

Financing secondary education in developing countries



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This paper explores the challenges that face developing countries seeking to build on success in improving participation in primary schooling in the context of Education for All (UNESCO, 2000), and the education-related Millennium Development Goals (MDGs) (United Nations, 2000).¹ There are five parts to this paper: the first provides a rationale for improved secondary access in low enrolment countries; the second identifies typical enrolment and participation patterns in Sub-Saharan Africa (SSA); the third details the enrolment challenges countries face; the fourth estimates financial demands for expanded access in SSA; and the final part identifies some policy implications. Though the analyses summarised are based on SSA data, the arguments and conclusions apply more broadly to low enrolment countries in other regions.

Rationales for expanded access

The main reasons for developing new approaches to finance-enhanced access to secondary schooling are outlined below.

The number of primary school systems

The number of primary school systems is set to double or more over the next ten years in low enrolment countries, as universal primary education and completion is approached. Demand for secondary places will therefore increase dramatically. If this demand is not met, increasing numbers of children will be excluded from realising their developmental potential. This exclusion may create social and political tensions, and greater equity will prove elusive (Lewin and Caillods, 2001).

Qualified secondary graduates needed in primary teaching

Universal Primary Education (UPE) depends on an adequate flow of qualified secondary graduates into primary teaching (Lewin and Stuart, 2003). This will be hard to ensure where secondary enrolment rates are low. UPE also depends on sustained demand for primary schooling, which will falter if transition rates into secondary fall. The MDGs commit countries to achieve gender equity in primary and secondary schooling. The evidence from SSA is clear that this is most likely where secondary Gross Enrolment Rates (GER2) exceed 50%, and is rarely achieved where enrolment rates are lower.

The impact of HIV and AIDs on the active labour force

HIV and AIDs have decimated the active labour force and undermined prospects for economic growth in some developing countries, and pose a threat in many. The evidence suggests that those with secondary schooling are less at 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 (Gregson et al, 2000; World Bank, 2005; UNESCO, 2005). In some countries conflict has seriously degraded capabilities. In both cases the human capital that has been lost has to be replenished if prospects for recovery are to bear fruit.

The importance of both growth and distribution

Poverty reduction will stall unless both growth and distribution are considered. Access to and successful completion of secondary schooling is becoming the major mechanism for allocating life chances in most developing countries (e.g., Adea-Mensah, 2000). Secondary schooling excludes those below the 20th percentile of household income in low enrolment countries. 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.

The knowledge economy

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 are most efficiently acquired through secondary schooling. Greater economic growth is associated with balanced patterns of public educational investment. Those countries which have grown fastest have more balanced patterns of investment across different levels of education than those with heavily skewed distributions (World Bank, 1993, 2005; Wood and Mayer, 1999).

Curriculum reform

Curriculum reform at secondary level is essential, both because it has been widely neglected and because expanded access will enrol children with different learning needs and capabilities.



Increased participation without more relevant, effective and efficient learning and teaching will not be fit for purpose and may create more problems than it solves.

Constraints in Sub-Saharan Africa

Increased secondary participation within current cost structures in SSA is severely constrained. The basic arithmetic of the dilemma is straightforward. Typical budgeting patterns in low enrolment countries in SSA allocate relatively small amounts of public expenditure on education to secondary level, sometimes less than 10%. In these countries, where the average GER2 can be less than 15%, increases in secondary level participation to say GER2 60% without reforms would require a quadrupling or more of allocations to secondary. This is unlikely.

Public expenditure per pupil at lower secondary level across SSA countries averages about 3 times that at primary, and about 6 times that at upper secondary, and in South Asia 2 to 4 times. The ratios may be several times greater for specialised technical and vocational institutions. Cost per pupil at secondary in SSA averages at least 30% and 60% of gross national product (GNP) per capita for lower and upper secondary. In the SSA countries with the lowest enrolment rates, the cost of a secondary school place may be as much as 100% of GNP per capita and more than 10 times as much as a place at primary school. Though South Asian rates are generally lower as a result of relatively lower teacher's salaries, they may approach these levels in the low enrolment countries.

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 enrolment Commonwealth countries, where secondary places are usually less than twice the cost of primary places. Costs per pupil at lower and upper secondary will need to move towards 20% and 40% of GNP per capita. 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.

Setting the scene

An analysis across 44 SSA countries (Lewin, 2006a) indicates that there are five broad patterns in terms of access.² These are:

1. high participation in primary and secondary with low rates of repetition and drop out;
2. very high initial enrolment rates in primary but high drop out and repetition with low completion rates, with falling transition rates into secondary and low participation;
3. high primary entry rates and mid levels of repetition, drop out and completion with mid-level secondary enrolments;
4. primary entry rates below universal levels, and low primary and secondary enrolment rates;
5. very low primary entry rates and very low participation though primary and secondary school.

A consolidation of these patterns is illustrated in Figure 1, which shows how participation falls by grade for each group of

countries. These patterns are very different and create different starting points for investment in expanded access to secondary. Where the participation index (the number enrolled/the number in the age group for the grade) is around 100% through to grade 9, then most are already enrolled in lower secondary (type 1). In type 2, initial entry is much greater than the number of children of grade 1 age. However, participation rapidly falls off such that by grade 6, enrolments are only about 20% of the age group. Type 3 countries have fewer over-age pupils in grade 1 and manage to retain more of them through to grade 9 than is the case for type 2. Type 4 and 5 systems fail to enrol many children in grade 1, and have low and very low participation rates at grade 9. Countries with patterns 4 and 5 may come to resemble pattern 2 if UPE programmes are introduced rapidly. However, ideally, future expansion will not create the exaggerated patterns of Type 2 whereby massive over-enrolment in grade 1 is accompanied by high drop out and little improvement in secondary participation rates. If it does, then the difficulties associated with falling transition rates into secondary will be exacerbated.

The patterns suggest different policy priorities for countries in different groups.³ In brief, decisions are needed which:

- balance progress on universalising access and completion in primary with needs to increase lower secondary participation;
- recognise the interactions between primary and secondary expansion (especially in teacher supply and transition rates);
- link upper secondary enrolment growth to labour market needs and those of post school education and training;
- identify sustainable frameworks to provide financial resources.

The increased enrolments needed

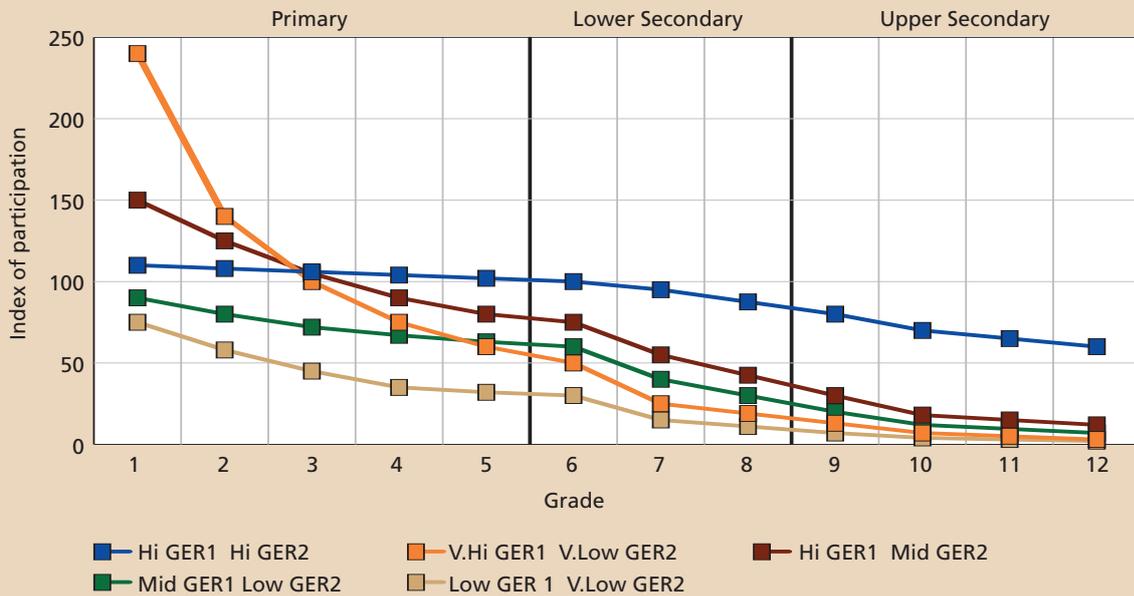
If GER 110% is to be achieved (a level sufficient to support universal enrolment and completion), then on average across SSA the number of primary places needs to expand by 1.3 times those in 2001. If population continues to grow at current rates, the number needed will be 1.8 times greater by 2015. If lower secondary were to enrol 100% of those of official entry age, 4 times as many places will be needed, rising to 5.6 times as many by 2015. At upper secondary the figures are 10.9 and 15.5 times respectively for 100% participation.

To achieve universal lower secondary education, one third of the countries in SSA would have to provide between 4 and 10 times as many places as they do currently for the 2001 cohort and 8 to 20 times as many by 2015. The rates of increase needed to universalise upper secondary are even higher.

The detailed analysis suggests that:

- The total number of primary places needs to be increased by more than 30% by 2015 in about 70% of the countries in the data set, and some will have to increase places by as much as 100%.
- There are only 11 countries likely to universalise lower secondary if the maximum sustainable rate of increase in lower secondary enrolments is 10% a year (Seychelles, South Africa, Cape Verde, Botswana, Sao Tome and Principe, Namibia, Mauritius, Togo, Ghana, Zimbabwe, Swaziland, and Lesotho); if

Figure 1 Generic chart of enrolment patterns



the maximum rate is set at 5% then only five countries will achieve this goal (Seychelles, South Africa, Cape Verde, Botswana, Mauritius).

- Targets less than GER2L 100% have to be set if they are to be achievable, and these will differ between countries, depending on country prioritisation of increased access at primary and secondary levels, the resources available, and the costs of expansion.
- It will be difficult for most countries to hold primary secondary transition rates constant if all primary entrants complete the last year of primary school. Half the countries in the data set will not be able to achieve this unless lower secondary enrolments grow at an average of 10% per year to 2015.
- GER2L can continue to rise if growth is planned to ensure this outcome, even if transition rates fall for a period.

Financial demands

Estimates by country illustrate what percentage of GNP would need to be allocated to different levels⁴ to reach the target enrolment rates (see Table 1).⁵ The recurrent financial resources needed to support expanded access of GER1 = 110%, GER2L = 60% and GER2U = 30% on average require 2.3%, 1.5% and 1.2% of GNP per capita to support primary, lower and upper secondary schooling across low income SSA. This is equivalent to about US\$3.7, US\$2.4 and US\$2.0 billion per year, rising to US\$5.0, US\$3.2 and US\$2.7 billion by 2015. Total expenditure on education would need to be about 6.3% of GNP. This is equivalent to about US\$10.2 billion, rising to US\$13.5 billion per year by 2015. This is about US\$3.8 billion less than is currently allocated.

Targeting higher enrolment rates of GER1=110%, GER2L=100% and GER2U=50% results on average in 2.3%, 2.6% and 2.0% of GNP per capita being needed to support primary, lower and upper

secondary schooling. This is equivalent to about US\$3.7, US\$4.1 and US\$3.3 billion per year in 2001, rising to US\$4.9, US\$5.4 and US\$4.5 billion by 2015. Total expenditure on education would need to be about 8.6% of GNP on average. This is equivalent to about US\$13.9 billion, rising to US\$18.5 billion per year by 2015. This is about US\$7.5 billion (at 2001 prices) more than is available from current patterns of expenditure.

If recurrent costs per pupil could be reduced to 12%, 20% and 40% of GNP per capita through packages of reforms, the amounts needed for education would fall to about 5% of GNP and the recurrent shortfall to about US\$1.5 billion per year. If the higher enrolment targets are used, 6.3% of GNP would be needed with a recurrent shortfall of about US\$3.8 billion a year. These lower cost levels imply dramatic reductions in expenditure per pupil at secondary over current levels, especially in low enrolment countries. Efficiency gains of this magnitude would take several years to achieve and may be beyond reach in the short term. Table 1 summarises the results.

These costs are for recurrent expenditure only. Development costs for classroom building at US\$10,000 per classroom would be about US\$39.2 billion, of which US\$18.9 billion would be for secondary expansion. These costs are projected over the period 2002–2015 and thus would amount to nearly US\$3 billion a year, or more if incurred over a shorter period. If higher enrolment rate targets are chosen, then US\$20.4, US\$20.3 and US\$17.8 billion would be needed for primary, lower and upper secondary respectively, totalling US\$58.5 billion by 2015, or at least US\$4 billion per year using US\$10,000 per classroom. If provision of learning materials is regarded as development expenditure, then these additional costs could be substantial. The cost would be at least US\$1.7 billion at primary and US\$1.1 billion at secondary. The amounts needed could easily be doubled with higher enrolments. Thus other development costs are of the order of US\$3 billion per year.

**Table 1** Costs of achieving different enrolment targets at different unit costs

GER1=110, GER2L=60, GER2U=30

Cost Per Pupil – Primary=12% GNP/Cap; L Sec = 30% GNP/cap; U Sec=60% GNP/Cap, HE+ 20%

	%GNP Needed 2002	Amount Needed US\$ 2002 000	Amount needed US\$ 2015 000	% GNP Available 2002	Amount Available US\$ 2002 000	Annual Shortfall US\$ 2002 000
Primary	2.3%	3,746,766	4,953,269			
Lower Secondary	1.5%	2,432,571	3,221,321			
Upper Secondary	1.2%	2,007,447	2,670,555			
Other incl HE	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

GER1=110, GER2L=100, GER2U=50

Cost Per Pupil – Primary=12% GNP/Cap; L Sec = 30% GNP/cap; U Sec=60% GNP/Cap, HE+ 20%

	%GNP Needed 2002	Amount Needed US\$ 2002 000	Amount needed US\$ 2015 000	% GNP Available 2002	Amount Available US\$ 2002 000	Annual Shortfall US\$ 2002 000
Primary	2.3%	3,746,766	4,953,269			
Lower Secondary	2.6%	4,054,284	5,368,868			
Upper Secondary	2.0%	3,345,745	4,450,925			
Other incl HE	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

Baseline Enrolment Targets, Cost Saving Reforms

GER1=110, GER2L=60, GER2U=30

Cost Per Pupil – Primary=12% GNP/Cap; L Sec = 20% GNP/cap; U Sec=40% GNP/Cap, HE+ = 15%

	%GNP Needed 2002	Amount Needed US\$ 2002 000	Amount needed US\$ 2015 000	% GNP Available 2002	Amount Available US\$ 2002 000	Annual Shortfall US\$ 2002 000
Primary	2.3%	3,746,766	4,953,269			
Lower Secondary	1.0%	1,621,714	2,147,547			
Upper Secondary	0.8%	1,338,298	1,780,370			
Other incl HE	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

Higher Enrolment Targets, Cost Saving Reforms

GER1=110, GER2L=100, GER2U=50

Cost Per Pupil – Primary=12% GNP/Cap; L Sec = 20% GNP/cap; U Sec=40% GNP/Cap, HE+ = 15%

	%GNP Needed 2002	Amount Needed US\$ 2002 000	Amount needed US\$ 2015 000	% GNP Available 2002	Amount Available US\$ 2002 000	Annual Shortfall US\$ 2002 000
Primary	2.3%	3,746,766	4,953,269			
Lower Secondary	1.7%	2,702,856	3,579,245			
Upper Secondary	1.3%	2,230,497	2,967,283			
Other incl HE	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



Policy options for reform

There are a wide range of options that could result in more participation at affordable costs.⁶ In brief, 12 key policy challenges and associated options can be identified which apply to a greater or lesser extent to all low secondary enrolment countries in SSA and South Asia.

1. The allocation of national resources to education has to be considered. The analysis indicates that, in general, expanded secondary enrolment is unlikely to be sustainable unless more than 5% of GNP is allocated to education, and at least 2.5% of GNP is available for lower and upper secondary schooling. In countries with longer secondary cycles and higher ratios of secondary costs as a proportion of GNP per capita, substantially more than 3% of GNP would be needed to achieve GER2L 60% and GER2U 30%, excluding the costs of primary and higher education.
2. The salary and non-salary costs per pupil of secondary provision have to fall in most of SSA if higher levels of participation are to be financially sustainable. Public costs per pupil need to fall below 30% and 60% of GNP per capita for lower and upper secondary. Levels as low as 20% and 40% would bring GER2L 60% and GER2U 30% within reach in most countries without allocating much more than 5% of GNP to education, assuming a budgetary distribution designed to achieve this goal.
3. A balance has to be struck between rates of expansion towards enrolment targets at primary, lower and upper secondary levels. What is appropriate is a policy choice determined in part by current patterns (especially distance from universalising primary), and partly by domestic prioritisation (especially the choice of expanding lower secondary whilst restricting publicly financed growth at upper secondary).
4. Structural changes in some countries could facilitate higher secondary enrolment rates at affordable costs (Lewin, 2006c). The most important options are reducing elective boarding and/or withdrawing boarding subsidies, except where these are essential through progressive transition to more and more day schooling; double shifting where this can reduce constraints on school capacity pending new construction; and careful scrutiny of the cost benefits associated with high cost specialised secondary level schools when compared to general secondary alternatives (Gill et al, 2000; Johanson, 2005).⁷
5. Better management of the flow of pupils could increase completion rates, lower costs per successful completer, and improve gender equity. This implies strategic intervention to reduce repetition and drop out, to lower direct costs to poor households, and to review selection and promotion policy related to public examinations.
6. Improved teacher deployment is likely to be critical to successful expansion. Much more access could be provided if norms for pupil teacher ratios (e.g., 35:1 at lower secondary and 25:1 at upper secondary) could be applied; similarly class teacher ratios at secondary level should be less than 2:1. In both cases variations between schools could be reduced to say +/- 10% of the average.
7. An increased supply of trained teachers will be critical to secondary expansion. Where demand is greatest, and existing initial training lengthy and expensive, alternative methods will have to be considered. This will include shortening initial training, making more use of in-service and mixed mode training, and agreeing appropriate levels of qualification for new secondary teachers that may be different from in the past.
8. Changes in school management that provide some incentives to manage human and physical resources efficiently should be considered. This can be linked productively with changed methods of school financing that introduce more elements of formula funding, local accountability and whole school development strategies.
9. Secondary expansion without curriculum reform risks irrelevance and wastage. New populations of school children require curricula that address their needs, respond to changing social and economic circumstances, and recognise resource constraints. Well-designed core curricula teachable effectively in all schools and which lead to valued knowledge, skills and competencies are essential.
10. Physical capacity needs planned expansion in ways that optimise increased access. This implies effective school mapping, efficient procurement, and medium-term planning of construction programmes for new classrooms and schools.
11. Expanded secondary access will benefit greatly from successful mechanisms to generate support from the communities that schools serve. There are many possible methods of cost sharing and cost recovery that can and should be facilitated. These need to be developed. They also need to be linked to the capacity of households to support fees and contributions so that they do not become exclusionary.
12. Finally, partnerships with non-government providers should be explored to see what contribution they can make to expanded access (Lewin, 2006b; Lewin and Sayed, 2005; Lassibille and Tan, 2000). The central policy questions are what relationships should be facilitated, how should they be regulated, and to what extent should public subsidy be directed towards which kinds of non-government providers?

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Endnotes

- 1 This paper draws on analysis undertaken for the Secondary Education in Africa (SEIA) programme of the World Bank (<http://www.worldbank.org/afr/seia/>) and from background policy papers commissioned by the UK Department for International Development (DFID). Further information is to be found on the SEIA website (<http://www.worldbank.org/afr/seia/>) and in the forthcoming report Lewin K M, *Seeking Secondary Schooling in Sub-Saharan Africa: Strategies for Sustainable Financing*; SEIA, World Bank, Washington DC. The Consortium for Research Educational Access Transitions and Equity (CREATE – <http://www.create-rpc.org>) is also developing a programme of research to explore transition issues to high secondary enrolment.
- 2 The analysis is being extended to South Asian countries and preliminary data suggest similar patterns exist.
- 3 See Lewin, K M, 2006 for more details.
- 4 Using current cycle lengths for primary, lower and upper secondary.
- 5 These new estimates can be compared with those of Mingat (2004).
- 6 These are discussed in more detail in Lewin, K M, 2006a.
- 7 Especially where these provide technical and vocational education and market demand signals are weak.

Biographical notes

Keith M Lewin is Professor of International Education at the University of Sussex and Director of the Centre for International Education. He has worked widely in Sub-Saharan Africa and Asia over the last 30 years for development agencies and national governments. His academic interests include educational policy, planning and finance, science education, teacher education, assessment and qualifications, and aid effectiveness. He has a long involvement with Education for All initiatives from co-convening the Round Table on Educational financing at Jomtien, Thailand, through the Symposium on Expanding Access to Secondary Education at Dakar, and with work on the World Bank Secondary Education in Africa programme. Since 2000 he has developed the plans to finance expanded secondary schooling in Uganda, the United Republic of

Tanzania and Rwanda, completed the Multi-Site Teacher Education Project, and contributed analytic studies on the role of the private sector in supporting expanded access. His books include *Educational Innovation in Developing Countries*, *Doing Educational Research in Developing Countries*, *Educating All the Children*, *Financing Secondary Education*, *Researching Teacher Education*, *Science Education and Development*, and *Non-Government Schooling in Sub-Saharan Africa*. He currently directs the UK Department for International Development (DFID) Research Consortium for Research on Educational Access Transitions and Equity (CREATE), and is President of the British Association of International and Comparative Education. See <http://www.sussex.ac.uk/education/profile1591.html> and <http://www.create-rpc.org>