knowledge about science and technology (Lewin 2000). Without this competitiveness, economic growth will falter, government revenues will stagnate, and financing public education at all levels will remain problematic.

Much evidence suggests that students with secondary schooling increase their chances of formal sector employment and informal sector livelihoods and acquire useful skills. Export-led growth is also more closely associated with investment at the secondary level than investment at the primary level (Knight and Sabot 1990; Wood and Ridao-Cano 1996; Wood and Mayer 1999; World Bank 1999, 1993; Appleton 2001). Recent analyses confirm the significance of investment in secondary schooling for economic growth, concluding that “countries that have experienced the most rapid and sustainable increases in educational attainment, as well as outstanding economic performance, have pursued balanced upgrading of the primary, secondary, and tertiary levels of education” (World Bank 2005a, 18). Fast-growing countries have had more-even patterns of investment across primary, secondary, and tertiary education than slow-growing countries and greater secondary-school enrollment relative to other levels (taking into account lags between enrollment rates and subsequent economic growth). In countries with low secondary enrollment in SSA, less than 20 percent—and often less than 10 percent—of the labor force has completed lower-secondary school. These figures compare very unfavorably with other regions of the world, especially the rapidly growing Southeast and East Asian countries, where rates often exceed 50 percent.

In some countries, especially in Southern and Central Africa, HIV/AIDS has debilitated one-third or more of the labor force. Economic growth depends on replacing those lost and building a new work force with higher levels of knowledge and skill. Human capital also needs replenishment in postconflict countries, where a generation may have missed out on secondary schooling. Demobilized militia may experience educational exclusion, with adverse social consequences.

It is possible that labor markets can be saturated with secondary-school graduates if output exceeds demand by a wide margin. However, it is not clear that this is generally the case. Secondary-school graduates may not find jobs immediately, but most are absorbed into labor markets over time (Al-Samarrai and Bennell 2003), and their earnings are almost always higher than those with only primary schooling. Skills shortages persist in SSA. Many unfilled jobs require education and training above the primary level. Balanced growth is needed that is linked to learning outcomes that are economically relevant.

IMPROVING CURRICULA

Secondary curricula often lack relevance and utility; are embedded in elite traditions of academic schooling unsuited to mass systems; use outmoded pedagogies; and are dominated by the narrow requirements of high-stakes selection examinations rather than led by demand related to livelihoods, jobs, and social priorities. In Benin, general secondary education still reflects the legacy of the colonial period. The last curricula revisions date from the early 1980s in Uganda, from 1986 in Zambia, and from 1987 in Ghana (see appendixes 3–5 for case studies of Benin, Ghana, and Zambia).

In all of the poorest countries, textbooks and other curricular materials are widely unavailable or in short supply; much learning takes place without access to any printed material (Buchan and others 2002). Nonsalary budget allocations to provide learning materials and improve textbook quality are often derisory. Few secondary-school curricula are outcomes based rather than content driven; most offer more to those who continue to study than to the majority who exit before or at the end of the cycle. Curricular materials rarely if ever recognize the realities of irregular attendance and high rates of repetition. Science and technology are often taught under conditions in which effective teaching is difficult to achieve (Ottevanger, Akker, and Feiter 2006).

If secondary education expands, the characteristics of learners will change. What they learn will therefore also need redefinition. Most

secondary systems are ill prepared for the transition and remain embedded in modes of learning and conceptualizations based on limited access by an elite group of students who continue on to higher education and to employment in modern sectors, particularly the public sector.

The future looks different. It invites support for strategic curriculum reform that can encourage creative and effective innovations in learning and teaching, new methods of assessment capable of capturing valued learning outcomes, and selection of content and thinking skills that are more relevant for entrants to diverse labor markets and to a much broader range of learners. This is particularly true with respect to science and technology; information and communications; and a raft of higher-level intellectual, language, and social competencies that can be traded domestically and internationally, in both the manufacturing and service sectors.

KEY ISSUES FOR COSTS AND FINANCE

Increasing secondary enrollment within current cost structures is severely constrained (Lewin and Caillods 2001; Lewin 2006b). Typical national budgeting patterns in low-enrollment countries allocate relatively small shares of the education budget to the secondary level. In Ethiopia, Malawi, and Tanzania, secondary education absorbs less than 10 percent of total recurrent expenditure; primary education accounts for 65 percent or more. In these countries, where the GER2 can be less than 15 percent, increases in secondary-level enrollment to, say, 60 percent, without reforms, would require a quadrupling of allocations to secondary education. An increase of this size, which could absorb half the public budget, is impossible, especially where EFA and Fast Track Initiative (FTI) commitments to protect spending on primary education are in place.

For the region as a whole, public expenditures per pupil at the lower-secondary level average about three times those at the primary level; public per pupil expenditures at the upper-secondary level average six times or more those at the primary level. Per capita spending at specialized technical and vocational institutions may be two or three times that at the general secondary level. These averages conceal wide variations, with the highest relative costs in the lowest-enrollment-rate countries, where per pupil expenditures on secondary school may exceed those on primary school by a factor of 10 or more. This fact alone means that substantial increases in access will be difficult to finance in a sustainable way without reforms. Relative costs per pupil will have to fall to levels closer to those found in high-enrollment countries in the region if the development gains associated with expanded secondary education are to be achieved.

There are several options for supporting growth in enrollment. First, there is scope to increase the proportion of public recurrent expenditures on education allocated to secondary school where they are exceptionally low (less than 15 percent of total education spending). Where total allocations for secondary education are less than those for tertiary education (the case in several countries, including Malawi, Rwanda, and Tanzania), investment patterns appear unbalanced. Where more than 60 percent of public recurrent education budgets are allocated to primary school, policy makers should examine whether educating the last primary school child is more desirable a goal than supporting educational development at other levels. More-balanced investment patterns may have greater impact on the economic growth needed to sustain universal primary education (World Bank 2005). The achievement of enrollment targets at different levels has to be phased accordingly.

Second, efficiency gains could greatly reduce the cost per pupil relative to GDP, allowing greater access. These gains could be achieved through a combination of more-efficient deployment of teachers, realignment of teacher salaries, reductions in nonteaching costs, and changes in structure and curricula. Together these reforms could reduce the cost per successful secondary school graduate. PTRs are below 20:1 in countries with low secondary enrollment, and teacher workloads represent as little as 30 percent of timetable teaching time. Where teacher: class ratios exceed 2:1, more pupils could be enrolled with more-efficient working practices and more-even distribution of teachers across schools.

Teacher salaries, the main cost in day schools, have to be set at levels that make expanded access affordable, continue to motivate teachers, and attract suitable new entrants to the teaching profession. The costs of expanded access can be calculated from national data on the numbers of secondary-school-age children, desired enrollment rates at lower- and upper-secondary school, and the minimum expenditure needed per pupil needed to operate schools effectively. This provides an indication of teacher numbers needed and salary levels that can be afforded. Whether such salary levels will motivate existing teachers and attract new entrants depends on conditions in national labor markets.

Nonteaching salary costs can represent a substantial proportion of total salaries. If they do, the reasons why need to be scrutinized and cost savings explored. Some structural changes could produce savings that increase access. Long secondary-school systems (more than six years) may be inefficient and costly. Some curriculum decisions (such as offering a large number of optional courses) can create inefficiencies if many specialist teachers are needed and teaching group sizes are small. The location, enrollment, and selection processes associated with different

patterns of secondary schooling may also influence attendance, dropout, and completion and increase costs per successful graduate.

Third, selective cost recovery, with safeguards to protect the enrollment of the poor, could ease the financial burden of expansion, especially in nonessential boarding. Increasing the proportion of day schools would reduce costs (subsidized boarding can account for half or more of total cost per pupil).⁶ This is already policy in Benin, Ghana, Tanzania, Rwanda, and Zambia. Secondary-school fees (tuition and various facilities fees) are not uncommon across the region. Systems that adopt selective fee waivers or scholarships for the poor can increase enrollment relative to systems that are completely fee free. Such systems are also more equitable. Revolving textbook loan schemes and other forms of subsidy for learning materials can have a significant impact on availability, which is linked to levels of achievement and can reduce costs.

Fourth, nongovernment providers have a role to play in expansion. This is a complex area, because such providers are highly differentiated and funded in many different ways (Bray 1997; Lewin and Sayed 2005). Some are subsidized from public funds, others are not. Well-established institutions with effective governance coexist alongside fragile, unstable, and unregulated private providers operating for profit. Pupils who attend fee-charging nongovernment schools with low levels of subsidy release places in public schools that can contribute to expanded access.

National circumstances differ greatly in terms of the possibilities for expanding the nongovernment sector. Several low-enrollment countries have seen rapid growth in nongovernment schools, fuelled by both excess demand for public school places and differentiated demand (dissatisfaction with public schooling and preferences for other providers). Much of this growth has been concentrated in relatively low-cost, low-quality privately owned schools rather than not-for-profit providers. At some level of cost, which may be quite low, demand softens (Lassibille, Tan, and Sumra 2000; Rose 2003; Lewin and Sayed 2005; Lewin 2007b). Unsubsidized nongovernment providers are unlikely to open new schools in areas where there is least access and least ability to support the cost of fees. These schools will therefore continue to serve the relatively wealthy. Public subsidy of nongovernment schools (including grant-aided, community-cofinanced, faith-based, and commercially operated schools), which might expand the reach of such schools, has to be accompanied by systems that ensure quality and compliance with relevant health, safety, curricular, employment, finance, and tax regulations. Countries with high secondary enrollment rates generally have small proportions of unsubsidized nongovernment schools.

The Status of Secondary Schooling

Secondary schooling varies widely across in Sub-Saharan Africa (SSA) in terms of rates of enrollment, length of lower and upper cycles, gender differences, repetition rates, pupil: teacher ratios (PTRs), equitable access, amounts of nongovernment and technical and vocational provision, and cost and financing arrangements. This chapter explores these variations and highlights some key observations that shape the challenges of expanding access.

ENROLLMENT

Secondary-school enrollments in SSA range from less than 10 percent to more than 90 percent of the school-age population. On average, they are much lower than in other regions of the world.

ENROLLMENT IN SUB-SAHARAN AFRICA

Secondary-school systems exclude most children in Sub-Saharan Africa (SSA). Only about 25 million of the region's 93 million children of secondary-school age¹ (27 percent) are enrolled in secondary school, many of them repeaters.² Nearly 45 percent of those not enrolled are found in four countries: the Democratic Republic of Congo, Ethiopia, Nigeria, and Tanzania. Fifteen countries account for nearly 80 percent of the total.

Gross secondary enrollment rates (GER2) in the great majority of countries in the region are below 40 percent (table 2.1). In 15 of the 45 countries for which UNESCO Institute of Statistics (UIS) data are available, the GER2 is less than 20 percent; in 35 countries the GER2 is less than 40 percent; in 7 countries the GER2 exceeds 60 percent. These figures compare poorly with South Asia, where the GER2 in all major countries except Pakistan exceeds 45 percent.

Table 2.1 Gross Enrollment Rate and Gender Parity Index for Primary and Secondary School, by Country

Country	Secondary school											
	Primary school		School-age population (thousands)	Enrolled (thousands)	Difference between school-age population and enrolled (thousands)	GER2		GPI2L		GER2U		GDP per capita (\$)
	GER1 (percent)	GPI1				(percent)	GPI2	(percent)	(percent)	(percent)	GPI2U	
Angola	74.4	0.86	2,241	242	1,999	10.8	0.83	18.7	0.90	8.7	0.62	500
Benin	109.3	0.72	1,131	284	848	25.1	0.46	37.0	0.50	14.0	0.32	380
Botswana	103.3	1.00	218	153	65	70.3	1.06	86.1	1.08	51.8	1.03	3,100
Burkina Faso	46.2	0.74	2,062	218	1,844	10.6	0.67	15.7	0.70	5.1	0.53	220
Burundi	77.3	0.81	1,183	119	1,063	10.1	0.73	13.0	—	7.8	0.80	100
Cameroon	107.6	0.85	2,627	669	1,958	25.5	0.84	29.0	—	16.0	—	580
Cape Verde	120.6	0.95	71	48	23	67.1	1.09	100.0	1.08	53.7	1.10	1,340
Central African Republic	65.5	0.68	617	66	551	10.8	0.52	14.6	0.54	5.0	—	260
Chad	78.3	0.64	1,316	188	1,128	14.3	0.33	14.0	—	9.0	—	200
Comoros	89.6	0.82	124	38	85	30.9	0.83	35.9	0.85	24.2	0.80	380
Congo, Dem. Rep. of	47.1		7,322	1,464	5,858	20.0	0.55	—	—	—	—	80
Congo, Rep. of	80.4	0.93	589	164	424	27.9	0.71	42.0	—	17.0	—	640
Côte d'Ivoire	77.6	0.80	2,891	620	2,271	21.4	0.54	32.0	—	14.0	—	630
Equatorial Guinea	126.2	0.91	71	20	52	27.7	0.57	41.0	0.60	12.5	0.45	700
Eritrea	63.4	0.81	575	159	415	27.8	0.65	42.6	0.74	20.1	0.56	160
Ethiopia	66.0	0.73	9,440	1,786	7,655	18.9	0.57	30.1	0.57	8.0	0.61	100
Gabon	132.2	0.99	212	105	107	49.5	0.90	63.0	—	32.0	—	3,160

Table 2.1 (continued)

Country	Secondary school											GDP per capita (\$)
	Primary school		School-age population (thousands)	Enrolled (thousands)	Difference between school-age population and enrolled (thousands)	GER2 (percent)	GPI2	GER2L (percent)	GPI2L (percent)	GER2U (percent)	GPI2U	
	GER1 (percent)	GPI1										
Gambia, The	85.2	0.98	176	60	117	33.9	0.69	47.5	0.71	19.5	0.63	320
Ghana	78.7	0.95	2,979	1,151	1,828	38.6	0.83	57.2	0.85	20.8	0.76	290
Guinea	81.5	0.77	1,289	301	988	23.4	0.46	29.6	0.49	16.1	0.39	410
Guinea-Bissau	69.7	0.67	149	26	124	17.2	0.54	22.0	0.55	10.8	0.54	160
Kenya	92.4	0.94	4,222	1,362	2,860	32.3	0.92	38.7	0.94	24.0	0.88	350
Lesotho	126.4	1.01	237	81	156	34.2	1.28	42.7	1.32	22.2	1.16	530
Liberia	105.4	0.73	401	85	316	21.1	0.69	39.9	0.64	27.7	0.77	140
Madagascar	119.6	0.96	2,721	436	2,284	16.0	0.97	22.4	0.98	7.0		260
Malawi	140.1	0.96	1,000	176	824	17.6	0.76	19.5	0.80	15.5	0.67	160
Mali	58.4	0.76	1,801	312	1,490	17.3	0.55	25.0	0.59	13.4	0.46	230
Mauritius	103.8	1.01	138	100	38	72.4	1.00	94.8	1.02	70.6	0.97	3,830
Mozambique	103.4	0.81	3,128	476	2,652	15.2	0.66	34.8	0.64	7.5	0.70	210
Namibia	105.0	1.01	221	138	83	62.4	1.12	80.0	1.16	32.8	0.98	1,960
Niger	43.5	0.69	1,783	124	1,659	6.9	0.66	10.0	0.68	2.5	0.53	180
Nigeria	119.4	0.81	17,328	6,313	11,014	36.4	0.81	39.7	0.80	32.9	0.82	290
Rwanda	122.0	1.00	1,174	167	1,007	14.2	0.81	16.0		13.0		220
São Tomé and Príncipe	126.4	0.94	19	7	11	39.0	0.84	65.4	0.82	23.0	0.89	280
Senegal	79.9	0.92	1,601	306	1,295	19.1	0.69	25.2	0.72	10.6	0.61	490
Seychelles	114.3	0.99	7	8	-1	110.9	1.00	112.6	0.97	108.2	1.06	6,530

Table 2.1 (continued)

Country	Secondary school											
	Primary school		School-age population (thousands)	Enrolled (thousands)	Difference between school-age population and enrolled (thousands)	GER2 (percent)	GPI2	GER2L (percent)	GPI2L (percent)	GER2U (percent)	GPI2U	GDP per capita (\$)
	GER1 (percent)	GPI1										
Sierra Leone	78.9	0.70	590	134	455	22.7	0.70	27.4	0.65	25.3	0.78	140
Somalia	—	—	1,073	—	—	—	—	—	—	—	—	—
South Africa	105.6	0.96	4,917	4,109	808	83.6	1.08	101.7	1.04	78.2	1.11	2,820
Swaziland	98.2	0.93	138	62	77	44.5	1.01	54.4	1.04	30.9	0.95	1,300
Togo	121.2	0.83	782	335	447	42.8	0.44	61.0	—	16.0	—	270
Uganda	140.7	0.98	3,487	656	2,831	18.8	0.80	25.3	0.84	9.5	0.63	260
Tanzania	84.2	0.97	5,086	323	4,763	6.4	0.81	10.0	—	2.0	—	270
Zambia	82.2	0.93	1,261	345	916	27.4	0.83	41.1	0.88	18.5	0.76	320
Zimbabwe	93.9	0.98	2,057	828	1,229	40.3	0.88	60.3	0.92	29.8	0.85	480

Source: UIS 2005. Data are latest available in 2005; most are for 2002.

Note: GER1 = primary gross enrollment rate; GER2 = secondary gross enrollment rate; GER2L = gross lower-secondary enrollment rate; GER2U = gross upper-secondary enrollment rate; GPI1 = gender parity index at primary level; GPI2 = gender parity index at secondary level; GPI2L = gender parity index at lower-secondary level; GPI2U = gender parity index at upper-secondary level.

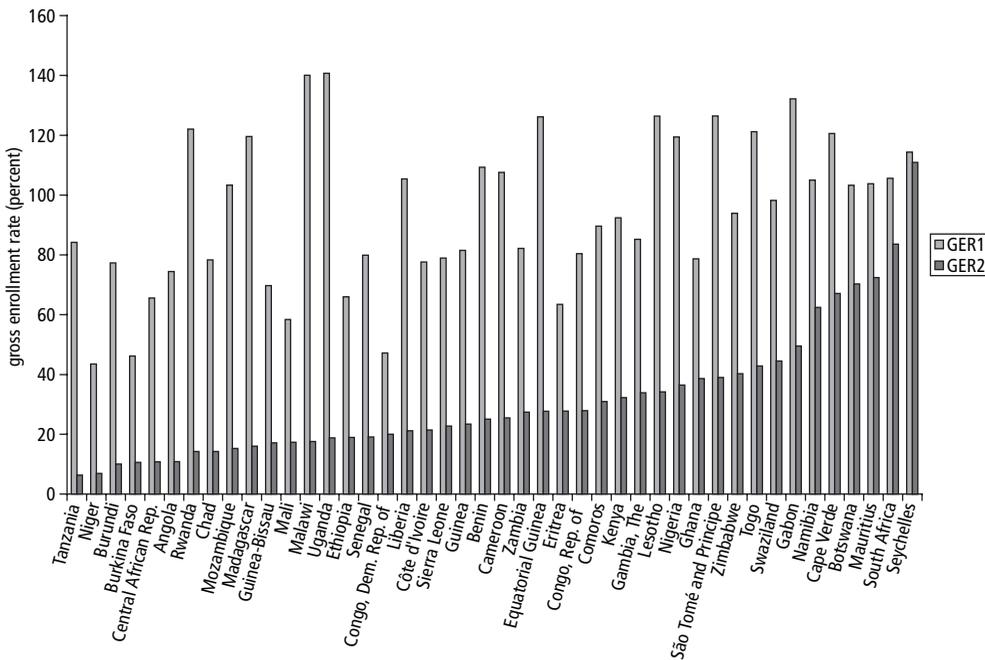
— Not available.

The weighted average GER2 for the region as a whole was about 25 percent in 2002 (36 percent for lower-secondary school and 13 percent for upper-secondary school); by 2004, GER2 had risen to about 30 percent.³ In most countries in which the GER2 was less than 20 percent, no more than 10 percent of school-age children completed secondary school; in countries in which the GER2 was less than 40 percent, the figures were perhaps 25 percent.

There is no simple relation between primary and secondary gross enrollment rates (figure 2.1). The lowest values for GER2 in 2002 are in Tanzania, Niger, Burundi, and Burkina Faso, where the gross primary enrollment rate (GER1) is between 40 percent and more than 80 percent. Differences between GER1 and GER2 are greatest in countries in which primary education has been prioritized (Malawi, Madagascar, Rwanda, and Uganda).

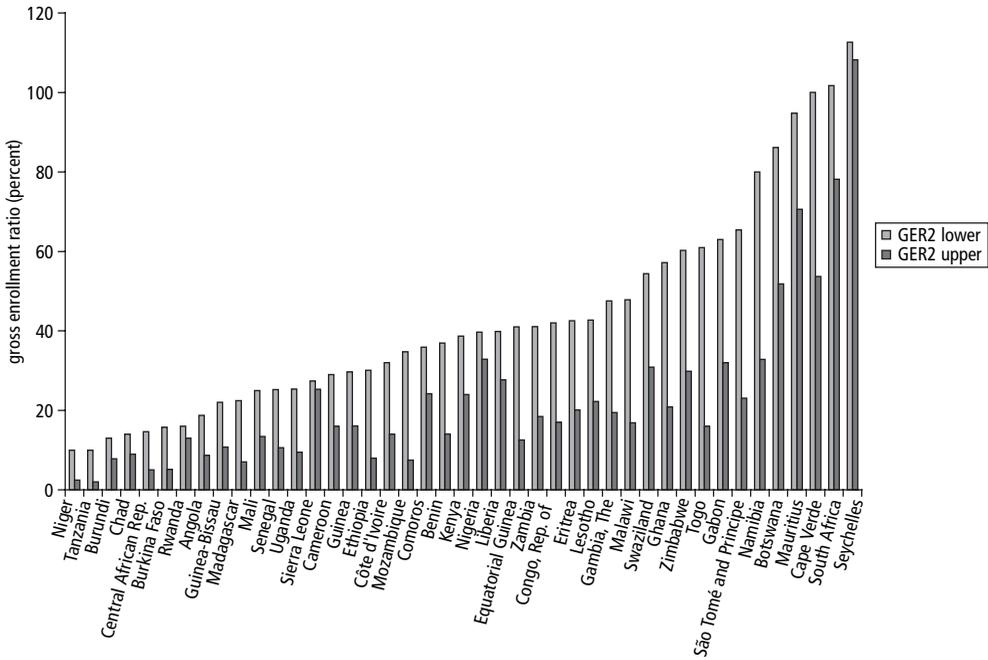
GERs at the lower-secondary and upper-secondary levels are correlated in some countries and uncorrelated in others (figure 2.2). There is also no systematic relation between national per capita GDP and GER1 or GER2 (figure 2.3). These data suggest that GER2 is determined primarily by policy choice and that greater access is possible even in the poorest countries.

Figure 2.1 Gross Primary and Secondary Enrollment Rates, by Country



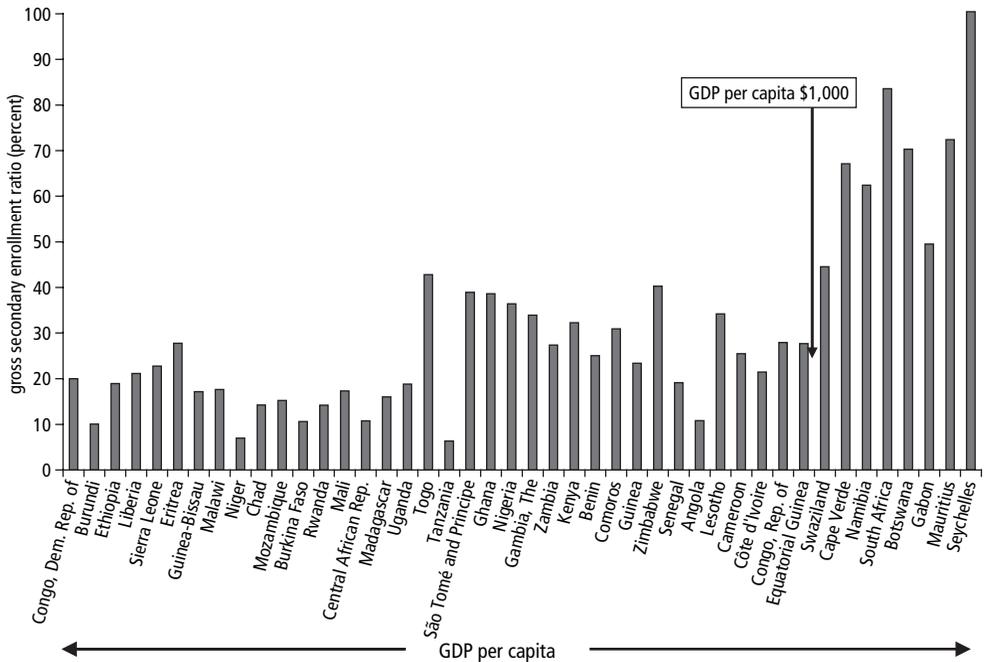
Source: UIS 2005. Data are latest available in 2005; most are for 2002.

Figure 2.2 Gross Lower- and Upper-Secondary Enrollment Rates, by Country



Source: UIS 2005. Data are latest available in 2005; most are for 2002.

Figure 2.3 Gross Secondary Enrollment Rates, Ranked by per Capita GDP



Source: UIS 2005. Data are latest available in 2005; most are for 2002.

Table 2.2 Gross Secondary Enrollment Rates in Developing Regions, 1990 and 2001

Region	Gross secondary enrollment rate (percent)		Gap between region and Sub-Saharan Africa (percentage points)		Increase in gap 1990–2001 (percentage points)
	1990	2001	1990	2001	
Arab States and North Africa	50.5	60.3	30.4	36.0	5.6
East Asia and the Pacific	50.2	64.9	30.1	40.6	10.5
Latin America and the Caribbean	48.6	82.5	28.5	58.2	29.7
South and Southwest Asia	39.6	51.9	19.5	27.6	8.1
Sub-Saharan Africa	20.1	24.3	n.a.	n.a.	n.a.

Source: UIS 2005.

n.a. = Not applicable.

ENROLLMENT ACROSS DEVELOPING REGIONS

Increases in secondary enrollment in SSA have lagged improvements in other regions. In 1990 the population-weighted average GER2 for SSA was 20 percent; this figure rose modestly to 25 percent by 2002 (UIS data from 2005). In contrast, over the same period, GER2 rose from 20 percent to 28 percent in South and Southwest Asia; from 30 percent to 41 percent in East Asia and the Pacific; and from 29 percent to 58 percent in Latin America and the Caribbean. There is some evidence that the gap may have stopped widening since 2002, as a result of efforts by some countries in SSA to expand access to secondary schools. However, the gap remains large and is likely to adversely affect the competitiveness of countries in SSA with respect to countries elsewhere in the developing world (table 2.2).

EDUCATIONAL STRUCTURE

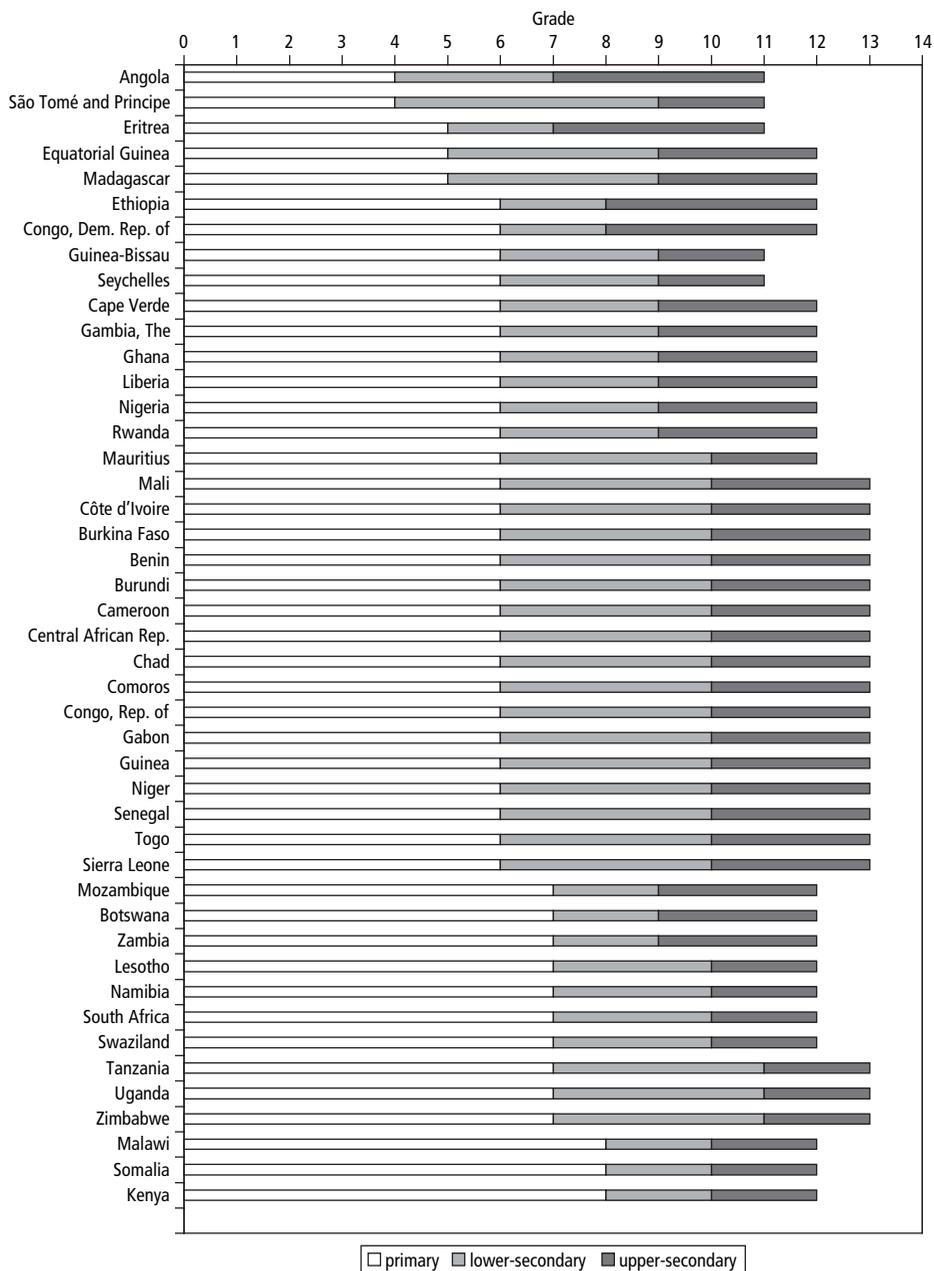
Most countries in the region maintain a six-year primary cycle, although the cycle ranges from four to eight years (figure 2.4). In some countries, primary schooling includes incomplete primary schools, which offer less than the full primary-grade range.

Lower- and upper-secondary schooling varies in length from two to five years. Most systems provide three or four years of lower-secondary and two or three years of upper-secondary education. A growing number of countries (including Ghana, Rwanda, and Zambia) are defining lower-secondary school as part of a basic education cycle lasting nine years.

The complete cycle of education is 12 years in 22 countries in the region. Twenty countries have 13-year cycles, and 4 countries have 11-year cycles.

In the majority of SSA countries, selection into secondary school is determined by examinations given at the end of primary school.⁴ Some selection examinations include more than 12 subject areas; others test

Figure 2.4 Primary, Lower-Secondary, and Upper-Secondary School Cycles, by Country



Source: UIS 2005.

only four or five core subjects. Most primary-school-leaving examinations remain content rather than skill based and reward recall more than higher cognitive capabilities (Lewin and Dunn 2000).

Selection practices vary. National lists are often but not always used to rank candidates. The number of students admitted to public secondary education is generally limited by the number of places available. The rates differ widely across and within countries (see appendixes 3 and 5 for regional differences in Benin and Zambia). Some countries use quotas (geographic location, ethnic group, gender) to select those admitted. Nongovernment schools generally consider criteria other than examination scores. Faith-based schools take into account religious affiliation, and for-profit private schools consider ability to pay fees.

The number of students per secondary school ranges from fewer than 100 to more than 2,000, with very different sizes in rural and urban areas and across geographic regions. Small secondary schools generally have low PTRs, making their costs per pupil high. In Ghana more than 16 percent of senior-secondary schools have enrollments of less than 100, making it unlikely that they can offer a full curriculum effectively or efficiently (appendix 4).

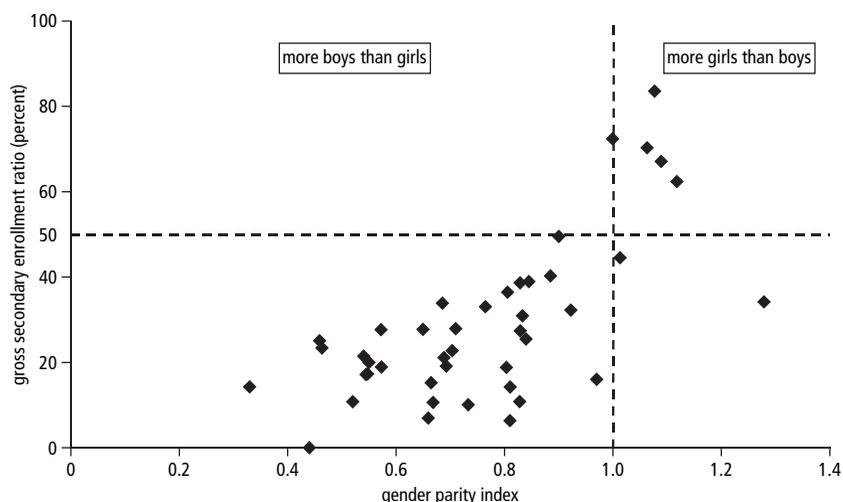
Double-shifting is extensive in some countries. At the secondary level, double-shifting is confined largely to urban schools with excess demand and is generally not regarded favorably (see Bray 2000; Kadzamira, Choonzi, and Hiddleston 1995).

The structure of school systems has historic origins linked to colonial governments and postindependence reforms. In low-enrollment countries, most secondary schooling is located in urban or periurban areas and in wealthier regions. Boarding schools constitute the majority of public secondary schools in many low-enrollment countries (including Rwanda, Tanzania, and Uganda) and a substantial minority of places in many others (for example, Ghana).⁵

PARTICIPATION BY GENDER, WEALTH, AND LOCATION

In more than 80 percent of countries in the region, more boys than girls are enrolled in secondary school (figure 2.5). Gender parity in enrollments is much more likely when GER2 exceeds 50 percent (UIS 2005). Very few countries achieve gender parity when less than half of all school-age children attend secondary school. In Benin, girls represented just one-third of lower-secondary schools pupils in 2002, despite a decade of interventions to encourage higher female enrollment rates (see appendix 3).

Figure 2.5 Relation between Gross Enrollment and Gender Parity Index in Secondary School



Source: UIS 2005. Data are latest available in 2005; most are for 2002.

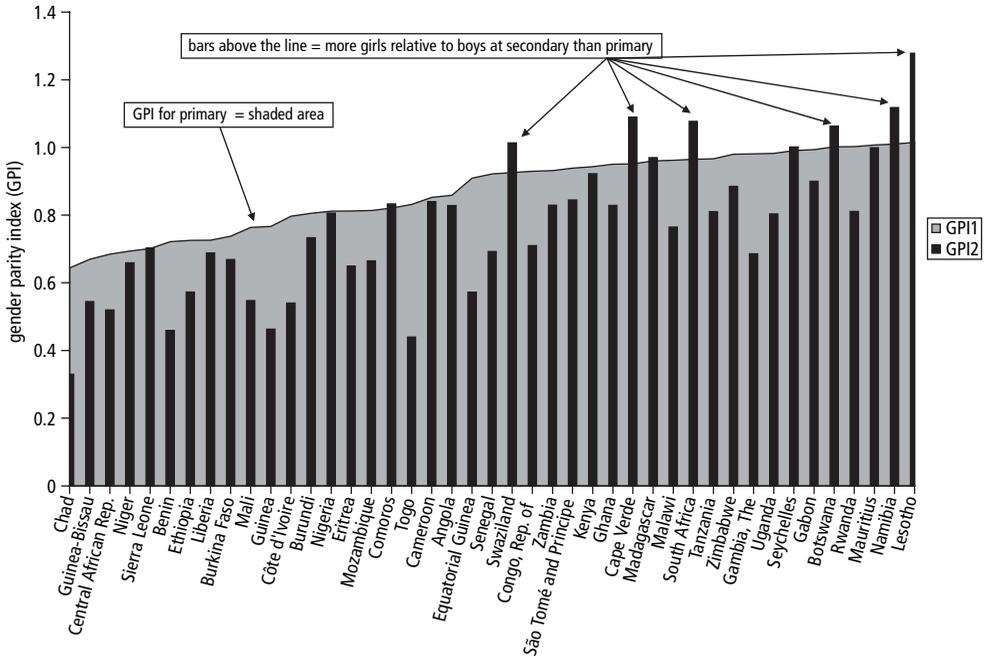
In only six countries—Botswana, Cape Verde, Lesotho, Namibia, South Africa, and Swaziland—is the gender parity index at the secondary level (GPI2) greater than the index at the primary level (GPI1) (figure 2.6). In at least five of these countries (all but South Africa), older boys migrate for work. In all other countries, differences in male and female enrollment at the primary level increase at the secondary level. GPI1 and GPI2 correlate with each other ($R^2 = 0.52$), suggesting that they may interact. GPI2 does not correlate with GDP per capita.

Enrolled girls are more marginalized at the secondary level than at the primary level in terms of enrollments. Achieving parity may require structural changes, especially where there are fewer boarding-school places for girls than boys and examination selection favors boys.

Gender differences in enrollments are often related to age at the secondary level. In Tanzania, for example, girls outnumber boys up to the age of 16.5 years but are in the minority for all older age groups, suggesting that over-age enrollment and repetition may disadvantage girls more than boys. In the northern region of Ghana, just 1 percent of entrants to senior-secondary school are of the official entry age (see appendix 4) and there are many more boys than girls.

Patterns of secondary-school enrollment are heavily skewed by household income. The Demographic and Health Survey (DHS) data sets (<http://www.measuredhs.com/>) allow some analysis of these

Figure 2.6 Gender Parity Index in Primary and Secondary School, by Country



Source: UIS 2005. Data are latest available in 2005; most are for 2002.

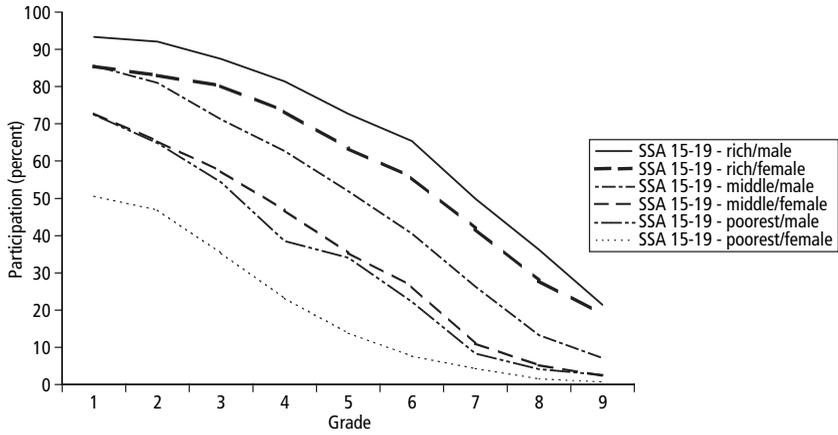
patterns. They indicate the extent to which poverty marginalizes large proportions of the population from participating in schooling at the postprimary level. Households in these data sets are divided into the richest 20 percent and the middle and poorest 40 percent. On average, children from the top quintile of households have more than 11 times the chance of reaching grade 9 than those from the poorest 40 percent.⁶ Gender is less important in explaining differences in enrollment at grade 9 among the richest 20 percent (among whom boys represent 53 percent of all students) than among the poorest 40 percent of households (among whom boys represent 79 percent of all students) (figure 2.7).

Enrollment is also strongly related to urban-rural location (figure 2.8). Urban children are about 10 times as likely as rural children to be enrolled in grade 9.

These regional averages conceal very different patterns across countries. These patterns are critical to understand, because strategies for expanding access to secondary education depend on the nature of enrollment at lower levels.

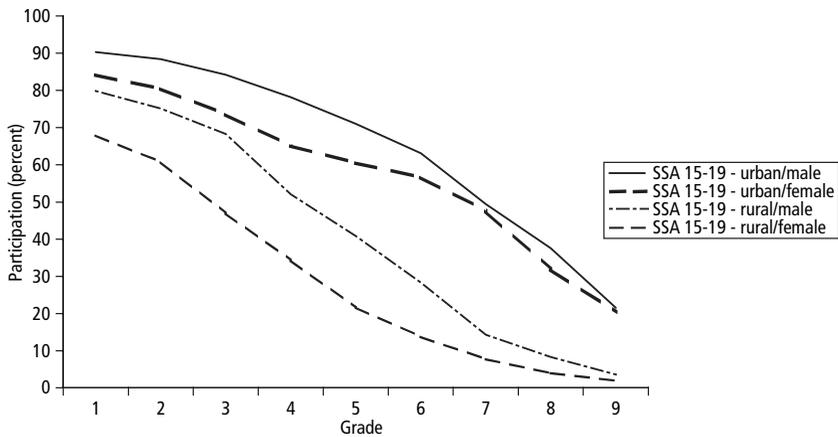
In Benin at all grade levels, students from the top income quintile and boys are most likely to be enrolled (figure 2.9). Transition rates into

Figure 2.7 Participation in Secondary School by 15- to 19-Year-Olds, by Gender and Household Income



Source: Author analysis based on Demographic and Health Survey, 2004 (latest year available).

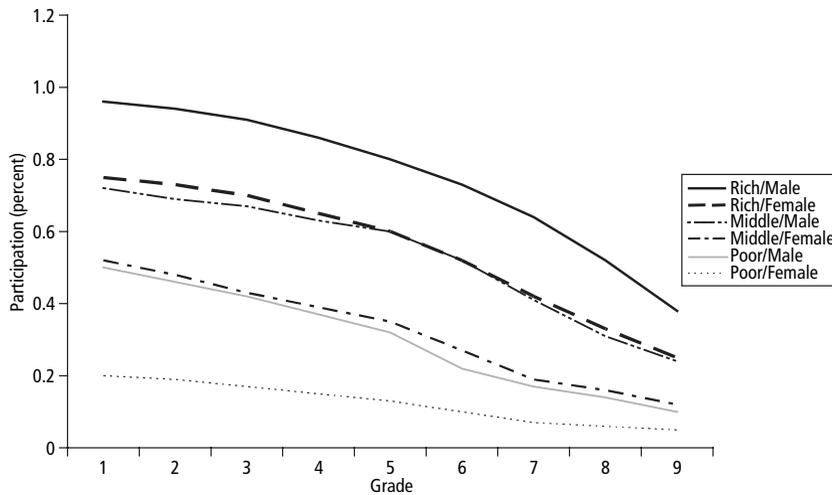
Figure 2.8 Participation in Secondary School by 15- to 19-Year-Olds, by Gender and Urban-Rural Location



Source: Author analysis based on Demographic and Health Survey, 2004 (latest year available).

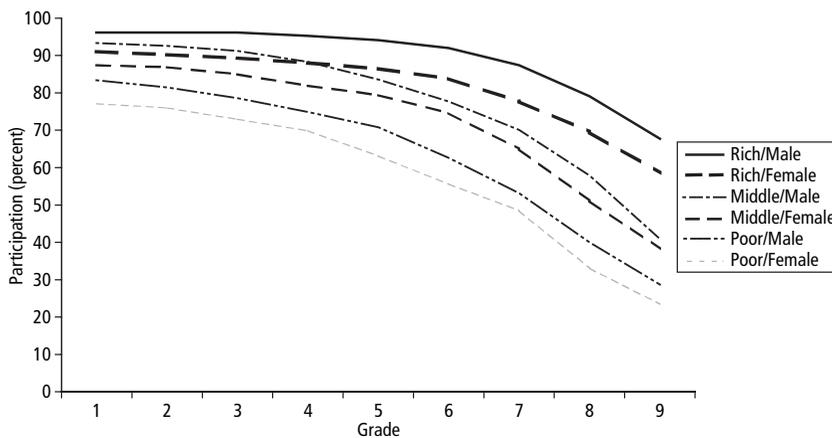
secondary school in favored districts are twice as high as in poorer districts (see appendix 3). In contrast, in Ghana differences related to wealth and gender are much smaller throughout the primary grades (figure 2.10). However, unlike in Benin, these differences widen in higher grades. In Rwanda (figure 2.11), enrollment declines fairly smoothly as grade level increases, with smaller differences by wealth than in several other countries. Tanzania (figure 2.12) shows a very sharp drop in enrollment at secondary entrance

Figure 2.9 Participation in Secondary School in Benin, by Gender and Household Income



Source: Author analysis based on Demographic and Health Survey, 2004 (latest year available).
 Note: Data are for population 15- to 19-years-old.

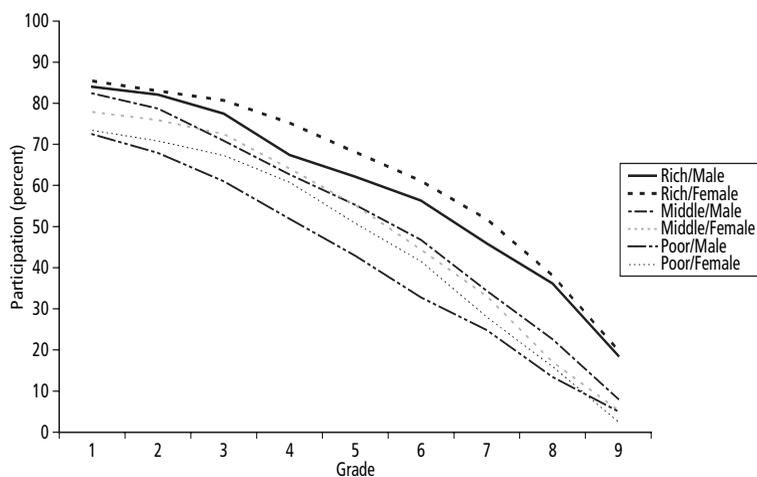
Figure 2.10 Participation in Secondary School in Ghana, by Gender and Household Income



Source: Author analysis based on Demographic and Health Survey, 2004 (latest year available).
 Note: Data are for population 15- to 19-years-old.

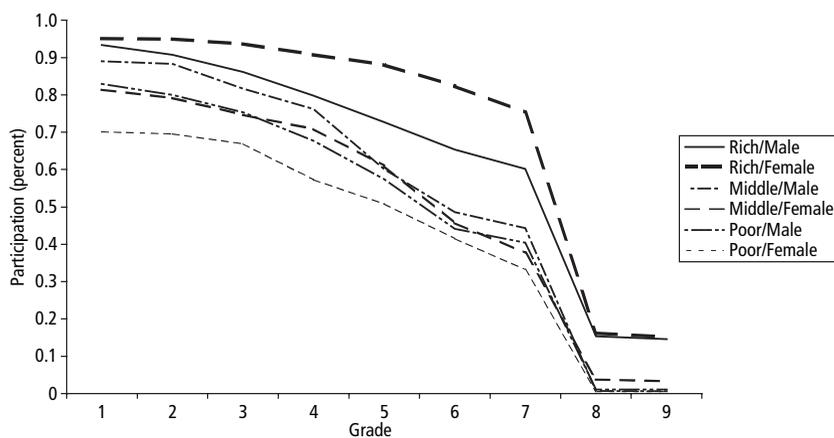
level. Girls from the top income quintile are more likely to be enrolled than boys, and girls from poor households are less likely to be enrolled than poor boys. In Uganda (figure 2.13) and Zambia (figure 2.14) differences by wealth grow in the higher grades, but gender differentiation is minimal. However, enrollment drops rapidly at secondary level.

Figure 2.11 Participation in Secondary School in Rwanda, by Gender and Household Income



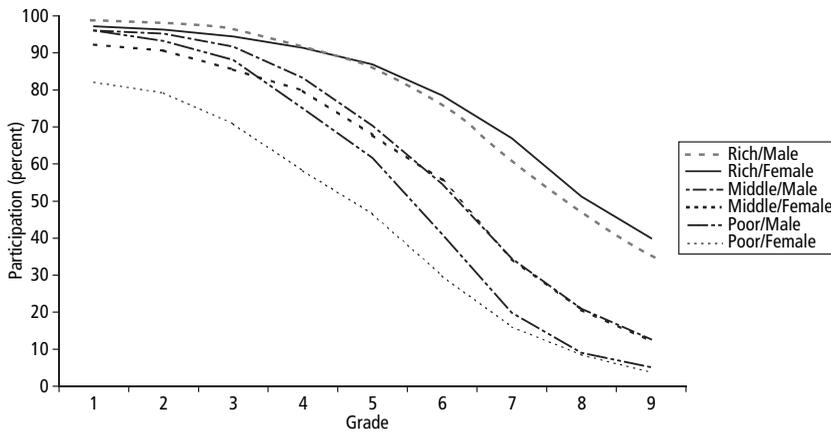
Source: Author analysis based on Demographic and Health Survey, 2004 (latest year available).
 Note: Data are for population 15- to 19-years-old.

Figure 2.12 Participation in Secondary School in Tanzania, by Gender and Household Income



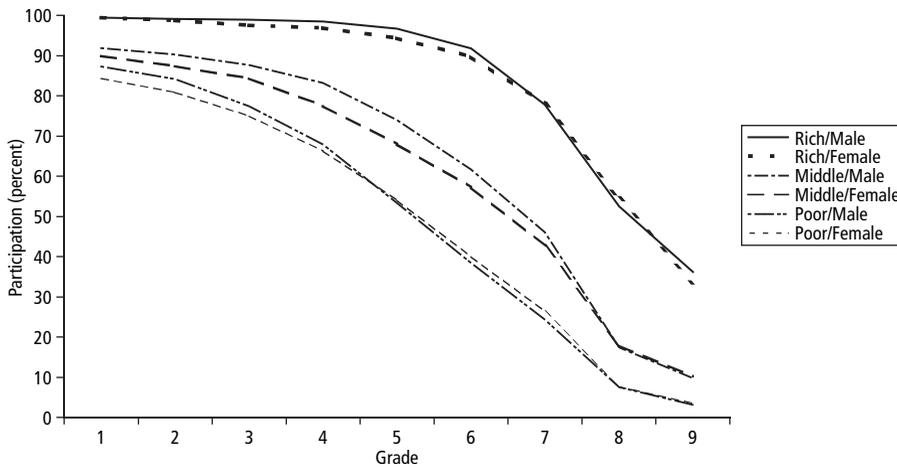
Source: Author analysis based on Demographic and Health Survey, 2004 (latest year available).
 Note: Data are for population 15- to 19-years-old.

Figure 2.13 Participation in Secondary School in Uganda, by Gender and Household Income



Source: Author analysis based on Demographic and Health Survey, 2004 (latest year available).
 Note: Data are for population 15- to 19-years-old.

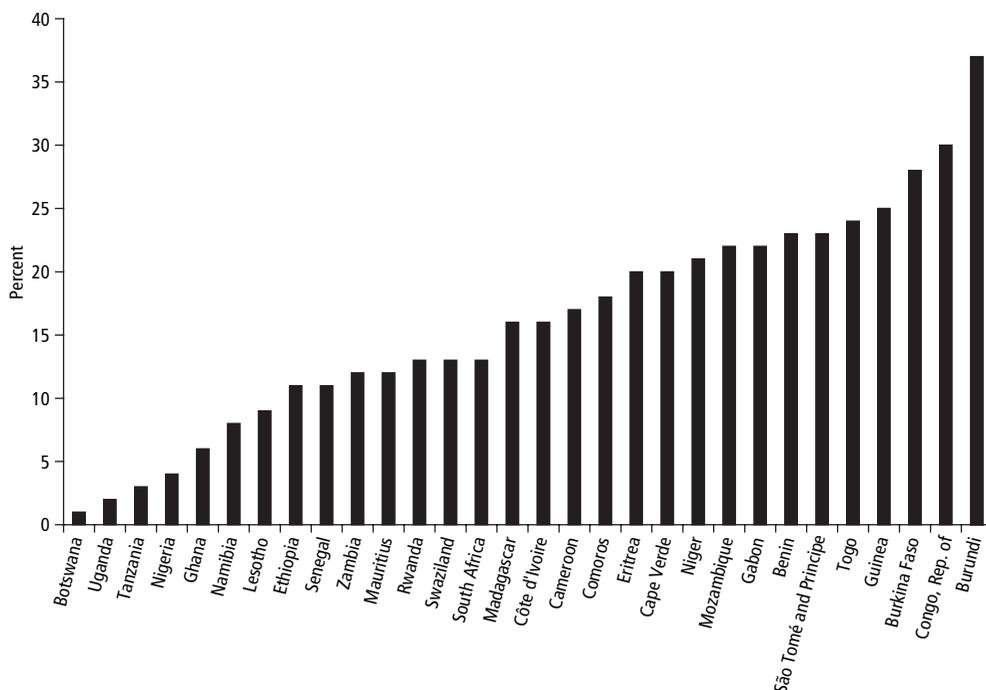
Figure 2.14 Participation in Secondary School in Zambia, by Gender and Household Income



Source: Author analysis based on Demographic and Health Survey, 2004 (latest year available).
 Note: Data are for population 15- to 19-years-old.

REPETITION AND OVER-AGE ENROLLMENT

Secondary-school rates of repetition exceed 20 percent in at least 12 countries (figure 2.15). Repetition is not associated with the level of GER2 and tends to be highest in francophone countries.

Figure 2.15 Secondary-School Repetition Rates, by Country

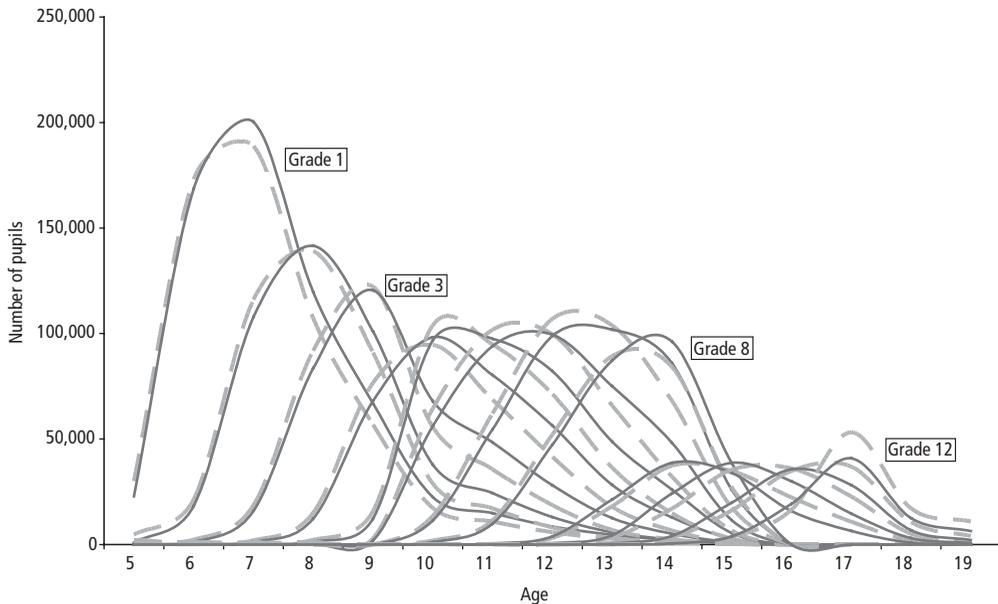
Source: UIS 2005. Data are latest available in 2005; most are for 2002.

High repetition rates suggest that many learners are failing to reach appropriate levels of achievement. They are a problem, because repeaters occupy places that could have been allocated to other students. This increases cost per graduate significantly and is suggestive of poor learning outcomes and low internal efficiency.

Over-age enrollment arises from late entry and repetition. Children within the same grade may differ in age by as much as four years. This results in wide ranges of ability within the same class, making it difficult to teach the same material to children of very different ages. In Kenya, for example, children in grade 1 range from 5 to 11 years, and grade 12 students are 15- to more than 20-years-old (figure 2.16).

TEACHERS AND TEACHER EDUCATION

For the region as a whole, PTRs average about 44:1 at the primary and 25:1 at the secondary level. (Separate lower- and upper-secondary ratios are not available for most countries.) UIS data suggest averages of about 28:1 at the lower-secondary and 22:1 at the upper-secondary level. Mingat

Figure 2.16 Number of Students Enrolled in Kenya, by Age and Grade

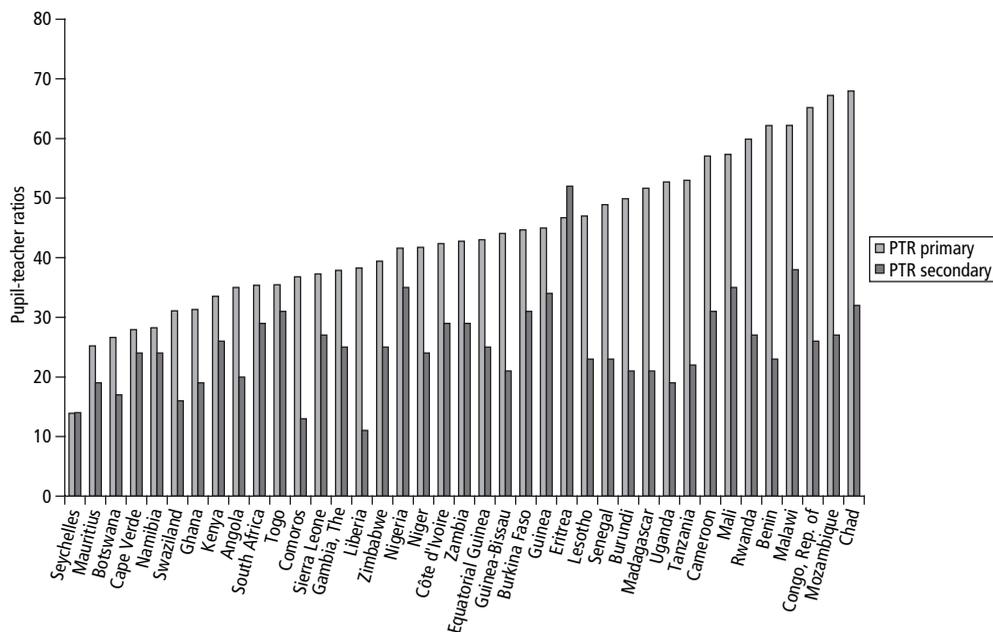
Source: UIS 2005.

(2004) estimates ratios of 37:1 for lower-secondary and 26:1 for upper-secondary school in 17 low-income countries. In 10 countries, PTRs are similar in primary and secondary school, but in most countries the difference is large, with secondary PTRs less than half those at the primary level. Secondary-school PTRs range from less than 10:1 to more than 50:1. They are not related to primary PTRs in a systematic way (figure 2.17).

Low PTRs, and poor distribution of ratios across secondary schools, are widespread. In Ghana 41 percent of senior-secondary schools have PTRS below 15:1, and 19 percent of schools have PTRS below 10:1. In Zambia 22 percent of schools have PTRs below 15:1, and 60 percent are below 20:1.

Teaching loads for secondary-school teachers are often light. In Uganda teachers teach only one-third to one-half of the timetabled periods they are in school (Lewin 2003). In Zambia typical teaching loads are 15–20 periods a week out of 36 timetabled periods for pupils (see appendix 5). Clearly, more-intense teacher utilization is possible.

Many secondary-school teachers—50 percent in Ghana and 70 percent in Rwanda—lack teaching qualifications (the range across 13 countries for which data are available is between 1 and more than 50 percent, with an average of 17 percent untrained teachers [UNESCO Global Monitoring Report 2007]). In some countries, the number of temporary and contract

Figure 2.17 Pupil-Teacher Ratios in Primary and Secondary Schools, by Country

Source: UIS 2005. Data are latest available in 2005; most are for 2002.

teachers has risen rapidly. In Benin, for example, 72 percent of all secondary teachers fell into this category in 2002.

Teacher training courses vary widely, from one-year diploma courses after upper-secondary schooling to four- or five-year undergraduate programs. Diploma and graduate training programs often coexist, providing parallel pathways into teaching. Long precareer residential courses can be very expensive and are often unable to increase output fast enough to meet rapidly rising demand. To provide enough teachers to cope with expanded access, some countries (including Rwanda and Tanzania) have reduced the length of training.

Attrition rates, especially for teachers with degrees, are often high. In Tanzania, for example, more than 40 percent of teachers leave the profession within five years of qualifying (Ministry of Education and Culture, Tanzania 2004).

NONGOVERNMENT PROVIDERS

About 13 percent of secondary education in SSA is estimated to be privately provided (World Bank 2005b). Based on a sample of 17 low-income

countries, Mingat (2004) estimates that 23 percent of lower-secondary and 29 percent of upper-secondary education is privately financed.⁷ The role of the private sector varies widely, accounting for less than 5 percent of secondary enrollment in Botswana and South Africa and more than 40 percent in Tanzania and Uganda.

Nongovernment schools are poorly defined, and enrollment data are incomplete (Kitaev 1999; Lewin and Sayed 2005). UIS estimates of private schooling include both publicly financed but privately owned schools and schools that are wholly private. Unknown but significant numbers of private schools are unregistered, and enrollments and teaching staff are often unstable from year to year.

The distribution of private schools is very uneven. In Benin half of all private schools are in Atlantique et Littoral, while only 3 percent are in Borgou and Atacora. These private schools have very low PTRs (average 7:1) compared with public schools (average 32:1) and are clearly serving advantaged communities (see appendix 3). In Tanzania nongovernment schools are highly concentrated, with enrollment outnumbering enrollment in public schools in only three regions (Dar es Salaam, Kilimanjaro, and Mbeya).

Nongovernment fee-paying schooling in SSA differs from private schooling in rich countries in several ways. First, the 0–14 dependency rates (the ratio of the number of people under the age of 15 to the number of people 15–64) are 90–100 percent in Malawi, Tanzania, and Uganda and average 85 percent for the region as a whole. These rates are far higher than those in Australia (34 percent), the United Kingdom (30 percent), or the United States (32 percent) (UIS estimates, 2005). The ratio between the number of school-age children and the number of people in the work force is therefore very different. Income to support fees is thus much more limited in SSA.

Second, the relation between secondary-school teacher salaries and GDP per capita is also very different. In Malawi salaries are more than six times GDP per capita; in the United Kingdom they are about the same as GDP per capita. Taken together these demographic and cost factors limit the expansion of unsubsidized schooling supported by fees paid from household income.

Unsubsidized nongovernment schools have minimum operating costs, which determine fee levels. The main costs, especially in low-fee schools, are teacher salaries. In much of the region, only the richest 25 percent of households can afford to send their children to nongovernment schools. This is clearly the case in Benin, Ghana, Rwanda, Tanzania, Uganda, and Zambia (Lewin 2007b).

Nongovernment schools that provide access to the poor can do so only if they are subsidized, even if they pay teachers much less than government schools do. Some schools receive contributions from nongovernmental organizations (NGOs) and faith-based communities. These not-for-profit organizations are unlikely to offer schooling opportunities on a national level to large numbers of students without national or international subsidies, however.

Nongovernment providers, both for-profit and not-for-profit, make a significant contribution to enrollments in many countries. However, most nongovernment secondary schooling is urban and concentrated in wealthier districts.⁸ Private secondary schools in rural areas are often boarding schools serving an urban clientele. Higher-income countries in the SSA region appear to have lower rates of nongovernment enrollment than many poorer countries. This suggests that private provision is often displaced by public schooling when governments are rich enough to extend secondary access to large proportions of their populations.

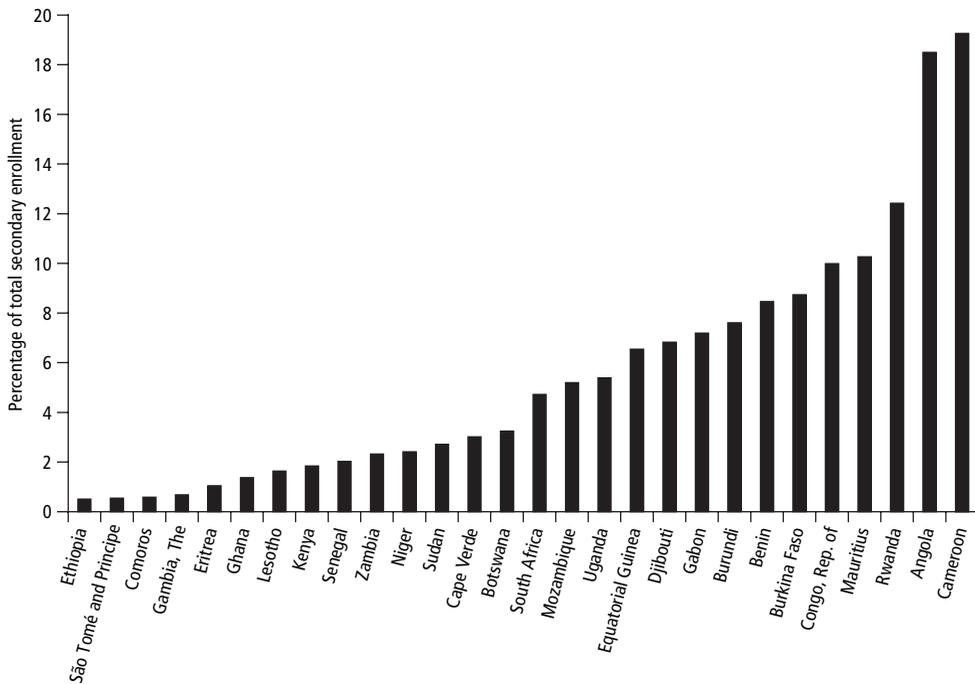
Recent growth in nongovernment provision is poorly documented (Lewin and Sayed 2005). In some countries, it has been concentrated among for-profit providers operating on a small scale at the lower end of the fee market. Much of this activity is unlicensed and unregulated; facilities and learning outcomes are poor, with schools often located in houses or commercial premises and run as small businesses. There are signs that growth is slowing in some countries: new registrations in Tanzania indicated growth of less than 2 percent a year in 2002/03; growth in private upper-secondary schools was less than 2 percent a year in the 1990s.⁹

Nongovernment schools can contribute to expanded access. Although it will remain difficult to run effective secondary schools that are affordable to poor households, increased enrollment in nongovernment schools by wealthier students may free up resources in the public school system.

TECHNICAL AND VOCATIONAL EDUCATION

The importance of technical and vocational education and training (TVET) at the secondary level is difficult to estimate, because it occurs in a wide variety of institutional locations. These include general and specialized public schools; schools under ministries other than the Ministry of Education; and nongovernment for-profit and not-for-profit schools. Less than 6 percent of total enrollment is in technical and vocational schools (figure 2.18).¹⁰ Enrollment exceeded 10,000 students in only six countries in 2001: Cameroon, the Democratic Republic of Congo, Côte d'Ivoire, Mali,

Figure 2.18 Technical and Vocational School Enrollment as Percentage of Total Secondary-School Enrollment, by Country



Source: UIS 2005. Data are latest available in 2005; most are for 2002.

Mozambique, and Uganda. Enrollment in TVET represented less than 2 percent of total secondary enrollment in 9 out of 19 countries for which data were available; 5–9 percent of enrollment in 6 countries; and more than 10 percent of enrollment in just 4 countries (Atchoerena and Delluc 2001).

Moreover, the share of TVET in total enrollments appears to have been falling as a result of softening demand from pupils, lack of confidence among sponsors, and high costs. In Uganda demand for places in lower-secondary farm and technical schools fell to less than 1 percent of total places available (Lewin 2003). In Zambia the national technical high school could fill only two of eight grade 10 classes because of the low standard of applicants in 2003 (see appendix 5).

Johanson and Adams (2004) review evidence from 20 countries. Their estimates suggest that costs per pupil of TVET can reach as much as 14 times those for general secondary schooling. They conclude that some vocational subjects could be included in general secondary schooling if the costs of doing so are similar to those of other subjects and the courses are not heavily gender biased and that in general, SSA needs more

effective primary and lower-secondary education rather than job specific training. Gill, Fluitman, and Dar (2000) support the view that successful TVET uses curricula that are general rather than occupation specific and that look more like “technologized” school subjects integrated within the normal curriculum (Lewin 2000). The Ghana case study (appendix 4) concludes that “implementing a large-scale diversified curriculum in systems with severe resource constraints is not advisable. It is prudent to allow some secondary schools to introduce TVET but with the proviso that they can meet clearly defined cost-effectiveness standards.”

EXPENDITURE AND COSTS

In many countries with substantial commitments to universalizing primary education, at least half of recurrent expenditure is allocated to primary schooling, partly as a result of benchmarks related to external assistance. In some countries, particularly high-enrollment countries, secondary education absorbs a greater share of the budget than primary education. As secondary enrollment grows, budget shares for primary education may have to fall to levels found in high-enrollment countries, which are often below 40 percent.

Some countries spend more on tertiary education costs than on secondary schooling. Throughout the 1990s, Malawi allocated nearly twice as much to tertiary education as to secondary schools. Rwanda allocated 34 percent of its public education resources to tertiary institutions and about 20 percent to secondary schooling in 2004. Tanzania allocated 18 percent of its education budget to tertiary education and only 7 percent to secondary schooling in 2003. These patterns cannot be sustained if secondary education is to be expanded.

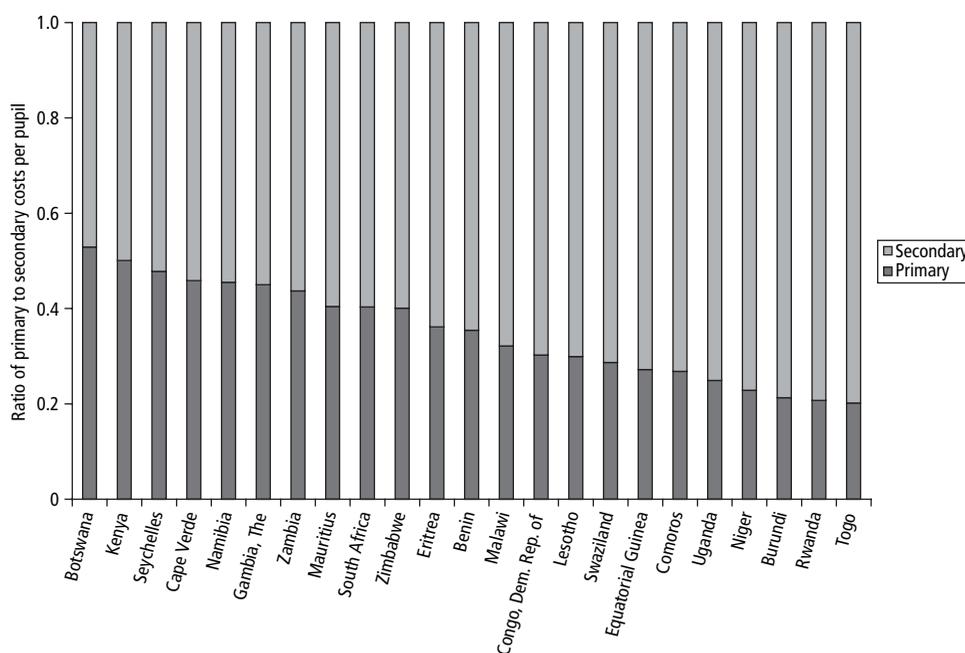
Public costs per student vary across levels of education. On average, per pupil costs for lower-secondary school are about three times those for primary school, and upper-secondary schools cost about six times as much as primary school. Higher levels of education cost more because of lower PTRs, higher salary costs, boarding subsidies, and larger numbers of non-teaching support staff, which can account for 40 percent of total costs per pupil (table 2.3 and figure 2.19).

In systems with high enrollment rates, the ratio of the unit cost in secondary school to the unit cost in primary school is low. Countries with high secondary-school enrollment tend to spend less than twice as much on secondary-school students as on a primary-school students (Lewin and Caillods 2001). All OECD countries with high GER2 spend less than twice as much per student in secondary school as in primary school.

Table 2.3 Per Pupil Costs at Primary, Lower-Secondary, and Upper-Secondary Levels in 17 Sub-Saharan Countries

Level	Teacher salaries as multiple of per capita GDP	Total recurrent spending on items other than teacher salaries as a percentage of total spending on education	Total unit cost (percent per capita GDP)
Primary	Average	4.6	27.4
	Range	2.4–6.8	15–43
Lower-secondary	Average	6.6	37.4
	Range	3.6–13.1	24–56
Upper-secondary	Average	9.3	39.5
	Range	3.8–19.8	18–53

Source: Mingat 2004. Data are based on 17 sector studies.

Figure 2.19 Ratio of Primary to Secondary School Costs per Pupil, by Country

Source: UIS 2004.

The share of the costs of secondary-school enrollment (fees, transport, learning materials, and so forth) that are borne privately range widely across countries. In public secondary schools in Tanzania, Uganda, and Zambia, more than half of total costs per student are financed through fees and other contributions. This partly explains why enrollment in secondary school is heavily skewed toward wealthy households.

CONCLUSIONS

Eight important insights emerge from the analysis in this chapter:

1. GER2s are low, with about three-quarters of the school-age population receiving little or no secondary schooling. Four countries (the Democratic Republic of Congo, Ethiopia, Nigeria, and Tanzania) account for almost half of all students who are not in secondary school; 15 countries account for 80 percent of those with no access. For the region as a whole, the weighted average GER was just 33 percent for lower-secondary and 19 percent for upper-secondary school in 2002 and has been increasing only slowly. Moreover, the gap between the GER2 in SSA and other developing regions remains wide, with consequences for labor force competitiveness.
2. Enrollment rates in secondary school are not systematically related to enrollment rates in primary school and lower- and upper-secondary rates are not clearly related. In countries in which per capita GDP is less than \$1,000, secondary-school enrollments show no simple relation with national wealth. The implication is that GER2 is influenced by the policy preferences of governments and their development partners, acting through budget allocations, and levels of public unit costs, which shape the supply of opportunities to participate.
3. In most countries, more boys than girls attend secondary school. On average boys represent about 55 percent of students in lower-secondary school and 60 percent in upper-secondary school. In low-enrollment countries, the differences are much greater. Almost all countries with gender parity in enrollments have GER2 of more than 50 percent.
4. PTRs average about 44:1 at the primary and 25:1 at the secondary level (28:1 for lower-secondary and 22:1 for upper-secondary), with wide variations between and within countries. Untrained teachers often make up 20 percent of the cadre and can account for more than 50 percent of all teachers in the worst cases. Teacher training systems vary greatly in length and in their capacity to increase output to meet expanding demand over short periods.
5. Enrollment is strongly skewed in favor of students from richer households and urban locations. These effects, which vary widely across countries, tend to be much stronger than gender differences.
6. Nongovernment providers account for about 13 percent of total enrollment at the secondary level (possibly more, because of undercounting). They include privately owned but publicly subsidized schools, faith-based schools, and schools run by NGOs. The sector contains both high-fee and lower-fee schools. It predominantly serves upper- and

middle-income families in urban and periurban areas. Low-cost providers that are unsubsidized are unlikely to be affordable by households below the 20th percentile of income. This excludes not only the poor but also many children from middle-income households.

7. Public technical and vocational schools account for less than 10 percent of total enrollment in most countries, and their share may be declining. There is little evidence of high levels of unsatisfied demand for technical and vocational training linked to job-specific training at lower-secondary level; in most countries, the preference is for entry to general secondary schools.
8. Costs per pupil at the secondary level average three (lower-secondary) to six (upper-secondary) times those at the primary level. Nonteaching costs can represent as much as 40 percent of total costs per pupil. Secondary education receives less funding than tertiary education in some countries (including Malawi, Rwanda, and Tanzania). In high-enrollment countries (including Mauritius, the Seychelles, and South Africa), total expenditure on secondary education tends to be greater than total expenditure on primary education, but patterns vary.

The Challenge of Expanding Secondary Enrollment

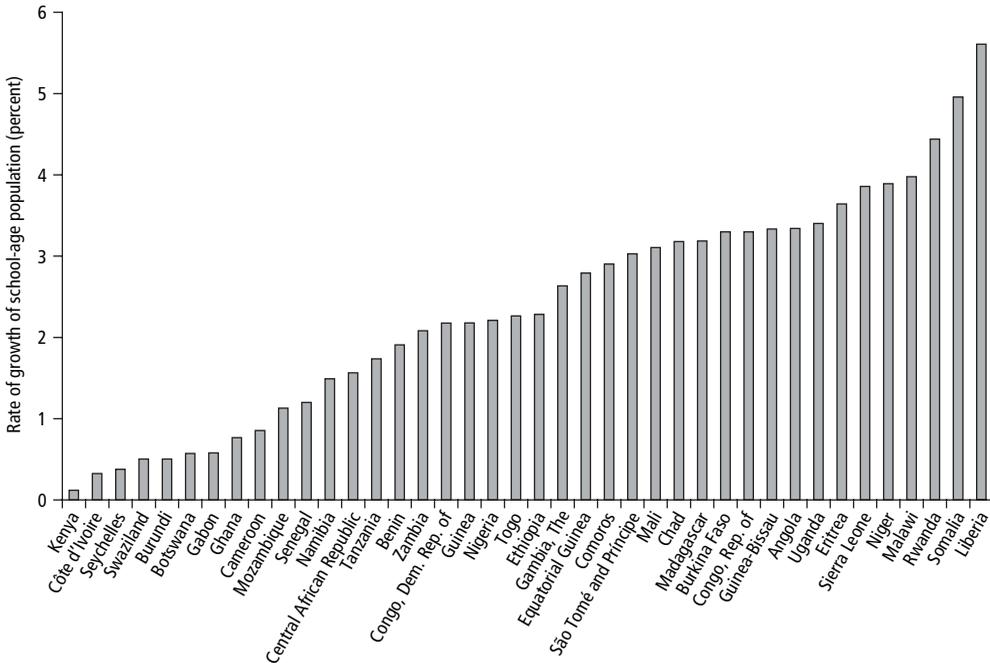
Secondary school enrollments in SSA will grow at rates determined by policy commitments, resource availability, and affordability. Demand for places is likely to rise rapidly as greatly increased numbers reach the end of primary schooling. The policy challenge will be to manage growth so that it results in sustained gains in access, and does not degrade quality seriously, as has happened in some cases of rapid primary enrollment growth. Growth much above 5 percent per annum over and above GDP growth will be difficult to sustain financially and in terms of infrastructure and qualified teacher supply. This chapter analyzes demographic data and models the increased enrollment needed. It develops a typology of countries ordered by patterns of likely demand, which illustrates the importance of different starting points and the distances education systems need to travel toward higher enrollment rates.

HOW RAPIDLY WILL SECONDARY ENROLLMENTS GROW?

The number of school-age children in Sub-Saharan Africa (SSA) is growing at an average rate of about 2 percent, ranging from 1.4 percent to more than 5 percent (figure 3.1). The school-age population represents different proportions of the total population in different countries, ranging from less than 20 percent (in the Seychelles) to nearly 40 percent (in Zimbabwe and Burundi) (figure 3.2).

Demographic transition to low growth has occurred in some countries, such as Mauritius and the Seychelles, but high population growth continues in others, such as Eritrea and Uganda. In some countries, normal demographic patterns have been severely disrupted by HIV/AIDS.

Figure 3.1 Annual Growth Rate of School-Age Population, by Country, 2005



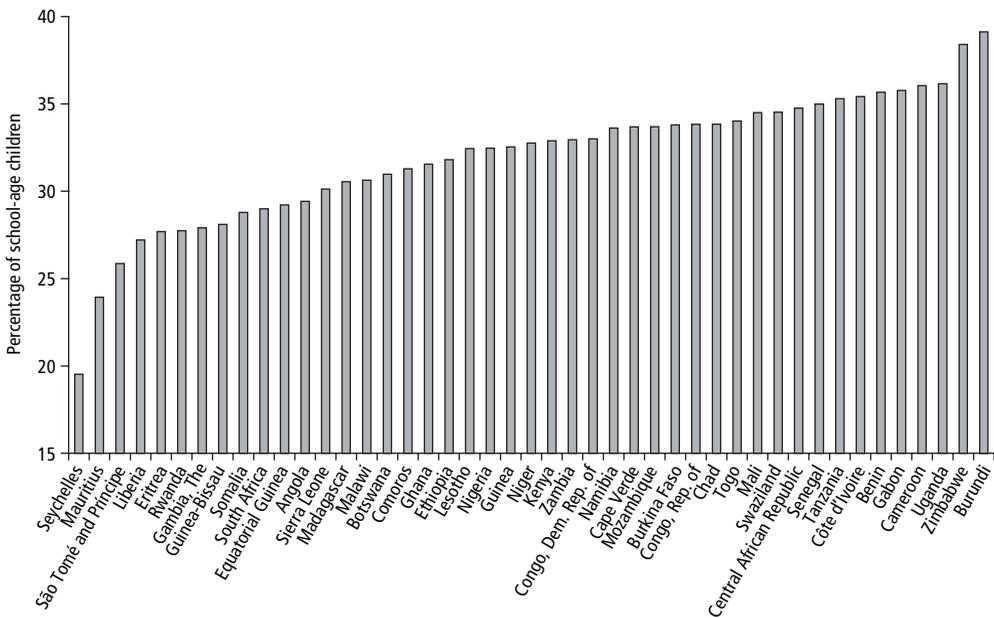
Source: UN Population estimates.

Note: Countries with negative population growth (Cape Verde, Lesotho, and Mauritius) are not shown.

Based on official entry ages, the primary-school-age population appears set to increase by about 35 percent between 2002 and 2015, from about 207 million to 280 million. The number of lower-secondary-school-age children is projected to rise from 49.2 million to 66.2 million, while the number of upper-secondary-school-age youth is projected to rise from 45.1 million to 60.9 million.

Where the gross primary enrollment rate (GER1) exceeds 110 percent, total primary enrollment should stabilize and may even fall for a period, as repetition and over-age entry are eliminated. Where GER1 is less than 100 percent, total primary enrollment will need to increase more rapidly than the growth in the number of school-age children. In both cases, the numbers of children completing primary school will increase, as larger proportions of those who enter grade 1 complete primary school.

How increased primary enrollments translate into additional places needed at secondary level depends on a range of policy choices. These include how rapidly to expand primary school, how quickly to reduce repetition and dropout rates, how to select pupils into lower- and upper-secondary school, how to manage changes in primary to secondary

Figure 3.2 Percentages of School-Age Children in Population, by Country, 2005

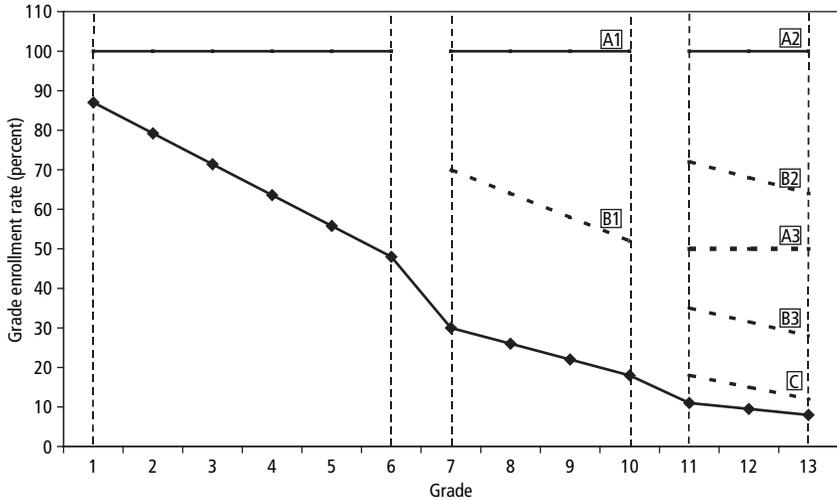
Source: UN population estimates.

transition rates, and how to reduce repetition and over-age enrollment at the secondary level.

Mingat (2004) provides a useful way of examining options for expanding secondary enrollment (figure 3.3). Gross enrollments by grade decline from about 88 percent percent in grade 1 (the SSA average) to less than 50 percent by grade 6, 20 percent by grade 10, and 8 percent by grade 13. Profile A1 illustrates 100 percent completion and transition to lower secondary. Profiles A2 and A3 represent 100 percent transition from the last year of lower-secondary to upper-secondary and 100 percent completion of each cycle. Profile B1 indicates 100 percent completion of primary and lower-secondary enrollment based on current transition rates. Profiles B2, A3, B3, and C indicate different patterns of upper-secondary school enrollment.

Based on these profiles, the levels of increased enrollment needed to reach 100 percent primary access and different levels of secondary enrollment were calculated for 10 countries. If primary-school enrollment were to rise to 100 percent and primary–secondary transition rates remained at 63 percent, average lower-secondary-school enrollment would need to increase by a factor of 3.7 times to accommodate the increase in secondary-school enrollment. Universalizing lower-secondary-school enrollment would require that enrollment increase by a factor of 6.0.

Figure 3.3 Gross Enrollment Profiles in 10 Countries



Source: Mingat 2004.

Note: Countries are Benin, Cameroon, Madagascar, Mali, Maruritania, Mozambique, Niger, Rwanda, Senegal, and Togo. Solid line is equivalent to a grade-by-grade enrollment rate.

This model is shaped by targets for primary to secondary transition rates. It assumes that these targets can be maintained or increased as expansion takes place. In reality, in countries where there is likely to be a rapid increase in primary school output as a result of universalizing primary access, transition rates may fall. Different priorities will be set and different rates of growth will occur at the lower- and upper-secondary levels that are not directly linked to transition rates or the flows completing primary school. Enrollment rates will also be constrained by nonfinancial constraints on growth, such as teacher supply, new building capacity, and the rate at which repetition can be decreased and achievement increased.

A more extensive set of estimates has been developed using data from 38 countries. This compares the number of students enrolled with the numbers needed to achieve different levels of GER. For the region as a whole, achieving a GER 1 of 110 percent requires the number of primary places to expand on average by 30 percent over 2001 levels without population growth, and much more in some countries. If the school population continues to grow at current rates, the number of primary-school places needed will rise by 80 percent greater by 2015. If the gross lower-secondary enrollment rate (GER2L) reaches 100 percent of those of official entry age, the number of places will need to increase by a factor of 4.0 without population growth and 5.6 times by 2015 if population growth is included. Achieving a gross upper-secondary enrollment rate (GER2U)

of 100 percent would require the number of places to rise by a factor of 10.9 without population growth and 15.5 with population growth by 2015.

The amount of enrollment expansion needed in countries in the lower third of table 3.1 is high. To achieve universal lower-secondary education, these countries would have to provide 4–10 times as many lower-secondary places as they did in 2001 and 8–20 times as many slots by 2015 (figure 3.4). The rates of increase needed to universalize upper-secondary education are even higher.

This analysis leads to several conclusions:

1. The total number of primary places needs to increase by more than 30 percent (sometimes much more) between 2001 and 2015 in about 70 percent of the countries in the data set.
2. Only 11 countries (Botswana, Cape Verde, Ghana, Lesotho, Mauritius, Namibia, São Tomé and Príncipe, the Seychelles, South Africa, Swaziland, Togo, and Zimbabwe) are likely to universalize lower-secondary education if the maximum sustainable rate of increase in lower secondary enrollments is 10 percent a year. If the maximum rate is set at 5 percent, only five countries (Botswana, Cape Verde, Mauritius, the Seychelles, and South Africa) will achieve this goal.
3. Targets less than a GER2L 100 percent may have to be set if they are to be achievable; these targets differ depending on countries' prioritization of increased access at the primary and secondary levels, available resources, and the costs of expansion.
4. It will be difficult for most countries to maintain primary to secondary transition rates if all primary entrants complete the last year of primary school. Half the countries in the data set will not be able to maintain these rates unless lower-secondary enrollments grow at an average of 10 percent a year through 2015.
5. GER2L can continue to rise if growth is planned to ensure this outcome even if primary to secondary transition rates fall for a period.

ENROLLMENT PATTERNS FOR GRADES 1–9 ACROSS COUNTRIES IN SUB-SAHARAN AFRICA

Different countries face different enrollment challenges, depending on their current patterns of enrollment and the rate at which progress is made toward achieving higher levels of enrollment. Priorities should differ between countries with high GER1 and low primary completion rates and those in which most children who start primary finish the cycle. Where the GER1 is well below 100 percent, decisions have to be made about the

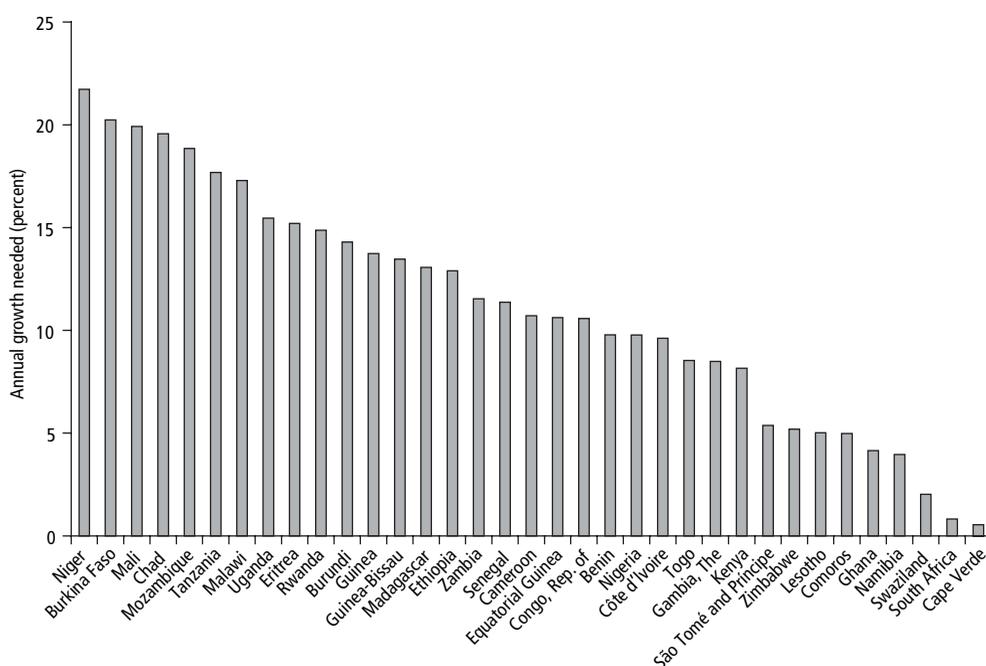
Table 3.1 Increase in Enrollments Needed to Achieve GER = 100%, GER2L = 100%, and GER2U = 100% in 2001 and 2015

Country	Increase needed to achieve GER1 = 110%		Increase needed to achieve GER2L = 100%		Increase needed to achieve GER2U = 100%	
	2001	2015	2001	2015	2001	2015
Seychelles	1.0	1.0	0.9	1.0	1.0	1.0
South Africa	1.1	1.0	1.2	1.0	1.5	1.6
Cape Verde	0.9	0.8	1.2	1.1	2.5	2.2
Mauritius	1.1	0.9	1.5	1.2	2.1	1.7
Botswana	1.1	1.2	1.2	1.3	1.7	1.9
Namibia	1.1	1.4	1.4	1.8	3.8	4.7
Zimbabwe	1.2	1.2	1.9	1.9	18.3	17.7
Ghana	1.4	1.5	1.8	2.0	6.7	7.5
São Tomé and Príncipe	0.8	1.2	1.4	2.2	4.9	7.7
Swaziland	1.1	1.2	2	2.2	3.6	3.8
Lesotho	0.9	0.8	2.5	2.3	5	4.6
Togo	0.9	1.3	1.8	2.5	6.9	9.7
Gambia, The	1.4	2.1	2.2	3.2	5.5	8.1
Côte d'Ivoire	1.4	1.5	3.4	3.5	7	7.3
Nigeria	0.9	1.3	2.6	3.6	3.2	4.4
Cameroon	1.1	1.2	3.5	3.9	6.8	7.8
Eritrea	1.8	3.1	2.3	4.0	4.8	8.2
Equatorial Guinea	0.9	1.3	2.6	4.0	16.5	25
Zambia	1.4	2.0	2.9	4.0	7.8	10.7
Congo, Dem. Rep. of	1.3	2.1	2.5	4.1	8.8	14.3
Benin	1.1	1.4	3.1	4.1	11.6	15.5
Kenya	1.2	1.2	4.0	4.1	4.3	4.4
Comoros	1.5	2.4	2.9	4.4	4.4	6.7
Guinea	1.5	2.0	3.8	5.3	9	12.4
Senegal	1.5	1.8	4.8	5.7	10.1	12
Ethiopia	1.7	2.4	4.5	6.3	8.5	11.9
Madagascar	1.1	1.7	4.7	7.5	13.1	21
Rwanda	0.9	1.7	4.3	8.2	7.6	14.7
Guinea-Bissau	1.7	2.8	5.0	8.3	12.2	19.9
Burundi	1.6	1.7	8.1	8.7	23.7	25.6
Mali	1.9	3.1	5.8	9.1	N/A	N/A
Malawi	0.9	1.6	5.1	9.2	6.4	11.6
Uganda	1.1	1.5	7.6	9.9	31.3	40.5
Mozambique	1.4	1.7	9.5	11.3	27.3	32.3
Burkina Faso	2.5	4.1	7.9	12.9	26.8	43.5
Chad	1.4	2.3	8.2	13.1	14.5	23.3
Tanzania	1.2	1.9	9.3	15.3	44.5	73.6
Niger	2.8	4.9	11.3	20.1	40.6	71.9
Unweighted average	1.3	1.8	4.0	5.6	10.9	15.5

Source: Author projections based on UIS data.

Note: The figures indicate the multiple of enrollments needed to reach target enrollment levels when compared to enrollments in 2001/2. The figure for 2015 includes population growth. In some cases the school age population is shrinking but in most, it will increase in size.

Figure 3.4 Increase in Enrollment Needed to Reach Universal Lower-Secondary Enrollment by 2015, by Country



Source: UIS database 2005.

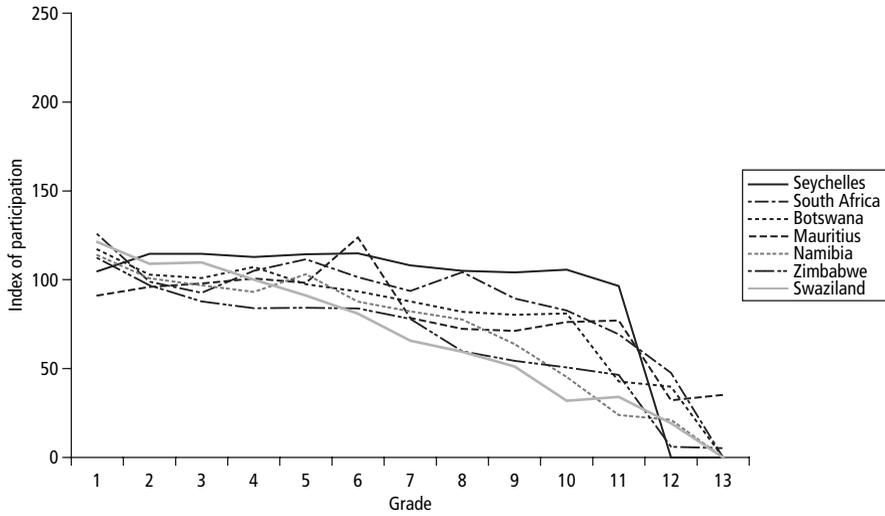
rate at which lower-secondary should expand when many children do not enter primary school and even fewer complete it.

A data set was constructed using grade-by-grade enrollment data for 38 countries. Countries were grouped into five groups:

- Group 1: High enrollment in primary and secondary school and low rates of repetition and dropout
- Group 2: Very high initial enrollment rates in primary school but high dropout and repetition and low completion rates, with low transition rates into secondary school and low secondary-school enrollment
- Group 3: High primary-school entry rates and moderate levels of repetition, dropout, completion, and secondary-school enrollment
- Group 4: Less than universal primary-school entry rates and low primary- and secondary-school enrollment rates
- Group 5: Very low primary-school entry rates and very low enrollment though primary and secondary school.

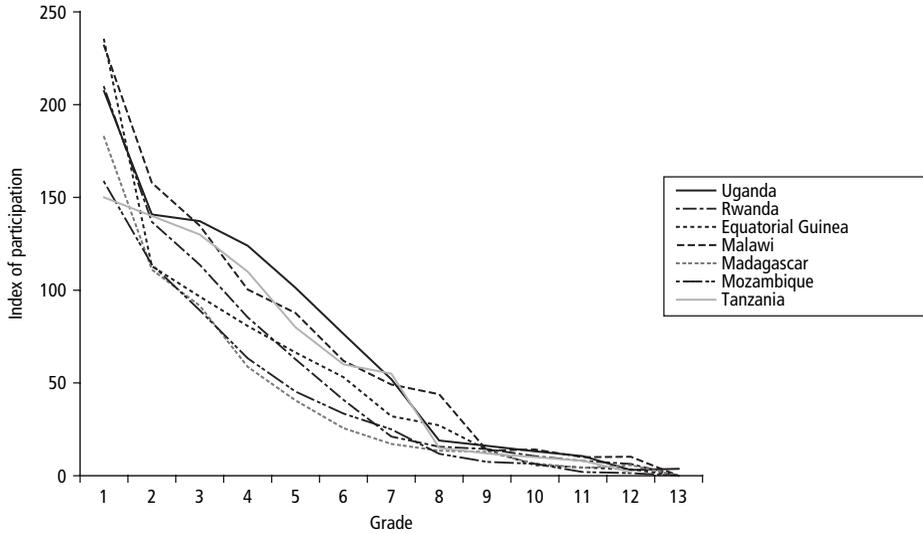
For Group 1 (figure 3.5), the index of participation¹ is close to 100 percent in grade 1 and 75 percent in grade 9. GER1 is 95–115 percent,

Figure 3.5 Enrollment Patterns in Group 1 Countries



Source: Author.

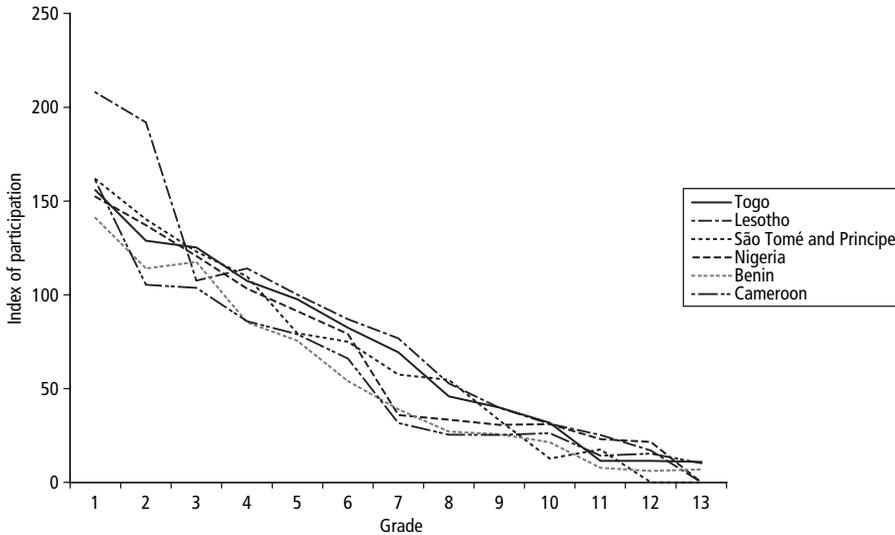
Figure 3.6 Enrollment Patterns in Group 2 Countries



Source: Author.

with enrollment patterns suggesting low levels of over-age enrollment. Countries in this group include Botswana, Mauritius, Namibia, the Seychelles, South Africa, Swaziland, and Zimbabwe.

Group 2 countries have a very different pattern (figure 3.6). Initial enrollment rates are very high, with enrollment rates in grade 1 that can exceed

Figure 3.7 Enrollment Patterns in Group 3 Countries

Source: Author.

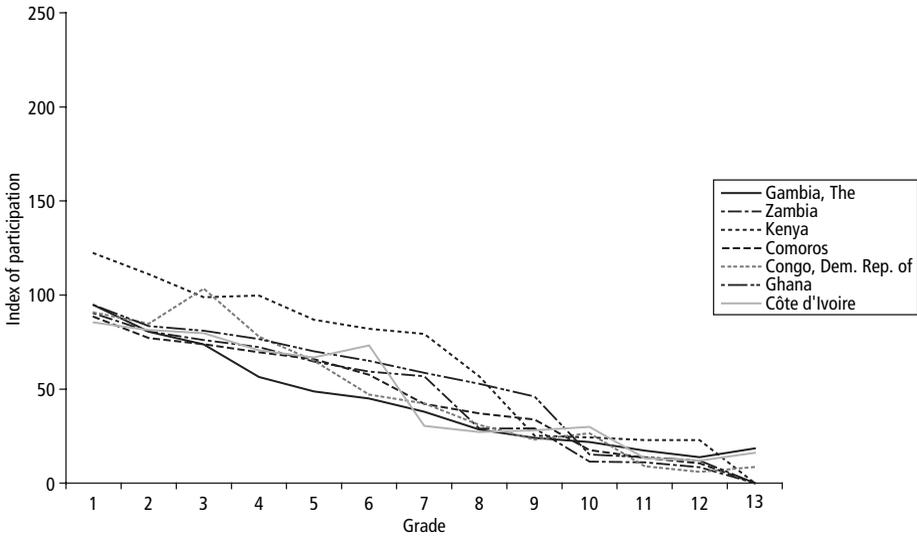
200 percent. GER1 is 100–140 percent. Attrition is steep, with enrollment rates falling to about 20 percent by grade 9. In these countries, primary education has expanded rapidly, but completion rates are low and very small numbers of students enter lower-secondary school (even fewer enter upper-secondary school). Countries in this group include Equatorial Guinea, Madagascar, Malawi, Mozambique, Rwanda, Tanzania, and Uganda.²

Group 3 countries have grade 1 enrollment rates of about 150 percent and GER1 rates of 108–126 percent (figure 3.7). Attrition is lower than in Group 2, with more students surviving to grade 9, where the enrollment rate is about 35 percent. Countries in this group include Benin, Cameroon, Lesotho, São Tomé and Príncipe, Nigeria, and Togo.

Group 4 countries have enrollment rates in grade 1 of less than 100 percent. The enrollment rate falls more rapidly than for Group 3, to about 25 percent by grade 9 (figure 3.8). GER1 is 78–92 percent, indicating that many students do not complete the full cycle of primary school. Countries in this group include Comoros, the Democratic Republic of Congo, Côte d'Ivoire, The Gambia, Ghana, Kenya, and Zambia.

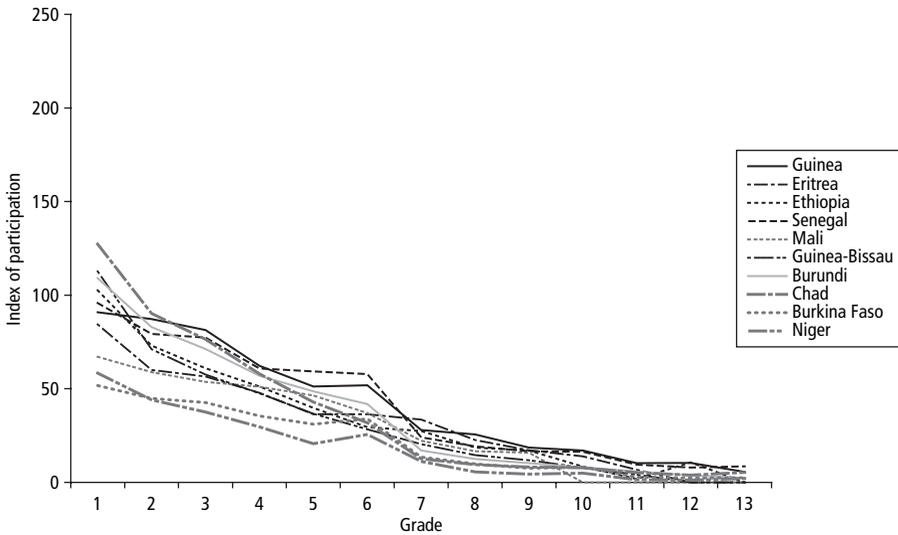
Group 5 countries have very low entry levels and low enrollment rates through grade 9 (figure 3.9). GER1 is 44–84 percent. Countries in the group have low or very low rates of secondary-school enrollment. They have low rates of attrition, because few students are enrolled. Unlike Group 2 countries, entry rates are well below levels necessary to universalize primary

Figure 3.8 Enrollment Patterns in Group 4 Countries



Source: Author.

Figure 3.9 Enrollment Patterns in Group 5 Countries

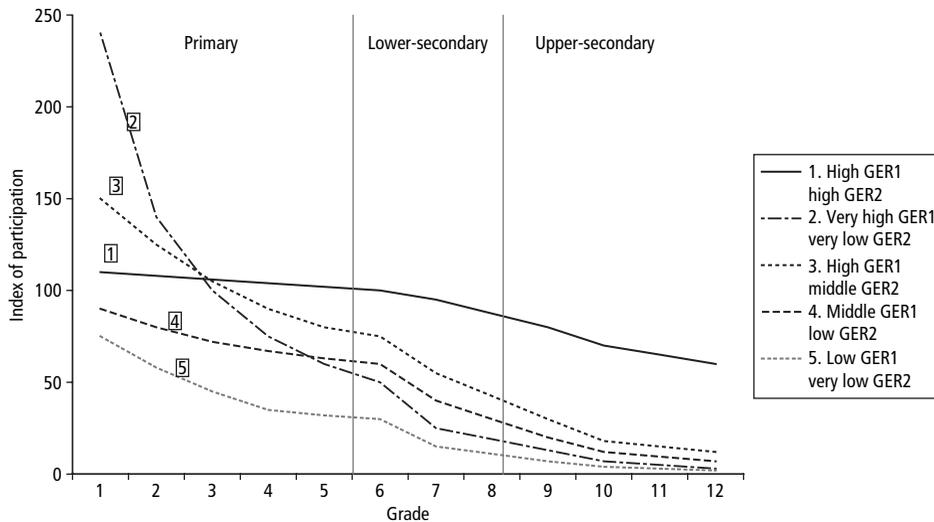


Source: Author.

school. Countries in this group include Burkina-Faso, Burundi, Chad, Eritrea, Ethiopia, Guinea, Guinea-Bissau, Mali, Niger, and Senegal.

Figure 3.10 shows enrollment patterns for all five groups of countries based on an aggregation of country types. Table 3.2 outlines some possible prognoses for the different country groups and possible policy options.

Figure 3.10 Participation Patterns in Primary, Lower-Secondary, and Upper-Secondary School, by Country Group



Source: Author.

Note: Participation index approximates a grade-by-grade enrollment rate.

Group 1 countries have largely succeeded in achieving universal access to primary school, have high enrollments in lower-secondary school, and low population growth. Their systems are affordable and need to prioritize quality improvement.

Group 2 countries have very large numbers of students in the lower-primary grades. If all those entering grade 1 were to complete primary school, the number of primary graduates would increase about fivefold after only six years. It will be difficult if not impossible to hold transition rates into lower-secondary school constant as the number of primary leavers expands over a short time period; targets for expansion below GER2L = 100 percent will need to be set.

Group 3 countries have more-manageable growth rates of primary leavers. If all enrolled pupils in grade 1 were to complete primary school, the number of primary school leavers would double in six years. The challenges of expanding secondary education in these countries is less daunting than in Group 2.

Group 4 and 5 countries have low enrollment rates in grade 1. In many, the number of primary graduates has not been rising very rapidly, as Education for All (EFA) programs have been slow to take off. In these countries, secondary expansion remains constrained by primary school output.

In principle, Group 2 countries will become more like Group 3 countries as repetition and dropout through primary school fall. Group 3

Table 3.2 Challenges for Expanding Secondary Education, by Country Group

Group	Description	Countries	Prognosis
1	High GER1, high GER2L and GER2U, low attrition. High participation rates at all levels and low population growth. Mostly higher-income countries.	Botswana, Mauritius, Namibia, the Seychelles, South Africa, Swaziland, Zimbabwe ^a	Secondary expansion needed is modest and likely to be well within domestic resources. Future investment needed in quality improvement and improved age-grade progression with lower repetition.
2	Very high GER1, very low GER2L and GER2U, high attrition. High over-enrollment in grade 1, high dropout and low primary completion rates. Low transition to secondary school.	Madagascar, Malawi, Mozambique, Rwanda, Tanzania, Uganda	Urgent need to improve on-age enrollment rates in grade 1 and reduce repetition and attrition through the primary grades. Secondary expansion is initially limited by the small number of primary graduates. Transition rates into secondary are likely to fall as larger numbers of primary entrants flow through to the last grade of primary. Financing of secondary expansion is problematic, even with cost-saving reforms. Strategic planning needed to balance secondary expansion with continuing needs to improve primary-school quality and completion rates.
3	High GER1, moderate GER2L and GER2U, moderate attrition. Moderate primary completion rates and transition to secondary school.	Benin, Cameroon, Lesotho, Nigeria, São Tomé and Príncipe, Togo	Substantial progress toward universalizing primary education. It will be difficult to maintain transition rates into secondary if primary completion rates increase. Secondary expansion is needed to enroll more than 50 percent of students through lower-secondary school. Financing of secondary expansion is feasible but requires reforms.
4	Moderate GER1, low GER2L and GER2U, moderate attrition; GER1 below 100, with substantial numbers not enrolling in or completing primary school. Moderate attrition reflects low initial enrollment and high repetition and dropout rates. Transition rates are moderate, but participation in secondary school is low.	Comoros, the Democratic Republic of Congo, Côte d'Ivoire, The Gambia, Ghana, Kenya, Zambia	Primary entry and completion rates require investment and reforms. Substantial secondary expansion is needed to reach 50 percent GER2L. Financing of secondary expansion is challenging and competes with need for more investment to increase GER1. Balanced growth strategies needed to improve primary participation and completion rates alongside affordable expansion of lower secondary education.
5	Low GER1, very low GER2L and GER2U, moderate attrition, reflecting low entry rates and high repetition and dropout rates; very low secondary-school participation.	Burkina Faso, Burundi, Chad, Eritrea, Ethiopia, Guinea, Guinea-Bissau, Mali, Niger, Senegal, Tanzania	Priority remains to increase primary participation and completion rates. Secondary expansion limited by numbers of successful primary completers. Massive expansion needed to reach 50 percent GER2L; effort may be premature. Balanced growth strategies needed to improve primary participation and completion rates alongside affordable expansion of lower secondary education.

Source: Author.

a. Zimbabwe's position may have changed since 2001, as a result of austerity and migration.

countries may become more like Group 1 as secondary enrollment rates increase. This should happen if progress continues to be made toward EFA. Critically, countries in Groups 4 and 5 may come to resemble those in Group 2, with considerable overenrollment in grade 1 and high repetition and dropout rates through the primary grades. This would not necessarily be the best result, because internal inefficiency would increase considerably. There are many possible patterns of evolution, some of which are likely to be more efficient and effective than others.

This analysis highlights the fact that different strategies will be needed in different countries. The dynamics of growth at the primary level will not be the main determinants of growth at the lower- and upper-secondary levels. How secondary schooling will grow depends on the resource demands of universalizing primary school and reaching specified levels of secondary enrollment, the constraints on increasing capacity without reducing quality excessively, and the strength of demand for secondary places. Demand, which is sensitive to the direct costs of enrollment to households, may soften as secondary expansion draws in more children from poor households who cannot afford the costs of attendance. How much costs can and should be subsidized and for whom are critical policy questions.

How Much Secondary Expansion Is Affordable with and without Reform?

The affordability of secondary expansion can be estimated in various ways. One simple approach is to model different scenarios using typical data for low-enrollment countries to illustrate the costs of various reform options at the system level. A more elaborate approach is to use country data to project costs using figures on enrollment rates, public expenditure by level as a percentage of per capita GDP, recurrent costs per pupil as a percentage of GDP, and the proportion of school-age children at different levels as a percentage of the total population.

This chapter presents the results of these two approaches. It also analyzes the effect of increasing the supply of teachers and raising the development budget. It then develops a framework for policy options that are developed in detail in chapter 5.

REGIONAL ESTIMATES OF THE RECURRENT COST OF EXPANDING SECONDARY EDUCATION

The financial resources needed to support various enrollment patterns can be calculated based on cost per pupil as a percentage of per capita GDP; the number of pupils in the age group as a proportion of the total population; and desired enrollment rates (table 4.1). The analysis here is based on typical values for low-enrollment countries in Sub-Saharan Africa (SSA) for pupil: teacher ratios (PTRs); teacher salaries, nonteacher salaries, nonsalary expenditure as a multiple of GDP; and school-age groups as a percentage of the total population. The proportion of the education budget allocated to education other than primary and secondary schooling is estimated at 20 percent.¹ Gross enrollment rates are set at 85 percent for primary school (GER1), 26 percent for

Table 4.1 Scenario 1: Current Enrollment Rates, No Reform

Item	Primary	Lower-secondary	Upper-secondary	Other levels of education	Total
Pupil: teacher ratio	44	30	20	n.a.	n.a.
Teacher salaries as multiple of per capita GDP	4.6	6.6	9.3	n.a.	n.a.
Nonteaching salaries/per capita GDP	0.4	1.5	2.7	n.a.	n.a.
Nonsalary expenditure/per capita GDP	0.4	1.5	2.7	n.a.	n.a.
Teacher salaries as percentage of total recurrent expenditures	85	69	63	n.a.	n.a.
Total unit cost as percentage of per capita GDP	12	32	74	n.a.	n.a.
School-age population as percentage of total population	18	9	7	n.a.	n.a.
Gross enrollment rate (percent)	85	26	13	n.a.	n.a.
Percentage of budget spent on other education, including higher education				20	
Percentage of GDP needed to finance GER1 = 85%, GER2L = 26%, GER2U = 13%	1.88	0.75	0.67	0.66	3.96

Source: Author estimates.

lower-secondary school (GER2L), and 13 percent for upper-secondary school (GER2U)—average values based on data from UNESCO’s Institute of Statistics (UIS) for the region for 2001/02.

This pattern of costs and enrollment (scenario 1) would require 1.95 percent of GDP to finance primary education, 0.75 percent to finance lower-secondary education, and 0.61 percent to finance upper-secondary education. When other categories of expenditure are included, total recurrent financing needed is about 3.96 percent of GDP—slightly higher than the SSA average of 3.90 percent.²

Scenario 2 models the cost of increasing GER1 to 110 percent (a level necessary to ensure universal enrollment and completion with some repetition); GER2L to 60 percent (allowing net enrollment rates to exceed 50 percent); and GER2U to 30 percent (allowing net enrollment rates to exceed 25 percent). Financing this level of access would require more than 6.8 percent of GDP—nearly 3 percentage points more than the SSA average and more than the 5.1 percent average for developed countries (UIS 2005) (table 4.2). Increasing access to these levels is thus unaffordable without cost-saving reforms.

Scenario 3 shows the financial effect of reforms that would reduce the PTR at the primary level to 40:1 and increase it to 35:1 at the lower-secondary and 25:1 at the upper-secondary level. This reform

Table 4.2 Scenario 2: Higher Enrollment Rates, No Reform

Item	Primary	Lower-secondary	Upper-secondary	Other levels of education	Total
Pupil: teacher ratio	44	30	20		
Teacher salaries as multiple of per capita GDP	4.6	6.6	9.3		
Nonteaching salaries/per capita GDP	0.4	1.5	2.7		
Nonsalary expenditure/per capita GDP	0.4	1.5	2.7		
Teacher salaries as percentage of total recurrent expenditures	85	69	63		
Total unit cost as percentage of per capita GDP	12	32	74		
School-age population as percentage of total population	18	9	7		
Gross enrollment rate (percent)	110	60	30		
Percentage of budget spent on other education, including higher education				20	
Percentage of GDP needed to finance GER1 = 110%, GER2L = 60%, GER2U = 30%	2.43	1.73	1.54	1.14	6.84

Source: Author estimates.

would be coupled with a reduction in teacher costs per student to 3.5, 4.5, and 6.0 times per capita GDP at the primary, lower-secondary, and upper-secondary levels, respectively.³ Financing this scenario would require about 5.1 percent of GDP (table 4.3).

Scenario 4 introduces additional cost savings by assuming that both nonteaching salaries and nonsalary costs per pupil fall as the proportion of boarding-school places declines as systems expand and day schools become more common. This scenario also assumes that the costs associated with education other than primary and secondary schooling (predominantly higher education) is reduced to 15 percent of the education budget. Financing this scenario would require about 4.6 percent of GDP (table 4.4).

Scenario 5 estimates the cost of universalizing lower-secondary education and raising enrollment in upper-secondary school to 50 percent while adopting all of the proposed reforms. Financing this scenario would require about 6.1 percent of GDP (table 4.5).

The results of these scenarios make it very clear that without cost-saving reforms of the kinds indicated, as well as other reforms discussed below, significantly increasing secondary enrollment rates will be difficult or impossible to attain or sustain. Scenario 2 would require an average increase in public financing of more than 70 percent, scenario 3 would require 30 percent, scenario 4 would require 17 percent, and scenario 5 would require 55 percent.

Table 4.3 Scenario 3: Higher Enrollment Rates with Reform Package 1

Item	Primary	Lower-secondary	Upper-secondary	Other levels of education	Total
Pupil: teacher ratio	40	35	25		
Teacher salaries as multiple of per capita GDP	3.5	4.5	6.0		
Nonteaching salaries/per capita GDP	0.4	1.5	2.7		
Nonsalary expenditure/per capita GDP	0.4	1.5	2.7		
Teacher salaries as percentage of total recurrent expenditures	81	60	53		
Total unit cost as percentage of per capita GDP	11	21	46		
School-age population as percentage of total population	18	9	7		
Gross enrollment rate (percent)	110	60	30		
Percentage of budget spent on other education, including higher education				20	
Percentage of GDP needed to finance GER1 = 110%, GER2L = 60%, GER2U = 30%	2.13	1.16	0.96	0.85	5.09

Source: Author estimates.

Note: Reform package 1 includes reducing the pupil: teacher ratio in primary schools, increasing the pupil: teacher ratio in secondary schools, and reducing teacher salary costs as a percentage of GDP.

Table 4.4 Scenario 4: Higher Enrollment Rates with Reform Package 2

Item	Primary	Lower-secondary	Upper-secondary	Other levels of education	Total
Pupil: teacher ratio	40	35	25		
Teacher salaries as multiple of per capita GDP	3.5	4.5	6		
Nonteaching salaries/per capita GDP	0.4	1.5	2.0		
Nonsalary expenditure/per capita GDP	0.4	1.5	2.0		
Teacher salaries as percentage of total recurrent expenditures	81	60	60		
Total unit cost as percentage of per capita GDP	11	21	40		
School-age population as percentage of total population	18	9	7		
Gross enrollment rate (percent)	110	60	30		
Percentage of budget spent on other education, including higher education				15	
Percentage of GDP needed to finance GER1 = 110%, GER2L = 60%, GER2U = 30%	2.13	1.16	0.84	0.61	4.64

Source: Author estimates.

Note: Reform package 2 includes reform package 1 plus reducing nonteaching salaries, nonsalary costs, and other education level expenditures, including expenditure on higher education.

Table 4.5 Scenario 5: Full Primary- and Lower-Secondary-School Enrollment with Reform Package 3

Item	Primary	Lower- secondary	Upper- secondary	Other levels of education	Total
Pupil: teacher ratio	40	35	25		
Teacher salaries as multiple of per capita GDP	3.5	4.5	6		
Nonteaching salaries/per capita GDP	0.4	1.2	2		
Nonsalary expenditure/per capita GDP	0.4	1.2	2		
Teacher salaries as percentage of total recurrent expenditures	81	65	60		
Total unit cost as percentage of per capita GDP	11	20	40		
School-age population as percentage of total population	18	9	7		
Gross enrollment rate (percent)	110	100	50		
Percentage of budget spent on other education, including higher education				15	
Percentage of GDP needed to finance GER1 = 110%, GER2L = 100%, GER2U = 50%	2.13	1.77	1.40	0.80	6.11

Source: Author estimates.

Note: Reform package 3 includes reform packages 1 and 2 plus an increase in GER2L to 100% and GER2U to 50%.

COUNTRY-LEVEL ESTIMATES OF COSTS OF EXPANDING SECONDARY EDUCATION

These estimates provide only a rough guide to possible costs. Data from national education systems can be used to improve these estimates.

The first step is to identify the resources needed to achieve and sustain universal primary education, a prioritized commitment. The recurrent cost of universalizing primary schooling can be calculated using the identity:

$$GER1 = X_1 / A_1 C_1,$$

where X_1 is public expenditure on primary education as a percentage of GDP; C_1 is public recurrent expenditure on primary schooling per student as a percentage of per capita GDP; and A_1 is the proportion of the population of primary-school-age children.

It follows that

$$X_1 = GER1 \times A_1 C_1.$$

The values of A_1 in SSA vary from 10 percent (in São Tomé and Príncipe and the Seychelles) to 22 percent (in Kenya and Malawi), with an average of 17.6 percent for countries with a per capita GDP of less than \$1,500. Comparable data on C_1 for SSA are incomplete. The average for 16 countries in the UIS database is 12 percent, ranging from 5 percent

(in Madagascar) to 20 percent (in Namibia). A target value of 12 percent was chosen for all cases. This value is less than the average for developed countries, 19 percent, but comparable to the 2005 average. It represents a minimum level likely to be needed to provide effective primary schooling.

The results suggest that X_1 ranges from about 1.4 percent of GDP (in Mauritius, São Tomé and Príncipe, and the Seychelles) to more than 2.5 percent of GDP (in Kenya, Lesotho, Malawi, Mozambique, Namibia, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe). On average, 2.3 percent of GDP is needed to finance universal primary enrollment given the existing primary-cycle length, age distribution of children, and cost per child of 12 percent of per capita GDP. The amount per child for all costs (not shown) ranges from \$10 in the Democratic Republic of Congo and \$12 in Burundi and Ethiopia to more than \$450 in Mauritius and the Seychelles.

On this basis, about \$6.8 billion a year (in 2001 U.S. dollars) is needed to support universal primary enrollment. This figure falls to \$3.7 billion if countries with per capita GDP of more than \$1,500 (Botswana, Gabon, Mauritius, the Seychelles, and South Africa) are excluded. The total for this group of countries would rise to \$4.95 billion by 2015 as a result of the increase in the number of school-age children.⁴ These figures can be compared with a total education expenditure of about \$6.36 billion in low-income SSA in 2001.⁵ Based on these assumptions, the aggregate cost of universalizing primary education appears to be about 58 percent of total public expenditure on education. Unless additional external assistance is provided, expansion of secondary schooling (and all other education subsectors) would have to be financed from the remaining 42 percent of the budget.

These estimates are conservative. Spending just 12 percent of per capita GDP per child (about \$10 per child in the poorest countries) may be insufficient to support effective primary schooling. Raising this figure would increase the estimates.

Public expenditure needed to support expanded secondary schooling is determined by the same identity:

$$X_2 = GER2 \times A_2 C_2,$$

where X_2 is public expenditure on secondary education as a percentage of GDP; C_2 is public recurrent expenditure on secondary schooling per student as a percentage of per capita GDP; and A_2 is the proportion of the population of secondary-school-age children.

Projecting these costs is more difficult than projecting primary-school costs, because most systems distinguish between lower- and upper-secondary, which have different costs per pupil and different lengths. A_2 at

the lower-secondary level ranges from 5 percent (in Botswana, Ethiopia, Kenya,⁶ Mozambique, the Seychelles, and Zambia) to more than 10 percent (in Benin, Burundi, Cameroon, the Central African Republic, Côte d'Ivoire, Gabon, Mali, São Tomé and Príncipe, Senegal, Sierra Leone, Togo, Uganda, Tanzania, and Zimbabwe). At the upper-secondary level, A_2 ranges from about 3 percent (in Malawi, São Tomé and Príncipe, and the Seychelles) to more than 9 percent (in Angola, the Democratic Republic of Congo, Côte d'Ivoire, and Ethiopia). At both levels, it is highest where lower-secondary cycles are longest and population growth lowest. In low-income countries in SSA, the average for A_2 is 8.8 percent for lower-secondary and 6.9 percent for upper-secondary education.

C_2 varies widely across countries and between lower- and upper-secondary school. It is affected by the ratio of teacher salaries at different levels, the mix of boarding and day schools, the number of specialized schools, the extent to which nongovernment schools are subsidized, and the magnitudes of administrative and nonsalary expenditure. UNESCO Institute of Statistics (UIS) data (on 17 countries) suggest that unit costs at the secondary level average about 25 percent per capita GDP in SSA, with higher values in countries with the lowest enrollment rates. Based on 17 World Bank sector studies, Mingat (2004) estimates C_2 as averaging 31 percent at the lower-secondary and 63 percent at the upper-secondary levels, with very wide dispersions in each case. Values of 30 percent of per capita GDP for lower-secondary school and 60 percent of per capita GDP for upper-secondary school were adopted here to model the costs of achieving given levels of enrollment. These values are consistent with other estimates of unit costs and with sector-level country data.

Table A.1 in appendix 1 shows the results of the projections. They indicate that with the existing cycle length and numbers of school-age children, achieving GER2L of 60 percent at the lower-secondary level would require less than 1 percent (in Botswana, Eritrea, Ethiopia, Malawi, and Zambia) to more than 2 percent of GDP (in Burundi, Cameroon, Côte d'Ivoire, Gabon, and Zimbabwe). Achieving GER2U of 30 percent would require less than 0.8 percent (in Guinea-Bissau, Malawi, São Tomé and Príncipe, the Seychelles, and Uganda) to more than 2 percent (in the Democratic Republic of Congo and Ethiopia) of GDP.

On average, 1.5 percent of GDP is needed to support lower-secondary schooling and 1.2 percent is needed to support upper-secondary schooling at the projected enrollment rates in low-enrollment countries. This is equivalent to about \$2.4 billion and \$2.0 billion a year in 2001 and \$3.2 billion and \$2.7 billion in 2015.

Comparable figures on cross-country spending on higher education and other education subsectors are not available. An assumption has been

made that these costs account for 20 percent of total public expenditure on average. On this basis, total expenditure on education would need to be about 6.3 percent of GDP to sustain systems with GER1 of 110 percent, GER2L of 60 percent, and GER2U of 30 percent in low-income countries without cost-saving reforms. This is equivalent to about \$10.2 billion in 2001 and \$13.5 billion in 2015.

These projections were rerun to determine the effect of raising GER1 to 110 percent, GER2L to 100 percent, and GER2U to 50 percent. The results indicate that 2.6 percent of GDP is needed to support lower-secondary education and 2.0 percent of GDP is needed to support upper-secondary schooling at the projected enrollment rates. This is equivalent to about \$4.1 billion and \$3.3 billion a year in 2001 and \$5.4 billion and \$4.5 billion by 2015 (table A1.2 in appendix 1).

Educational expenditure in low-income SSA averaged about 3.9 percent of GDP in 2004, equivalent to \$6.4 billion for countries with per capita GDP below \$1,500. This is about \$3.8 billion less than needed to sustain systems with enrollment rates of GER1 of 110 percent, GER2L of 60 percent, and GER2U of 30 percent. Angola, Cameroon, Côte d'Ivoire, Madagascar, Nigeria, Senegal, Tanzania, and Uganda account for about 73 percent.

For the higher enrollment rate targets of GER2L of 100 percent and GER2U of 50 percent, total recurrent expenditure on education would need to average 8.4 percent of GDP to sustain systems with GER1 of 110 percent, GER2L of 100 percent, and GER2U of 50 percent in low-income SSA. This is equivalent to about \$13.9 billion in 2001 and \$18.5 billion a year in 2015—about \$7.5 billion a year (at 2001 prices) more than allocated to education in 2002.

Individual countries may not be allocating resources to primary, secondary, and higher education in the proportions needed to achieve a GER1 of 110 percent, GER2L of 60 percent, and GER2U of 30 percent. In the data set, nine countries are spending as much or more than they need to support these outcomes but are not achieving them, because they do not allocate resources with these ends in mind.

The country data in appendix 1 indicate that a GER1 of 110 percent, GER2L of 60 percent, and GER2U of 30 percent can be achieved only if more than 6 percent of GDP is allocated to recurrent education budgets. This estimate is consistent with the generic estimates made in the aggregate simulations above. Reforms are thus needed to reduce costs per pupil if expanded secondary enrollment is to be achieved.

If the country projections are rerun using substantially lower values for the cost per pupil as a percentage of per capita GDP (20 percent for lower secondary and 40 percent for upper secondary rather than 30 percent

and 60 percent, respectively) and spending on higher education and other subsectors other than primary and secondary school is reduced to 15 percent of total spending, affordability increases. On average, about 4.8 percent of GDP would be sufficient to achieve a GER1 of 110 percent, GER2L of 60 percent, and GER2U of 30 percent. This is a level that some higher-enrollment SSA countries are already achieving; it is close to the average for developed countries with high secondary-school enrollment rates. Achieving this level of enrollment would require additional recurrent expenditure of about \$1.5 billion a year over 2001 levels (assuming budget-share allocation is designed to support a GER1 of 100 percent, GER2L of 60 percent, and GER2U of 30 percent). To achieve GER2L of 100 percent and GER2U of 50 percent, 6.3 percent of GDP would be needed (a recurrent shortfall of about \$3.8 billion a year). (For aggregate results for countries with per capita GDP of less than \$1,500, see table 4.6. Appendix 1 contains country-by-country projections.)

These estimates assume reductions in the costs of higher education and other recurrent expenditure from 20 percent to about 15 percent of the total education budget and significant reductions in costs per pupil.⁷ Achieving these reductions would require radical reforms that may not be within reach in countries with high costs per pupil as a percentage of GDP. Significant reductions in higher education and other expenditure would also be required, which may not be feasible.

These estimates do not include the costs of teacher training or infrastructure and other development costs. These costs are considered below.

INCREASING THE SUPPLY OF TEACHERS

Expanding secondary-school enrollment has to be supported by an increase in the number of qualified teachers if class sizes are not to increase and learning achievement reduced. In some countries, the lack of teachers will constrain the rate at which secondary schooling can grow.

Teacher demand is determined by

$$Td = Np/PTR - (Nq + Nu) - Na,$$

where Td is the number of new teachers needed each year; Np is the number of students enrolled; PTR is the pupil: teacher ratio; Nq is the number of qualified teachers; Nu is the number of unqualified teachers; and Na is the rate of teacher attrition.

Teacher demand can be estimated using UIS data. The estimates are based on a GER1 of 110 percent, GER2L of 60 percent, and GER2U of 30 percent in 2015. PTRs are set at 40:1 for primary school, 35:1 for

Table 4.6 Projected Financing Requirements and Shortfalls Associated with Various Levels of Enrollment

Scenario/level of education	Percentage of GDP needed in 2002	Amount needed (billions of constant 2001 U.S. dollars)		Amount available in 2002		Annual shortfall	
		2002	2015	Percentage of GDP	Billions of constant 2001 U.S. dollars	Percentage of GDP	Billions of constant 2001 U.S. dollars
<i>Enrollment: GER1 = 110%, GER2L = 60%, GER2U = 30%</i>							
<i>Cost/student (percent of per capita GDP): primary = 12%, lower-secondary = 30%, upper-secondary = 60%, higher education = 20% of budget</i>							
Primary	2.3	3.74	4.95	n.a.	n.a.		n.a.
Lower-secondary	1.5	2.43	3.22	n.a.	n.a.	n.a.	n.a.
Upper-secondary	1.2	2.00	2.67	n.a.	n.a.	n.a.	n.a.
Other, including higher education	1.3	2.05	2.71	n.a.	n.a.	n.a.	n.a.
Total	6.3	10.23	13.56	3.9	6.39	2.4	3.84
<i>Enrollment: GER1 = 110%, GER2L = 100%, GER2U = 50%</i>							
<i>Cost/student (percent of per capita GDP): primary = 12%, lower-secondary = 30%, upper-secondary = 60%; higher education = 20% of budget</i>							
Primary	2.3	3.74	4.95	n.a.	n.a.	n.a.	n.a.
Lower-secondary	2.6	4.05	5.37	n.a.	n.a.	n.a.	n.a.
Upper-secondary	2.0	3.35	4.45	n.a.	n.a.	n.a.	n.a.
Other, including higher education	1.7	2.79	3.69	n.a.	n.a.	n.a.	n.a.
Total	8.6	13.93	18.47	3.9	6.39	4.7	7.54

Table 4.6 (continued)

Scenario/level of education	Percentage of GDP needed in 2002	Amount needed (billions of constant 2001 U.S. dollars)		Amount available in 2002		Annual shortfall	
		2002	2015	Percentage of GDP	Billions of constant 2001 U.S. dollars	Percentage of GDP	Billions of constant 2001 U.S. dollars
<i>Enrollment: GER1 = 110%, GER2L = 60%, GER2U = 30%</i>							
<i>Cost/student (percent of per capita GDP): primary = 12%, lower-secondary = 20%, upper-secondary = 40%, higher education = 15% of budget</i>							
Primary	2.3	3.74	4.95	n.a.	n.a.	n.a.	n.a.
Lower-secondary	1.0	1.62	2.15	n.a.	n.a.	n.a.	n.a.
Upper-secondary	0.8	1.34	1.78	n.a.	n.a.	n.a.	n.a.
Other, including higher education	0.7	1.18	1.57	n.a.	n.a.	n.a.	n.a.
Total	4.8	7.89	10.45	3.9	6.39	0.9	1.50
<i>Enrollment: GER1 = 110%, GER2L = 100%, GER2U = 50%</i>							
<i>Cost/student (percent of per capita GDP): primary = 12%, lower-secondary = 20%, upper-secondary = 40%, higher education = 15% of budget</i>							
Primary	2.3	3.74	4.95	n.a.	n.a.	n.a.	n.a.
Lower-secondary	1.7	2.70	3.58	n.a.	n.a.	n.a.	n.a.
Upper-secondary	1.3	2.23	2.97	n.a.	n.a.	n.a.	n.a.
Other, including higher education	0.9	1.53	2.03	n.a.	n.a.	n.a.	n.a.
Total	6.3	10.21	13.53	3.9	6.39	2.4	3.82

Source: Author estimates.

Note: Calculations assume GER1 = 110 percent, which should yield almost universal net enrollment. Shortfall is the amount needed for systems in 2002 less the amount available in 2002.

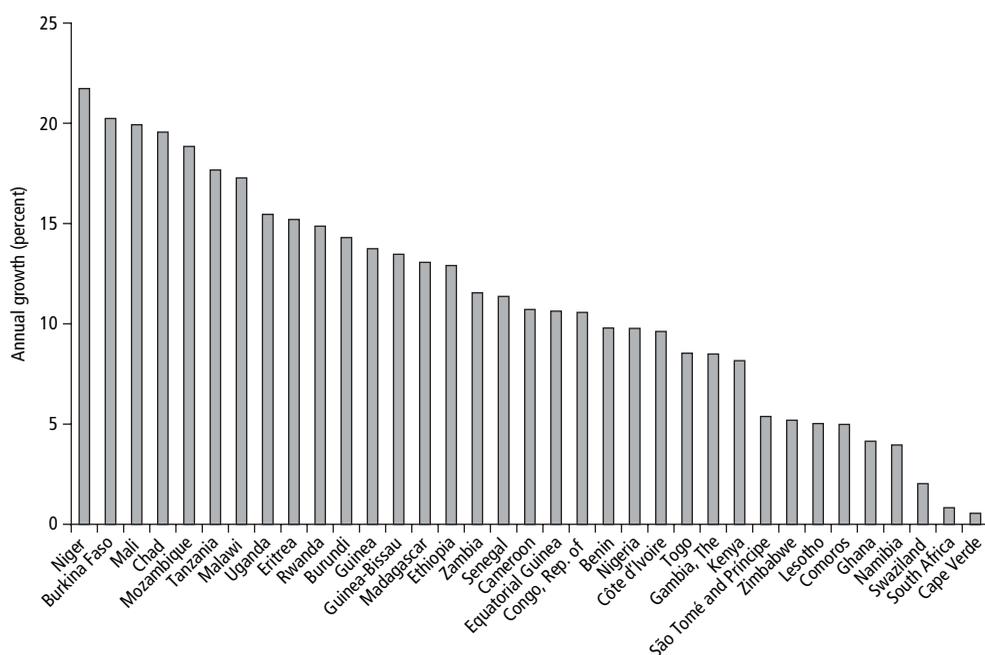
lower-secondary school, and 25:1 for upper-secondary school. The average attrition rate is 5 percent a year for both primary- and secondary-school teachers.⁸ The number of teachers needed to support these outcomes can be compared with the number of teachers teaching (including untrained teachers).

The results show that on average, the number of secondary teachers would have to expand by about 10 percent a year between 2004 and 2015, with some countries having to increase the number of teachers by 20 percent a year (figure 4.1). Assuming that new teachers represent 10 percent of the total number of teachers, teacher attrition is 5 percent, and teacher training takes three years, the number of people entering training would have to double after two years. By the fifth year, three times as many new entrants would be needed to keep pace.

Expanding the number of new teachers this rapidly is unlikely, for several reasons:

1. Training new teachers requires significant lead time. If expansion precedes increased teacher training output, PTRs will rise.

Figure 4.1 Projected Rate of Increase in Number of Secondary-School Teachers Needed to Achieve GER2L of 60% and GER2U of 30%, by Country



Source: Author.

2. The number of new entrants required for teaching may exceed the number of qualified students who are willing and able to train to become teachers.⁹
3. Take-up rates into training and attrition rates for new teachers depend on preferences linked to labor market conditions and the supply of higher education places. If the 5 percent attrition rates assumed are too low, especially for graduates, more teachers will have to be trained.
4. Expanding teacher-training capacity requires more teacher educators, who need to be appointed in advance of expansion. If these educators are drawn from the ranks of experienced teachers, the supply of schoolteachers will decline.
5. The cost of teacher training depends on how it is organized. In some countries, secondary training is conducted at universities. In others, it is conducted in colleges, where costs are lower. Few countries spend more than 5 percent of their education budget on teacher training. Cumulative rates of expansion in training of more than 10 percent a year may run into cost constraints if training costs per successful graduate are a large multiple of costs per pupil in schools. If the training of new teachers is to keep pace with demand, the length and costs of training may have to be reduced.

The costs of training new teachers are therefore significant. In the absence of detailed information on costs by country, a plausible proxy is to estimate teacher training costs at 5 percent of the total education budget for rates of expansion of enrollment of less than 5 percent per year, and 10 percent for higher rates of expansion.

INCREASING INVESTMENT IN EDUCATIONAL INFRASTRUCTURE AND OTHER DEVELOPMENT BUDGET ITEMS

Expansion of secondary education requires construction of additional classrooms, laboratories, workshops, and new schools; the purchase of furniture, equipment, and learning materials; and the provision of supporting infrastructure. Costs depend on design criteria and specifications and can vary widely. Classroom building costs in SSA are often estimated at about \$10,000 per classroom. This figure is used here to estimate the cost associated with achieving a GER of 110 percent, GER2L of 60 percent, and GER2U of 30 percent by 2015, at pupil: class ratios of 40:1 in primary, 35:1 in lower-secondary, and 25:1 in upper-secondary school.¹⁰ The total costs have to be seen over the period of growth; the distribution of costs should depend on the rate of growth in enrollment.

At \$10,000 per classroom, about \$39.2 billion would be needed to achieve the target GERs in the countries in the data set, of which \$18.9 billion would go toward secondary-school expansion (appendix 1, table A3). If instead classroom construction is estimated to cost 20, 30, and 40 times per capita GDP for primary, lower-secondary, and upper-secondary education, respectively, \$18.5 billion would be required, \$14.8 billion of which would go toward secondary-school expansion (table A1.3).¹¹ Over the period 2002–15, these costs would average almost \$3 billion a year. If higher enrollment rate targets are chosen (GER2L of 100 percent and GER2U of 50 percent), \$20.4 billion would be needed for primary school, \$20.3 billion for lower-secondary school, and \$17.8 billion for upper-secondary school—a total of \$58.5 billion, or at least \$4 billion a year based on a per classroom cost of \$10,000 (table A1.4).¹²

Other development costs are impossible to estimate without detailed data on national systems. If provision of learning materials is regarded as a development expenditure, costs could be substantial.¹³ In most countries, the stock of books and other learning materials is unknown, and it is not possible to estimate how changes in curricula would affect the relevance of this stock. Costs per book are generally \$2–\$10, depending on subject and level. Pupil: book per subject ratios of less than 5:1 are usually regarded as too low for efficient learning.

In 2001/02 about 25 million pupils were enrolled in secondary school in SSA. By 2015 this number would rise to almost 50 million if a GER2 of 60 percent and GER2U of 30 percent are achieved. If four books are provided at an average cost of \$5, books last five years, and the book: pupil ratio is 2:1, the cost of books would be at least \$1.1 billion a year. At the primary level, the number of books needed would rise from about 90 million to 130 million. At \$10 for a set of textbooks per pupil, provision of books would cost about \$1.7 billion a year. The amounts needed could easily double with higher enrollments and shorter book life.

In summary, universalizing primary education and reaching GERs of 60 percent for lower-secondary and 30 percent for upper-secondary education would require additional recurrent and development costs of about \$10 billion a year without cost-reducing reforms. GERs of 100 percent at the lower-secondary and 50 percent at the upper-secondary level would require as much as \$15 billion a year. Radical reforms that reduce costs per pupil by as much as 33 percent at the secondary level but leave cost per pupil at the primary level unchanged would result in funding shortfalls of about \$7 billion a year (\$11 billion if the higher enrollment targets are chosen). These are order-of-magnitude estimates that give an indication of the scale of the financial challenge facing the region.

POLICY OPTIONS FOR EXPANDING SECONDARY EDUCATION

Analysis of the cost constraints on secondary-school expansion leads to the following conclusions.

1. Countries in the region have very different profiles of enrollments and likely enrollment growth. No single strategy will be appropriate across all countries.
2. Countries in Groups 2, 3, 4, and 5 have low GER2s; some also have low GER1s. Policy has to prioritize clearly investment at different levels to reflect national development strategies to achieve universal primary enrollment and expand secondary enrollment.
3. Most countries will not be able to afford substantially expanded secondary enrollment without a combination of increased budget allocation to the education sector and to the secondary-school sub-sector, and cost saving reforms that reduce costs per pupil and increase efficiency.

The basic financial parameters that should shape reform are the level of allocation to secondary education, the cost per pupil, and the desired levels of secondary enrollment over the next 10 years.¹⁴ Where cost data are available, the framework shown in table 4.7 can be applied to specific country cases to identify where key problems lie and guide policy development.¹⁵

Several important points need consideration in using the framework presented in this chapter:

- Public expenditure on secondary education as a proportion of GDP has to be considered along with the overall allocation to education and the balance across different levels of education and administration. The level of allocation to education should also take into account secondary-school allocations that may be channeled through training budgets of ministries other than the Ministry of Education.
- Whether GER2 is regarded as low depends partly on its absolute value and partly on labor market signals and a country's macroeconomic development strategy. It also depends on the judgments made about the relative importance of increasing GER1. The case for increasing GER2 is stronger in countries where GER1 is already high. If increased resources for secondary schooling reduce primary-school enrollment, it is unlikely to be the best option.
- The relation between expenditure and enrollment rates will change if private schooling and private contributions to public institutions are significant.

Table 4.7 Framework for Policy Options for Increasing Secondary-School Participation

Public expenditure on secondary education as percentage of GDP ^a	Public unit costs as percentage of per capita GDP ^b	GER2 ^c	Implied commitment to secondary schooling	Possible policy action
Low	Low	Low	No priority	Increase percentage of budget to secondary education, allow unit spending to increase if quality is low because of low spending.
Low	High	Very Low	Low priority for mass access; commitment constrained by high costs	Reduce public unit costs and increase budget for secondary education.
High	High	Low	Low priority for mass access; commitment constrained by high costs	Reduce public unit costs to increase access.
Low	Low	Mid-high	Poor quality and/or largely privately financed	Improve quality if low; consider access and equity implications of private funding if prevalent.
High	Low	Mid-high	High priority	Improve quality and raise unit spending.

Source: Author.

a. High: >1.5%; low: <1.5%.

b. High: >30%; low: <30%

c. Very low: <20%; low: 20%–40%; mid-high: >40%.

- Unit costs depend mainly on teacher salaries (except where boarding schools are prevalent) and how teachers are deployed. Differences across countries will depend partly on salaries of comparable groups in the rest of the economy and on the cost of living. They will also depend on what are deemed to be appropriate and necessary PTRs at the secondary level and on patterns of school organization (curricula constraints may lead to large numbers of teachers in small schools to cover all subjects, boarding costs may be substantial, etc.).

This framework cannot help policy makers make judgments about school quality or the value for money delivered by secondary schooling. These judgments must feature in any policy analysis, because expanding enrollments or allocating more resources to already inefficient or ineffective school systems is clearly not desirable. Where teacher: class ratios are unacceptably high, they should be encouraged to fall; where indicators of achievement for particular types of school are unsatisfactory, they should not be expanded until the causes are understood and addressed.

THE NEED FOR BETTER DATA

Many aspects of secondary schooling remain informed by inadequate data and lack a robust knowledge base. Improving this situation is needed to inform more evidence-based policy. Future efforts to improve the evidence needed to shape policy should focus on the following areas:

- Basic data on patterns of enrollment in public and nongovernment institutions, disaggregated by household income, gender, residence, and other disadvantaged groups. The data should include age- and grade-specific enrollment rates in order to provide insight into differential dropout, repetition, and transition rates at different levels and their causes.
- Gender analysis of enrollment, achievement, and social development of learners, designed to identify systemic reforms as well as special programs that can improve equity.
- Assessment of the redistributive effects of scholarship schemes, quotas, and other mechanisms to increase equitable access to secondary schooling.
- Achievement data, based wherever possible on criterion-referenced assessments of what is learned, by which learners, at which level, and with what consequences for selection.

- Analysis of secondary curricula to assess relevance, teachability, assumptions about learners, timetable demand, level of specialization, prioritization of core and elective subjects, and desired learning outcomes to assess development needs.
- Exploration of the feasibility of more-modularized curricula that are designed to mitigate the effects of irregular attendance and seasonality and greater use of multigrade approaches to secondary-level learning and teaching that recognize the needs of small schools and wide age ranges and capabilities within the same grade group.
- Reviews of the quantity and quality of learning material in main subject areas.
- Reviews of the supply of and demand for teacher training and methods to establish whether teacher training represents value for money and is capable of meeting expanded demand at affordable costs.
- Assessment of secondary teachers' career trajectories, to establish how many years teacher remain in the profession and provide insight into attrition rates from different causes.
- Investigation of constructive and destructive interactions between public and nongovernment providers.
- Analysis of secondary teachers' workloads and working practices in order to identify areas where internal efficiency gains may be possible.
- Tracer studies of secondary-school graduates to determine absorption rates into different types of employment and livelihoods and to identify signals of over- and undersupply and curricula areas that need reform.
- Evaluation of the learning gains and costs associated with uses of information and communications technology in replicable learning environments.

Options for Affordable Expansion of Secondary Schooling

The policy framework and projections establish the magnitude of resources needed at different levels to achieve various rates of primary and secondary enrollment. They provide a general indication of the possible shortfalls in domestic resources. These shortfalls establish one constraint on how fast enrollment can grow. The extent of expansion will also depend on how costs per pupil can be reduced relative to GDP, the degree to which efficiency gains can be realized, and the scope for cost sharing of different kinds (Lewin and Caillods 2001).¹

This chapter examines 11 options for expanding secondary schooling. They include expanding national resources; changing the structure of school cycles; containing costs, increasing efficiency, and promoting effectiveness; improving the flow of pupils; increasing the efficiency of teacher deployment; improving school management; reforming curricula and pedagogy; reforming teacher education; providing additional classrooms and buildings; increasing cost recovery; and supporting nongovernment providers.

EXPANDING NATIONAL RESOURCES

The allocation of resources to secondary education is a function of the size of the government budget and the shares of the budget allocated to education in general and to secondary education in particular. Macroeconomic growth, debt relief, and improved revenue collection could all increase the volume of resources for education. GDP growth averaged about 3 percent in the region in the early 2000s but was unevenly distributed across countries.² Debt relief is currently available to the most heavily indebted countries and is likely to be extended to others. It is often associated with expectations of increased investment in education.

Table 5.1 Strategies for Reallocating Resources for Education

Strategy	Impact on affordable expansion
Increase the share of GDP allocated to education toward 5 percent of GDP.	Substantial where allocation is low
Increase education's share of public expenditure toward 25 percent.	Substantial where allocation is low
Increase the share of the education budget allocated to secondary education to more than 30 percent.	Substantial where allocation is low
Agree on secondary-sector development plans with development partners and seek additional support.	Substantial

Source: Author.

Improved revenue collection could boost public resources where they represent less than 15 percent of GDP.

Budget allocations to education should increase from current levels of about 3.9 percent of GDP across Sub-Saharan Africa (SSA), especially in countries that receive debt relief. Movement toward 5 percent of GDP would approach levels necessary to universalize primary and greatly enhance secondary enrollment if accompanied by cost-saving reforms. Increases in the proportion of government expenditure allocated to education where it is less than 15 percent would also be helpful.

The scope for increasing the share of expenditure allocated to secondary education depends on the level of priority it receives. What is delivered depends on the costs per pupil and the length of secondary cycles. The projections indicate that lower-secondary enrollment (GER2L) of 60 percent and upper-secondary enrollment (GER2U) of 30 percent are unlikely to be achieved unless more than 2 percent of GDP is allocated to secondary education. There may be some scope to increase budgetary priority for secondary education in countries in which spending on tertiary education appears disproportionate³ and allocations to primary education exceed absorptive capacity.⁴ Policy decisions on allocation have to be made in the light of the available resources and the political and developmental priorities established by the national government (table 5.1).

CHANGING THE STRUCTURE OF SCHOOLING

Mass participation at affordable costs may require changes in school structure to meet new needs. A consensus is emerging that lower-secondary schooling should be part of a full basic education cycle lasting about nine years and enrolling children between the ages of 6 and 15. Upper-secondary school in much of SSA will remain selective. It will need to

address human resource development needs required by the labor force and higher education and training.

The structure of school systems has implications for resources (some patterns are more expensive than others) and for access and enrollment (some patterns may be better suited to high and low population density, remote areas, and girls and other disadvantaged children). Transition points between cycles are important, because they are often associated with high rates of repetition in the last grades before selection examinations and high dropout between cycles where attendance at a different, and often more-distant, school is necessary.

More than 60 percent of countries in SSA have a six-year cycle for primary school (see figure 2.4). This should result in primary school graduation between the ages of 12 and 13—below the legal age of entry into the labor market in most countries. Nearly half of countries in the region have lower-secondary cycles of four years; a third have three-year cycles. Two-year cycles, even coupled with long primary systems, are much less common; if located in separate institutions, they are likely to be more expensive and less effective than primary schools. More than 60 percent of upper-secondary systems last three years. Longer systems are usually expensive and very selective. Two-year specialized upper-secondary schools are found in about 30 percent of SSA countries and are usually directed toward entry into higher education and training.

School system structures are historically embedded, linked to familiar curriculum cycles, the existing stock of learning materials, and formal qualifications recognized by labor markets. They are reflected in physical infrastructure, including school buildings and equipment, and levels of teacher qualification, remuneration, and deployment. Changing these structures has transaction costs (new curricula, retraining and redeployment of existing teachers, classroom and school building). For this reason, structural change should be considered only where benefits are substantial over a realistic time period.

The length of primary- and secondary-school cycles should be partly a pedagogic decision that depends on judgments as to how best to organize the curriculum in relation to learners' cognitive and affective development. Five-, 10-, and 15-year-olds have different psycho-social and cultural characteristics and learning needs that should shape the conditions under which they learn (smaller or larger classes, specialist teachers, mixed-age and mixed-gender teaching groups, and so forth). These judgments have to be made within national educational contexts.

The cost benefits of structural changes can be assessed only on a system-by-system basis. They depend on starting points and detailed specification

of both the nature of the changes and the extent and rate of implementation. Specific options are described below (table 5.2).

REDUCE THE LENGTH OF THE EDUCATION CYCLE AND EXTEND PRIMARY SCHOOLS TO COVER LOWER-SECONDARY GRADES

In countries where the total education system lasts 13 years, it may be possible to reduce it to 12 years. Policy makers will need to determine whether the primary or secondary cycle should be shortened. Reducing the number of years in the system could save 8 percent or more of costs (or enrollments could increase by 8 percent or more at the same costs).

If lower-secondary education can be provided at costs per pupil that are closer to those of primary schooling, significant increases in enrollment

Table 5.2 Strategies for Changing the Structure of Schooling

Strategy	Impact on affordable expansion
Shorten the length of the education cycle to 12 years where it is longer; consider 6:3:3 or 6:4:2 systems.	Reducing the total length of the education system by a year would save 8 percent or more on costs. Secondary systems with a 4:2 distribution are likely to be more cost-effective than 3:3 or 2:4 systems.
Extend primary schools upward to include lower-secondary grades on the same school site.	Cost savings could be significant if operating costs of lower-secondary grades are more like those in primary than lower-secondary schools. Primary–secondary dropout should fall because of colocation.
Increase average secondary school size to 500 or more where population density allows. Limit the range of optional subjects. Develop multigrade teaching methods for small schools.	Per pupil costs in larger schools may be half those in small schools as a result of higher pupil: teacher ratios, more-efficient use of buildings, and other factors.
Expand enrollment in lower-secondary school before enrollment in upper-secondary; retain selection into upper-secondary school.	Increases access to some secondary schooling.
Double-shift schools in high population-density areas.	Reduces development costs; reduces recurrent costs if teacher utilization rises.
Limit boarding schools to sparsely populated areas, and increase the proportion of day schools. Progressively withdraw subsidies for nonessential boarding, with safeguards for disadvantaged students.	Substantial cost savings (of up to 50 percent of total public costs per pupil). Cost recovery should be used for students who elect to board.
Promote generic technical and vocational skill development in lower-secondary schools at average secondary-school costs per student. Limit high-cost technical and vocational schools to upper-secondary level. Locate specific job-related training close to or in workplaces. Identify and support essential upper-secondary specialized institutions.	Enrollments are usually small, so potential savings are limited, despite high costs.

Source: Author.

could take place. This could be the case if primary school were expanded to grade nine. If three-year lower-secondary were combined with six-year primary school on the same school site, fixed costs per pupil should fall. Recurrent costs would fall by amounts determined by gains in efficiency related to higher teacher utilization. Disadvantages of this strategy include problems related to schools with wide age ranges and curriculum issues related to the adoption of different pedagogy for young children and adolescent learners.

INCREASE AVERAGE SCHOOL SIZE, PHASE IN EXPANSION, AND INCREASE DOUBLE-SHIFTING

Small schools in SSA are associated with low pupil: teacher ratios (PTRs) and low levels of achievement. Multigrade methods can be used to bring costs per pupil closer to average (World Bank Institute 2004; Institute of Education 2005; Lewin 2006b). Secondary schools with enrollments much below 500 are often expensive and find it difficult to deliver a full curriculum.

More access to some secondary schooling will be provided where lower-secondary education is expanded toward universal levels before upper-secondary education grows. In general, upper-secondary education should remain selective, with specialization linked to the needs of the labor force and higher education.

Where population density is high and lack of classroom space a constraint, double-shifting (Bray 2000) can increase capacity. It may not reduce recurrent costs unless teachers' workloads are increased. Some countries, such as Malaysia, have used double-shifting to rapidly expand access to secondary school before construction programs have caught up with demand for places.

REDUCE THE SUPPLY OF AND INCREASE COST RECOVERY FOR BOARDING

Boarding, which is common in SSA, can double or triple costs per pupil. The case for subsidized boarding weakens as lower-secondary schooling expands, because day schools can be located close to the majority of children. Subsidies should be progressively withdrawn for nonessential boarding.

LIMIT ENROLLMENTS IN TECHNICAL AND VOCATIONAL SCHOOLS

Costs in technical and vocational schools can be five or more times those of regular secondary schools. It should be possible to teach many generic

technical and vocational skills and competencies in general secondary schools, at costs similar to those of academic subjects. Where there are labor market indications that high-cost technical and vocational training is strategically important, cost-effective institutions should be supported.

CONTAINING RECURRENT COSTS

Reforms are needed that contain recurrent costs, increase internal efficiency, and promote effectiveness. The most important elements are teacher salaries, nonteaching salaries, and nonsalary operating costs. Reforms are needed in all these areas (table 5.3).

REVIEW TEACHER SALARIES

Teachers' remuneration determines most of the recurrent costs per pupil in nonboarding secondary-school systems. The amount of learning these salaries supports depends on PTRs and teacher workloads.

The level of teacher salaries is a central question for affordable expansion. The analysis in this volume suggests that salary levels much above 3.5 times per capita GDP for primary, 4.5 for lower-secondary, and 6.0 for

Table 5.3 Strategies for Containing Recurrent Costs

Strategy	Impact on affordable expansion
Review salary structures in relation to local labor markets and productivity. Move toward salary costs of 3.5 times per capita GDP for primary, 4.5 times for lower-secondary, and 6.0 times for upper-secondary school teachers. Review nonsalary benefits to provide incentives in difficult areas.	Essential for mass enrollment at secondary level. Salary awards should be tied to increases in productivity where productivity is low.
Review nonteaching salary expenditure, which can account for up to 40 percent of salary budgets; redeploy qualified staff back into the classroom as teachers. Establish norms for secondary nonteaching salary budgets and constrain to less than 20 percent of total recurrent expenditure in day schools.	Substantial, as long as reductions do not undermine learning quality.
Review nonsalary costs if they represent more than 20 percent of total costs. Protect learning material expenditure. Consider replacing flat-rate subsidies for food, books, and other items with needs-based subsidies. Establish norms for nonsalary costs of less than 15 percent of total recurrent expenditure in day schools.	Substantial, as long as reductions do not undermine learning quality.
Develop norm-based funding systems (related to pupil, teacher, and school characteristics) to increase efficiency and equity and promote pro-poor subsidies to improve access. Develop effective capitation grant systems for nonsalary expenditure.	Significant for improving equity and effectiveness in resource allocation.
Develop quality improvement grant systems.	Significant if grants improve learning quality.

Source: Author.

upper-secondary school will undermine the financial viability of mass secondary schooling.

The challenge of achieving these levels of remuneration is country specific. High-enrollment countries already approach these ratios. Low-enrollment countries often exceed them by a significant margin. Salaries and other benefits have to be sufficient to motivate those already teaching and attract new entrants. Their ability to do so depends on wage rates in national labor markets.

REVIEW NONTEACHING SALARIES

Nonteaching staff include administrators, clerical workers, boarding school wardens, maintenance workers, security personnel, and other people other than teachers who work at schools. Where the ratio of nonteaching staff to teaching staff is high (say, more than 1.5: 1), changes are needed if secondary expansion is to be financially viable. At day schools, nonteaching salary costs should generally represent less than 20 percent of the total.

REVIEW NONSALARY COSTS

Nonsalary costs are associated with building repairs, utility bills, equipment, and learning materials; they can also include transport, food, and accommodation. Nonsalary costs can be comparable to salary costs in residential schools. These costs need to be managed efficiently. Learning materials, which are widely underfunded, may be one area of nonsalary costs that should not be reduced.

REFORM SCHOOL FINANCING

Systems of school financing are so diverse across SSA that generalization is difficult. Many options could improve the flow of resources to schools and increase effectiveness. Formula-based funding allocations that link staffing and other costs to enrollments should have both equity and efficiency benefits if the allocations are coupled with pupil, teacher, and school indicators of need. School governance systems that promote accountability and value for money and provide incentives to manage resources more efficiently may also be effective. Capitation grants for nonsalary expenditure can be devolved into school budgets with appropriate accountability to ensure more-regular and more-predictable flows

of resources to maintain infrastructure and enhance learning. School quality improvement grants can be earmarked for specific purposes to ensure increased resource allocation on inputs directly related to pupil achievement and learning experience. Matching grant schemes can allocate more to schools with the least ability to raise funds and the most-difficult working environments.

IMPROVING THE FLOW OF STUDENTS

Repetition rates in some secondary school systems exceed 20 percent, and less than half those who start secondary schooling qualify for the next level in some countries. Repetition increases the number of years of schooling that have to be provided for one successful graduate. Dropout also decreases efficiency. Some selection systems have adverse effects on enrollment and completion of the secondary cycle. Reforms are needed in all of these areas (table 5.4).

REDUCE REPETITION

Repetition is a curriculum and pedagogic issue. Rates vary widely across countries. High rates of repetition need analysis to establish causes, locate key curriculum and pedagogic issues, and develop strategies for

Table 5.4 Strategies for Improving the Flow of Pupils

Strategy	Impact on affordable expansion
Reduce repetition rates to less than 5 percent. Create management incentive systems that reward higher achievement and reduce repetition. Reduce the range of ages within grades to less than two years.	Reduces costs as flow improves; substantial impact where repetition is greater than 10 percent
Identify reasons for dropout and act accordingly. Reduce barriers to enrollment, improve curricula attractiveness, ensure safety, support school feeding programs, and identify effective incentives to remain enrolled.	Increases costs but increases completion rates
Reduce direct costs to poor households. Use means-tested fee waivers and scholarship schemes rather than provide universal fee-free secondary education. Discourage elite capture of subsidies, by locating fee waivers and scholarships in low-fee schools and using selection quotas linked to poverty indicators.	Significant if administration costs are low and propoor
Adopt measures to monitor and improve attendance to ensure that learning opportunities are maximized. Make schools more child friendly and child seeking (i.e., more accountable for ensuring attendance and proactive in following up children out of school).	Substantial where attendance rates are low
Improve reliability and validity of selection examinations. Consider automatic promotion within primary and lower-secondary cycles. Reduce incentives and limit opportunities to retake selection examinations. Integrate measures to improve flows into school management systems.	Greater internal efficiency could increase the number of places available without increasing costs

Source: Author.

reduction. Where repetition is high, it will remain a major obstacle to expanded access. Where it results in a wide range of ages within grades and over-age enrollment, it will increase the chances of dropout and may disadvantage girls.

REDUCE DROPOUT AND INCREASE ATTENDANCE

Dropout increases the direct and indirect costs of secondary schooling. Reducing it is thus critical to expanding secondary enrollment.

Expanded enrollment will provide access to poorer and poorer households. The direct costs to households must be reduced if exclusion related to household income is not to increase. Pro-poor scholarships; fee waivers; and other subsidies (transport, books, food) may be needed. Increased access to lower-secondary school will be affordable if fees are retained for those who can afford to pay and selectively waived for students from poor households. Universal fee-free secondary schooling will limit the levels of enrollment that are affordable and may reduce quality.

Other factors (including distance to school, safety, poor achievement, child labor, opportunity costs, and poor health) also affect dropout. They have different significance in different countries. Some factors (such as pregnancy, early marriage, initiation rites, domestic labor, and herding) affect girls and boys differently.

Attendance rates can be low, representing a kind of silent dropout.⁵ Expanding secondary enrollment without ensuring high rates of attendance (and low teacher absenteeism) would be counterproductive. Reducing dropout would increase aggregate costs, because more pupils remain enrolled, but it would lower costs per successful graduate. Increased costs may be compensated for by lower repetition, which reduces the number of places needed for a given enrollment rate.

REFORM SELECTION AND PROMOTION PROCEDURES

Selection examinations can contribute to high rates of repetition, especially at the end of primary school and at points in lower- and upper-secondary school when pupils retake examinations to improve performance. National and school-based assessment practices that result in repetition and dropout have financial consequences. Poor-quality selection systems may be inefficient and inequitable. Some selection systems favor those with access to private tutoring and cultural capital; some favor girls over boys. Predictive validity may also be low, leading to inefficient selection. Reforms are therefore needed that increase reliability and validity and result in smoother enrollment flows.

IMPROVING TEACHER DEPLOYMENT AND UTILIZATION

Teacher deployment in low-enrollment systems is characterized by a variety of inefficiencies, including low and widely varying PTRs across schools, high class: teacher ratios, wide variations in the number of qualified teachers per pupil, poor timetable allocation, and ineffective support and advisory services. Specific reforms are described below (table 5.5).

INCREASING PUPIL-TEACHER RATIOS AND CLASS-TEACHER RATIOS

High-enrollment systems generally have PTRs of about 35:1 at the lower-secondary and 25:1 at the upper-secondary levels. Where PTRs are much lower than this, the cost per pupil may exclude mass secondary schooling in high population growth countries. Average PTRs should be increased if they are well below these levels.

Many secondary systems have high teacher-class ratios. Where these are greater than 2:1 (i.e., when one teacher is teaching a class, another is not teaching) this indicates low teacher workloads. Secondary schools can be operated with teacher class ratios of around 1.5:1 and where these ratios are higher they should be reduced by improving student and teacher timetabling.

Table 5.5 Strategies for Improving Teacher Deployment and Utilization

Strategy	Impact on affordable expansion
Increase pupil: teacher ratios (PTRs) to a maximum of 40:1 at the lower-secondary and 35:1 at the upper-secondary level.	Substantial where PTRs are low. Increases to 40:1 could generate savings in cost per student of 50 percent.
Reduce teacher: class ratios at the secondary level to less than 2:1. Use more-efficient timetabling and grouping.	Substantial benefits if it results in better utilization of teachers' time.
Monitor variation in school inputs and performance indicators. Use formula-based funding to reduce variance across schools in PTRs, proportion of untrained teachers, class: teacher ratios, and number of textbooks per student. Aim to restrict variations in indicators to no more than 10 percent of the average for all schools.	Benefits in terms of equity and effectiveness.
Encourage recruitment of lower-cost teachers within career structures that allow development and promotion. Extend use of experienced teachers using team teaching, parallel classes, and common lesson planning. Use experienced teachers to support less-experienced ones. Employ contract teachers strategically.	Reductions in cost per pupil allowing more to be enrolled at similar costs.
Adopt more-flexible learning strategies, especially for older students, including peer learning, materials-based self-instruction, and conventional and information technology distance programs if they are cost-effective.	More-efficient use of trained teachers' time, reduced costs per pupil.

Source: Author.

REDUCING VARIATION IN PUPIL-TEACHER RATIOS ACROSS SCHOOLS

The variation in PTRs and class-teacher ratios across schools may differ widely by as much as a factor of three. Improved quality and equity will be compromised if variation across schools is not reduced. Formula-based teacher deployment can help. Underqualified teachers should be distributed across the school system rather than concentrated in particular school types and locations. The aim should be to reduce variations to within 10 percent of the average.

REFORMING CAREER STRUCTURES AND PEDAGOGY

A balanced mix of contract and permanent teachers can lead to efficiency gains without loss in quality if appropriate support is provided and more experienced teachers mentor the less experienced. Career progression incentives should be provided for those who stay in teaching. More flexible learning strategies especially for older students can make better use of teacher time, increase the amount of self and peer group study time, and take advantage of new technologies to support learning, especially in upper-secondary school. Low-cost in-service training (in the form of print material, managed mentorship, and local nonresidential and school-based professional development) is needed to support reforms designed to increase efficiency and effectiveness.

IMPROVING SCHOOL MANAGEMENT

School and district management will determine the effectiveness of additional resources allocated to expanding secondary schooling. Increased enrollment in inefficient and ineffective schools will serve little purpose. Key reform issues are discussed below (table 5.6).

Table 5.6 Strategies for Enhancing School Management

Strategy	Impact on affordable expansion
Review national, regional, district, and school level allocation and spending procedures. Develop incentives for budget holders to increase efficiency, especially in relation to teacher deployment and other major cost drivers.	Substantial if incentives are effective
Review conditions of service. Limit penalty-free casual leave. Reward continuous teacher attendance with bonuses.	Substantial where absenteeism is 10 percent or more
Increase student learning time through better classroom management and pedagogy. Monitor time on task through school and district supervision systems.	Substantial where more than 10 percent of teaching days are lost
Review actual teaching workloads. Profile workloads of more- and less-qualified and experienced teachers. Distribute loads more evenly across staff so that more-experienced teachers teach as much as less-experienced teachers.	Substantial where teaching loads are less than 80 percent of timetabled school time

Source: Author.

CREATE GOVERNANCE AND EMPLOYMENT STRUCTURES TO IMPROVE ACCOUNTABILITY OF SCHOOLS AND COMMUNITIES

Effective secondary schools need culturally based governance and accountability mechanisms that can define goals collectively and recognize and reward success. School management needs more incentives to deploy resources efficiently and improve attendance and learning outcomes. More local accountability could help ensure they do. Decentralization is attractive where local capacity is adequate.

DISCOURAGE TEACHER ABSENTEEISM AND INCREASE TIME ON TASK

Conditions of service and school practices may need reform where absenteeism is a serious problem. In some systems and at some times of the year teacher absenteeism can reduce teaching days by 20 percent or more. Casual leave entitlements and other arrangements affect teacher attendance significantly in some systems.

Much learning time is lost in many systems. Secondary schools in which average teaching loads are less than 40 percent of timetabled time are very inefficient. One-quarter or more of school days may be lost each year in poorly managed schools. The reasons need to be identified and strategies devised to maximize time on task.

REFORMING CURRICULA AND PEDAGOGY

Expanded secondary schooling will enroll learners with different backgrounds and capabilities from those who entered highly selective systems. Mass secondary schooling creates challenges for the reform of curricula and teaching methods (table 5.7).

FOCUS CURRICULUM DEVELOPMENT ON FEWER SUBJECTS

The provision of secondary education is constrained by multisubject curricula, in which as many as 12–14 subjects are taught at the lower-secondary level. In addition, elective options may be provided that require specialized teachers. This wide range of subjects makes it impossible to offer a full curriculum in small secondary schools without very low PTRs. National curricula should be teachable in small day schools with PTRs close to the average, using multigrade methods where appropriate. More-modularized curricula are desirable to recognize the realities of irregular attendance and seasonality and assist in the adoption of multigrade strategies for small schools.⁶

Table 5.7 Strategies for Improving Curricula

Strategy	Impact on affordable expansion
Introduce core curricula at lower secondary with a restricted number of subjects. Identify core specializations at upper secondary. Design more outcome-based curriculum. Link upper-secondary curricula to opportunities in the labor market and higher education and training.	Critical to learning achievement of new cohorts of secondary pupils
Develop modularized learning to recognize attendance patterns of teachers and pupils. Ensure new curricula are teachable in small schools.	Significant especially where attendance is varied
Adopt multigrade approaches in small schools that are pedagogically effective and cost-efficient.	Considerable where small secondary schools are essential
Develop learning materials suited to new learners that can be produced at low cost.	Essential if needs of expanded cohorts are to be addressed
Devise effective methods for distribution of textbooks and other learning materials using the private sector where appropriate.	Essential for effective learning
Invest in revolving textbook funds and encourage some cost recovery at affordable levels. Share learning material costs across several generations of pupils.	Desirable to expand the supply of materials

Source: Author.

Core curricula with a limited range of subjects are appropriate for lower-secondary schools. They also reduce the costs of providing learning material. Core curricula focused on basic learning competencies have to be teachable in small schools with limited resources. They have to be accessible to both learners and teachers teaching across several subjects. Where appropriate, curricula should include multigrade patterns of organization of learning.

More-specialized curricula with a restricted range of options may be more suited to upper-secondary. Upper-secondary curricula need to focus on a small number of specialized learning areas that have links to further education and training opportunities and labor market needs.

IMPROVE THE AVAILABILITY OF LEARNING MATERIALS

Learning materials are already in short supply in SSA, with many secondary-schools systems providing very few textbooks per child. Learning material needs to be available at affordable costs and in sufficient quantity; they need to include materials for teachers as well as pupils. Substantial investment is needed to develop curricula and produce materials. Other reforms include textbook revolving funds and loan schemes; restricted lists of approved texts procured competitively with volume discounts; investment in durable learning materials with a life of several years; and more-effective distribution methods that provide incentives to deliver learning materials to schools, including voucher-based schemes earmarked for books.

REFORMING TEACHER EDUCATION

Most teacher education systems are not suited to rapid expansion, because they require lengthy residential preservice training and are not able to increase the number of trained teachers rapidly or affordably. The need to expand the cadre of teacher educators may also be a constraint. Several reform options are attractive (table 5.8).

REDUCE THE MINIMUM LEVEL OF ENTRY QUALIFICATION INTO TEACHING

An all-graduate cadre of secondary teachers is not feasible in most countries in the region. Lower-secondary and some upper-secondary classes are likely to be taught by teachers who have completed secondary schooling rather than those with university degrees. Teacher education programs need to reflect the entry qualification level of trainees and include in their curricula an appropriate mix of content upgrading and pedagogic skill development. Nontraditional entry into teaching by older entrants seeking a career change should be possible. Graduates should be allowed to teach without training pending in-service upgrading.

REDUCE THE LENGTH OF PRESERVICE TRAINING AND STRENGTHEN ON-THE-JOB AND IN-SERVICE TRAINING

The time needed to train new teachers has to be reduced where demand is high and output needs to increase several times if enrollment and PTR

Table 5.8 Strategies for Reforming Teacher Education

Strategy	Impact on affordable expansion
Set entry qualifications at levels that provide an adequate supply of applicants. Encourage graduates to enter teaching directly. Upgrade training with in-service training. Permit nontraditional routes into teaching.	Substantial; should increase flow of trainees
Reduce the length of initial teacher training. Increase opportunities for on-the-job training, mixed mode (college- and school-based training) training, and distance programs.	Critical if expansion is not to raise pupil: teacher ratios
Reduce training costs through more-efficient teaching methods. Increase trainee: staff ratios where they are low. Use teachers in schools as training associates. Increase college utilization throughout all months of the year.	More-efficient use of training facilities and more affordable costs
Train secondary-school teachers to teach two or three subjects, not one.	Significant; should increase teacher utilization

Source: Author.

targets are to be met. One- or two-year programs need to replace three- and four-year programs.

Combinations of college-based and on-the-job training can increase output and effectiveness at affordable costs. Teachers can be appointed as trainees and work as assistants for a period before becoming full-time teachers. Full-time training mixed with working in schools is efficient and effective. More use of mixed mode, distance, and local professional development activity is attractive.

Training expanded numbers of teachers at higher education cost levels per trainee is not an option if demand for secondary teachers is to be met in many low-enrollment countries. College-based alternatives with lower costs per trainee are more viable, especially for lower-secondary school teachers. Low trainee: staff ratios in training institutions, travel costs to distant practice schools, subsidies for fully residential programs, and inefficient use of college facilities for a proportion of the year all raise the cost of training teachers and need to be addressed.

EXPANDING FACILITIES AND BUILDINGS

Expanded access to secondary schooling will require the construction of many new classrooms and schools. Low-cost design and construction is essential given the number of new places needed in low-enrollment countries. Efficient and effective procurement methods are essential. Community contributions can be encouraged, but they have to be managed to create durable buildings. School mapping can help locate sites where new schools are needed and where the lower-cost option of expanding existing schools is preferable. Useful strategies are described below (table 5.9).

Some standardization can reduce costs and ensure quality, as a result of discounts from bulk purchase of building materials and familiarity of contractors and communities with school design. New secondary schools

Table 5.9 Strategies for Improving Facilities and Buildings

Strategy	Impact on affordable expansion
Develop standardized school and classroom procurement systems. Design low-cost secondary schools.	Essential element to plans for expanded access
Explore multiuse designs for new buildings.	Desirable
Undertake school mapping exercises to locate new schools in areas of need.	Essential for efficient and equitable investment
Identify specifications and needs for specialized facilities at upper-secondary level.	Essential for efficient and equitable investment

Source: Author.

should be multiple-use facilities wherever possible so that buildings do not stand idle for months of the year. In urban areas, multiuse buildings may be used to generate additional revenue. They can also be linked to community centers and simple health facilities.

New buildings and facilities need to be located where they will have most impact on access. School mapping should be used to identify areas of greatest need and redundancy (where school catchment areas overlap and result in under-enrollment). Laboratories, workshops, and other special high-cost facilities need to be allocated to specialized upper-secondary schools rather than provided in every secondary school, if resources are constrained.

INCREASING COST RECOVERY

Cost recovery in secondary schools is widespread.⁷ In many Anglophone countries in SSA, fee-paying is common in public secondary schools, levies are collected, and donations and community contributions are solicited.

Three main reasons are generally advanced for increasing cost recovery. First, because private rates of return to secondary education are high, those who benefit should contribute to the costs if they can. Second, cost recovery allows higher rates of enrollment. Third, charging for services directly should improve accountability and quality.

Opponents of cost recovery argue that high direct costs exclude poor households, which then do not benefit from high rates of return. They claim that private subsidy of public services can conceal inefficiencies in public provision; whether accountability and quality improve depends on systems of school governance and activism in the communities schools serve.

States face a dilemma in determining the appropriate levels of cost recovery. If cost recovery is low, it will have a marginal impact on financing. Moreover, low levels of contribution may not engender the kind of accountability that would make a difference to educational standards and provide value for money. If, however, cost-recovery levels are high, the adverse effects on equity and efficiency may be substantial. Schools with a high proportion of nonstate income may also become semiautonomous. There is general consensus that equity and efficiency are vulnerable where public policy seeks to resolve problems of underfunding by passing more and more of the costs on to consumers without effective safety nets. Cost recovery has limited value in improving services to poor households. It is no substitute for reforms in fiscal policy, more-effective revenue collection, and prioritization of social-sector spending priorities (Colclough 1997).

The main mechanisms for cost recovery include tuition fees; other fees and levies, including those for learning materials; contributions to boarding costs; community-based contributions; contributions to school-feeding programs; and contributions of labor and materials to school construction. Reforms in all of these areas could be considered (table 5.10).

SETTING TUITION FEES

Tuition fees in public schools vary widely across SSA. In Malawi, for example, tuition represents a small proportion of total costs; in Tanzania and Uganda, it accounts for more than half of per pupil spending. Depending on how fee income is treated (especially whether it is retained

Table 5.10 Strategies for Recovering Costs

Strategy	Impact on affordable expansion
Charge fees to those who can afford to pay, provide subsidies and waivers for those who cannot. Develop scholarships for low-income students. Reduce subsidies to high fee-charging government schools. Offer grants-in-aid to nongovernment schools that are partly self-financing and meet criteria for accountability and quality.	Significant, but expanded participation requires subsidies for students from low-income households
Regulate nontuition fees in public schools, and make them transparent and accountable.	May conceal shortfalls in public funding
Develop mechanisms to fund learning materials with contributions from the community.	Can increase availability but may exclude the poor
Use full cost recovery for nonessential boarding.	Substantial in some systems
Encourage fundraising by parent-teacher associations, alumni, and school development societies to supplement nonsalary expenditure and fund additional teachers.	Not generally a basis for financing expanded access, because it is unreliable and likely to make only small contribution to reducing costs
Reduce subsidies on school meals, except where there is evidence of inadequate nutrition.	Significant where subsidies are widespread and food security exists
Encourage parental and community contributions of labor for construction and maintenance, linked to systems of quality assurance.	Useful contribution to expanding capacity and facilities
Encourage agricultural and workshop production.	Limited
Charge for use of school facilities by community and other groups outside school hours.	Significant in some locations
Levy marginal taxes on salaried employees, taxes on local production or sales, or both.	Depends on capacity and willingness to tax
Provide low-interest loans to finance the private costs of schooling.	Useful if administrative costs can be contained at low levels

Source: Author.

at the school level or accumulated centrally), it can help finance higher levels of enrollment and support greater availability of learning materials. The central issues for cost recovery using tuition in the context of expanded access is whether poor households will be able to afford fees and other payments and what effects these charges will have on enrollment (World Bank 2005a).

Demand will soften as expansion in capacity occurs if the direct and indirect costs of participation do not fall as enrollment reaches poorer and poorer households. What these thresholds are depends on income distribution and allocative decisions by households. Fee-free lower-secondary schooling may not be the best option, because lost fee income will have to be replaced. A better alternative may be fee waivers and scholarships that are allocated to students from poor households, with a long-term goal of reducing fees for all.

CHARGING OTHER FEES

Other fees and levies are common. Facilities fees (for example, contributions toward the cost of consumable materials, sports equipment, special events); examination fees; and charges for books and learning materials may be invisible in national accounts. A line has to be drawn between encouraging private and community contributions to these activities and ensuring that they do not constitute an excessive burden on poor households.

There is a risk that increased dependence on off-budget income conceals inefficiencies and underfunding in the public system that should be directly addressed. This risk is especially high for textbooks and other learning material, provision of which should not be financed in ad hoc ways. Core funding should be sufficient to provide a basic stock of learning material. Earmarked capitation systems can help provide resources for learning material. Revolving loan schemes and bulk purchase at low cost of a restricted range of textbooks in core subjects are also attractive options.

Some schools raise significant financing through the activities of parent-teacher associations and alumni. This type of funding can enhance facilities and learning quality. It is not likely to be a major source of income for most schools serving poor populations, but it can be an important source of income for schools serving communities with high average incomes. School-based fund raising should be facilitated (through matching grants, tax incentives, and administrative support, for example), but its limits should be recognized.

Community secondary schools have been constructed in many areas where public provision has fallen behind demand. Often there is an expectation that such schools will become publicly financed once they have been established, with teachers provided by the state. The quality of school construction may not meet public standards, and locational inefficiencies are likely if school location is not planned above the level of the community. Effective mechanisms share the costs of school building within procurement systems that specify minimum standards of construction at agreed-upon locations within a developmental plan for schooling in an area.

Other forms of cost recovery can also help make secondary-school expansion affordable. These include the sale of goods and services (including use of school land to produce food), school-linked businesses, and the rental of facilities to other groups of users. These opportunities are often location specific. They can produce useful income, but, like other forms of local revenue raising, they are an insecure basis for core financing.

ALLOWING PRIVATE TUTORING

Private tutoring is widespread in many countries in the region (World Bank 2005a). Tutors may or may not be teachers from public schools, depending on national regulations and their enforcement. In some countries, additional classes have been institutionalized and take place at public school premises. In Zambia, for example, more than one-third of all government high schools have Academic Production Units (APUs) (see appendix 5). Schools with APUs enroll pupils who fail to find normal places in government schools. APUs hold afternoon sessions, typically from 1:30 to 5:00 p.m. Students study for the same national examinations as other student, but they pay considerably higher fees. Most APU fee income is used to supplement the salaries of APU teachers. Although officially sanctioned and regulated, APUs are a form of private education that benefits from public subsidy in terms of space and facilities.

Private tutoring is strongly associated with high-stakes selection examinations; demand for tutoring is higher in countries in which selection ratios are low. Where private tutoring interferes with normal provision (for example, where teachers moonlight to gain extra income), policy is needed to balance the possible benefits (greater learning achievement, supplementary income for underpaid teachers) with the risks (decreased equity, undue pressure from teachers to attend extra classes, distraction of full-time teachers acting as tutors).

PROVIDING STUDENT LOANS

Student loan schemes, higher taxes on graduates, and local educational taxes on enterprises could also contribute to cost recovery. They are likely to prove difficult and expensive to administer, however. Experience in higher education with loans (low rates of recovery) and graduate taxes (unpopular and difficult to implement) has not been encouraging.

SUPPORTING NONGOVERNMENT PROVIDERS

The role of nongovernment providers varies across countries. Most often government is the main provider of finance at secondary level. Some systems consist largely of government schools; in other countries, nongovernment providers run schools largely financed by the state, and private schools operate without subsidy.

Demand for nongovernment service providers is growing, for several reasons (Lewin and Sayed 2005). First, the main driver of growth in low-enrollment countries is excess demand for school places. In Malawi and elsewhere (Tanzania, Uganda, Zambia) the supply of government secondary schooling is restricted. The number of students completing primary school is increasing at rates far in excess of the growth in new secondary school places. Nongovernment providers have grown in response to this demand: most new providers in Malawi have been for-profit institutions with a commercial motivation.

Second, differentiated demand from parents and students unsatisfied with government schooling is another explanation of growth. This is clearly the case in South Africa, which has high secondary enrollment rates but wide variations in quality. It also has a heterogeneous population with differing preferences for faith- and cultural identity-based schooling. Elite high-cost nongovernment schools attract aspirant families who value high academic standards, social exclusivity, and broad curricula and who perceive many public schools as failing to meet their needs. Faith-based schools offer an alternative to secular public schools.

Third, demand for nongovernment schooling is growing because its supply has increased. In much of SSA, more-permissive attitudes have been taken by the state to allowing nongovernment providers to operate. This has resulted in new providers entering the school market place, especially in urban areas, often with conspicuous advertising campaigns that boost demand.

The key issues surrounding nonstate schooling are how much is it likely to grow, whether or not it should be subsidized, and if it is subsidized under what conditions subsidies should be provided (table 5.11). The

Table 5.11 Strategies for Promoting Nongovernment Providers

Strategy	Impact on affordable expansion
Facilitate legitimate nongovernment providers within a clear legal and governance framework with adequate registration and licensing, monitoring, quality assurance systems, and financial transparency. Direct subsidies to low-cost providers.	Significant if systems are effective
Regulate nongovernmental providers to protect the public interest. Discourage destructive interaction between public and private sectors (such as sharing teachers). Ensure accountability for public funds.	Significant if systems are effective
Make low-cost and subsidized learning materials available to nongovernment schools, except those that charge high fees.	Improves learning achievement
Allow nongovernment teachers to participate in in-service training related to national curricula at subsidized costs.	Improves learning achievement

Source: Author.

limits on the growth of wholly unsubsidized providers are determined by the distribution of household incomes and fee levels. Fee levels have to be sufficient to pay teachers, rent buildings, and generate profits.⁸ Analyses of affordability in Rwanda, South Africa, Tanzania, and Uganda suggest that it is unlikely that students from households much below the top income quintile will be able to afford full-fee secondary schooling, even with underqualified and low-paid teachers. Private fee-paying secondary schooling may account for as much as half of enrollment in low-enrollment countries. As participation increases, it seems likely that private enrollments will stabilize at lower levels, determined by affordability to households. Increased access will therefore have to be achieved predominantly through publicly funded schools in most of the region.

Not-for-profit nongovernment schools are subsidized in SSA, under a wide variety of arrangements. There may be scope for the number of these schools to increase alongside wholly private providers. If such scope exists, a number of conditions may need to apply to prevent misappropriation and poor value for money. These include clear funding rules that indicate the basis of subsidy and the requirements that must be met to qualify; public accountability through appropriate governance and auditing; and quality assurance systems in which there is some confidence. These may be difficult conditions to meet where supervisory capacity is already overstretched. Community-based school financing is not a panacea. It can exacerbate existing inequalities and conceal state underfunding if adopted as a general strategy (Bray 1997; World Bank

2005). However, it can and does make a useful contribution to expanded access where it is well managed and complements mass public systems.

Other aspects of subsidy of nongovernment schooling may have attractions. If learning material is to be subsidized and low-cost materials produced, it may make sense to make these materials available to nongovernment schools. There are also collective benefits from granting nongovernment teachers access to training opportunities and in-service program related to new curricula.

Graded subsidies linked to fee levels (high fee low subsidy, low fee high subsidy) might facilitate a propoor bias in subsidy payments to schools, as it does in South Africa (Lewin and Sayed 2005). Government subsidies could be made available to not-for-profit schools. There is a risk, however, that this kind of subsidy would be captured by children from relatively wealthy households, who would otherwise pay tuition themselves.

The options explored above provide an extensive agenda for reform. Each has different characteristics and more or less relevance to different education systems. Reforms that increase internal efficiency, enhance quality and time on task, improve equity, and make expanded access more affordable, are unavoidable if higher rates of enrollment are to be achieved and sustained. They are summarized in table 2 in the executive summary; the table can be used as a guide to policy dialogue.

Ways Forward

Expansion of secondary education in Sub-Saharan Africa (SSA) is critical to achieving the Millennium Development Goals (MDGs), narrowing the gaps in knowledge and skill gaps between SSA and other developing regions, replenishing the human resources lost to HIV/AIDS, and accommodating the unprecedented numbers of primary completers seeking access to secondary schooling. Lower-secondary schooling is becoming part of the basic education cycle and has become a prerequisite for raising the quality of the labor force. Reforms are needed to increase curriculum relevance, respond to new needs, and allow expanded access at affordable costs.

STARTING POINTS

Countries in the region can be divided into five broad groups (see chapter 3). Group 1 countries have high enrollment throughout primary and lower-secondary school, with low rates of repetition and dropout. Group 2 countries have very high initial enrollment rates in primary school but high dropout and repetition rates, which result in low primary completion rates, and low transition rates to and enrollment in lower-secondary school. Group 3 countries have high primary entry rates and moderate levels of repetition, dropout, and completion through primary school, with moderate levels of lower-secondary enrollment. Group 4 countries have low primary entry rates and low primary and secondary enrollment rates. Group 5 countries have very low primary entry rates and very low enrollment in primary and secondary school.

Group 2 countries have benefited from support to universalizing primary schooling but have experienced unbalanced growth, with large increases in enrollment in grade 1 but only slow increases in primary school

output. Group 3 countries appear to have had more-balanced growth and to be retaining more children through the end of primary school. Group 4 and 5 countries still have to universalize access to grade 1. Ideally, future expansion will not create the exaggerated patterns of Group 2, in which massive overenrollment in grade 1 is accompanied by high dropout and little improvement in primary completion and secondary enrollment rates. If it does, the difficulties associated with financing and managing growth in secondary enrollments will be exacerbated.

In expanding secondary access, policy makers need to

- balance progress on universalizing access and completion in primary school with the need to increase lower-secondary enrollment;
- recognize the interactions between primary and secondary expansion (especially in teacher supply and transition rates);
- link upper-secondary enrollment growth to labor market needs and those of postschool education and training; and
- identify financially sustainable patterns of growth within realistic budget envelopes.

FINANCING EXPANSION

If gross primary enrollment (GER1) of 110 percent is to be achieved, the number of primary places in SSA needs to expand by 80 percent between 2001 and 2015. If lower-secondary schools were to enroll 100 percent of those of official entry age, enrollments would need to increase by a factor of 5.6 by 2015. To achieve universal lower-secondary education, one-third of the countries in SSA would have to increase the number of places by a factor of 8–20 times between 2001 and 2015. At the upper-secondary level, achieving 100 percent enrollment would require the number of places to increase by a factor of 15.5. These rates of expansion are unlikely to be sustainable in low-enrollment countries.

Only 11 countries are likely to universalize lower-secondary enrollment if the maximum sustainable rate of increase is 10 percent a year (Botswana, Cape Verde, Ghana, Lesotho, Mauritius, Namibia, the Seychelles, São Tomé and Príncipe, South Africa, Swaziland, Togo, and Zimbabwe). If the maximum rate of growth is set at 5 percent a year, only five countries (Botswana, Cape Verde, Mauritius, the Seychelles, and South Africa) will achieve this goal. Half the countries in the data set will not be able to maintain their current transition rates into secondary school unless lower-secondary enrollments grow at an average of 10 percent a year through 2015. Targets

of less than 100 percent may have to be set if they are to be achievable. These targets will differ across countries.

The estimates in chapter 4 indicating the percentage of GDP that needs to be allocated to different levels of schooling to attain various secondary-school enrollment rates suggest the magnitude of the financial challenge. The recurrent financial resources needed to support expanded access of GER1 of 110 percent, gross lower-secondary enrollment (GER2L) of 60 percent, and gross upper-secondary enrollment (GER2U) of 30 percent require an average allocation of about 6.3 percent of GDP, 2.7 percentage points of which would be for secondary schooling. These estimates indicate the need for spending of about \$10.2 billion in 2002 (about \$3.8 billion a year more than allocated) and \$13.5 billion a year in 2015. Achieving GER1 of 110 percent, GER2L of 100 percent, and GER2U of 50 percent would require about 8.6 percent of GDP, of which 4.6 percentage points would be for secondary schooling. This is equivalent to about \$13.9 billion in 2002 (about \$7.5 billion more than allocated) and \$18.5 billion a year in 2015.

If reforms could reduce recurrent costs per pupil to 12 percent of per capita GDP for primary, 20 percent for lower-secondary, and 40 percent for upper-secondary school, the amounts needed for education would fall to about 5 percent of GDP, leaving a recurrent shortfall of about \$1.5 billion a year. If the higher enrollment targets are used, 6.3 percent of GDP would be needed, leaving a recurrent shortfall of about \$3.8 billion a year. These lower cost levels imply dramatic reductions in expenditure per pupil, especially in low-enrollment countries. Efficiency gains of this magnitude would take several years to achieve and may be beyond reach in the short term.

These estimates are for recurrent expenditure only. When development costs are included, universalizing primary and reaching GERs of 60 percent for lower-secondary and 30 percent for upper-secondary would require additional spending of about \$10 billion a year without cost-reducing reforms. GERs of 100 percent at the lower-secondary and 50 percent at the upper-secondary level would require as much as \$15 billion a year. Radical reforms that reduced costs per pupil by as much as 33 percent at the secondary level but left the cost per pupil at the primary level unchanged would result in shortfalls in funding of about \$7 billion a year (\$11 billion if the higher enrollment targets are chosen). The magnitudes of additional financial resources required are thus very substantial and likely to be unattainable without reforms that lower costs per student and increase efficiency and effectiveness.

POLICY CHALLENGES

Countries with low secondary-school enrollment need to address 11 key policy challenges:

1. *Reallocate resources for education.* Expanded secondary-school enrollment is unlikely to be sustainable unless more than 5 percent of GDP is allocated to education and more than 2 percent of GDP is allocated to lower- and upper-secondary schooling. In countries with longer secondary cycles and higher than average secondary-school costs, substantially more than 3 percent of GDP would be needed for secondary education to raise GER2L to 60 percent and GER2U to 30 percent.
2. *Consider structural changes.* Cost-saving reforms include reducing elective boarding and withdrawing subsidies for nonessential boarding through progressive transition to day schooling; introducing double shifts to reduce constraints on school capacity pending new construction; and scrutinizing the net benefits of high-cost specialized secondary level schools to make sure that they exceed those associated with general secondary alternatives.
3. *Reduce per pupil salary and nonsalary costs.* Public costs per pupil need to fall below 30 percent of per capita GDP for lower-secondary and 60 percent for upper-secondary school. Reducing spending to 20 percent of per capita GDP for lower-secondary and 40 percent for upper-secondary school could bring GER2L of 60 percent and GER2U of 30 percent within reach in most countries without allocating much more than 5 percent of GDP to education, if budgetary funds are distributed across subsectors with these goals in mind. These cost savings will be difficult to achieve without substantial reforms.
4. *Better management of the flow of pupils to increase completion rates, reduce costs per successful completer, and improve gender equity.* Policies are needed that reduce repetition and dropout, reduce direct costs to poor households, revise selection and promotion policy related to public examinations, and reduce gender differences in repetition, age within grade, dropout, and achievement. The right balance needs to be struck between expanding enrollment at the primary, lower-secondary, and upper-secondary levels.
5. *Improve teacher deployment and utilization.* Much more access could be provided if norms for pupil: teacher ratios (40:1 at the lower-secondary, 35:1 at the upper-secondary level) were applied. Teacher-class ratios at the secondary level should be less than 2:1. Variations

in these ratios across schools should be reduced to no more than 10 percent of the average.

6. *Improve school management.* Incentives to manage human and physical resources more efficiently could be linked to changed methods of school financing that introduce more elements of formula funding, local accountability, and whole-school development strategies.
7. *Reform secondary curricula.* Secondary expansion without curriculum reform risks irrelevance and wastage. New populations of school-age children require curricula that address their needs, respond to changing social and economic circumstances, and recognize resource constraints. Well-designed core curricula that are teachable effectively in all schools and lead to valued knowledge, skills, and competencies are essential.
8. *Increase the supply of trained teachers.* Where demand is greatest and initial training lengthy and expensive, alternative methods will have to be considered in order to ensure that enough teachers are trained to allow secondary-school enrollment to expand. Options include shortening initial training, making more use of in-service and mixed-mode training, and setting new levels of qualification for new secondary-school teachers.
9. *Build more schools and classrooms and enhance facilities.* Physical capacity needs expansion in ways that optimize increased access. School mapping, efficient procurement, and medium-term planning of construction programs for new classrooms and schools are all critical.
10. *Enhance community involvement in secondary schools.* Expanded secondary access will benefit greatly from support from the communities the schools serve. Many possible methods of cost sharing and cost recovery should be facilitated. They should be linked to the capacity of households to support fees and contributions, so that schools do not become exclusionary.
11. *Facilitate partnerships with nongovernment providers.* Policy makers need to determine which relationships should be facilitated, how they should be regulated, and which providers should receive public subsidies.

DEVELOPING A ROADMAP FOR EXPANDING SECONDARY EDUCATION

Sustainable secondary expansion requires consistent political will, long-term planning, effective implementation strategies, realistic resource

demands, and commitment to a roadmap for raising access to good-quality secondary schooling. That roadmap should include education sector reviews, national strategies for expansion, and costed plans for allocating resources.

Education sector reviews should include investment strategies at the secondary level as an integral part of their discussions. National priorities need to be set and realistic dialogues held with development partners. Poverty Reduction Strategy Papers (PRSPs) must recognize the links between investment in secondary education and general development objectives.

National strategies for secondary expansion need to be developed that are pro-poor and make more-efficient and more-equitable use of public resources. Where enrollment rates are low, access is highly skewed to the relatively wealthy, primary–secondary transition rates are likely to fall as the number of primary leavers increases, and there are indications that existing provision has high costs related to internal inefficiencies, new policies are needed.

Costed plans for the development of secondary education need to be developed within Medium-Term Expenditure Frameworks that allocate resources. These plans should be commissioned within sectorwide approaches that take an integrated view of educational investment across all levels. Expansion of secondary schooling at current cost levels has implications for budget shares that need systematic anticipation, policy consensus, and inclusion in annual finance bills.

The planning and implementation of development strategies for secondary schooling has both quantitative and qualitative dimensions. The quantitative dimensions concern realistic projections of growth and the consequences for both recurrent and capital investment at sustainable levels. Key questions for policy makers and planners include the following:

- Which subsectoral allocation patterns are most likely to result in achievement of the MDGs? How should the competing demands for investment at different levels be resolved?
- How should efficiency gains be achieved that will allow affordable expansion of secondary schooling without unacceptable diminution of quality? Which aspects of school funding systems, teacher deployment, and nonsalary expenditure might be most open to reforms that increase internal efficiency and learning effectiveness?
- How can cost-recovery systems be profiled to allow expansion with more-equitable enrollment that is pro-poor? What are the limits of affordability that will constrain effective demand for secondary

schooling, as those who participate are drawn from lower-income households? Which options might lessen the limits on access this imposes?

- To what extent are nongovernment providers willing and able to complement publicly subsidized secondary schooling in ways that are pro-poor? Which mechanisms can or should be used to subsidize nongovernment providers, bearing in mind the opportunity costs for public systems?
- How much development expenditure needs to be budgeted to service planned expansion and replenish stock and infrastructure where they have been underfunded?

Qualitative reforms are needed in the structure, content, and process of secondary schooling designed to meet the needs and capabilities of students drawn from a wider range of backgrounds than has historically been the case. Reforms need to recognize that school leavers will enter changing labor markets, where new knowledge and skills will be needed, and that majorities will not find public sector jobs or continue their education.

Targets for secondary expansion should focus on planned development, remind stakeholders of the interdependence of targets at one level on activity at the next, and provoke policy dialogue that balances ambitions with realistic judgments of what is needed to support growth. Targets can distort spending if poorly defined. Appropriate targets should

- generate a consensus among key stakeholders of useful and measurable indicators for the development of secondary schooling, bearing in mind the technical problems associated with transition and completion rate targets;
- identify plausible targets that reflect each country's starting point, priorities, political possibilities, and resource constraints and that are feasible to achieve over defined time periods;
- encourage commitment to the achievement of agreed-upon targets through expression in forms that can be understood by the key stakeholders who have some accountability for outcomes at different levels, especially at the school and community level; and
- establish (or include in existing monitoring systems) methods of periodic review of progress and updating linked to the planning cycle.

Indicative benchmarks may be useful to develop appropriate targets and other guidelines to shape secondary expansion. A suggested list, based on the analysis in this volume, is shown in table 6.1.

Table 6.1 Benchmarks and Indicators for Increasing Secondary Enrollment

<i>Benchmark/indicator</i>	<i>Comment</i>
<i>Service delivery indicators</i>	
Increase pupil: teacher ratios (PTRs) to no more than 40:1 in lower-secondary and 35: 1 in upper-secondary school.	Lower ratios increase costs and reduce access.
Reduce variation in PTRs across secondary schools to less than 10% of mean value for all schools.	Large variations in staffing ratios disadvantage pupils and reduce cost-effectiveness.
Raise teacher: class ratios to 1.5:1 in lower-secondary and 2:1 in upper-secondary schools.	Higher ratios indicate inefficient teacher deployment and excessively light teaching loads.
Set a minimum of 500 students per secondary school.	Smaller schools suffer diseconomies of scale. They have to have restricted curricula options and multigrade teaching to be cost-effective.
Increase secondary enrollments by 5 percent a year plus the rate of GDP growth.	Higher rates of growth are unlikely to be financially sustainable for more than a short period (three years or less) or manageable (because of lack of classrooms and other physical constraints).
Increase number of teachers by less than 10% a year.	Higher rates are unlikely to be sustainable.
<i>Gender indicators</i>	
Achieve gender parity in all grades.	GER2 must exceed 50% before gender parity is likely.
Reduce over-age enrollment among girls to less than 10%; reduce over-age entry in grade 1 to less than 5%.	Over-age enrollment results in higher rates of dropout and noncompletion among girls.
<i>Costs and finance</i>	
Reduce per pupil costs to 20–30% of per capita GDP in lower-secondary school and 40–60% in upper-secondary school.	Higher costs preclude mass access; lower costs allow more access within the same financial limits.
Contain the costs of technical and vocational education (TVET) at less than 1.5 times that of general secondary schools.	Where TVET costs per pupil are more than 50% more than general secondary schools, it is unlikely that the public benefits outweigh the costs.
Cap the ratio of lower-secondary: primary spending at less than 2:1 and the ratio of upper-secondary: primary at less than 4:1.	Higher cost ratios preclude mass access; lower ratios facilitate higher enrollment rates.
Where GER2L = 60% and GER2U = 30% are targeted, allocate at least 25% of the recurrent education budget to lower secondary and at least 20% to upper secondary (total allocation to secondary of at least 45%).	Benchmarks subject to cycle length and cost per student.
Where GER2L = 100% and GER2U = 50% are targeted, allocate at least 30% of the recurrent education budget to lower secondary and at least 24% to upper secondary (total allocation to secondary of at least 55%).	Benchmarks subject to cycle length and cost per student.

Table 6.1 (continued)

Benchmark/indicator	Comment
Allocate 2–3% of GDP to secondary education.	Level depends on costs per pupil and enrollment rate targets.
Cap teacher salaries at less than five times per capita GDP for lower-secondary and less than six times per capita GDP for upper-secondary school.	Higher rates create unsustainable costs or require very high PTRs.
Cap nonteacher recurrent costs at less than 25% of total recurrent spending for lower-secondary and less than 35% of total recurrent spending for upper-secondary school.	Higher proportions restrict access by inflating costs per pupil; more day schools should secondary school reduce nonteacher costs.
Allocate at least 10% of recurrent costs to learning materials in lower-secondary school.	Lower allocations will result in low levels of textbook provision and compromise learning outcomes.
Allocate less than 10% of total expenditure to boarding schools.	Subsidized boarding should be provided only for students with no access to day schools.
Privately financed secondary schooling 25% unsubsidized private provision.	Unsubsidized good-quality schools cannot be financed from fees paid by households below top quartile of household income.
<i>Building costs</i>	
Allocate no more than \$10,000 per classroom for construction.	Subject to realistic local cost accounting.
Adopt low-cost school designs that cost less than \$100,000 per four-classroom school.	Subject to realistic local cost accounting.
<i>Teacher training</i>	
Keep teacher training costs below twice the cost of educating an upper-secondary school student.	Higher costs reduce the numbers of teachers that can be trained, with little evidence that more-expensive training is more effective.
Require that teachers have at least two more years of education than the level they teach.	Less than two years' additional education is likely to result in poor grasp of secondary curriculum content.
Provide no more than two years of training before employment.	Longer periods of preservice training are unlikely to be cost-effective.

Source: Author.

DEVELOPING A FRAMEWORK FOR ACTION

A framework for action is determined by a country's short- and medium-term policy objectives. The framework needs to specify goals, identify the resources likely to be available and any shortfalls that can be anticipated, and assess the key nonfinancial constraints on growth. This framework, subject to annual review, can then be developed into an implementation strategy (Lewin 2007a).

Policy systems, institutional responsibilities, and capacity vary greatly across SSA countries. A possible way forward is illustrated below to encourage discussion.

A national coordinating body should manage and develop secondary schooling. This body needs close articulation with planning for primary and postsecondary education. Where basic education includes lower-secondary school, a decision is needed on organizational location, overlapping responsibilities, and coordination with upper-secondary development. The coordinating body has to be closely linked to the Ministry of Finance so that it can work within realistic resource envelopes. It should also involve key stakeholders, including those with responsibilities for curriculum, teacher education, school building, production and distribution of learning materials, and examinations and selection. The body could also involve teachers unions, community representatives, and nongovernment providers.

At least five other organizational capabilities are needed to generate coherent medium-term plans. These capabilities may be specially constituted or drawn from existing organizational capabilities. The groups include the following:

- *Finance and Planning Task Group.* Managed expansion depends on robust information about system characteristics, including school census data on flows of pupils, teacher deployment, school location, and facilities, which can be used to project resource demands under different policy regimes. Such information can anticipate how expansion can and should evolve, profile liabilities arising from expansion, and identify choices that require policy dialogue.
- *Construction and Procurement Task Group.* Expanded capacity requires classroom and school building, organized in ways that maximize access and create durable structures to appropriate specifications in a timely manner. Nonfinancial constraints on growth may limit the rate at which capacity can be expanded. A construction and procurement task group would identify future needs and schedule construction in advance of the need for additional school places.

- *Curriculum Development Task Group.* Curriculum reform should be a rolling process designed to renew periodically learning specifications and material in a sequential way, based on consistent pedagogic principles. Core curricula, effective teacher education, and relevant teaching and learning have to build from systematic curriculum development.
- *Teacher Education Task Group.* To ensure the adequate supply of teachers, teacher training must be modified and adapted to the qualifications and competencies of new entrants. Curriculum reform to meet the needs of expanded groups of secondary pupils needs planned in-service support for existing teachers.
- *Educational Management Task Group.* School effectiveness is primarily a school management concern. Changed management practices will be needed to increase efficiency and effectiveness, improve the quality of learning, and ensure that expanded provision results in good educational outcomes. School financing and quality assurance mechanisms may also need reconfiguring.

Policy systems, institutional responsibilities, and capacity vary greatly across SSA. These generic suggestions therefore need adapting to country circumstances. The main elements are likely to be included in any framework for action that adopts a systematic approach to secondary expansion and reform.

CONCLUDING REMARKS

Several important conclusions emerge from the research presented in this volume:

- Expanding access to secondary education in low-enrollment countries requires a range of strategies designed to increase policy commitment to the development of the subsector, identify critical constraints, and resolve resource issues.
- Greatly increased numbers of primary-school graduates seeking admission to secondary schools will become a highly visible feature of the political landscape. Without a strategic approach, transition rates into secondary schooling will fall, enrollment may become less equitable, and sustained access at all levels will be jeopardized.
- In some systems, increasing internal efficiency could double enrollments without adding much to overall costs. In other systems, the share of the budget allocated to secondary schooling will need to rise to finance expansion.

- Major structural reform at the secondary level (for example, changing the length of cycles, adding lower-secondary grades to primary schools) may be an option in some countries. Such changes will require consistent political commitment, however, and may incur high transaction costs.
- The direct costs to households of education constrain enrollment throughout SSA, particularly by the poor. Planned expansion should be more rather than less equitable. Community initiatives may be able to share the development costs of new schools. They are unlikely to support recurrent costs, however, except in relatively rich communities.
- Nongovernment schools provide secondary education throughout SSA. Growth of the sector is limited, however, by affordability and by concerns about equity, quality, and effective regulation. Nongovernment providers are unlikely to be the method of choice in expanding enrollment in most systems.
- Curriculum development needs to reflect the new mix of students as secondary-school enrollment expands. A focus on a limited core of subjects, movement toward curricula linked to achievement, and an adequate supply of learning materials in appropriate languages are obvious starting points.
- Nonfinancial constraints to growth may prove definitive. Planned growth that does not undermine quality depends on new and expanded physical facilities in appropriate locations, an adequate supply of trained teachers, sufficient learning materials, curricula and pedagogy that are attractive enough to retain pupils, and valid and reliable assessment systems. The lead times associated with overcoming these constraints have to be considered as part of planned growth.
- Better estimates of costs are needed that are grounded in data from each system and linked to feasible programs of reform designed to maximize more-equitable access and preserve quality. The role and magnitude of external support that should be committed to increasing enrollment at the secondary level depends on a consensus about the importance of investment in the subsector, the length of time over which enrollment goals are to be met, the balance of domestic investment across education subsectors, and the profile of external assistance from multilateral and bilateral sources. The climate is now favorable for reexamining how best to channel external assistance to meet the pressing needs to expand access to secondary schools.

Participation at the secondary level will grow and will contribute to achieving the education-related MDGs and Dakar targets. The central issues remain how to finance and manage this growth in ways that are

more equitable and efficient, that recognize the nonfinancial constraints on enrollment growth, and that offer the prospect of improved quality, competence, and relevance to those who subsequently enter increasingly competitive national and international labor markets.

Expansion at the secondary level without attention to financial realities will jeopardize quality and achievement, generate disillusion with the costs and benefits, and miss opportunities to close the gap between SSA and other regions of the world in the knowledge and skills of the next generation. The sustainability of greater access will depend on consistent economic growth. This is much more likely with the strategic development of secondary schooling than without it.

Notes for Chapters 1–6

CHAPTER 1: WHY SECONDARY EDUCATION?

1. There are 8 MDGs and 18 associated targets. At least six of the targets appear to depend directly on enhancing access to secondary schooling. Halving the proportion of people living on less than \$1 a day (T1); halting and beginning to reverse the spread of HIV/AIDS (T7); developing and implementing strategies for decent and productive work for youth (T16); and making available the benefits of new technologies, especially information and communications technology (T18) would all seem to require mass access to secondary schooling. Eight other targets appear to indirectly depend on increasing secondary-school access. These include halving the proportion of people suffering from hunger (T2); reducing under-five child mortality by two-thirds (T5); reducing maternal mortality by three-quarters (T6); halting and beginning to reverse the incidence of malaria and other major diseases (T8); integrating the principles of sustainable development into country policies and programs and reversing the loss of environmental resources (T9); halving the proportion of people without access to safe drinking water (T10); improving the lives of at slum dwellers (T11); and developing further an open, rule-based, predictable, and nondiscriminatory trading system (T12).

2. Where entry to secondary schooling favors boys, girls should outperform boys because they are a more selected group. Often they do not, suggesting that differences in performance will be reduced only with changed learning and teaching methods and other interventions designed to increase participation to the end of the cycle.

3. The evidence on orphans' access to secondary schooling is inconclusive, with some studies showing strong exclusionary effects and others showing little difference in attendance rates (UNAIDS 2000; World Bank 2002).

4. In Uganda seropositive rates for people with only primary education are nearly twice those for people with secondary education (AIDS Information Centre 2000; UNAIDS 2000). Time series data show that rates of infection have fallen fastest among people with secondary schooling while remaining stagnant for people with no primary education (World Bank 2005b).

5. Even if current patterns of investment are regressive in terms of household income, the marginal benefit of expansion would favor redistribution by enrolling students from poorer households who are currently excluded.

6. Boarding may account for much more in terms of costs to households. In Ghana, for example, the costs to households of boarding schools may be 14 times greater than the costs of day schools (see appendix 4).

CHAPTER 2: THE STATUS OF SECONDARY SCHOOLING

1. This estimate is based on the secondary cycle reported to UNESCO and UN age-specific population estimates.

2. Millions of over-age pupils may also be enrolled.

3. The consequences of these low enrollment rates can be illustrated by the flow of pupils in Benin, where about 89 percent of children enter grade 1. Only 16 percent of these children will reach grade 9, the last year of lower-secondary school, and just 7 percent will reach grade 12 (see appendix 3).

4. A small but growing group of countries is moving toward open entry to secondary schools for all primary-school completers—e.g., Uganda, Kenya, and Ghana.

5. No reliable cross-country data are available on boarding, which takes many forms, from fully subsidized to full cost recovery.

6. Estimate is based on median values across the 26 countries in the data set for highest level of schooling achieved among 15- to 19-year olds.

7. Neither the World Bank (2005b) nor Mingat (2004) clearly defines *private*. This may explain the differences in their estimates.

8. There are exceptions: in Rwanda, for example, the Genocide Fund runs private secondary schools in rural areas that enroll poor children. It is not clear how these schools will be financed once donor funding declines.

9. Private primary schools may have grown faster because they have much lower initial investment costs (see appendix 4).

10. Data for about half of all SSA countries are missing from the UIS data set. It is likely that nongovernment TVET schools are undercounted.

CHAPTER 3: THE CHALLENGE OF EXPANDING SECONDARY ENROLLMENT

1. The index of participation is based on the number of children enrolled in grade 1 compared with the number of children in the grade 1 age group for that year and subsequent years. It approximates a grade-by-grade enrollment rate.

2. Malawi and Uganda fall into this high-attrition group because their secondary participation rates are low. In both countries, it is likely that private enrollment is undercounted.

CHAPTER 4: HOW MUCH SECONDARY EXPANSION IS AFFORDABLE WITH AND WITHOUT REFORM?

1. Reliable cross-country data on expenditure on other levels of education, including higher education, are not available. Sector work indicates very wide variations in higher education allocations, from less than 10 percent to more than 40 percent. Expenditure on central and decentralized services is often not allocated by level. Spending on other subsectors—postsecondary education below the university level, technical and vocational education, adult education, and agricultural training—varies widely across countries and is difficult to compare, although these subsectors generally receive small proportions of the education budget.

2. The *Global Monitoring Report* (World Bank 2005b) finds an average of 3.4 percent of GDP for education expenditure across an incomplete data set. Among countries with per capita GDP below \$1,500, the average is 3.9 percent.

3. These levels are chosen partly based on levels found in high-enrollment countries and partly because much higher levels preclude substantial enrollment growth with sustainable financing.

4. A four-year average growth rate in school-age entrants was computed for each country using UN population statistics.

5. This figure is based on the proportion of GDP allocated to education. It excludes Somalia.

6. The four-year cycle in Kenya has been treated as 2 + 2 in this analysis.

7. The model sets higher education and other costs as a proportion of total recurrent expenditure. Because total costs are reduced, higher education and other costs fall over and above the reduction from 20 percent to 15 percent of total costs.

8. This figure may be too low for secondary school, especially in countries where HIV/AIDS is prevalent. In some areas, more than 20 percent of teachers may be seropositive (HSRC 2005).

9. Lower-secondary school is often taught by trained secondary-school graduates; most countries prefer that upper-secondary teachers have completed at least some higher education.

10. Secondary-school classrooms may be more expensive than primary-school classrooms, especially if they have specialized facilities. The cost per classroom is higher for new schools than for existing schools. These projections are therefore highly speculative. An alternative calculation uses a figure of 20 times per capita GDP for classroom building costs at the primary level, equivalent to \$10,000 in countries with per capita GDP of \$500. This calculation produces a different pattern of costs.

11. These estimates are based on countries in this data set, which excludes several countries for which data are incomplete or unreliable.

12. These cost estimates do not take into account the additional costs of lowering pupil: classroom ratios where they are high or rehabilitating and maintaining substandard facilities. Building costs could be reduced with community support and competitive procurement.

13. In many systems, this is de facto the case. In the absence of school- or district-level budgets or effective national procurement learning materials, textbooks are provided sporadically or purchased by households.

14. The proportion of children in the secondary-school age range is also important. It is relatively stable over time, however, and becomes a policy variable only if the length of secondary cycles is changed.

15. Without detailed, up-to-date subsectoral data on costs, it is not possible to locate particular systems within the framework. Differences in the reporting of financial data across countries, the absence of reliable data on cost per pupil, and wide variations in these costs across types of secondary schools within countries make it very difficult to classify countries.

CHAPTER 5: OPTIONS FOR AFFORDABLE EXPANSION OF SECONDARY SCHOOLING

1. See World Bank (2005a) for a discussion of the options.

2. Average population growth in the period 2000–03 was about 2 percent, yielding a 1 percent real increase in average GDP per capita and, all else equal, public expenditure.

3. Where higher education receives more funding than and is more heavily subsidized than secondary education, policy makers should consider reallocating funding.

4. This may be the case where more than 60 percent of the budget is allocated to primary education, especially if bottlenecks appear in teacher supply and transition rates are falling rapidly.

5. Data on pupil and teacher absenteeism are not available systematically across SSA. Absenteeism, which can exceed 25 percent, especially when seasonality related to agricultural cycles, is important.

6. In a modularized curriculum, learning is divided into blocks that are self-contained but part of an overall schema.

7. For other analyses of cost recovery and fees, see Thobani (1984); Hinchliffe (1993); Lewin (1995); Bray (1996); Colclough (1996); Penrose (1998); and Kattan and Burnett (2004).

8. Some estimates suggest that 25 percent annual returns on investment are not uncommon.

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ISBN 978-0-8213-7115-2



SKU 17115