

**Africa Region Human Development  
Working Paper Series**

# **Cost, Financing and School Effectiveness of Education in Malawi**

*A future of limited choices  
and endless opportunities*

Development Research Group  
The World Bank

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# Foreword

**T**his study is part of a series of education country status reports (CSRs) being prepared by World Bank staff in collaboration with national teams from various Sub-Saharan countries. The immediate objective is to enhance the knowledge base for policy development. More broadly, CSRs create a basis for engaging a diverse audience in dialogue on education sector policies and for developing a shared vision for the future. These processes have become increasingly important as governments renew their commitment to reduce poverty, and the international donor community pledges to provide the needed financial assistance.

In this new dynamic of international development assistance, the World Bank has oriented its corporate mission toward supporting governments in the fight against poverty, making the task its defining priority. In practice the strategy is articulated through a two-prong approach: support for policies that accelerate economic growth combined with explicit measures to promote a more equitable distribution of the benefits from growth. Human development, especially through investments in education, plays a central role in both processes. This fact receives recognition in the emphasis placed on education in the debt relief

arrangements under the Heavily Indebted Poor Countries (HIPC) Initiative. Governments have also invariably treated education as a priority sector in their Poverty Reduction Strategy Papers (PRSPs). The case for placing additional emphasis on the education sector is particularly strong in Malawi, where prospects for economic growth depend on the ability to diversify the economy in a country with a limited natural resource base and declining terms of trade affecting traditional sectors. There is now a need to focus on learning outcomes and quality, which have not kept pace with the considerable improvement of access to education achieved following the 1994 Free Primary Education Policy that increased enrollment from 2 million to 3 million pupils overnight.

In Malawi, as in other low-income countries, two specific goals in education stand out: ensuring that all children complete basic schooling of adequate quality; and managing the production of graduates at post-basic levels, in terms of quantity and skill level and mix, to match the demand for skilled labor. To fulfill these objectives, an infusion of resources, from both domestic and international sources, may well be needed. However, an equally important requirement is to ensure that currently available resources are used efficiently

and equitably. The evidence suggests that in many Sub-Saharan countries, substantial scope for progress exists in this regard. Some countries have indeed already embarked on reforms for improving the performance of their education systems. In the 1990s, for example, policies to encourage more effective use of teachers through multi-grade teaching and double shifting were put in place to boost coverage. More remains to be done, particularly to tackle the structural constraints that encumber the education system. The challenges include defining an appropriate division of responsibility between the public and private sectors for financing and delivering education services, setting sustainable levels of teacher remuneration, and creating institutional arrangements for effective systems management. Reform in these areas are key to improving the quality of learning outcomes, which in turn will be crucial for progress toward the Education for All targets.

In order to identify appropriate measures and address the structural issues, a first step is to develop a country-specific knowledge base that sheds light on the key weaknesses in the education system. In a large number of the Sub-Saharan countries, however, that knowledge base remains sparse, reflecting the systematic neglect of analytical work in the past. In order to re-capitalize it, the World Bank has initiated the preparation of CSRs, using a standard format to consolidate the available information in a policy-relevant manner.

Two features characterize the CSRs, one concerning their technical content, the other the process by which they are accomplished. With regard to content, five aspects are worth mentioning. First, the CSRs pay close attention to issues of equity and the distribution of public resources for education, given the importance of these topics in the HIPC and PRSP context. Second, the analysis relies on commonly available administrative data as well as household surveys, an approach that has helped to improve the consistency and robust-

ness of the statistical results. Third, the CSRs put a sharper focus on outcomes by emphasizing indicators beyond the usual gross and net enrollment ratios. In particular, it documents the schooling careers of children as reflected in the shares of the population that enter grade 1 and attain the various grades in the educational ladder. The more detailed approach has helped to sharpen the socio-economic, gender and geographical disparities in education, as well as to clarify the sources of the disparities. A fourth example of the technical content of CSRs is the use of school-level data to assess the scope for improving service delivery to the poor. Finally, the CSRs also make use of data on student learning—where they are available—to gauge the education system's performance in this important domain, and to identify cost-effective measures for progress.

Regarding the process for preparing the CSRs, the main feature is that they are products of a partnership between the World Bank and national teams from the various countries. The form of this partnership varies across countries depending on the specific circumstances. In the case of Malawi, the CSR was developed in close collaboration with the Ministry of Education and Human Resources (formerly the Ministry of Education, Science and Technology) and other Government agencies. It is important to note that CSRs are diagnostic documents whose purpose is to help identify the policy questions rather than to offer solutions and make recommendations. The process of policy development is more appropriately led by the national team, and the availability of a CSR provides a good basis for disseminating the findings and stimulating a broad national dialogue that informs the country's medium-term budget planning exercise. In the case of Malawi, the CSR has been extensively used to target interventions under the Education Sector Support Project 1 (ESSUP1) and to further a broad based dialogue with all donors and stakeholders. Further, the CSR can play a useful guiding role in the Government's

preparation of an education sector plan for Malawi, which will set the directions for reforms and investments in the sector in coming years. For the World Bank's part, the document is helping to facilitate ongoing discussions to improve the management of the system, its internal efficiency, and most importantly, to improve quality.

The publication of the CSR for Malawi is intended to institutionalize our collective knowledge about the country's education sector and the nature of the policy challenges, and to share that knowledge as widely as possible.

It is my hope that as new knowledge emerges in the course of implementing the country's development strategy, the CSR will be updated to track progress in overcoming those constraints in the education sector that currently impede poverty reduction in Malawi and which may in the long run slow economic growth.

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# List of Abbreviations

CDSS	Community Day Secondary School
CE	Central East Division
CIDA	Canadian International Development Agency
CSS	Conventional Secondary School
CW	Central West Division
DANIDA	Danish International Development Assistance
DEC	Distance Education Centre
DFID	Department for International Development
DSTD	Department for School and Teacher Development (at MIE)
DTED	Department of Teacher Education and Development
EFA (– FTI)	Education For All (– Fast Track Initiative)
EMAS	Education Methods Advisory Service
EMIS	Education Management Information System
FPE	Free Primary Education
GDP	Gross Domestic Product
GER	Gross Enrollment Ratio
GNP	Gross National Product
GoM	Government of Malawi
HRMD	Human Resource Management and Development
IHS	Integrated Household Survey
JCE	Junior Certificate of Education
JICA	Japan International Cooperation Agency
KFW	Kreditanstalt für Wiederaufbau (Germany)
MANEB	Malawi National Examination Board
MASAF	Malawi Social Action Fund
MCDE	Malawi College of Distance Education
MIE	Malawi Institute of Education
MIITEP	Malawi Integrated In-service Teacher Education Program
MK	Malawi Kwacha

MLA	Monitoring Learning Achievement
MOEST	Ministry of Education, Science and Technology (now Ministry of Education and Human Resources)
MOF	Ministry of Finance
MSCE	Malawi School Certificate of Education
MTEF	Medium Term Expenditure Framework
MU	Mzuzu University
NER	Net Enrollment Ratio
NLS	National Library Service
ORT	Other Recurrent Transactions
PE	Personal Emoluments
PEP	Primary Education Project
PER	Public Expenditure Review
PIF	Policy and Investment Framework (strategic document for the education sector in Malawi, developed by the Ministry of Education, outlining the goals by 2012)
Poly Board	Polytechnic Board of Governors
PSLCE	Primary School Leaving Certificate
PRISAM	Private Schools Association of Malawi
PTA	Parent Teacher Association
PTR	Pupil Teacher Ratio
PqTR	Pupil Qualified Teacher Ratio
SACMEQ	Southern African Consortium for Monitoring Educational Quality
SE	South East Division
SEP	Secondary Education Project
SH	Shire Highlands Division
SSTEP	Secondary School Teacher Education Project
SW	South West Division
TDC	Teacher Development Centre
TSC	Teacher Service Commission
TTC	Teacher Training College
T&L	Teaching and Learning (materials)
UOM / Unima	University of Malawi
USAID	United States Agency for International Development

#### GOVERNMENT FISCAL YEAR

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**Africa Region**  
**Africa Region Human Development**  
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# Executive Summary

## Introduction

**E**ducation in Malawi is experiencing a serious and debilitating crisis of low quality, low efficiency, limited capacity and a shortage and inequitable distribution of human and financial resources. The education environment is further undermined by a very high pupil qualified teacher ratio (PqTR) in primary as a result of a shortage of trained teachers and the limited capacity of the teacher training system—approximately 40 percent of primary and 70 percent of secondary teachers are untrained; inadequate learning materials and school infrastructure; overcrowded classrooms; and a teacher deployment system whereby teacher numbers vary significantly across schools and grade levels and between urban and rural areas. To compound the problem, the HIV/AIDS pandemic is killing teachers and parents, raising absenteeism rates of both teachers and pupils because of illnesses and the need for more help in the household. With more than half the population chronically malnourished, especially during the hunger period from January to April, absentee rates are further raised and learning outcomes reduced. The poor learning conditions, the HIV/AIDS pandemic and

chronic malnourishment has resulted in very high repetition and dropout rates. Despite the fact that more than 95 percent of all Malawian children eventually begin school, only about 60 percent complete standard 6 and some 4 out of 10 pupils (40 percent) complete standard 8.

As a successful outcome of the 1994 implementation of Free Primary Education (FPE)—which increased enrollment from 2 million to 3 million — most Malawian children, including the poorest, now enroll in school. While the government has maintained spending per pupil, regrettably the quality of education has been increasingly eroded. Learning outcomes are negligible: the Southern Africa Consortium for the Measurement of Educational Quality (SACMEQ) study revealed that less than 1 percent of pupils in standard 6 reach a desirable level in reading (20 percent reach a minimum level). Given the limited learning outcomes and the low grade attainment, the wastage of resources is evident and the room for efficiency improvements enormous.

Against this picture a stark reality confronts Malawi: it is a small country with only 10 million people and with a natural resource base that is limited to agriculture but highly dependent on the export of tobacco. The reality is that

in the next decades the Malawian economy is likely to remain characterized by a dualistic structure of employment, with a dominant traditional sector and a relatively small modern sector. The basic objective is to provide the type of human capital that best fits the demands of the two sub-sectors, while simultaneously helping the economy to move from its traditional to its modern sector and alleviating poverty, in the long run.

## Macroeconomic Context and Education Expenditures

The development of education is determined largely by macroeconomic and demographic conditions. Throughout the 1990s, Malawi's economy grew by approximately 3 percent—or slightly less than 1 percent above population growth. GDP per capita was approximately US\$175 in year 2001 and Malawi remains one of the poorest countries in the world. Total public expenditures as a share of GDP rose from about 25 to 33 percent over the same period. Total education expenditure in real terms has remained largely the same since 1994/95. As Table 1 shows, by the end of the nineties, recurrent education expenditure as a proportion of GDP in Malawi was somewhat below countries like Uganda (3.2%) and Kenya (6.3%)—countries that are also expanding enrollment as a result of a free primary education policy. However, in the past couple of years, recurrent spending on education has recovered in Malawi, reaching 3.6% of GDP in 2001/02, the last year for which official data are available.

One notable feature in Malawi is the fact that the share of recurrent expenditures allocated to higher education (15–20 percent) is higher than the share allocated to secondary education (10–15 percent). This is significant because approximately 275,000 pupils are enrolled in secondary education while only about 4,000 students are enrolled in higher education institutions.

*Per Pupil Spending.* The per-student costs of secondary and higher education are more expensive than primary education in most countries. In Malawi, however, the discrepancies in spending per pupil are so substantial that they raise concerns about the equitable distribution of resources. As can be seen in Table 2, below, the unit cost at the university level is between US\$2,500–3,000, while it is around US\$10 in primary compared to around US\$35 in other SSA countries, and roughly US\$40 in secondary as a whole. The latter is affected by the very low unit costs (approximately US\$20) and under funded Community Day Secondary Schools (CDSS) where the bulk of secondary students are enrolled. In comparison, the spending per student in the traditional Conventional Secondary Schools (CSS) is approximately US\$100. As Table 2 shows, compared to other countries in the region the unit cost for secondary and tertiary education appear very unbalanced.

*Household Financing.* Despite the abolishment of primary school tuition fees in 1994, households still bear a considerable share of education financing. Nearly all households in Malawi paid for one or more types of school supplies during the year 2001. The majority of families reported paying for textbooks and

**Table 1: Comparative information on government recurrent education spending as a percentage of government current revenue, excluding grants, and as a percentage of GDP**

	Malawi 1998/99	Malawi 2000/01	Mozamb (1998)	Kenya (1999)	Rwanda (2000)	Uganda (2000)	Zambia (1998)	Zimbabwe (1997)	African Countries
Educ. Recurr. exp. as % of gov. curr. Rev.	17.3	15.0	18.1	26.2	32.6	30.1	12.3	28.3	17.8
Educ. recurr. exp. as % of GDP	2.5	2.8	2.0	6.3	3.2	3.2	2.3	7.1	3.04

Source: Bruns, B. et al. 2002. For Malawi, authors' calculations are used.

**Table 2: Comparison of unit recurrent public spending per pupil**

	Ratio to Primary					As proportion of GDP/capita				
	Malawi	Mozam- bique	Kenya	Zambia	Anglophone Africa*	Malawi	Mozam- bique	Kenya	Zambia	Anglophone Africa*
Primary	1	1	1	1	1	0.04	0.07	0.12	0.04	0.10
Secondary	5	6	3	9	7	0.21	0.40	0.34	0.37	0.66
University	348	92	33	58	63	14.9	6.4	4.0	2.3	6.3

\* Group of 7 countries.

Source: World Bank Sector Studies.

uniforms and approximately half reported contributing to the school development fund. In primary, mean household expenditures on education average approximately 80 percent of per pupil public expenditures. These household expenditures are regressive and the poorest households contribute more of their income to education than the wealthiest Malawians. Furthermore, household spending on education increases by grade level. A student in grade 3 incurs 50 percent more costs than a student in standard 1 and one in standard 6 spends 4.7 times the expenditure of a standard 1 student. Given the high levels of poverty in the country, and the susceptibility of agricultural and rural incomes to climatic shocks, this relatively high dependence on household financing introduces greater instability—especially in the financing of critical learning materials, repairs and construction costs. The high levels of household expenditures are not only regressive but are possibly important determinants in forcing students to drop out in the early stages of primary education.

## Enrollment Rates and Impact of HIV/AIDS

The formal education system in Malawi follows an 8–4–4 structure, i.e. 8 years of primary (Standard 1–8), 4 years of secondary (Form 1–4) and 4 years, or more, of university level education. The primary and secondary levels are administered by the Ministry of Education, Science and Technology (MoEST)<sup>1</sup> through its

head quarters, the six education division offices and the 33 district education offices. As a result of the FPE policy, the total number of students enrolled in primary education grew almost overnight from less than 2.0 million in 1993/94 to almost 3.0 million in 1994/95 and to about 3.2 million in 2001. About 70 percent or 2.3 million are enrolled in lower primary (standards 1 to 4). There were an estimated 275,000 students in secondary in 2000, 12,000 students at primary teacher training colleges, 4,000 students at universities, and about 1,500 students were attending technical and vocational training institutes.

Concurrently, the national gross enrollment rate (GER) increased from 88 percent in 1991/92 to 120 percent in 1994/95 and has remained at about that level since. Enrollment in secondary multiplied by almost four between 1991/92 and 2000, with the GER now at about 27 percent. Malawi has 6 primary Teacher Training Colleges (TTC) and approximately 50,000 primary teachers, although some may be ghost teachers. However, because of the expansion there continues to be an acute shortage of qualified primary and secondary teachers. In secondary, even though the student to teacher ratio (PTR) is at about the desired 40:1, the PqTR is 120:1. The total stock of secondary teachers is about 7,500, of which less than a third are qualified secondary teachers.

**Impact of HIV/AIDS.** In 2001 the official number of primary teachers that died was 900. In addition about 700 left the primary education system owing to normal attrition. Because HIV/AIDS will continue to affect the mortality

rate of teachers and the system will continue to expand, the replacement of both primary and secondary teachers as a result of deaths caused by AIDS will likely increase to approximately 3,700 teachers a year. HIV/AIDS will also increasingly affect attendance and retention of both teachers and students. The adverse effects on the annual training and replacement of teachers, as well as on efforts to improve retention and access of growing numbers of children — who will be orphaned or required to take care of their parents — has significant implications for achieving universal primary education in Malawi.

## Quality of Education

The combination of relatively low public spending on education per pupil, inadequate numbers of qualified teachers, poor learning conditions and externalities affecting both teachers, parents and children has resulted in a deterioration in learning outcomes. Table 3 shows the performance of Malawi's fourth graders in a test of numeracy, literacy and Life Skills administered in a number of African countries. Malawi's performance is slightly below the average of all the sampled countries. However, for literacy its score is the lowest of all countries and for numeracy it ranks close to

the weakest. Performance in Life Skills test is best of all countries and this balances the weak results in the other two areas.

The low literacy results are confirmed by the SACMEQ study testing the reading skills in English of standard 6 pupils. The acquisition of minimum and desirable mastery levels was extremely poor, with less than one percent of all measured pupils reaching the desirable mastery level while about 22 percent reached the minimum mastery level. The study also found that Malawi had the lowest percentage of pupils who met the minimum and desirable mastery levels of reading literacy when compared to six other countries in the region. The implication for Malawi is the need to address some of the underlying structural problems to improve learning outcomes. Some of these structural problems relate to the curriculum being taught, teachers qualification and years of experience, school practice and the subject content knowledge and pedagogic content knowledge being taught under the current in-service teacher training program. Factors exogenous to the school are also important, such as mother tongue, availability of books at home, homework, and nutrition. More than half the population is chronically malnourished. School inputs, such as teaching and learning materials, classroom materials, and school furniture are inadequate or dilapidated

**Table 3: Fourth-graders' scores on Monitoring Learning Achievement (MLA), 1999 (percentage correct)**

Country	Life skills	Literacy	Numeracy	Average score
Botswana	56.0	48.0	51.0	51.7
Madagascar	72.1	54.7	43.7	56.8
Malawi	77.0	35.0	43.0	51.7
Mali	56.9	51.8	43.6	50.8
Mauritius	58.0	61.0	58.5	59.2
Morocco	62.3	67.6	56.4	62.1
Niger	47.7	41.1	37.3	42.0
Senegal	46.7	48.9	39.7	45.1
Tunisia	74.7	77.9	60.4	71.0
Uganda	66.8	58.0	49.3	58.0
Zambia	51.0	43.0	36.0	43.3
Average	60.8	53.4	47.2	53.8

Source: UNESCO (1996).

**Table 4: Students per textbook in primary, by standard**

Subject	Std. 1	Std. 2	Std. 3	Std. 4	Std. 5	Std. 6	Std. 7	Std. 8
English	2	2	3	3	2	2	1	1
Math	2	2	3	3	2	2	1	1
Chichewa	2	3	3	3	2	2	2	1

Source: Draft Basic Education Statistics 2001.

adversely affecting the conditions for learning. In many schools the lower standards are taught under the open sky, which often leads to the cancellation of classes during the rainy season. Over one third of standard 6 pupils do not have an English textbook. Overall, MoEST records the pupil to textbook ratio for three major subjects as shown in Table 4.

Finally, as shown in Table 5, the discrepancy in the PTR between lower grades and higher grades further complicates the conditions for effective teaching and learning especially in the lower grades. As can be seen the average PTR in standard one is 100, but many schools and classes exceed this number. There are clear implications for effective teaching. In addition, the high PTR increases the number of repeaters as pupils are not being helped, and this in turn leads to a continuing high number of students enrolled in the lower grades. The high PTR becomes both a cause and effect of poor learning outcomes and low retention.

## Repetition, Dropout, Survival and Completion

The poor learning environment leads to low levels of retention, which in turn adversely affect achievement. While Malawi, despite its weak school infrastructure and lack of sufficient classrooms, has almost succeeded in providing access for all children with the abolition of fees, universal primary education for all

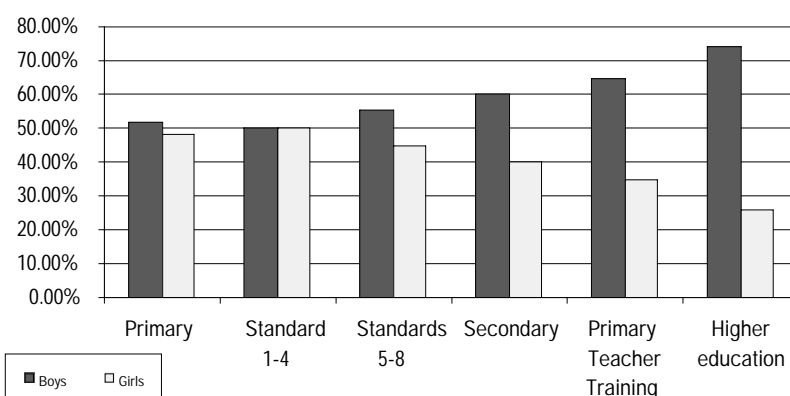
remains elusive as a result of the low survival throughout primary. Although more than 95 percent of all children enter primary at some point most repeat several grades. The level of repetition is high throughout primary, and is significantly higher in lower primary than in upper primary, with the exception of standard 8. The average is about 25 percent, while 40 percent of all children repeat standard 1. The Monitoring Learning Achievement (MLA, 1999) study for 11 African countries recorded the highest repetition rates of all countries in Malawi in the first four grades of primary.

The high number of repeaters and over-age pupils has increased the GER. The GER for standard 1–4 is 167 percent (1999/2000), but is only 70 percent for standard 5–8. The low GER in upper primary reflects the fact that a large proportion of the children eventually drop out. While repetition levels are high in the early school years, dropout rates are modest in the lower grades, but by the end of standard 6, about 40% of the pupils have dropped out, and at the end of standard 8, about 60%.

The survival rate, or probability that a grade 1 student will still be in school by standard 8, has actually diminished since the beginning of the nineties prior to the introduction of FPE. However, due to a higher intake of students to primary school than before, more children in absolute numbers and as a percentage of school-age children, do complete primary. Thus, Malawi is on the right track by having hugely improved primary coverage and to a lesser

**Table 5: Pupil teacher ratios, standard 1 – 8, 2000**

Std 1	Std 2	Std 3	Std 4	Std 5	Std 6	Std 7	Std 8
100	76	64	52	45	39	33	28

**Figure 1: Enrollment by gender and level of education, 2000**

Source: Authors' calculations, using data from NANE database.

extent completion, but needs now to focus on reducing dropout and repetition in primary.

In secondary education approximately 60 percent of students enrolled in Form 1 proceed to Form 4 (grade 12). Repetition, and early and late entry, further impact on pedagogical processes because of the broad range of skills and maturity in each class. By addressing the wide age-range of pupils, the system could improve efficiency, lower repetition and dropout rates and thus increase survival and completion rates. However, these are not the only determinants affecting attainment in Malawi. Other issues like gender, geographic location and type of school determines the levels of achievement and attainment.

## Equity

Enrollment and access to education in the lower grades in Malawi is fairly gender-equitable. However, as Figure 1 shows the gender

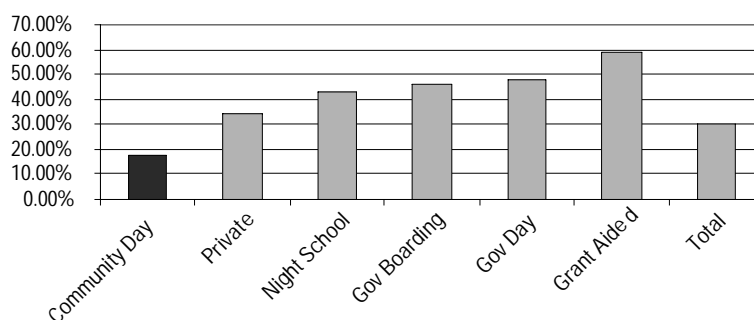
gap widens as students progress. In primary the percentage of girls was 48 percent in year 2000, 40 percent for secondary, 35 percent for primary teacher training and 26 percent for higher education. While the survival rates for both boys and girls are about the same, there is a significant discrepancy of about 20 to 30 percentage points between the survival of an urban versus a rural pupil. While there are many reasons for this gap—including a better pupil to teacher ratio in urban areas—it is also related to a higher degree of poverty in the rural areas. In general, as shown in Table 6, poverty is a strong predictor of enrollment and survival—with the poorest segment of the population having close to a 20-percentage point lower net enrollment rate than the wealthiest. At the secondary level, urban youth, aged 14–17, are three times more likely than their peers in rural areas to attend secondary school (NER 21 versus 7 percent). Regional differences in the secondary NER are also considerable, and follow a pattern similar to that at the

**Table 6: Primary school gross and net enrollment ratios, by sex, according to background characteristics, 2002**

	Residence		Region			Wealth index quintile					Total
	Urban	Rural	North	Central	South	Lowest	2nd	3rd	4th	Highest	
NER	90	80	93	84	76	73	74	81	85	91	81
GER	127	113	129	119	108	106	106	116	118.5	126	114.5

Results are for the de jure household population age 5–24.



**Figure 2: MSCE pass rates by type of school, 2002**

Source: Authors' calculations, using data from NANE database.

primary level. Differences in access by socio-economic background at the secondary level are large, with a GER of 62 percent among the wealthiest youth and 11 percent among the poorest youth.

In secondary education a particular inequity arises from the type of school in which a pupil enrolls. Figure 2 shows the results of the Malawi School Certificate of Education (MSCE) final exam at the end of secondary in 2002 by type of enrollment. While the figure may indicate that with the exception of the Community Day Secondary Schools (CDSS) outcomes were fairly even, the fact is that close to 75 percent of students are enrolled in CDSSs. The low pass rate in the CDSSs is not surprising since, in general, the CDSSs are under-funded and staffed by unqualified teachers (and the expenditures per student are about one-fifth of the expenditures in CSS). The inequitable access to good secondary education and the acute shortage of trained secondary teachers become evident when the enrollment by type of school, PTR and percentage of qualified teachers are considered as shown in Table 7 below. While there is no major difference in the PTR ratio across the types of

schools, it is clear that the majority of students in CDSS do not have access to sufficient number of qualified teachers.

## Internal Efficiency

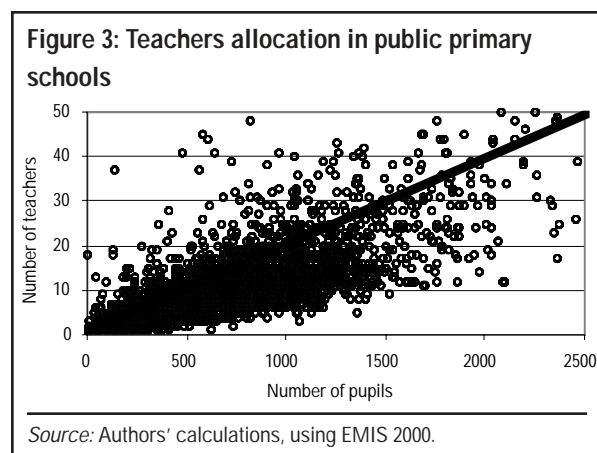
Given the high repetition and dropout rates in primary, 60 percent of the public resources at this level are used either on children who drop out before finishing primary or on children repeating a year. Put another way, Government finances 20 school years to generate a single graduate from primary school. Thus the cost to government is an additional 12 years of per pupil spending relative to a scenario with no dropout or repetition (8 years). This inefficient use of scarce resources should be a matter of serious concern. For secondary, the situation is significantly better: a little less than one quarter of the public resources are used on repetition years or on children who drop out: it requires 5.2 schooling years instead of 4 years to produce a graduate.

*Teacher deployment and teacher management.* The quality of an education system is

**Table 7: Enrollment by type of secondary school, Pupil Teacher Ratio and percentage of qualified teachers, 2000**

Type of schools	Number of students	Pupil-teacher ratio	Percentage Qualified Teachers
CDSS	186,415	46	45%
CSS	57,624	49	88%
Private	27,793	41	86%
Night schools	3,117	20	54%

Source: Basic Education Statistics, 2000.



generally associated with the provision of qualified teachers to that system. Therefore, efficiency concerns are related to the way this critical resource is distributed and managed. Since teachers' salaries are the largest education expenditure item, their deployment also has an impact on unit cost and on the ensuing equitable distribution of resources.

A crucial aspect of teacher deployment has to do with clear criteria to provide schools of similar enrollments with comparable numbers of teachers. This feature can be represented by a straight line graph (policy), as shown in Figure 3, and in the case of Malawi, a primary school of 500 pupils would always have 8 teachers and a school with 1,000 pupils would always have 16 teachers. Figure 3 indicates that in Malawi there is a wide variability in the number of teachers available to schools that enroll a similar number of pupils. The data indicate that schools with 1,000 pupils can have anywhere between 5 to 40 teachers. Similarly, in schools with 40 teachers enrollments vary between 500 and 3,800. These data corresponds to 34 percent 'randomness'. The inconsistency in teacher deployment can partly be explained by differences in allocations among the districts, especially between urban and rural districts and inadequate monitoring and management tools to ensure adequate and fair deployment.

This situation is further aggravated by significant differences in pupil to *qualified* teacher

ratios between urban and rural districts. In urban districts, the PqTR is between 60 and 70, in rural districts it is on average twice as high. Inconsistency in teacher deployment is also evident within individual districts. In secondary, teacher deployment shows an even lower consistency than primary; the degree of randomness is 59 percent. When reviewing pupil to teacher ratios and pupil-to-qualified teacher ratios, strong differences are also apparent. In urban areas, PTRs and PqTRs are respectively 28:1 and 59:1 whereas the same indicators for rural areas are 36:1 and 131:1. By type of school, two thirds of CDSS teachers were unqualified to teach secondary but this was only true for less than 10 percent in CSSs.

Among the countries in Sub-Saharan Africa Malawi is one of countries with the least consistent deployment of primary teachers. A more equitable deployment of teachers will be critical to improving attainment and achievement and more efficient use of scarce resources. It is clear that the Government's ability to address some of the internal constraints and efficiency issues will determine how well improvement to the attainment and achievement can be made. However, there are other and serious issues affecting the demand for education and the delivery of education services.

## Externalities

In Malawi externalities plays a significant role in the demand and supply of education services. Absenteeism is a particular contributing factor to low learning. Ninety-seven percent of primary pupils were absent one or more days during the 2001 school year. On average, pupils who were absent from school missed a total of 17 days during the year. The main reasons for absenteeism during the previous school year were: illness—86 percent; funerals—61 percent; did not want to go—39 percent; school clothes dirty—34 percent; too



hungry—28 percent; any type of work—12.5 percent; no money for fees—10 percent. Teacher absenteeism in Malawi is reported as chronic but the frequency varies widely. In some schools, a teacher's time-on-task was as low as 1–2 hours each day. The main reasons suggested for this level of absenteeism were attendance at funerals of colleagues, errands, collecting salaries or just “out for a moment”. Geographic location of schools also presents a challenge. While 64 percent of children in urban areas live within 15 minutes of the nearest school, this is only true for 33 percent of rural children. In more than one-third of rural areas children are required to walk for at least half an hour to school.

Prevalence and consequences of malnutrition affect the opportunity costs of education. Malawi has one of the highest levels of stunting in children in Eastern and Southern Africa; almost half the children under 3 years of age are stunted. From the Demographic and Health Survey (DHS) 2000, it is apparent that many children enter standard 1 either short or underweight for their age—57 percent of children 4–5 years of age are stunted and an alarming 28 percent of children are severely stunted. Stunting and micronutrient malnutrition are associated with reduced capacity to learn, delayed school enrollment, decreased school attendance, and dropout—especially during the hungry period from November to April. Families keep children out of school during this period so children can earn money to buy food or look for food. In addition, hunger and fatigue are so severe that many children do not have sufficient energy to walk to school.

## University Education

The expansion in primary education and the shortage of trained teachers is further constrained by the limited number of students enrolled in higher education. Malawi has close to the lowest proportion of tertiary enrolled

students per 100,000 inhabitants in the entire Sub-Saharan region. Public universities in Malawi enroll fewer than 4,000 students. The first private university plans an initial intake of 50 students but it is yet to open. Further, there are significant inefficiencies at the universities—some of these derive from the small scale of operation. Both the student to lecturer ratio (7:1), as well as the student to support staff ratio (about 9:1) are the lowest in SSA with the exception of Equatorial Guinea. Other clear inefficiencies stem from the large proportion of budget allocated to non-core functions, such as boarding and feeding. In fact, the current Education Act still limits total enrollment to available bed space at the colleges although some colleges are beginning to ignore this requirement. A very minor portion of total enrollment includes non-residential students in parallel programs that charge higher fees. Apart from gender inequity, a more significant but not surprising inequity is the socio-economic background of students. Students from the wealthiest quintile consume more than half of the public expenditure at tertiary level; students from the poorest quintile have practically no access whatsoever.

## Policy Issues and Choices

The development of the education system in Malawi will require major investments at all levels and in all the critical areas. The implementation of FPE without sufficient public funding has undermined the quality of the system beyond what could have been expected as a result of the focus on access. Malawi's recurrent expenditure on education has been relatively low compared to other countries that have undertaken FPE policies, such as Kenya and Uganda, but has been increasing the last few years. Given the limited prospects for economic growth, improvement of efficiency will be the key for the overall sector development. A few policy issues derived from the study are

summarized in the Table 8 below. A more comprehensive list of policy issues, their timing, cost, feasibility, political risk and probability for successful implementation are listed in Chapter 8.

Finally, in Chapter 8, this report analyzes the fiscal implications of the required upgrading of primary and secondary teachers needed to improve the pupil to qualified teacher ratio, on of the principal targets set in the government's Policy and Investment Framework for Education (PIF). This analysis is based on a simulation model developed in cooperation with government; the model includes assumptions on the gradual improvement in repetition and dropout as a result of having more and better teachers. As can be seen in Chapter 8, a scenario for teacher training that will lead to the accomplishment of the EFA and PIF goals a few years after the targets set in the PIF (thus,

a more realistic scenario), will require increasing spending on education from a share of about 21% of the discretionary budget to 27%; and furthermore, require increasing the share towards primary education from approximately 50 percent to 70 percent of total education spending. This result strongly implies a need to focus now on improving efficiency in the use of resources, and recalibrate current policy targets to available resources. The scarcity of resources must be taken into account in the development of a comprehensive and sustainable teacher development strategy: the backbone for improving the education system in Malawi.

## Note

1. From 2004, the Ministry of Education and Human Resources.

**Table 8: Possible areas of policy intervention—outcomes (objective)**

Outcome (Objective)	Policy Options/Interventions
<b>Re-balanced education system established</b>	<ul style="list-style-type: none"> <li>Recalibrate PIF (EFA) goals to financial and human resources, especially teacher development</li> <li>Take a strategic long term view and establish % caps on public funding for secondary and tertiary education</li> </ul>
<b>Accountability improved:</b> Re-establish accountability, and establish incentives for teachers and headmasters to perform their duties	<ul style="list-style-type: none"> <li>Establish accountability at school level through social contracting between communities and schools and transparency systems</li> <li>Ensure teachers accept strategies/public consensus building</li> <li>Restructure teacher salary provisions/ Provide career development and rotation, especially for rural assignments/ Empower headmasters (role in promotions and in reprimanding teachers)</li> <li>Improve supervision and inspection</li> </ul>
<b>Equitable expansion of enrollment improved</b>	<ul style="list-style-type: none"> <li>Lower repetition and dropout rates to shorten average of school completion (automatic promotion/cycles of learning standard 1–4)</li> <li>Target districts, areas or groups with inequitable access or survival, using incentives. e.g. Expand food for education of girls during the hungry season (November to April)</li> <li>Use teachers efficiently, re-deploy teachers; evaluate and adjust accordingly the teacher resource requirements under a streamlined curriculum at secondary level</li> <li>Improve incentives for private provision of education, particularly at secondary level</li> </ul>

*(continued on next page)*

Table 8 (continued)

Outcome (Objective)	Policy Options/Interventions
<b>Quality and internal efficiency improvement</b>	<ul style="list-style-type: none"> <li>• Redefine a coherent and sustainable teacher development model and strategy/ Strengthen in-service teacher training and other teacher professional support</li> <li>• Lowering of PTR in standards 1–4 and redeployment of teachers as an integral part of the decentralization plans</li> <li>• Curriculum Reform: Continue the Primary Curriculum and Assessment (PCAR) process and complete the proposed review of secondary curriculum;</li> <li>• Improvements in the classroom conditions, other school facilities and learning materials through a direct support to school program (DSS) financed under the development budget/Improve community involvement and through the DSS program lower indirect cost of education/opportunity costs</li> <li>• Distribute iron supplements and support de-worming</li> <li>• Continue supervision of teachers, targeted provision of teaching and learning materials at secondary level, incl. science &amp; technology</li> <li>• Expand enrollment at teacher training colleges in balance with qualified teacher needs, and at university level</li> <li>• Implement national policy on mother tongue instruction</li> </ul>
<b>Efficiency enhancement of public resource allocation and utilization</b>	<ul style="list-style-type: none"> <li>• Appropriate distribution of teachers according to enrollment</li> <li>• Voluntary re-deployment of existing teachers with an incentive package or transfer of pupils where feasible</li> <li>• Budget and expenditure framework for all resources/common procedures using GoM systems</li> <li>• Adapt EMIS and funding formulae to meet enrollment changes at district level</li> <li>• Adjust cross sub-sector resource allocation for future balanced sector development</li> </ul>
<b>Strengthening institutional arrangements and capacity for service delivery</b>	<ul style="list-style-type: none"> <li>• Improve data; EMIS, codification of all schools and teachers, merging of MoF and MoEST salary and financial databases</li> <li>• Strengthen district-level capacity of local system management, including school inspection, teacher development, monitoring and reporting</li> <li>• Strengthen management capacity at the school level, including the capacity of School Management Committee at primary level</li> </ul>

## Macroeconomic and Demographic Context

A country's economic and social development is dependent on the natural resources and the human capital available to that society. In Malawi, the natural resource base is limited to an agriculture sector heavily reliant on the export of tobacco and on prevailing tobacco prices. This reliance on one economic sector, allied to a recent decline in the terms of trade, makes the development of human resources—and the use of knowledge—both an obstacle and an opportunity for Malawi if the country is to diversify its economy and increase overall levels of productivity. However, without an investment in education and knowledge Malawi will have few, if any, choices and the prospective for economic growth will remain bleak.

The level of investment in education is determined largely by the strength and size of the economy (the macroeconomic conditions); by the demographic characteristics of the population; by decisions about expenditure on education versus other sectors; and by the capacity of the education system to absorb existing and increasing resources. As will be highlighted later, while the absolute amount of resources is imperative for the development of a system, still more important is the ability of the government to efficiently use its existing internal and exter-

nal resources. Unfortunately, the wastage in the Malawi education system is substantial and, as such, the opportunities to increase efficiencies are enormous. This is particularly the case in the current situation where institutional structures are weak and where accountability and incentives to perform are largely non-existent. While the first two determinants, demographic and macro-economic contexts, are often difficult to influence in the short term, the improved management of the system and the efficient use of resources are within the control of schools and the Ministry of Education, Science and Technology (MOEST).<sup>1</sup>

Other important aspects of education relate to the micro-economic conditions, including poverty and high opportunity costs, and other important conditions affecting students and teachers, such as chronic malnutrition, HIV/AIDS, social and cultural settings—including language of instruction—and the religious contexts within which the system operates. These constraints and conditions set the framework within which an education system can develop, but the levels of education, in turn, determine economic development, and the ensuing choices have a direct impact on poverty alleviation in the country.

The Malawi government is faced with some tough but undeniable questions and challenges. For example, how much should the government invest in education? How much should it invest in the sub-sectors of education, when some adjustments to issues of quality, access and equity need to be addressed? The present study will seek answers to questions about limited choices and will attempt to delineate a number of options and difficult choices that need to be addressed across the primary, secondary and higher education levels. The study also recognizes that without an intervention, the Malawian education system will continue its downward spiral. In this first chapter, the focus is on general characteristics of the macroeconomic, demographic and social context in the country, and the overall capacity of the system, including the impact of HIV/AIDS.

### **Evolution in gross domestic product, per capita income and fiscal resources**

Malawi is a small landlocked country situated in southeastern Africa. Its land area is approximately 119,140 square kilometers and it has a population of about 10 million. In the 40 years since it became an independent country in 1964, Malawi has stagnated at extremely low levels of per capita income. In recent years, the prevalence rate of the HIV/AIDS pandemic has increased to almost 20 percent and is responsible for the deaths of thousands of Malawians, including teachers, civil servants and parents; it is also leaving numerous children orphaned. When the government introduced the Free Primary Education Policy (FPE) in 1994, enrollment soared by approximately 1 million pupils (from 1.9 million to 2.9 million). However, the policy has been implemented in a largely unplanned manner and without adequate financing. While it resulted in enormous progress towards the goal of providing access

to primary education for all, it also forced the government to recruit numerous teachers that had no formal teacher training. In primary, the share of untrained teachers in the total stock of teachers rose from 20% to 50% upon the introduction of FPE and has largely stayed that way thereafter.

The combination of these factors—external environment (macro-economic, famine, malnutrition, HIV/AIDS), declining per pupil spending (especially in secondary education and teacher training<sup>2</sup>), and increasing numbers of untrained teachers, especially in primary and secondary—has resulted in the education system becoming unbalanced and with particularly deleterious effects on quality. In many ways one can speak of a collapse in the education system. This has been further exacerbated by a soaring debt burden and the collapse of fiscal management and accountability following the introduction of multi-party elections and FPE. Malawi is one of the poorest non-conflict countries in the world today as reflected by its sobering human development indicators, as shown in Table 1.1.

Table 1.2, below, traces the evolution in the population and economy. As shown (see also Annex 1.1), in constant 1994 kwacha prices, GDP increased by 32 percent between 1991/92 and 2001/02, i.e. an average annual growth of 3.2 percent. Per capita income in current US dollars stood at US\$177 in 2002. As the population grew by 21 percent over the last decade, per capita income rose slightly at an average of roughly one percent per year.

Grants (including HIPC but excluding loans) as a share of GDP have been volatile over time but the overall trend over the past decade is one of a strong increase, from levels of 3 percent of GDP to 6–8 percent of GDP (or as share of government revenue from levels of 10–15 percent to levels of 25–35 percent). This indicates a strong and increasing dependency on foreign assistance in the public sector.

Total public expenditures as a percentage of GDP rose from about 25 to 35 percent during

**Table 1.1: Social and economic indicators (latest year available)**

	Botswana	Kenya	Malawi	Mauritius	Mozambique	S. Africa	Tanzania	Uganda	Zambia	Zimbabwe
GDP Per Capita (constant 1995 US\$)	3951	328	157	4429	195	3985	193	355	392	656
GNI Per Capita, PPP (current US\$)	7190	1010	600	9940	820	9180	530	1230	750	2590
Growth of Per Capita GDP 1995-2000 (% p.a.)	3.2	0	3.5	4.5	5.2	0.7	1.6	4.2	-0.6	0
Life Expectancy at Birth	39	48	39	71	43	48	45	42	38	40
Under-5 Mortality Rate (per 1,000 live births)	95	118	227	23	203	76	152	162	187	118
Adult Illiteracy (% of people ages 15 and above)	23	18	40	15	56	15	24	33	22	11
Gini Coefficient	..	0.45	0.40	..	0.40	0.59	0.38	0.39	0.50	0.57
Percent Share of Income/Consumption of the Lowest 10% of Population	..	1.80	2.50	..	2.50	1.10	2.80	2.60	1.60	1.80
Percent Share of Income/Consumption of the Lowest 20% of Population	..	5.00	6.30	..	6.50	2.90	6.80	6.60	4.20	4.00
Survey Year	..	1994	1997/98	..	1996/97	1993/94	1993	1992/93	1996	1990/91

*Note:* The Per Capita GDP growth in Malawi is distorted by the 14.9% increase in 1995 after an 11.6% decline in 1994 (which is not included in the calculation). The picture from 1996–2000 for instance is of 1.7% annual growth, and from 1981–2000 of only 0.4% annual growth.

*Source:* World Development Indicators.

the last decade; in real terms, the public expenditure grew by 94% from 1991/92 to 2002/03. In general, both development and recurrent expenditures as a share of GDP have increased. The higher level of public expenditure in 2002/03 compared to 1991/92 is partly financed through slightly higher government

revenues, partly through the above-mentioned increase in grants, and partly through increasing the public deficit reaching as much as 7.7% by 2002/03.

In considering the prospects for educational development, it is important to assess the outlook for economic growth and possible

**Table 1.2: Evolution in population, GDP, and total government revenue and expenditures**

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
Population (in million)	8.71	8.85	8.99	9.14	9.33	9.55	9.77	9.99	10.20	10.41	10.63	10.87
GDP in const. 1994 mill. Kw	10874	11057	10846	11438	12593	13188	13671	14197	14514	14936	14672	15141
GDP per cap. in const. 1994 Kw	1248	1249	1206	1252	1350	1381	1399	1421	1422	1434	1380	1393
Real growth rates	n.a.	1.7%	-1.9%	5.5%	10.1%	4.7%	3.7%	3.8%	2.2%	2.9%	-1.8%	3.2%
Inflation	n.a.	n.a.	n.a.	58.9%	60.4%	23.4%	19.5%	37.3%	37.2%	29.6% <sup>3</sup>	n.a.	n.a.
Exchange Rate (MK/US\$, avg)	3.20	4.00	6.57	12.01	15.30	15.88	23.76	37.58	51.82	65.87	74.45	76.7 <sup>4</sup>
Total Govt. Rev. (including grants)												
as % of GDP	22.0%	19.3%	19.7%	23.3%	21.7%	19.4%	22.1%	24.4%	24.4%	26.7%	23.0%	27.1%
– Revenue (excluding grants)												
as % of GDP	18.7%	17.1%	16.8%	13.9%	15.0%	15.1%	18.0%	18.1%	17.5%	17.9%	16.4%	20.2%
– Grants as % of GDP	3.3%	2.2%	2.9%	9.4%	6.7%	4.3%	4.1%	6.3%	7.0%	8.9%	6.6%	6.9%
Total govt. Expenditures												
as % of GDP (%)	24.9%	30.5%	25.0%	38.1%	26.6%	22.1%	29.0%	29.1%	30.1%	31.9%	30.5%	34.8%
– Recurrent expend.	19.9%	24.5%	20.2%	31.4%	21.1%	17.7%	22.9%	20.9%	19.5%	22.0%	23.4%	27.1%
– Development expend.	5.0%	6.0%	4.8%	6.6%	5.5%	4.4%	6.1%	8.3%	10.6%	9.9%	7.0%	7.6%
Deficit, counting Grants as a deficit-determining item <sup>5</sup>	-3.0%	-11.2%	-5.3%	-14.8%	-4.9%	-2.7%	-6.9%	-4.7%	-5.7%	-5.2%	-7.5%	-7.7%
Deficit, counting Grants as a deficit-financing item <sup>6</sup>	-6.2%	-13.4%	-8.2%	-24.2%	-11.6%	-7.0%	-11.0%	-11.1%	-12.6%	-14.0%	-14.1%	-14.5%

*Sources:* IMF "Selected Issues and Statistical Appendix. August 2002."; WB SIMA database; and authors' calculations. Government expenditure data are 'actuals' with the exception of the most recent data for 2001/02 and 2002/03, which are estimates from IMF "First Review under the Poverty and Growth Facility and a Request for Waivers of Performance Criteria. August 2003." Population data are from WB-HNP Stats. Inflation and exchange rate are from IMF as referenced in PER.



increases in revenues. But the economy has been struggling and its expected growth for the coming years is not predicted to be much different from the roughly 3 percent yearly growth experienced during the previous decade.<sup>7</sup> The estimated growth is anticipated to exceed the population growth, but per capita incomes, and consequently per capita government revenues, are not expected to rise much.

In summary, the economy cannot be expected to generate much additional resources in the short to medium term. The structure of the economy, with its high reliance on tobacco exports, raises serious questions about the long-term growth prospects for Malawi's education system: What are the goals for education in Malawi? Can Malawi afford a further major increase of its education system given the expected limited resources available?

The determining factors when estimating the impact of economic growth on government revenues (and on the potential of generating additional resources to invest in education), are the composition of the labor force and the contribution of each economic sector to GDP, as shown in Table 1.3, below.

The estimated Malawi labor force in 2000 was 4.5 million<sup>9</sup> with a US\$1.5 billion economy. The relative share of people working in agriculture is still high at more than 80 percent of the population. As Table 1.3 indicates, industry and services contribute to approximately 60 percent of the measured GDP, but only benefits about 16 percent of the work

force. In contrast, the majority of Malawians (84 percent), most of whom are subsistence farmers, contribute only 40 percent to the GDP (or about \$159 per worker against \$1,307 per worker in services and industry).

This clearly constitutes a dilemma. An expansion in industry and services is likely to contribute proportionally more to GDP and growth and fiscal revenue, but would only benefit a small segment of the population. In turn, while investment in agriculture has the potential to increase, to some degree, productivity and outputs (and thus fiscal revenue), the majority of farmers hold less than 1 hectare of land<sup>10</sup> and, as such, are unlikely to either contribute or benefit much from any interventions. Furthermore, opportunities for these small farmers are limited in terms of excess production and productivity gains, and thus for an increased tax base. In other words, the majority of Malawians are caught in a poverty trap with extremely limited assets (land) and high illiteracy rates.

In the long term, any per capita growth will have to rely on increasing the land size of farmers and consequently gradually moving a high number of farmers out of agriculture. This, in essence, is Malawi's dilemma: To increase productivity and provide new opportunities for the majority of rural Malawians, the government will have to invest more in quality primary education in the short term. From an educational perspective, however, a parameter for increasing economic growth is to support the industry and service sectors and the expan-

**Table 1.3: Output and employment**

	GDP 2000 (in million USD) <sup>8</sup>	GDP sector share of total	Share of total labor force (in thousands and %)
Agriculture	596	38%	3,766 (84%)
Industry	271	17%	200 (4%)
Services	699	45%	542 (12%)
Total	1,566	100%	4,508 (100%)

*Sources:* IMF Statistical appendix, July 2002. Uses 2000 GDP in constant 1994 factor cost Kwacha, and the average 1994 exchange rate of 8.74 Kw/USD

Labor force from 1998 population census, and includes formal and non-formal sector employees.

sion of these sectors to absorb increasing numbers of workers. This, in turn, requires a larger proportion of high quality secondary and tertiary graduates, which necessitates further investments in post-primary education.

While Malawi's favorable prospects for long-term growth are strengthened by the country's intention to improve education and to diversify the economy, government revenues in the near and medium future will be generated largely by the current formal sector (agricultural tobacco exports, industry and the service sector). As a result, the fiscal burden is likely to be borne by a small fraction of the labor force for the foreseeable future.

On the other hand, a growing labor force and declining dependency ratio (see Table 1.4) will allow the fiscal burden to be shared by a relatively higher number of workers. The argument here is that if there are fewer people outside the labor force than actively participating in it, the spending per beneficiary for public subsidies can be increased.

The dependency ratio has declined slightly over the last decade, indicating an ease in the fiscal burden on workers. However, this slightly positive trend in Malawi is hiding a frightening reality: HIV/AIDS. While the declining ratio suggests an easing in the fiscal pressure, the reality is that the number of female-headed households (30 percent), and the number of orphans, has increased. While these groups do not directly claim resources from government,

they do increase opportunity costs as a result of the weaker income bases in families, the need of an economic structure to support orphans, and because the characteristics of HIV/AIDS contribute to a higher rate of illness in families. These factors (indirect or direct costs) need to be addressed by government if efforts to improve the human capital base are to be successful. Furthermore, the reduction in life expectancy has a severe impact on workers' total number of active working years, their productivity and, consequently, their total net contribution to the economy. The marginal output per worker as a result of HIV/AIDS is probably inflated in the short run, as initially, output remains largely the same while workers die.<sup>11</sup> However, in the case of some countries, Uganda, for example, HIV/AIDS is likely to have a negative effect on average productivity in the longer run—productivity gains that would normally be an alternative means of increasing the value-added in the formal sector and, thereby, an increase in revenues. This effect compounds the already depressed productivity levels in Malawi that result from the current low levels of education.

### Evolution in inter-sectoral allocation of public expenditure, in education spending, and HIPC resource availability

Figure 1.1 indicates that prior to 1994, recurrent spending on social (and community) services was lower than spending on public affairs, unallocated expenses and economic services. This situation changed abruptly from 1994/95 on when social services recurrent expenditure increased and surpassed spending on general public affairs and economic services. Here, a little less than half of the increase in the proportion of spending to social services went to the education sector (see Annex 1.2)—this was mostly linked to the introduction of FPE and

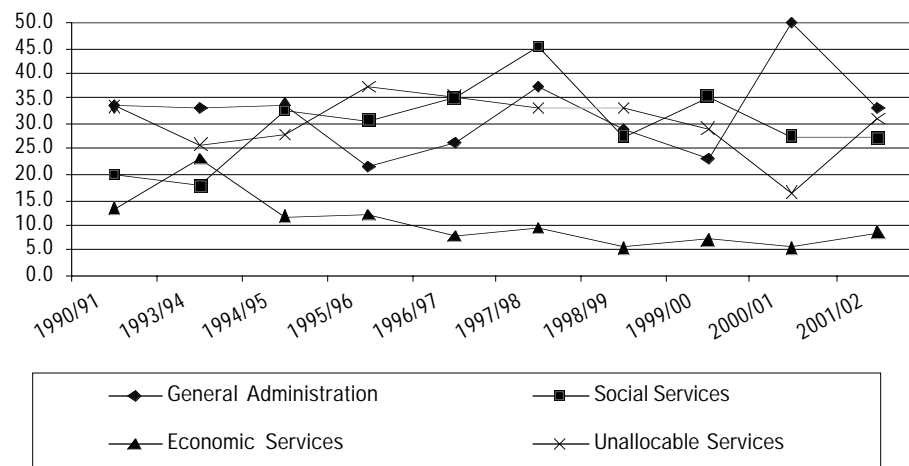
**Table 1.4: Evolution in the dependency ratio, 1990–2000**

Year	Dependency ratio.
1990	0.99
1992	0.98
1994	0.98
1996	0.98
1997	0.98
1998	0.97
1999	0.97
2000	0.97

Source: HNP Stats, World Bank

Note: Dependency ratio is calculated as the population aged 0–14 plus >65 over the working force population aged 15–64



**Figure 1.1: Recurrent expenditure by functional classification, in percentages of total**

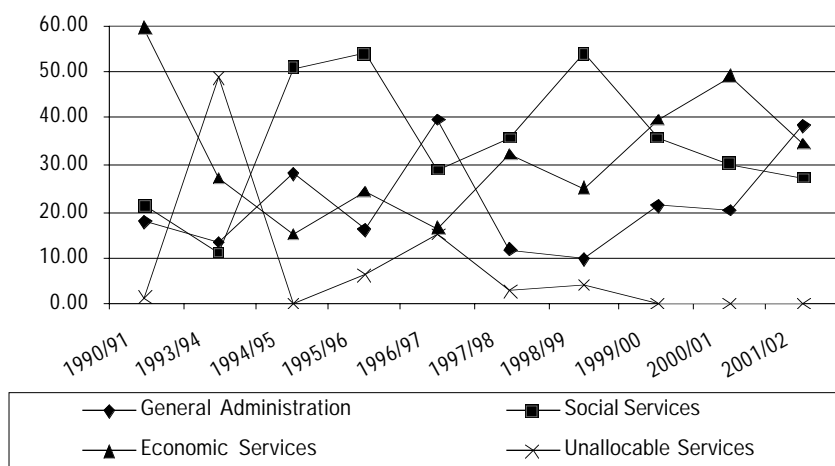
Source: Malawi Economic Report, various issues

Note: All percentages are based on 'actuals', except for 2001/02, which is based on the 'estimate'.

the resultant increase in expenditures needed to pay the additional teachers recruited.

Over time, the increase in the proportion of social services expenditure has largely been at the expense of the proportion of economic services expenditure, more than at the expense of the proportion on general administration

(general public service, defense, public order and safety) and on unallocated services (debt service, pensions and gratuities and others<sup>12</sup>). The proportions of general administration and unallocated services have been very volatile over time, but overall, no significant changes have occurred during the past decade.

**Figure 1.2: Development expenditure by functional classification, in percentages of total**

Source: Malawi Economic Report, various issues

Note: All percentages are based on 'actuals', except for 2001/02, which is based on the 'estimate'.

Figure 1.2, below, shows breakdown by sector of development expenditure and indicates that the shares of development expenditure are even more volatile than recurrent expenditures. This derives from the nature of large investment projects and those that tend to be one-offs typically dependent on donor support. Nevertheless, the share of total development budget that went to the social and community services sector in the post-1994 period was clearly higher than in the pre-1994 era. The share of development expenditure allocated to education also fluctuated greatly, with a peak in 1994/95, but thereafter stabilized at around 10 to 15 percent.

As can be seen from Table 1.5, below, total education expenditures (TEE) as a share of total government expenditures (TGE) rose initially (after the introduction of FPE) from 13 percent in 1993/94 to 18 percent two years later, but declined after 1998 to pre-FPE levels. However, in 2001/02, spending on education rose again to 16% and is expected to have remained at this higher level the past couple of years, even though official data are not yet available. Maintaining a high level of spending on the social sectors is a requirement under the HIPC initiative, as reviewed later in this Chapter.

The development expenditure on education seems to have been very low in some years. However, one explanation could be that most education development expenditures are off budget and not included in public spending data. In 1999/00 and 2000/01, the share of

bilateral off-budget development spending was estimated at 65 and 70 percent, respectively. External funding was recently estimated to be around one third of total education spending.<sup>13</sup>

The evolution in education expenditures, as a share of GDP, shows a slightly negative trend in the nineties but started recovering in 2000/01. This ratio, however, may actually be higher if off-budget development expenditure were included.

Table 1.6 indicates that Malawi, by the end of the nineties, was somewhat below average on education expenditure as a proportion of domestic revenue relative to other African countries. In particular, when compared to Uganda—another country that is going through an expansion in enrollment as a result of a free primary education policy—the education spending in Malawi was at the lower end; spending on education has however recovered in the last few years.

### **HIPC (Highly Indebted Poor Countries) resources situation**

Malawi is eligible for assistance under the Enhanced HIPC Initiative. HIPC receipts and projected receipts were initially estimated in a World Bank report (World Bank. 2000) at US\$91.4 million for the fiscal years 2000/01–2002/03. An indicative allocation of the bulk of these resources by government shows that education would be allocated a substantial proportion of this amount estimat-

**Table 1.5: Trends in public spending on education, and comparison to total government spending, 1993/94–2001/02, in percentages**

	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
TEE in Total Government									
Expenditure (TGE) (%)	13	14	18	17	20	14	13	12	16
TEE (Recurrent) in TGE (R) (%)	13	10	16	19	21	14	16	12	16
TEE (Development) in TGE (D) (%)	15	28	23	8	15	13	9	12	15
TEE in GDP (%)	3.3	5.7	5.4	3.9	5.5	3.7	3.7	4.0	4.7
TEE (Recur.) in GDP (%)	2.6	3.6	4.0	3.5	4.7	2.5	2.8	2.8	3.6
TEE (Develop.) in GDP (%)	0.7	2.1	1.5	0.4	0.8	1.2	0.9	1.2	1.1

Sources: Malawi Economic Report, various issues

**Table 1.6: Comparative information on government recurrent spending on education as a percentage of government current revenue, excluding grants, and as a percentage of GDP**

	Malawi		Ghana	Mozamb.	Nigeria	Rwanda	Uganda	Zambia	Zimbabwe	* African Countries
	1998/99	2000/01	(1999)	(1998)	(2000)	(2000)	(2000)	(1998)	(1997)	
Educ. recurrent exp. as % of gov. curr. rev excl grant	17.3	15	17.6	18.1	9.9	32.6	30.1	12.3	28.3	17.8
Educ. recurr. exp. as % of GDP	2.5	2.8	3.8	2	4.6	3.2	3.2	2.3	7.1	3.04

Source: Bruns, B. et al. 2002. For Malawi, authors' calculations are used.

\* Refers to 33 African countries

ed at US\$25.2 million over the full period.<sup>14</sup> Of this amount, approximately two thirds would be allocated to teaching materials while another third would be for teacher training. As the bulk of this assistance was provided after the last year for which actual expenditures data are available (2000/01), it is not clear whether these additional resources have materialized and been allocated to the education sector.

After 2002/03 it is possible to expect a further increase in the yearly debt relief, thus ensuring additional resources for the education sectors. This is estimated at approximately 10 percent above the 2002/03 level that was estimated at US\$44.2 million in total and at US\$12.8 million for education.<sup>15</sup>

The debt relief is contingent on the government's commitment to pursuing a limited set of 'completion point triggers' and actions recognized as important for poverty reduction and growth. In the education sector, the focus is on improving the quality of education by: (i) increasing to at least 23 percent the share of education sector (including universities and other subvented organizations) expenditure in the discretionary recurrent budget; (ii) ensuring yearly enrollment of 6,000 students for teacher training, and establishment of in-service training for primary teachers; (iii) reallocating of budgetary resources from secondary school boarding (except for 'special needs education') to teaching and learning materials; and (iv)

pre-packaging donor-supplied primary textbooks for each school with delivery directly from the supplier to the schools.

The first of these 'completion point triggers' also provides an additional means to examine the current and expected resources made available for the education sector; it will be possible to verify how far the target of 'at least 23 percent' of education expenditure in the discretionary recurrent budget has been achieved. However, the picture for recent years for which 'actuals' are available and the most recent 'revised estimates' (i.e. for the most recent years no 'actuals' are available) indicate a great deal of volatility and some discrepancies, depending on the data sources that are used (see Annex 1.3). This makes it difficult to draw any firm conclusions. However, the proportion of education sector expenditure in the discretionary recurrent budget appears on average to be relatively close to the target of 23 percent. Depending on the data source, the average for the past six years (mixture of 'actual expenditures' for the first four years and 'estimated expenditures' for the last two years) has been 23.7 percent or 24.6 percent and, as such, is within the set target.

## Notes

1. From 2004, the Ministry of Education and Human Resources.

2. In primary there was a huge dip in 1994/95, upon the introduction of FPE; mainly due to hiring large numbers of untrained teachers, the unit cost started adjusting again and by 1997/98 it reached more or less pre-FPE levels again and has largely remained at that level thereafter.

3. This is the 2000 value instead of 2000/01.

4. This is the 2002 value instead of 2002/03.

5. Deficit as the difference between Revenue plus Grants, and Expenditure.

6. Deficit as the difference between Revenue (excluding Grants), and Expenditure.

7. IMF/World Bank CAS/PRGF projections.

8. Industry includes mining & quarrying, manufacturing, electricity & water, construction. Services include distribution, transport & communications, financial & professional services, ownership of dwellings, private community services, and government services.

9. Of course most of them work in the informal economy.

10. Average land size in the EU is about 40 hectare: despite high levels of productivity and use of technology EU farmers are dependent on high levels of subsidies (about 20 percent of income).

11. Jill Armstrong, *Uganda's AIDS Crisis: Its Implications for Development*, World Bank Discussion Paper 298 (Washington, D.C.: World Bank, 1995).

12. The travel budget as a share of GDP is one of the highest in Africa.

13. In 1999/00 recurrent and development spending together were 4,657 million kwacha, the on-budget donor spending was 516 million kwacha and off-budget donor spending 1,065 million kwacha. For 2000/01 these were respectively 4,987, 492.9 and 1,295 million kwacha.

14. 2000/01 US\$2.4 million, 2001/02 US\$ 9.9 million, 2002/03 US\$ 12.8 million.

15. However, the Reserve Bank (in "Reserve Bank of Malawi: Foreign Exchange Budget, 1997–2002" on 22. October 2003) published projected total HIPC relief by calendar year (not fiscal year), where there is still a significant expected increase from 2003 to 2004. Projections for total HIPC debt relief by calendar year (not fiscal year), where there is still a significant expected increase from 2003 to 2004. Projections for total HIPC debt relief are as follows: 2001 US\$27.4 million, 2002 US\$28.8 million, 2003 US\$51.6 million, and 2004 US\$78.0 million.

## Enrollment Patterns

**C**hapter 1 described Malawi's education system in the context of macro-economic trends, government revenue and spending on education, and issues related to demographic changes and the impact of HIV/AIDS. This chapter describes the overall education system. In addition to common indicators of coverage, such as gross enrollment ratios and entry rates, detailed information is presented on patterns of cohort survival, grade-specific enrollment, transition rates, completion rates, dropout and repetition.

### Structure of Malawi's education system

The formal education system in Malawi, as of 2003, follows an 8-4-4 structure: 8 years of primary, 4 years of secondary and typically 4 years of university level education<sup>1</sup> (see Figure 2.1). At the end of primary, pupils sit for the Primary School Leaving Certificate Examination (PSLCE), which determines their eligibility for entry into secondary school. Public secondary students attend either Community Day Secondary Schools (CDSSs) (previously MCDE), or Conventional Secondary Schools

(CSSs). After two years of secondary, pupils sit for the national Junior Certificate of Secondary Education (JCE); after two more years, for the Malawi School Certificate Examination (MSCE). Tertiary education is provided by an array of education institutions including primary and secondary teacher training colleges, technical and vocational training schools, and university colleges. For university entrance and for the secondary teacher training college (Domasi), an MSCE certificate is required. For primary teacher training the policy is to take MSCE graduates, but JCE passers can also be accepted. Technical and vocational training can start either after JCE or MSCE.

Primary education, preschool education and non-formal education initiatives such as adult literacy fall in the category of basic education, with the purpose to equip people with basic knowledge and skills to allow them to function as competent and productive citizens in a free society. Primary and secondary education is administered by the MOEST through its headquarters, the six education divisions and 33 district education offices. University level education is sub-vented by government, and university institutions are autonomous. The private sector participates in the provision of all levels of education but this is most pronounced





total of one million new students entering primary. Less than 9 percent of the total student population is currently enrolled in post-primary education, while 91 percent of total enrollment is in primary education and of these 65 percent (or 2.2 million) are enrolled in lower primary (Standards 1 to 4).

## Pre-primary education

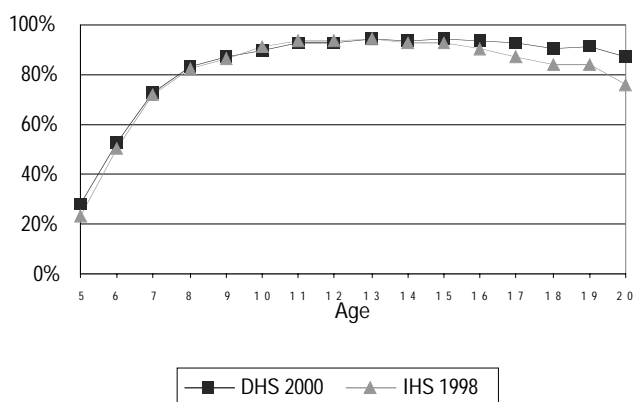
There is considerable evidence worldwide to indicate that attending nursery school helps a child prepare for primary school; it also provides a foundation for lifelong learning. In Malawi, the Ministry of Gender, Youth, and Community Services organizes public Early Childhood Development (ECD). In 2002 there were 1,618 childcare centers registered with the Ministry, with 4,666 pre-school teachers responsible for approximately 80,000 children, aged between 3 and 6 years.<sup>4</sup> Annex 2.1 includes background characteristics of children between the age of 6 and 14 who attended nursery schools, whether public or private. These data indicate that about one in ten children (9.4 percent) had attended nursery school for an average of 1.7 years. Two factors are important predictors for nursery school enrollment: geographic location and income group. In urban areas, 39 percent of children attended nursery school compared with just 6 percent in rural areas. Furthermore, 27 percent of children from the highest wealth quintile attended nursery school—approximately 10 times more frequently than children from the lowest income group. This difference is compounded by the fact that years of attendance are longer for both urban and wealthy children. Younger children are also more likely to have gone to nursery school than older children; only 5 percent of the 11–14 age group compared to 15 percent of those aged 6–7 years had attended nursery school. This suggests that more parents than heretofore are sending their children to nursery schools.

A troubling feature of the Malawi system is the significant number of underage children enrolled in primary; for instance, in 2002, 28 percent of 5 year-old children were already attending primary school.<sup>5</sup> To address this, according to the new primary school curriculum (2002), the government is considering reducing the primary cycle from eight to seven years while introducing a pre-school year. However, such a change may draw away resources from primary and secondary levels already struggling to be financially sustainable. Future investment needs to be based on a careful cost-benefit analysis, one that weighs government investment in pre-school education against improvements in the currently underfunded lower grades of primary.

## Basic or primary education

Malawi has two types of primary schools: public and private. The latest school census for 2001 established that there were 4,688 publicly funded primary schools with a total enrollment of 3,143,427 (EMIS database 2001). These include schools where the proprietor is the central government, the Local Education Authority, or a religious agency that receives public funding. The total number of private schools is difficult to determine because government only recently started to register private schools. Currently, the number of government registered private schools is 49 and they enroll 18,500 pupils. The Private Schools Association of Malawi, PRISAM, estimates that there are about 40,000 pupils in 250 schools. However, the Ed Data 2002 survey indicates that enrollment in private primary is much higher; most likely around 5 percent of total primary enrollment—about 2 percent in private non-religious schools, and 3 percent in private religious schools.

Since the abolition of all primary school fees in 1994, access to primary has increased dramatically allowing practically all children to

**Figure 2.2: Proportion of children who ever enrolled in primary, by age**

Source: Authors' calculation using data from the DHS 2000 survey and IHS 1998.

attend school. Figure 2.2, below, illustrates that more than 95 percent of children attend primary school at some point in their lives.

One way to measure the increase in enrollment is to consider the changes in the gross enrollment rate (GER) over time. Table 2.2 illustrates that the GER for primary has increased substantially over the past ten years—from 88 percent prior to the introduction of FPE (in 1991/92) to roughly 120 percent at the end of the decade — an indication of the success of the FPE in improving coverage.

### Enrollment by age in primary

When FPE was introduced about 10 years ago, many of the children that enrolled for the first time were over-age. It was anticipated that this situation would level out in subsequent years

and that gradually a higher number of children would enroll within an age appropriate cohort — in other words, that the GER would converge towards the Net Enrollment Ratio (NER). However, as Figure 2.2 shows, timely enrollment remains an issue: at age 7 only about 70 to 80 percent of children have started school. Late or early entry is common particularly in rural areas where children's ages are difficult to determine in the absence of documentation. The problem of early entry is common when the school is perceived as providing free childcare or when younger children join their older siblings. Late entry is common when children have to walk far to get to school, and is then compounded through repetition of grades. The persistently high number of over- and under-age children points to both demand and supply side issues. On one hand,

**Table 2.2: Absolute enrollment numbers and gross enrollment ratios over time**

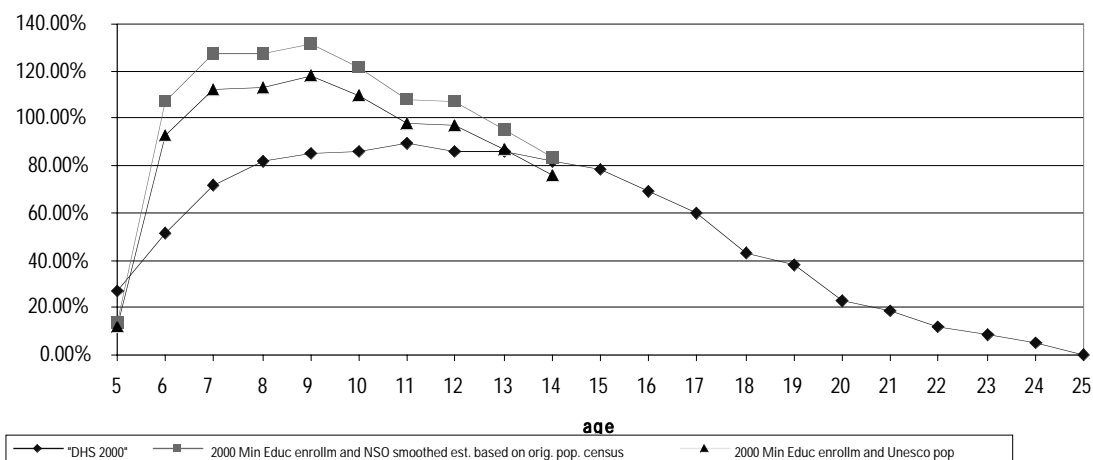
	1991/92		1993/94		1995/96		1997		1999		2001
	No. of Students	GER (%)	No. of Students	GER (%)	No. of Students	GER (%)	No. of Students	GER (%)	No. of Students	GER (%)	No. of Students
Std. 1–8	1,671,583	88*	1,695,423	93*	2,887,007	120	2,805,785	115.1	3,016,972	120.8	3,187,835
Std. 1–4	1,239,535		1,466,928		2,203,663		2,090,728	160.2	2,178,080	167.6	2,296,039
Std. 5–8	432,048		428,495		683,444		715,057	63.2	838,892	70.1	891,796

Source: Basic Education Statistics and UN Population data used for EFA-FTE.

\* Taken from Basic education statistics.

\*\* From DRAFT Basic Education Statistics 2001.



**Figure 2.3: Enrollment rate by age, different sources, 2000**

Source: Authors' calculation using data from the DHS 2000 survey, from EMIS 2000, and from the National Statistics Office and UNESCO for population estimates.

the opportunity cost associated with having a child in school affects enrollment and attendance. On the other hand, the inadequate learning environment leads to low outcomes and high repetition rates.

The various sources of data on enrollment provide conflicting information about the extent of over- and under-age children in primary (Figure 2.3 and Annex 2.3). The household survey data indicate that the number of over-age children is much higher than recorded by the official school census statistics records. According to the household survey, close to 30 percent of 5 year-olds are already enrolled (representing close to 100,000 children) whereas school census data puts this estimate at 15 percent.

In addition to needing more reliable statistics, the more significant challenge is how to reduce the age disparity of primary school children. The existing wide age range makes teaching and learning even more difficult in an environment that already has many additional factors undermining the quality of education. To address the problem of over-age children, the most important measure by far is to improve the quality of education in order to reduce repetition rates so children attain satis-

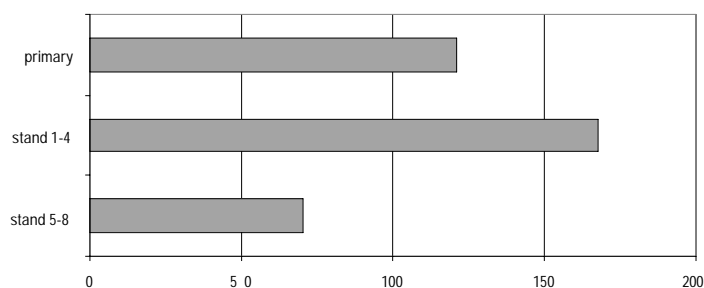
factory learning outcomes and simultaneously progress more rapidly through primary school.<sup>6</sup>

### Disparities in enrollment data and sources

The analysis in Annex 2.2 indicates that the GER in primary has, in recent years, fluctuated between roughly 110 and 133 percent.<sup>7</sup> In light of the strengths and weaknesses of each data source, for the purpose of the ensuing calculations, the gross enrollment ratio is estimated to be about 120 percent.

If the GER for lower versus upper primary, as shown in Figure 2.4, is examined it provides a more accurate picture of the pressures on the lower standards as a result of repetition and early/late entry. The gross enrollment ratio is as high as 170 percent in the first four grades but shrinks to a mere 70 percent in the last four grades. The high GER in lower primary confirms that a high proportion of children repeat standards 1 to 4.

Figure 2.5, below, indicates the evolution in enrollment by standard during the nineties. The sharp rise in Standard 1 enrollment between 1993/94 and 1994/95, and the more

**Figure 2.4: Gross enrollment rates by level of schooling, 2000**

Source: Basic Education Statistics, and UN population.

Note: For primary the corresponding population is children 6 to 13, with population 6 to 9 for Std. 1-4 calculations and 10-13 for Std. 5-8 calculations.

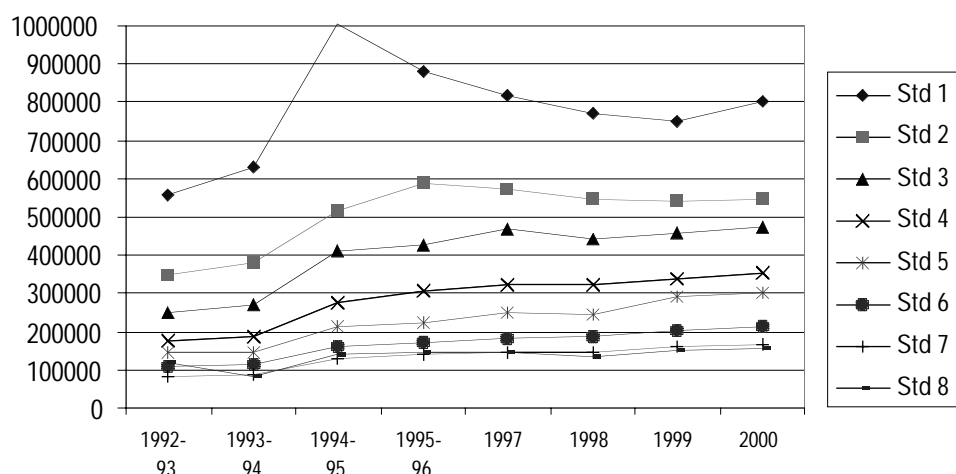
moderate but still significant rise in enrollment in other standards, is attributable to the declaration of FPE. In fact, in 1991/92 when fees for Standard 1 pupils were abolished, enrollment grew by 19 percent over the previous year, and in 1994/95, when the policy was extended to all primary school pupils, enrollment grew by 51 percent compared to the previous year.

The much lower enrollment increases in the higher standards during subsequent years suggest that many children that enrolled in 1994/95 did not progress to the next level. The decline in Standard 1 enrollment after the peak of 1994/95 is attributable to the fact that, in

subsequent years, new entrants were primarily children of normal entry age (age 6).

### Pattern of student flow through the system, survival, repetition rates and efficiency

The gross enrollment ratio is a useful measure of the capacity of the education system in terms of the number of places available. However, in Malawi, grade repetition and drop out are common, and consequently the gross enrollment ratio is a poor measure of actual coverage.<sup>8</sup> This next section investigates the efficiency of

**Figure 2.5: Enrollment trends by standard**

Source: Basic Education Statistics, various years.

the education system, by examining pupil admission, survival and transition rates.

*Comparing Data Sources to calculate Entry Rate, Population and Repetition.* The 'Cohort Rate of Entry' (or gross admission rate) is calculated by dividing new standard 1 entrants (or non-repeaters) by the total population of school entry age. In 1987 this indicator was 0.87 (87 percent) but in 1998 it had increased dramatically to 2.29 (229 percent) when using the standard school census and population census statistics. It is obvious that under normal circumstances the 'cohort rate of entry' should not be more than 1, as there should not be more new children enrolling into primary as there are children of the corresponding age group. As analyzed in Annex 2.4, a non-standard use of the repetition rate concept, together with a probable undercount of the population in the 1998 census explains part of the discrepancy.

It is thus likely that the school census statistics underestimate the level of repetition (Annex 2.4). The household surveys available for 2000 and 2003 provide an alternative method to assess the extent of repetition. Furthermore, if the high-end population estimates, like those from UN-EFA, are used, the inconsistency is further reduced. Using the best available data, the cohort rate of entry comes

out to 1.39 for 2000. For the purposes of this study, and to enable government to derive helpful conclusions and identify possible policy interventions, the repetition rate from the household surveys is used in the following—unless otherwise indicated.<sup>9</sup> Likewise the study will use the UN-EFA population estimate.

*Repetition and Dropout Rates.* A striking characteristic of the primary education system is the widespread prevalence of repetition and dropout. However, discrepancies in data make it difficult to establish the current levels of repetition and dropout. Table 2.3 summarizes repetition and dropout rates by grade from three different data sources, and shows averages for lower/upper primary and for primary as a whole. The average repetition rate from the two household surveys (25.8 and 28.4 percent) is almost twice as high as the recorded repetition rate of 15.5 percent from the school census with the largest differences noted in Standard 1 and Standard 8. According to all the sources, the repetition rate generally declines as children progress through the grades, with the exception of standard 8 where repetition is very high. In general, boys are more likely to repeat than girls, particularly in Standard 8.<sup>10</sup> This trend may be due to parents' greater concern to see their sons, versus daughters, progress into secondary school.

**Table 2.3: Repetition and dropout rates, EMIS 2000 and DHS 2000**

		Std. 1	Std. 2	Std. 3	Std. 4	Std. 5	Std. 6	Std. 7	Std. 8	Avg. primary	Avg. Stds 1–4	Avg. Stds 5–8
Repetition	Ed Data	40.6	24.2	27.7	19.1	10.3	9.8	12.2	19.5	25.8	n.a.	n.a.
	DHS	45.3	24.3	26.9	17.2	15.4	12.7	11.2	38.0	28.4	31.9*	18.6*
	EMIS	18.8	16.6	16.6	13.9	11.7	11.3	10.1	13.9	15.5	16.9	11.7
Dropout	Ed Data	8.5	5.9	4.8	6.3	10.3	11.8	9.9	20.1	8.2	n.a.	n.a.
	DHS	2.7	3.3	4.3	5.5	6.7	6.9	7.7	11.5	4.8	3.7	7.4
	EMIS	13.9	11.1	9.3	8.9	7.7	8.3	8.3	8.2	10.4	11.3	8.0

*Sources:* Basic Education Statistics 1999, 2000. The repetition rate is calculated here as the repeaters in grade x in 2000 divided by the total enrollment in grade x in 1999. The dropout rate here is calculated as the dropouts from grade x in 2000 divided by the total enrollment in grade x in 1999.

For DHS 2000 and Ed Data 2002 the results stem from the final reports of the studies. Repetition rates are calculated as the percentage of students in a given standard who are repeating that standard. Dropout rates are calculated as the percentage of students, in a given standard, in the previous school year (irrespective of whether or not they finished the previous year or left during that year) who did not attend school at any point during the school year.

\*Authors' calculations using dataset.

The dropout rates reported by the different sources vary considerably, from estimates around 4–5% per grade to as much as 10–11% per grade. Two data sources imply that dropout is more prevalent in the higher grades than lower grades, while another source shows the reverse pattern. Annex 2.6 shows in further detail the causes for children dropping out from school.

The Monitoring Learning Achievement (MLA, 1999) study revealed that out of 11 African countries, Malawi has the highest repetition rate in the first four grades of primary (see Annex 2.5). Further, the difference, relative to other countries, is quite significant, particularly for the first three grades. Not only is the percentage of children passing from one grade to the next by far the lowest in Malawi, substantial numbers of children repeat more than once—a phenomenon rare in most other SSA countries. The more recent household survey in 2002 recorded a higher dropout rate than the 2000 household survey. Here, also, dropout rates are much higher in the rural areas relative to urban areas.<sup>11</sup>

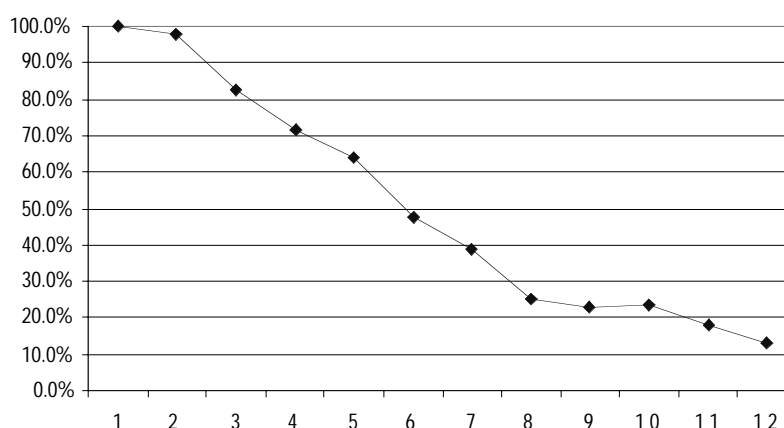
In summary, primary school is characterized by extremely high levels of repetition and dropout, irrespective of the source of information. The challenge in Malawi is to improve on

the present unsatisfactory Primary Completion Rates (PCR). On the positive side there is a firm basis for moving forward since at the moment 95 percent, or more, of all children enroll: as such, further improvements will only be achieved when a resolute effort to reduce repetition and dropout rates is implemented.

*Survival Rates.* Figure 2.6 shows an estimation of the survival rate by grade in primary and secondary school and indicates a steep downward trend throughout primary and a much flatter trend for secondary (see also Annex 2.7). These data imply that dropout could be even higher than the 5–10% indicated in Table 2.3. For example, according to Figure 2.6, in the academic year 1999–2000, for every 100 non-repeating students that entered Standard 1 only about 70 were still in school by Standard 4, corresponding to an annual dropout rate of more than 11%; by standard 8 only a quarter of the potential student population had persevered, implying that on average as much as 18% of the class had dropped out each year. These high dropout rates, however, are not consistent with the Primary Completion Rates presented in the following, and can therefore be regarded as higher end estimates.

Annex 2.7 also suggests a real deterioration in survival rates between the time just before

Figure 2.6: Estimated survival rate primary and secondary, 2000 (cross-sectional method)



Source: Basic Education Stats 2000 for enrollment, DHS2000 for repetition, UN-EFA population.

the introduction of FPE until today. Results from the quasi-time series survival estimates indicate that a student's chances of "survival" throughout primary went down, possibly as much as 20 percentage points. However, due to the greater intake into primary during the same period, the number of children finishing primary has gone up in absolute terms, as reflected in the improved completion rates discussed in the following.

## Completion rates

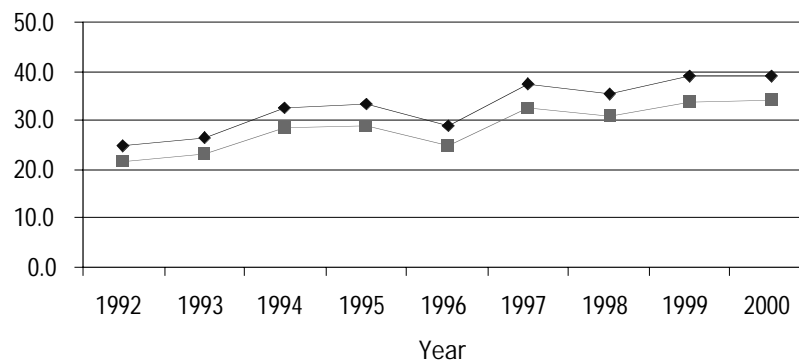
The Primary Completion Rate (PCR) is the main indicator for Education for All (EFA) and for the Millennium Development Goal for education. Both share the goal of achieving by year 2015 a completion rate of 100% for six grades of primary. However, as primary school in Malawi has eight grades, and as there is no exam after standard 6, the corresponding indicator is the PCR based on the primary school leaving exam at the end of standard 8. Figure 2.7 shows the PCR for each year between 1992 and 2000.<sup>12</sup> It increased by about 15 percentage points: from 20–25 percent to 35–40 percent between 1992 and 2000 and this represents a significant and important improvement in the completion rate (a PCR of 35–40% cor-

responds to average dropout around 10% of the student body each year).

Despite the clear positive trend, however, it is not likely that Malawi will reach a PCR of 100% by 2015. As such, it may prove more prudent for the government to develop its own targets and goals, ones based on a credible and sustainable plan that will enforce and accelerate the positive trend in improving the PCR.

Annex 2.9 contains proxy completion rate calculations in which the non-repeaters at a certain grade level are divided by the population of the corresponding age group. Compared to the other data sources analyzed, these estimates however seem to be in the higher end, possibly underestimating real dropout: the 'proxy completion rate' for Standard 4 shows the remarkable increase in completion rates of approximately 45 percentage points over the period in question—it reached about 90 percent in 2000. For the Standard 6 'proxy completion rate' (which would coincide with the EFA/MDG minimal objective) there has been an approximate 25–30 percentage point increase—it reached 60 to 70 percent in 2000. For Standard 8, the 'proxy completion rate' is approximately 10 percentage points higher than the real PCR, and has not improved considerably since 1995.

Figure 2.7: Primary school completion rate over time, two population estimates



Source: Basic Education Stats for PLSCCE passers, NSO population.

Highest level is standard NSO population.

Lowest level is using NSO population plus 15%. (UN-EFA population is not available this far back).

Being already very close to all children starting school, the challenge now is to improve the PCR by reducing the number of dropouts. A comparison of the primary school completion rates with those of other countries in the region indicates that Malawi's PCR is lower than most. While it is still at about average for 33 sampled African countries, this is not a great consolation (see Annex 2.9).

### Primary School Leaving Certificate (PSLCE)

At the end of the 8-year primary cycle, pupils sit public examinations, which lead to the Primary School Leaving Certificate (PSLCE). The PSLCE is a pre-requisite to enroll in the secondary sub-sector and it is used to select pupils for this level by ranking them and deciding what type of secondary school they qualify to attend. The pass rates in the PSLCE are quite high as can be seen from Table 2.4. Performance between students in rural and urban areas is quite similar (rural 79 percent; urban 77 percent, in 2000); so students who survive primary in rural areas do not appear to be at a disadvantage in their examination performance.

### Junior primary schools and distance to schools

The existence of Junior Primary schools—schools that provide less than the full eight grades of education—may be a supply-side con-

straint for pupils restricting their access to complete the whole cycle of primary education.

To estimate the full extent of the junior school phenomenon, it is necessary to distinguish between two categories of schools. First, there are the recently established schools that may *eventually* offer the full complement of standards, and second those schools that have been established for a prolonged period but have not expanded to cater for all standards. Regardless, children attending these schools are more at risk of being 'pushed out' before completing the primary standards.<sup>13</sup> Annex 2.10 indicates that approximately 27 percent of all new Standard 1 entrants (650,829 pupils) enroll in schools that do not cater for all standards. Approximately two-thirds attend schools that were recently established and, as such, may include additional grades in the future or are already acknowledged as 'feeder schools'. Overall, the extent of the problem of long established school offering less than six grades appears to be affecting only about 4 percent of pupils but the key issue is the proximity of the 'complete' school.

Distance to school is one explanatory factor to indicate why some children do not enter primary or why a significant proportion of students start attending for the first time at ages higher than the official entry age. Annex 2.10 provides data on distance and walking times to schools in both rural and urban areas. A total of 64 percent of children in urban areas live within 15 minutes of the nearest school; for

**Table 2.4: PSLCE results and transition to different types of secondary schools**

YEAR	1994–95	1995–96	1997	1998	1999	2000	2001	2002
Pass Rate %	78	62	77	75	81	79	60	64
Candidates	116,875	120,994	128,272	126,515	131,444	139,036	161,786	157,835
Transition to CSS	9%	10%	15%	13%	16%	13%*	—	—
Trans. to CDSS/Mcde	—	36%	38%	49%	61%	55%*	—	—
Trans. to private**	—	—	12%	8%	5%	7%*	—	—

Source: Exam data is taken from MANEB. Enrollments are from EMIS.

Transition rate is calculated as form 1 enrollment in year x / number of PSLCE passes in year x–1.

\* Based upon estimated enrollment numbers for 2000.

\*\*This may be underestimated because a significant number of private schools are not registered with the government and are not included in the statistics.



rural children the figure is 33 percent—indeed, more than one-third of rural children are required to walk more than half an hour. However, the extent of the problem of access to complete schools requires further investigation, particularly as the use of feeder, or junior schools, may be a transient functional mechanism that caters for the limited number of children progressing to higher levels and, as such, may make good economic sense if it entails more efficient teacher utilization.

### Special education provisions

Government policy on the education of children with special needs emphasizes the importance of mainstream integration. Here, a key issue is to raise community awareness of the importance of facilitating the enrollment of these children into regular schools. Currently, there are a number of primary schools that offer boarding facilities to children with severe handicaps; the government supports these through maintenance grants. There are currently 28,711 pupils attending normal primary schools who are defined as having different types of disabilities (Table 2.5).

### Transition rates from primary into secondary school

Access to secondary education in Malawi is limited. However, transition rates for those who pass the PSLCE have increased dramatically; the average transition rate to secondary education was about 75 percent of PSLCE passers in 2000 (see Table 2.4, above). This increase has been greatly facilitated by the introduction of CDSSs, which now enroll the

majority of graduating primary students. In 2000, the estimated Form 1 enrollment at CDSSs was 58,101 out of a total secondary enrollment of 81,443.

It is important to note that the combination of high transition rates and the introduction of the CDSSs resulted in a significant intake into secondary education. Similarly to the impact of the 1994 FPE policy, this expansion was unplanned and lacked essential funding. As a result, quality has been seriously undermined.

### Secondary education

Secondary education is divided into two sections: junior secondary comprising Forms 1 and 2 and senior secondary, comprising Forms 3 and 4. At the end of junior secondary, students sit public examinations. Successful candidates are awarded a Junior Certificate of Education (JCE) which is the basis for enrollment into senior secondary education. In Form 4 students take the Malawi School Certificate of Education (MSCE) and the results determine access to various tertiary institutions, such as university education, and teacher training<sup>14</sup> institutions.

There are several types of Secondary Schools: CSSs, which include Government Day and Boarding Schools, as well as Grant Aided Schools; CDSSs; Private Schools; and Malawi College of Distance Education (MCDE). Annex 2.11 includes a description of each. The CDSS schools only officially came into existence in 1998 when nearly all Distance Education Centers (DEC)<sup>15</sup> were converted into CDSSs. Most of the teachers at these centers, however, were primary school

**Table 2.5: Students with disabilities integrated in primary schools**

	Physical Disabilities	Learning Disorders	Emotional Disorders	Visually Impaired	Hearing Impaired	Total
Type of Disorder	2999	9180	5476	4665	6391	28,711

Source: Basic Education Statistics, 2000

teachers and were ill-prepared to teach secondary students.

As a result of the above weaknesses, a large number of students enrolled in poorly run DEC's whereas only a small elite group was able to access the well funded CSS schools. In 1996–1997, DANIDA agreed to assist in the upgrading of all DEC's to standard secondary school status, under the title CDSS. However, when DANIDA withdrew from the education sector, the government lacked the necessary fiscal resources to proceed with the plan: in effect the change from DEC's to CDSSs occurred in name only. As a result, while a CDSS is expected to provide an equivalent standard of education as the better endowed CSS, the reality is that they are extremely under-funded and the quality, as measured by examination pass rates, for example, is much lower. The majority of secondary students are enrolled in CDSSs, and therefore this issue constitutes one of the major challenges facing the government.

### Enrollment in secondary schools

Enrollment in secondary education increased dramatically during the last decade; it almost quadrupled from less than 70,000 students in 1991/92 to almost 275,000 in 2000 (see Table 2.6). The GER increased from 10 percent in 1993/94 to 27 percent in 2000<sup>16</sup> (the GER is 30 percent in Forms 1–2 and 23 percent in Forms 3–4<sup>17</sup>). The NER is estimated at about 7–9 percent. The difference between GER and NER highlights the problem of

over-aged students enrolled in secondary education. In fact, two thirds of all students are outside the official age range (14–17 years) for secondary.

Enrollment growth in absolute terms has been concentrated in the MCDEs and CDSSs; they registered an increment of well over 100,000 between 1993/94 and 2000. Figure 2.8 shows the distribution of enrollment by type of school between 1993/94 and 2000 and highlights how the CDSSs have come to represent the lion's share of secondary enrollment, up from approximately 40 percent in 1994/95 to 70 percent in 1999/00.

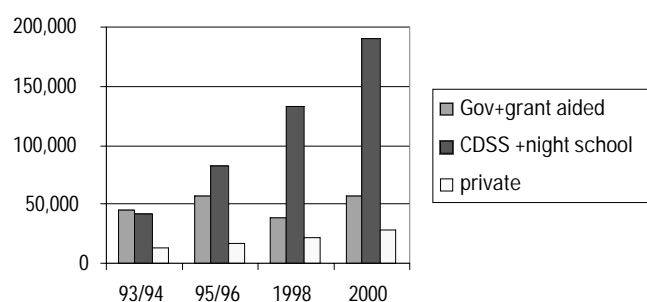
The Private Schools Association of Malawi (PRISAM) is aware of the existence of a total of 300 private secondary schools in the country as a whole but, of these, only 171 are officially registered. Furthermore, PRISAM concedes that there surely are a significant number of private schools not even known to them. As such, private school enrollment statistics are not reliable. Overall, PRISAM estimates that there are close to 90,000 pupils enrolled in the 300 private secondary schools—this figure is significantly higher than MoEST estimates.<sup>19</sup> Either way, it is clear that private schools form a significant portion of overall secondary education provision. In fact, according to the Policy Investment Framework (PIF), particularly for secondary schools, the private schools are considered crucial in expanding supply of secondary education in order to meet demand from a growing number of primary school graduates.<sup>20</sup>

**Table 2.6: Absolute enrollment and gross enrollment ratios in secondary<sup>18</sup>**

	1991/92 No. of Students	1993/94 No. of Students	1995/96 No. of Students	1998 No. of Students	2000 No. of Students
Secondary					
Total	68,428	88,134	138,770	192,272	274,949
Form 1–2	44,888	51,225	87,930	127,336	164,004
Form 3–4	23,540	36,909	50,840	64,936	110,945

Source: Basic Education Statistics.



**Figure 2.8: Enrollment in secondary education by type of school**

Source: Basic Education Statistics.

## Secondary repetition rates

Secondary repetition rates are low in Malawi, although repetition does exist in both private and public schools. Interestingly, stated government policy does not permit repetition in publicly funded schools. However, repetition does occur and the average repetition rate in all schools, based on the DHS 2000 data, was estimated as 3.7 percent. In Form 1, the incidence was less than one percent but it was much higher (19.7 percent) in Form 4 due to repetition by students who have failed or are not ready to take their MSCE exam (average pass rates are generally low).<sup>21</sup> Some students may also repeat in order to improve MSCE grades and thereby improve their chance of entering higher education.

When students fail the JCE or MSCE, in some instances they change to a different school; for example, they may change from a CSS to a CDSS or a private school. This practice runs counter to official policy and so the phenomenon is not captured in EMIS statistics. It may be advisable to adjust the EMIS measurements to reflect the prevailing realities of Malawian secondary education, namely that repetition does exist and has the potential to increase unless the quality is improved.

## Survival/completion in secondary and transition to tertiary

As previously noted, survival rates indicate the share of students who enrolled at the beginning of primary, who survive to the end of secondary (see also Figure 2.6 and Annex 2.8). The survival rate in secondary, as a percent of new entrants, in Form 1 is 58 percent.<sup>22</sup> This number reflects survival through to Form 4; it does not, however, take into consideration the numerous students who fail the MSCE exam and are forced to leave the system without any formal proof of having completed the full secondary cycle.

Table 2.7 shows that MSCE pass rates declined dramatically between 1993/94 and 1999: down from 48 percent to 14 percent, which affected all types of schools. They subsequently increased in 2002 to reach 30 percent. This poor outcome is attributed—at least partly—to the increasing numbers of students attending the low-achieving CDSSs. There is a significant difference between the pass rates at the CDSS schools and at the CSS schools (Gov Boarding, Gov Day, Grant Aided), as can be seen in Figure 2.9.

The meager learning outcomes achieved by CDSS students probably reflects two factors. Firstly, the best primary school graduates tend to enroll in the better-resourced CSSs, thereby

**Table 2.7: MSCE pass rates prior years**

Year	1993–94	1994–95	1995–96	1997	1998	1999	2000	2000*	2002
<b>Pass Rate at MSCE</b>	<b>48%</b>	<b>32%</b>	<b>33%</b>	<b>23%</b>	<b>16%</b>	<b>14%</b>	<b>20%</b>	<b>22%</b>	<b>30%</b>
CSS (Gov Board, Gov Day, Grant Aided)	65%+	55%+	52%+	36%	32%	30%	33%	37%	**
CDSS + DEC	19%	37%	12%	8%	5%	4%	9%	8%	17%
Private				34%	26%	27%	29%	35%	34.5%
<b>Pass Rate at JCE</b>	<b>78%</b>	<b>85%</b>	<b>89%</b>	<b>81%</b>	<b>81%</b>	<b>91%</b>	<b>n.a</b>	<b>n.a</b>	<b>n.a</b>
CSS + Private	89%	91%	88%	87%	76%	93%	n.a	n.a	n.a
CDSS	40%	56%	85%	85%	83%	68%	n.a	n.a	n.a

Source: Pass taken from Basic Education Statistics and MANEB and includes external candidates.

\* Only internal candidates: Average for both the CSS and private schools together

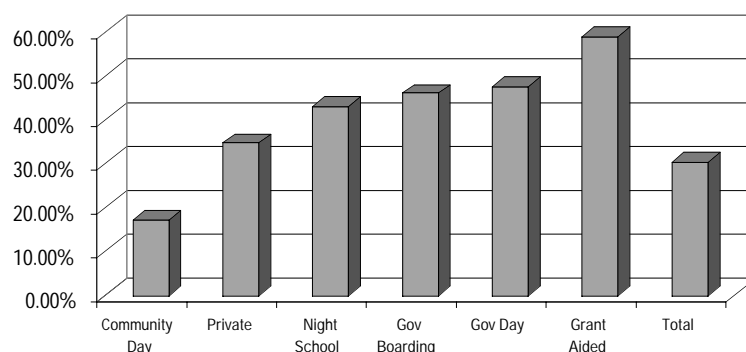
\*\* Gov. boarding 46%, Gov. day 48%, Grant Aided 59%

leaving the CDSSs with weaker students who will require more concentrated and skilled instruction to achieve MSCE passing level. Secondly, there is very significant under-funding of CDSSs relative to other public schools, including the caliber and qualifications of teachers (see also Chapter 4, Figure 4.4), the availability of teaching and learning materials, and available operational budget.

JCE pass rates present a mixed picture. Firstly, the pass rate is substantially higher than the MSCE pass rate. Further, the JCE pass rate has remained consistently high even when the MSCE pass rate dropped to its lowest level (between 1997 and 1999). Indeed, it is quite surprising that the JCE pass rate went up by 12

percentage points between 1993/94 and 1995/96 at a time when the MSCE pass rate, for the same cohort of students two years later, dropped from 33 percent to 16 percent. Finally, in some years JCE pass rates have not been consistently better at CSSs than at CDSSs, contradicting the trend for the MSCE pass rate. This lack of consistency suggests that the JCE fails to provide students with realistic feedback on where they stand midway through secondary.<sup>23</sup>

A number of explanations have been offered to explain the low MSCE pass rates. The Final Report from the Presidential Commission of Inquiry into the MSCE results (2000) pointed to: (i) insufficient capacity at MANEB to handle the increased number of candidates from

**Figure 2.9: MSCE pass rates by type of school, 2002**

Source: Pass rates from MANEB and include external candidates.

Note: pass rate for night schools is quite high. However, this may be a reflection that in night schools a lot of the students in Form 4 do not enroll to participate in the MSCE exam in the first place, so that those who do enroll are probably the ones better prepared for it. In other types of schools a much higher percentage of those in form 4 participate in the exam.

**Table 2.8: Secondary school transition rates**

Year	1993–94	1995–96	1998	1999	2000	2001*	2002
Form 4 Enrollment	18,910	24,685	28,984	42,759	50,747**	43,852**	n.a.
Number of MSCE Passes	7,871	8,032	6,906	6,180	10,424	10,998	15,012
Univ. Year 1 Enrollment	921	883	795	833	n.a	n.a	n.a.
Transition to University	7%	12%	10%	12%	n.a	n.a	n.a.
Prim Teacher Educ. Enrollment	2,082	1,747	+	1,923++	2,000++	2,000++	7,000++
Transition to Teacher Education	16%	24%	n.a.	31%	19%	18%	47%

Source: Basic Education Statistics and MANEB database. \* Data from DRAFT Basic Education Statistics 2001

\*\* Based upon estimated enrollment, not actually counted since many schools failed to provide data. + Between 1996 and 1998 the numbers changed dramatically due to the introduction of the MIITEP training program, with in total over this period 5 cohorts being trained, with a total of a little over 10,000 students having enrolled. ++ Between 1999 and 2001 MIITEP enrolled only one cohort each year due to resource constraints. In 2002 and 2003 however two cohorts each of 3000 to 3500 students enrolled, and from 2004 on this is expected to increase to two cohorts of 4,250 each, or 8,500 students in total. If the number of MSCE passers remain at the level of 2002 then in 2004 the transition rate to Teacher Education will be 57%. Note: No data on new entrants to first year of university is available after 1999. However, with the total enrollment in university at 3955 in 1999, 3977 in 2000 and 3654 in 2001, it is unlikely that the number of new entrants to university has changed substantially over the past years. Therefore, the transition rate to university will have changed only as a result of the increasing number of MSCE passers. As such, it is likely to have declined.

CDSSs and private secondary schools; (ii) the problematic examination process with its security weaknesses; (iii) the need to prepare students better for exams by a) improving their attitude toward education and b) ensuring appropriate levels of discipline are not misinterpreted because of increased democracy and human rights awareness; (iv) low teacher morale; (v) lack of teaching and learning materials and poor infrastructure; (vi) lack of school inspection systems; and (vii) an outdated curriculum, overly focused on academic skills and preparation for ‘white collar’ jobs but too little concerned with creative skills and preparation for vocational employment.

Despite an increase in Form 4 enrollment, the absolute number of students who passed MSCE declined between 1999/94 and 1999. This trend is particularly worrisome because of an increasing need for secondary school graduates to enroll in teacher education in order to improve the education system as a whole. In 1998, the supply of MSCE graduates was close to the need for teacher education entrants (due to increased teacher training levels as a result of the MIITEP training program), and the spaces at first year of university. The need for both primary and secondary education trained teachers will remain high

for the next 10–15 years, so the completion and pass rates at secondary level need to improve to provide enough candidates for both university education and teacher training. Although there has been a significant increase in the MSCE graduates since 2000, it is too early to determine if this will be maintained.

## Teacher training

In general, the teacher training system is not producing sufficient numbers of new teachers for primary and secondary schools. When Free Primary Education was introduced it was necessary to recruit large numbers of untrained teachers<sup>24</sup>; now, ten years later, there is still a high proportion of untrained teachers in the system adversely affecting quality and learning outcomes. Similarly, as a result of the transfer of the DEC's into full-fledged secondary schools (CDSSs), the government has had to hire untrained teachers—mostly primary teachers—to teach in the CDSSs and this has resulted in an additional drain on the pool of qualified primary teachers while simultaneously increasing the number of under trained secondary teachers in the system.<sup>25</sup>

## Primary teacher training

In the period following the introduction of FPE, enrollment in primary rose from 1.8 million (in 1992/93) to 2.9 million (in 1994/95). As a result, demand for additional primary teachers increased inexorably. At the time, however, annual output from the six existing teacher training colleges was limited to approximately 2,700 teachers. Consequently, MOEST recruited 18,000 school leavers, and the ensuing challenge of providing some training for these untrained recruits resulted in the birth of the Malawi Integrated In-Service Teacher Education Program (MIITEP).<sup>26</sup> It is anticipated that this high volume program of teacher education, combining face to face instruction and distance education, will need to continue for at least another five to ten years in order to train the unqualified teachers currently in the system, increase the teacher stock to cater for primary enrollment increases, and replace teachers lost due to retirement, death or job change (attrition). The annual attrition rate, currently estimated at approximately 6 percent (3 percent death related, 3 percent retirement and dropout related), results in the loss of 3,000 teachers per year—there are currently approximately 50,000 teachers in the system.

There are six publicly funded primary Teacher-Training Colleges (TTCs) in Malawi. Two of these colleges belong to churches and receive a block grant. The total enrollment capacity is approximately 3,000 and this has remained largely static during most of the nineties. The restricted output of teachers explains the rationale for introducing the high volume MIITEP crash program.

Table 2.9 shows that the MIITEP cohorts graduated during the years 1997 to 2000 at an average rate of slightly over 2,500 per year, and from 2001 to 2003 only one cohort graduated each year because of funding shortfalls. This completely negated the rationale of MIITEP since it trained the same number of teachers as pre-MIITEP. In addition, it resulted in teachers receiving significantly less formal training, left TTCs empty for substantial periods of the year—while tutors continued to receive their salaries.

The intake from 2002 onward has been 2 cohorts per year and so from 2004 on approximately 4,800 graduates can be expected to graduate.<sup>27</sup> It is further anticipated that the total training capacity of the combined TTCs will shortly expand from 3,000 to 4,250 teachers through GTZ funding and that total output will increase to 6,800 students per year by 2006.

## Secondary teacher training

Secondary teacher training is provided at Domasi College of Education, at the University of Malawi (Unima), at Mzuzu University and at the private institution, the African Bible College. Interestingly, the recommended PIF goal for a secondary PTR of 40:1 is currently being achieved. However, the PqTR is 120:1 (EMIS 2001). As previously mentioned, the majority of the unqualified secondary teachers are trained primary teachers, teaching at the CDSSs. Total output from the combined training institutions remains low; it is currently estimated at approximately 350 to 400 teachers per year.<sup>28</sup> Domasi College also has a parallel

**Table 2.9: Primary teacher training graduates over time**

Year	1991/92	1993/94	1995/96	1997 to 2000	2001	2002	2003*	2004*	2005*	2006*
Number of Graduates	1866	2666	2528	10379 (cohorts 1 to 5)	1923 (cohort 6)	2706 (cohort 7)	2000 (cohort 8)	4800 (cohorts 9 & 10)	4800 (cohorts 11 & 12)	6800 (cohorts 13 & 14)

Source: Basic Education Statistics till 1995/96, DTED thereafter. \* These are expected numbers.

**Table 2.10: Secondary education teacher graduates, Unima and Domasi**

	1995	1996	1997	1998	1999	2000	2001
Unima B.A. Education	73	91	230	122	92	154	104
Domasi	229	224	225	None	157	161	127

*Source:* Basic Education Statistics for Unima. Document “Domasi—Capacity Building August 14, 2002” for Domasi. Note: Domasi had no graduates in 1998 because of the switch from a 2 year system to a 3 year system. Therefore the number of yearly graduates reduced starting 1999, since the enrollment capacity remained the same. The program was modified because there was “a lack of adequate content knowledge on behalf of the graduates ... therefore lacking confidence.” There was also a switch from enrolling primary school teachers with at least 2 years teaching experience to enrolling MSCE graduates with good grades but no teaching experience.

teacher training system in place, the Secondary School Teacher Education Project (SSTEP) program. It upgrades trained primary teachers who are already teaching at CDSSs.<sup>29</sup>

## Technical and vocational training

The technical and vocational training sector in Malawi has been characterized by limited capacity, a supply driven approach, minimal involvement of the private sector, a narrow focus on the formal sector, fragmentation of providers and training schemes and a diversity of assessment/certification systems. Various public and parastatal institutions—mainly under the control of the Ministry of Labour & Vocational Training, the Ministry of Education, the Ministry of Commerce and the Ministry of Gender, Youth, & Community Services—provide training in conjunction with a number of private providers, for example, religious mission training centers, social institutions and local and international NGOs.<sup>30</sup> In 1999 an independent secretariat called Technical, Entrepreneurial, Vocational Education and Training Authority (TEVETA) was established. The main aim of TEVETA is to link public sector initiatives more closely with the private sector. More details about Technical and Vocational Training programs can be found also in Annex 2.12.

Traditional public technical and vocational training in Malawi consist mainly of two types: an apprenticeship training system; or full-time institutional training. The training programs

only enrolled 1,500 students up to 2000, and between 2000–2003 a total of 1,723 males and 883 females graduated. The typical duration of a formal program is four years.

Private training providers are active in a variety of areas, particularly in commercial but also in technical fields, and the training programs consist of short and long-term, full-time and part-time courses. Trainees pay full fees so courses are primarily attended by the more affluent school leavers or by employees in the formal sector whose fees may be covered in full, or partially, by the employers. The PRSP estimated a training capacity of 18,000 places within the private training providers.

There are other non-formal training institutions; churches and welfare organizations manage many of these and they invariably target school leavers. These institutions are frequently located in rural regions where students have few opportunities to enter further formal training. The traditional apprenticeship training, referred to as ‘master-craft training’, is possibly the most important sub-system in terms of the numbers of trainee places they provide. The courses are completely self-organized through on-the-job training and financing arrangements, and course duration varies from trade to trade and from employer to employer.

## Notes

1. University level education provides certificate, diploma, degree and Master’s level courses of 2 to 7 years duration.



2. At the end of 2003 the latest available school statistics was the draft version of the 2001 Basic Education Statistics. However, due to difficulties with the data collection for secondary and uncertainties with the subsequent estimation of enrollment in secondary, it was decided to use the 2000 enrollment in most cases.

3. For secondary enrollment, the number is the estimated enrollment (as found in Basic Education Statistics 2000) and is again calculated by imputing average enrollment numbers (averages calculated per type of school) for the schools that did not provide statistics—only 77 percent of registered secondary schools provided the required statistics.

4. Source: Economic Report, 2002. This Ministry also provides assistance to community childcare programs and approximately 118,000 children participate in these programs.

5. Noted in both the DHS 2000 and Ed Data 2002 surveys.

6. The significant variance between the age estimates of children in school from the school census and household surveys also make the Net Enrollment Ratio (NER) an unreliable indicator if based solely on the school census. The household surveys indicate an NER of 81 percent in 2002 (Ed Data), up from 78 percent in 2000 (DHS). When comparing this to the GER level found (115% by Ed Data), it indicates that for every 81 pupils age 6–13 in primary, there are 34 pupils who are either younger than age 6 or older than age 13.

7. By using enrollment numbers from the school census and the 1998 population census data, the GER is 132.6 percent and significantly higher than the results from any of the other possible sources. For instance, using household surveys over the last five years (IHS 1998, DHS 2000, EdData 2002) gives a GER between 107 percent and 120 percent.

8. First, the ratio is inflated where repetition is common. Second, due to dropout enrollment levels tend to be higher in the lower grades and therefore the ratio, by averaging enrollment across all grades, over-emphasizes enrollment in the higher grades. Third, the same ratio can describe two very different situations; one of high initial entry and high dropout, and another of lower initial entry and lower dropout.

9. School census data are used for analyses of trends over time, because these are available for a longer period than the household surveys.

10. DHS 2000: Boys 40.2%; Girls 35.9%. Ed Data 2002: Boys 22.1%; Girls 14.2%.

11. DHS 2000 registered an average dropout rate for rural areas of 5 percent versus 2 percent for urban areas while Ed Data 2002 reported 9 percent rural versus 3 percent urban. While dropout in lower primary among girls and boys is approximately the same (3.6% girls, 3.9% boys), the picture is quite different for upper primary (9.2% girls, 6.8% boys)—this suggests that the pressure is much greater on girls to drop out.

12. The PCR is calculated as the number of children successfully completing a cycle expressed as a percentage of the number of children of the corresponding age cohort. For the entire Malawi primary cycle, this is best calculated by the PSLCE passers divided by the population aged 13 years.

13. A school is considered 'long established' if the year of establishment was before "2000 minus number of available grades minus 5"; or if the year of establishment was not given in the dataset (here 291 schools did not have a year of establishment).

14. In reality, a number of primary school teacher training entrants enroll with only the JCE as their highest level of qualification even though official government policy insists the MSCE is a prerequisite.

15. The DEC's originally existed to provide secondary education using distance education

modalities, i.e. with learners' reading materials printed by the MCDE center and with a small number of teachers at these centers guiding learners and occasionally grading their work.

16. The household surveys recorded similar levels; the IHS 1998 finding reported GER at approximately 27% and the NER at 7%, while the Ed Data 2002 found respectively 27% and 9%.

17. For GER calculations the corresponding population is 14–17 (Form 1–2 with age 14–15, Form 3–4 with age 16–17).

18. In 2000 only 77% of the schools responded to the data gathering questionnaire and many publicly funded schools did not provide any data. As such, the actually counted total enrollment was only 164,459. The number used, here, is the one Basic Education Statistics 2000 estimates as the enrollment by imputing enrollment numbers for the missing schools based upon the average enrollment for that type of school.

19. MoEST only includes registered schools.

20. The rationale for establishing PRISAM in 2000 was “to promote and improve private education services in Malawi and safeguard the interests of all those concerned with the provision.” The key objectives are: (i) improve the quality of education service in private schools (e.g. assist in teacher training, conduct inspections, etc.); (ii) act as a coordinating body for the efficient and effective operation of private schools; (iii) control and regulate the establishment and operations of private schools (e.g. facilitate registration of schools with MoEST and the Malawi National Examination Board to ensure minimum standards are adhered to); (iv) assist in acquiring donor and government finance (e.g. ‘soft’ loans for infrastructure improvements); (v) safeguard private schools against counter-productive government legislation and regulations.

21. It is 3.1% in Form 2 and 1.5% in Form 3. However, Form 2 ends with a formal examination to decide who progresses to Form 3.

22. Based on school census enrollment, DHS 2000 repetition, UN-EFA population. Using school census enrollment and repetition, and NSO population, survival is 67%, but that figure disregards the practice of secondary repetition. However, if only DHS 2000 data is used the figure is 54%.

23. Many Malawians anecdotally refer to the JCE as the “Joker Certificate”. This indicates the decreasing value of the qualification and its inability to provide the level of skills the market demands. However, its existence raises an additional question: if conducting this examination is expensive and disruptive to the system as a whole, is there any merit in continuing with it?

24. Teacher:pupil ratio increased from 1:84 in 1991/92 and 1:78 in 1992/93 to 1:108 in 1994/95. Source: Basic Education Statistics, various years.

25. MoEST increasingly prefers the term ‘under trained’ since the majority are trained primary teachers.

26. MIITEP is a 2-year course, which combines college and field based support and allows multiple cohorts of 3,000 to 3,500 per annum use the facilities of the six colleges. Theoretically up to three cohorts could graduate from the program each year but, to date, it has not succeeded in generating this volume for a myriad of reasons.

27. Based on an estimated pass rate of 80 percent.

28. Domasi supplies roughly 150, Chancellor College, 100–150, Mzuzu University 20 (but expected to increase to 100) and the African Bible College 15). The Polytechnic and the Banda Agriculture Faculty at Unima do not specifically train teachers about 20 and 15 graduates respectively join the teaching force each year from these two institutions.



29. It is a distance learning program of three years duration and presently three cohorts of 300 are enrolled. There are also plans to continue with some additional form of distance learning program at Domasi in the future but once the current untrained backlog at CDSSs is eliminated. The stated objective of the SSTEP

program is to enroll approximately 300 MSCE graduates each year to train as secondary teachers.

30. See Promotion of non-formal Technical Entrepreneurial Vocational Education Training components in Malawi by TEVETA (no reference year).

## Education Expenditures and Financing

**T**he preceding chapters raised concerns about the efficiency and effectiveness of the education system. This chapter updates and supplements the data and analyses that have been presented in prior reports on education financing in Malawi. The main ones referred to are: (i) the education chapter of the Public Expenditure Review of the Government of Malawi (MOFEP 2001); and (ii) the Policy and Investment Framework for the Education Sector (MOE 2000). The chapter begins with a brief review of the budgetary system and reporting concepts and then provides an analysis of the trends in budgetary expenditures on education and broad sub-sectoral allocations. This is followed by a detailed analysis of the components of recurrent expenditures, the trends in unit costs and decomposition of the structure of unit costs. The economic composition of developmental expenditures and the volume and composition of external donor financing, both through and outside the budget, are presented next, together with a discussion of the implications of these trends for the sustainability of investments in the sector. Finally, household level expenditures at the primary level are discussed.

Education in Malawi is financed by the government, external donors and households and,

as such, a complete picture of education financing requires data from all three sources. At the moment, data from the three sources is either incomplete or not up to date. Accurate data on budgetary expenditures are available but there is a delay of two or three years. A large part of the financing provided by external donors is off budget and hence not readily available. Details of household education expenditures are available but only for the primary level for the year 2001. Therefore, the analysis of education financing and expenditures has to be pieced together from different sources of variable quality and some issues presented in this chapter might require further investigation.

### The budgetary system in Malawi

The government budget captures public expenditures for the education sector under the recurrent budget and the development budget. The recurrent budget comprises expenditures that are financed by tax revenues, non-tax revenues and grants, while the development budget comprises spending under multilateral loans and government's local contribution. Expenditures under the development budget are most-

ly capital expenditures but some recurrent expenditure are also included in external projects, which may need to be subsumed in the regular recurrent budget after the project period (for instance, salaries of project administrative staff or the cost of textbooks). Therefore, unit recurrent costs based on the recurrent budget may result in an underestimate of the true costs of maintaining the education system.

More importantly, the development budget does not capture grants from bilateral donors. In 2000/01, these off-budget grants accounted for about 70 percent of total development expenditures. A detailed breakdown of these expenditures, by economic categories, is not readily available.

The data on budgetary expenditures must also be interpreted with caution because of the differences between approved, revised budgets and actual expenditures that spans over a 2–3 year period for the same fiscal year. Budgetary instability, associated with high rates of inflation and depreciation of the Malawi Kwacha, together with limited budget management capacity, contribute to substantial discrepancies between these estimates.

Finally, aggregate annual expenditures do not indicate the real difficulties of providing stable financing for effective service delivery and financing of critical inputs during the school year. Budgetary instability in allocations and in actual releases to the Ministry is partly associated with periodic natural shocks (droughts, floods), which reduce agricultural production and hence revenues, while raising demands for expenditure for relief.<sup>1</sup>

External agencies contribute about 90 percent of the resources for the development budget (about 95 percent of total on- and off-budget development expenditure) and about one third of the education budget as a whole. While budgetary instability has been a chronic feature, the suspension of foreign grant money and loans (in 1992 and 2000<sup>2</sup>) have further added to the volatility of expenditures in the sector.

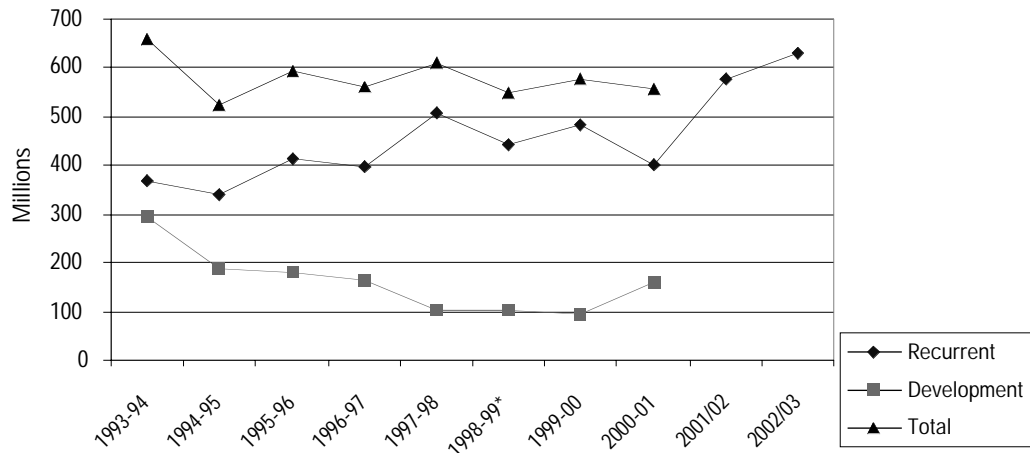
The budget provides public resources to the MOEST, which oversees primary and secondary education, as well as non-university teacher training colleges.<sup>3</sup> The subvented organizations receive funds directly from the Ministry of Finance (MOF).<sup>4</sup>

## Overall budgetary expenditure trends in the education sector

As stated in Chapter 1, real recurrent expenditures in the education sector have risen gradually between 1993/94 and 2001/02, while real annual development expenditures approximately halved over the same period, perhaps due to more off-budget development expenditure. Total real educational expenditures, as shown in Figure 3.1 below, have remained largely at the same level.

However, there have been considerable annual fluctuations in real recurrent expenditures. From 2001/02, recurrent expenditures have increased significantly, and though official figures are not available yet, it is expected that the higher level of recurrent spending on education has been maintained the last couple of years. The share of MOEST in total recurrent education expenditures has been in the range of 72–80 percent. As can be seen from Figure 3.2, the growth in real recurrent expenditures has been mostly attributable to the expenditures of MOEST; those of subvented organizations have shown very modest growth.

The real growth in recurrent expenditures for MOEST has largely been driven by the increase in personal emoluments as a result of the increase in the number of teachers after the introduction of FPE. The increase in real expenditure on non-salary expenditures had been modest up to 1999–2000 (and thereafter only unreliable estimates are available). Expenditures on other inputs required to improve education quality have not kept pace. As shown in Figure 3.4 below, recurrent expenditures by subvented organizations (mainly universities

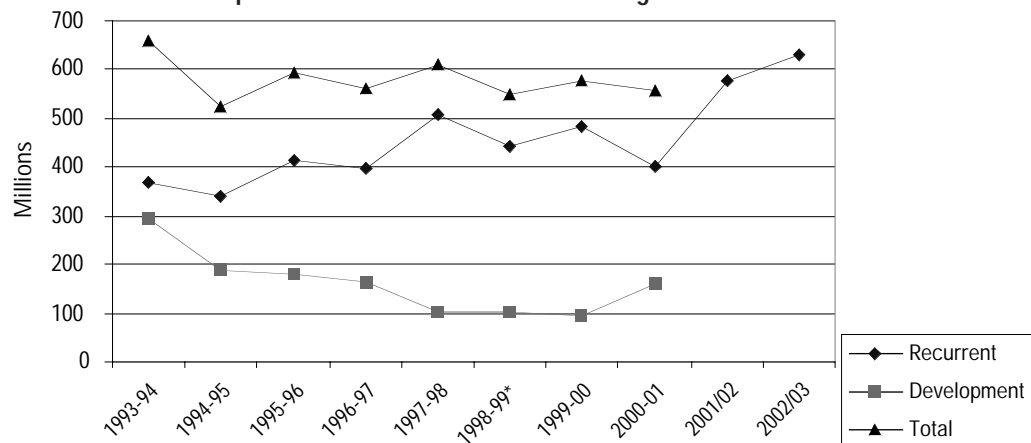
**Figure 3.1: Real recurrent and development expenditures, 1993-2003 (millions of kwacha)**

Source: Authors' calculations, using PER and GOMM budget data.

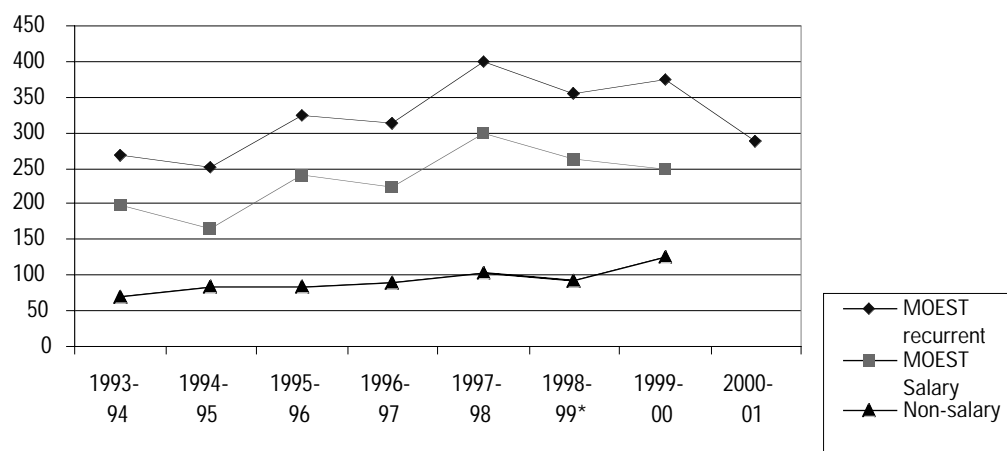
and colleges) have, on average, increased over the past five years, despite a decline during two years. In the preceding period, between 1993/94 and 1996/97, their funding had declined steadily. Not surprisingly, the overall growth over the last decade has been comparatively lower for the subvented institutions (universities) than for basic education sector. As will be discussed in more depth in chapter 7, real expenditures on tertiary institutions have driven this growth. The actual (real)

expenditures on other subvented organizations have remained very low in absolute terms.

Development expenditures of the MOEST, as shown in Figure 3.5 below, comprising the overwhelming share of the development budget for education, have declined sharply between 1993/94 and 1999/2000—mainly as a result of the decline in external funding. Development expenditures for subvented organizations have stagnated at very low levels.

**Figure 3.2: Real recurrent expenditures: MOEST and subvented organizations**

Source: Authors' calculations, using PER and GOPM budget data.

**Figure 3.3: MOEST recurrent expenditures in real terms**

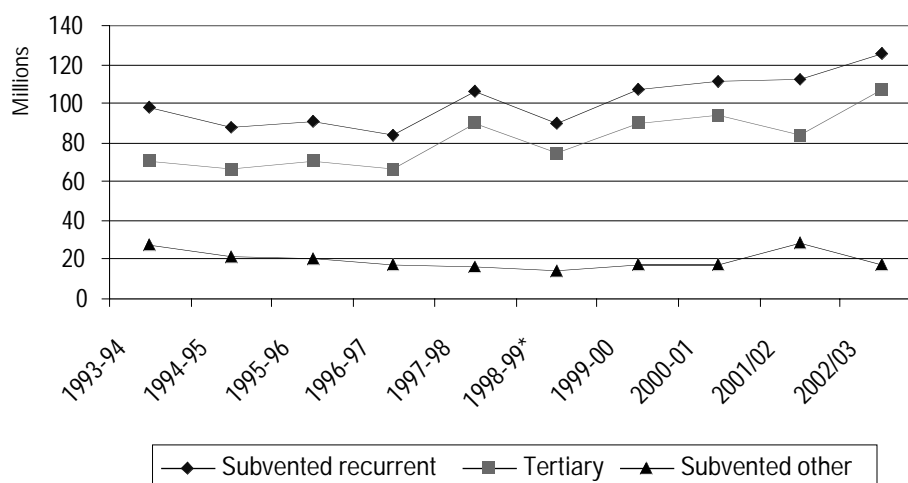
Source: Authors' calculations, using PER and GOPM budget data.

## Sub-sectoral allocations

Allocations for primary education have comprised the largest share of recurrent expenditures on education, and, until the last few years, the overwhelming share of development expenditures (See Annex 3.2). The share allocated to primary education of total recurrent expenditures rose from 50 percent in 1993/94 to approximately 60 percent in 1995/96. Allo-

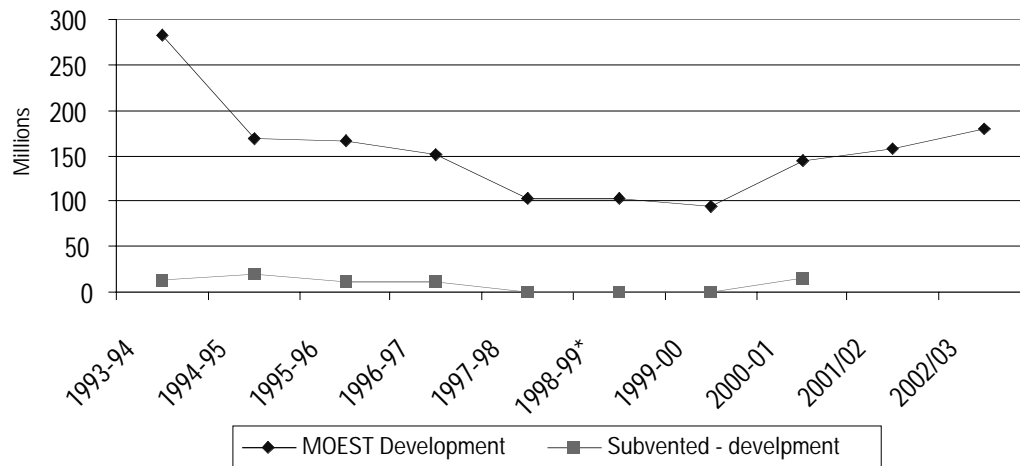
cations to secondary education, which fluctuated around 10 percent between 1993/94 and 1998/99, have increased to about 15 percent.

Three other features of the sub-sectoral allocations of recurrent expenditures need to be highlighted. First, the allocation for tertiary education is substantially higher than that for secondary education, although the latter serves a much larger number of students (about 70 times more students). Second, the overall sub-

**Figure 3.4: Real recurrent expenditures of subvented organizations**

Source: Authors' calculations, using PER and GOPM budget data.

Figure 3.5: Real development expenditures



Source: Authors' calculations, using PER and GOPM budget data.

sectoral share for secondary disguises the very low share for CDSSs compared to the relatively high share for CSSs—as mentioned in the previous chapter. The result is a severe underfunding of general secondary education. Third, the share for teacher education is 3 percent or less, raising the question of whether allocations to teacher education are consistent with the government priority of improving the quality of teachers. This is particularly relevant because it has been claimed that budget shortfalls were the main reason for recruiting only one cohort of teachers to the TTCs each year between 1999 and 2001, when MIITEP was originally intended to facilitate at least two cohorts per year.

The analysis of development expenditure is strongly influenced by the separation of on-budget and off-budget spending since the share of off budget is substantially larger—although it is difficult to obtain complete information on this. However, a review of the on-budget development expenditure by sub-sector indicates that allocations, within the developmental on-budget expenditures, were concentrated up to 1998/99 on primary education. In recent years, however, the level has dramatically shifted towards secondary education. As will be

shown later, changes in on-budget spending are a result of complementarities with the sub-sectoral off-budget spending by external agencies' spending, as well as a result of changing priorities over time (both for the donors and the government).

### Composition of recurrent expenditures

The breakdown, or functional composition of recurrent expenditures, indicates what these expenditures financed. The share of expenditures allocated to personal emoluments is highest in primary by a wide margin, fluctuating between 86–91 percent between 1993/94 and 1999/00. This high share of emoluments has fueled the growth in overall MOEST salary expenditures. In the other sub-sectors, the share of emoluments is surprisingly low; it is generally less than 50 percent of total recurrent expenditures. The share of non-personnel expenditure has been rising in all sub-sectors other than primary.

While overall non-personnel expenditures (ORT) have risen only modestly in real terms, the sub-sectoral trends in these expenditures require further analysis. First, in primary edu-

**Table 3.1: Share of personal emoluments in recurrent expenditures**

	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00
Primary	91%	83%	90%	86%	87%	86%	83%
Secondary	60%	56%	40%	30%	58%	40%	21%
Teacher Ed	39%	33%	31%	28%	23%	41%	38%
Tech & Voc Ed	34%	22%	17%	14%	9%	Not appl	Not appl
Tertiary	42%	44%	35%	32%	25%	28%	29%

*Source:* Authors' calculations, using PER and GOPM budget data.

*Notes:* Secondary Education is very difficult to estimate because of the duality of the CSS system versus the MCDE/CDSS system. The P.E. calculations, here, exclude the expenditure for MCDE (since it was easily separated). However, from the time nearly all of MCDE was transferred into CDSSs in 1997/98 the expenditure on CDSSs has been captured directly within the standard secondary education expenditure and this is the expenditure reflected here. However, to further complicate matters, it may be that salaries for at least some of the teachers at CDSSs – since they are trained primary and not secondary school teachers – are captured under primary expenditure and not under secondary expenditure.

cation the share of ORT seems too low, and within this category, the share of expenditures for teaching and learning (T&L) materials has been 5 percent or less.<sup>5</sup> The scarce non-salary expenditures also cover items such as funeral costs and the travel of civil servants. In some reported cases, the entire ORT has been used to cover funeral costs that arise from HIV/AIDS related deaths. Second, in all the other sub-sectors, the share of ORT is relatively high and constitutes a rising share of total recurrent expenditures. A detailed breakdown of these expenditures shows that, historically, the largest share accrues to either boarding<sup>6</sup> or an ambiguous “others” category. The share for teaching and learning materials ranged between 5–7 percent in most sub-sectors, except in tertiary education where it reached 11 percent. The “others” category includes mainly travel allowances (the government has one of the highest travel budgets as a share of GDP in the world).<sup>7</sup>

## Trends in unit public expenditures

Following the enormous increase in enrollment after 1994, real unit expenditures declined in primary education due to the insufficient number of teachers and the subsequent rise in PTR. With the hiring of many untrained teachers, this situation was rapidly altered and since 1997/98 real recurrent

spending per pupil has more or less returned to pre-FPE levels.<sup>8</sup>

In secondary education as a whole, per pupil expenditure has decreased dramatically. The sub-sector has seen enormous increases in enrollment at CDSSs, but with little additional resources allocated. Spending per pupil has also declined slightly for CSSs as enrollment has increased. Additionally, in recent years there has been a gradual shift from boarding to day schooling, and cost sharing was introduced at the remaining boarding schools. Overall real spending per pupil in 1999/00 was less than half of what it was in 1993/94. For TTCs the drastic fall in real unit cost is at least partially a result of a change in the delivery system from the traditional pre-service system to the MIITEP program.<sup>9</sup> As such, this is an example of improving resource efficiency.

At university level, the real unit cost has increased over the same period. A comparison of the averages for the past three years (98/99–00/01) versus that of the first three years (93/94–95/96) shows per pupil spending has increased more than 20 percent. The overall trend of rising real unit costs at the tertiary level is in marked contrast to the trends in other sub-sectors and will be discussed in more detail later in the study.

The per pupil spending as a multiple of the unit cost of a primary student in Table 3.3, reflects the vast disparities in the level of service provision and funding. For instance, each



**Table 3.2: Per pupil annual recurrent expenditure (in 1993/94 kwacha)**

	93/94	94/95	95/96	96/97	97/98	98/99	99/00	2000/01
Primary	94	58	83	82	108	93	95	61
Secondary	589	356	322	252	266	181	276	n.a.
Teacher Ed	3546	3946	4482	1739	1051	418	n.a.	1205
Tertiary	19056	18457	20049	19471	28364	22488	26572	21355

Sources: PER for data until 1998/99. For 1999/00 primarily from Basic Education Statistics. For 2000/01 from 'Consolidated annual appropriation accounts'.

year students in CSSs receive about 10 times the public aid that primary students do. Including the CDSSs, however, this ratio is closer to 5, indicating the low level of resource provision in CDSSs. The discrepancy in the level of funding of CDSSs and CSSs needs to be addressed if the quality is to improve. These wide differentials in quality represent inequitable use of resources—especially as a higher proportion of the poorer students attend CDSSs.

On a per student basis, secondary and tertiary education are undoubtedly always more expensive than primary. However, the ratios found in Malawi for CSS, and especially for universities, are well beyond any rational basis in terms of quality norms, as can also be seen from comparative data in Annex 3.3. At the tertiary level, a student receives 300 times more resources than those allocated to a primary student (2000/01).<sup>10</sup>

Another measurement is the unit cost, or spending per pupil, as a share of annual per capita income of Malawi, as shown in Table

3.3, below. At the primary level, the annual current public expenditure on each student represents a mere 5 percent of annual per capita income, which would undoubtedly need to be raised if quality is to improve. Average expenditure per secondary student is about 21 percent of per capita income<sup>11</sup> and a university student receives about 10 to 15 times the per capita income.

Annex 3.3 shows the ratios in comparison to other developing countries and indicates that while Anglophone countries have higher ratios than other regions, none approach the disparity in per pupil expenditures apparent in Malawi. In Malawi the absolute level of per pupil expenditures is actually low at all levels except for tertiary (see Annex 3.4). At the primary level the annual recurrent expenditure was only US\$14 in 1999/2000, compared to US\$37<sup>12</sup> in Sub-Saharan African countries. By contrast, the annual expenditure on tertiary education has been largely within the US\$2,500–3,000 per student range and with even higher levels during peak years.

**Table 3.3: Unit costs for a year of education, by level of education, 2000/01**

2000/01	Recur. Expend. (MK '000)	Public enroll	Unit cost in MK	As multiple of GDP/cap	As prop of spending in prim
Primary	1,511,514	3,143,427	481	0.04	1.0
Secondary public	354,954	153,119	2318	0.21	5
Techn/voc	67,521,205	1,504	44,894	3.55	83
Prim. teacher training	56,619	6,000	9,437	0.84	20
Domasi (non-univ sec teach training)	29,174	540	54,026	4.81	112
Univ	625,930	3,743	167,227	14.89	348

Source: Authors' calculations, using 2000/01 actual expenditure data.

## Decomposition of public unit costs in 2000/01

Expenditure per student is a measure of the public resources that, on average, a country devotes annually to each student's education. To understand when an increase or decrease is an improvement in efficiency, it is important to understand the composition, or breakdown, of the unit cost. In particular, the variations in the relative price of the main inputs (e.g. teachers' salaries) and the quantity of inputs devoted to education (teachers and non-teaching staff per pupil or learning materials per pupil) affect the per student expenditures.<sup>13</sup>

In Table 3.4, the factors explaining the significant difference between primary and university unit costs are: (i) the very low pupil-teacher ratio at tertiary level; (ii) a similarly low pupil-other staff ratio; and (iii) a high level of spending on "other recurrent" costs. The differential in average teacher salaries across the sub-sectors is not a significant contributing factor in explaining the differentials in unit costs. The primary student equivalent of tertiary education non-salary expenditures in 2000/01 was 347 times that of non-salary spending in primary education. In contrast, the ratio of average teacher salary to the average university salary was only 4 times. The pupil-teacher ratio at the university level is almost one-tenth of that in the primary sub-sectors. The differential in the ratio of pupils to other staff between the two sub-sectors is enor-

mous. Spending on teaching and learning materials and other expenses per pupil is approximately 50 and 540 times higher, respectively, at the tertiary level than at the primary level.

At the primary level, unit public recurrent costs represented only 4 percent of per capita income. Average teachers' salaries are about 4.5 times per capita GDP, slightly higher than the 3.5–3.8 multiples of per capita GDP in many other Sub-Saharan countries. Most of these other Sub-Saharan countries, however, have higher GDPs per capita, so the current salary level for primary teachers' may well be appropriate for Malawi<sup>14</sup> The low public unit cost results from the very high pupil-teacher ratios—relative to international standards—and from the negligible spending on recurrent items such as teaching and learning materials.

In summary, the differences in teachers' remuneration across sub-sectors do not account for the huge disparities in unit costs. The high differentials are more directly linked to the differences in organization of service delivery and spending on non-salary expenditures. In secondary education, an increase in public spending on CDSSs has to be considered. At the tertiary level, the fixed costs of the system, relative to the limited total student population, need to be addressed. While some restructuring of PTRs to eliminate gross inefficiencies (for example, courses with low demand) is required, the overall issue is to raise the scale of operation. A strategic question for

**Table 3.4: Decomposition of public unit costs, 2000/01**

	Primary	Secondary-conventional	Teacher education	University
Pupil-Teacher ratio	66	23	41	7
Teacher average salary (USD)	872	1522	2511	3843
Pupils per Other staff	1943	65	38	6
Per pupil spending on T&L materials (USD)	1.9	6.0	0.0	93.8
Per pupil spending on Other (USD)	2.7	29.2	682.1	1439.5
Memo: Teachers' salary as a multiple of per capita income	5.95	10.39	17.15	24.71

Source: Authors' calculations using 2000/01 actual expenditures.

Malawi is how to reorient higher education and expand access, thereby reducing unit cost, while keeping total recurrent public cost from rising significantly. As will be shown in Chapter 7, there should be scope for increasing the number of university graduates without oversupplying the job market. A recent tracer study indicated that university graduates quickly find formal employment jobs, thus suggesting that demand still outruns supply.

### Trends in sub-sectoral emoluments

This section examines possible reasons for the decline, or stagnation, of real unit recurrent costs in primary, secondary and teacher training—interestingly, these costs have tended to rise for tertiary education. The focus is on emoluments, or salary expenditures. Non-salary expenditures, or ORT expenditures, are classified under the broad and somewhat ambiguous category of “other”. Present accounting systems and the lack of consistency in data entry make further analysis of this category difficult. However, as ORT expenditures constitute more than 50 percent of total recurrent expenditure at post-primary levels, the earlier analysis of the impact of ORT spending is a better predictor to explain differences between the sectors. Here, too, further analysis of these expenditures would be beneficial and possibly contribute to improved resource utilization.

In recent years, total real emoluments have increased in only the primary sub-sector; in all other sub-sectors real emoluments have remained largely unchanged. To estimate aver-

age emoluments per staff, data on the number of staff are required. In the secondary sector it is difficult to estimate staff numbers due to lack of transparency in the data on staff levels, particularly at the CDSSs. A lot of teachers teaching at CDSSs are primary school teachers who are often still registered, and paid, as if they were teaching in primary schools. Obviously this distorts staff numbers at both primary and secondary levels. There has not been sufficient clarity by the central administration toward the divisions and lower levels on how exactly to handle this consistently.

Table 3.5 indicates that per person staff emoluments in the primary and tertiary sectors declined in real terms during the nineties. In the primary sector, average salary expenses were 20 percent lower in 1999/00 relative to 1993/94. This decline in real average emoluments does not necessarily indicate that the teachers' salary levels have declined; it is due in part to the hiring of a large number of untrained teachers but at lower salary levels. As such, when these teachers receive training and achieve the same salary scales as their trained counterparts, average emoluments per teacher are expected to rise (discussed further in Chapter 8).

In the tertiary sector the decline in average real emoluments per staff has been even more significant: between 1993/94 and 1999/00 it fell by approximately 50 percent. As before, these figures do not imply that the salary level of existing tertiary level teachers have necessarily declined; rather they indicate that there has been an increase in the number of staff at lower salary levels, including both teaching and non-teaching staff.

**Table 3.5: Average emoluments per staff (in 1993/94 kwacha)**

	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00
Primary	5,822	2,986	4,379	4,299	5,628	5,105	4,786
Tertiary	91,477	64,158	50,262	47,951	44,940	40,441	46,345

Source: PER and authors' calculations.

Note: In Primary nearly all staff are teachers, whereas in tertiary this is not the case.

**Table 3.6: Growth of teaching staff and pupil–teacher ratios**

	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00
<b>Teachers</b>							
Primary	27948	45775	49138	47370	46577	45784	47870
Tertiary	321	459	486	440	509	526	560
<b>P–T ratio</b>							
Primary	68	62	59	61	60	63	61
Tertiary	12	8	7	8	6	6	6

Source: PER and authors' calculations

Table 3.6 shows that it is mainly the growth in teacher numbers at both the primary and tertiary level that has contributed to the absolute growth in personnel costs; it is not due to an increase in salary levels. In the case of the primary sector, there was an addition of 20,000 teachers between 1993/94 and 1999/2000, but since enrollment has increased rapidly due to FPE, the PTR declined only from 68 to 61. In the tertiary sector, there was a similar percentage increase in the teaching staff (75 percent) but since enrollments actually declined over the period, the PTR went from 12:1 to 6:1. This trend in the tertiary sector indicates a decline in efficiency.

## Development expenditures

### Composition

On-budget development expenditures consist primarily of investment, or capital, expenditures. Between 1993/94 and 1999/00, construction or civil works has typically absorbed approximately 60 percent of all development spending; furniture another 5 percent; rehabilitation about 4 percent, pedagogical materials accounted for 9 percent (but varied between 1 to 25 percent), training allocations required about 6 percent (but varied between 3 to 11 percent), and 'other' absorbed 19 percent.<sup>15</sup> Overall, the share of development expenditures in the total education budget is approximately 25–30 percent annually.

### Donor financing and extra budgetary grants

Donors play a critical role in the education sector. They contribute in the region of 80–90 percent of funds in the development budget. They also contribute extra-budgetary grants that amount to approximately double of the development budget for 1999/00 and 2000/01 (see Annex 3.5). In total, roughly 95 percent of total sector development expenditures are financed externally while the remaining 5 percent of domestic financing comprises government's counterpart funding. As such, donor projects and programs determine the nature of educational sector development and influence costs, efficiency and future recurrent expenditure requirements.

Since data on extra-budgetary grants are not regularly compiled, or universal in their coverage, it is not possible to say whether total, or sub-sectoral allocations, are in line with policy priorities. However, the partial data available do clearly indicate that sub-sectoral allocations for off-budget grant assistance still strongly favor primary education, in contrast to the high share of secondary in the development budget. Therefore, the estimate is that about 40 percent of total developmental expenditures (including off-budget) go to primary, compared with 35 percent to secondary. This is considerably different to the distribution by sub-sector, as discussed earlier, of total expenditures for education.

Although precise estimates of extra-budgetary donor financing cannot be derived, some indication of the magnitude in specific areas can be gauged from the following data: total annual average donor expenditure (both on- and off-budget) was approximately US\$37 million at the end of the nineties. Projected expenditures by the main donors during the period 2001–2007 are given in Annex 3.6.

Government is reliant on a wide range of donors and organizations, and this makes sector planning, increased efficiency and equitable allocation of resources difficult. First, donor financing of education has been, and remains, volatile. Second, external financing is the primary determinant of the level and composition of non-salary operating expenditures (such as textbooks and teaching-learning materials) and these would normally be financed under the public recurrent budget. The volatility and unpredictability of these funds not only affects planning but also impinges on measures to improve quality. Third, since much of the external financing is off-budget, the recurrent cost implications of these projects are not explicitly taken into account during the design phase and this, in turn, affects the sustainability of project interventions if, and when, external assistance ceases. Fourth, although donor coordination is amicable it remains minimal and there is a need for greater coordination and coherence to ensure that overall sub-sectoral goals will be achieved in a cost-effective manner. Two examples of the problems arising from extra-budgetary funding and uncoordinated donor financing are highlighted in Annex 3.7.

## Household financing

Despite low household incomes, Malawian households continue to bear a considerable share of both the recurrent and capital costs of primary education. At the higher levels of education, household contributions are likely to be greater in absolute terms but lower in relative

terms. This is because access to the upper levels of education is highly inequitable and largely benefits the higher income quintiles. In the following section the characteristics of household spending at the primary level are explored.

As much as 83% of parents of primary pupils in public school paid for one or more types of school supplies during the year 2001. The majority of families reported paying for textbooks and uniforms and approximately half reported contributing to the school development fund, which finances maintenance. Surprisingly, the average household expenditure for public primary school was almost as high (80%) as the per pupil public expenditure. As Table 3.7 shows, the household expenditures for primary education are also regressive with the lowest quintile paying more in absolute terms than the richer income groups (with the exception of the wealthiest quintile); hence they were paying disproportionately more as a percentage of their total household expenditures. Equally striking is the rapid rise in annual expenses within each standard: relative to Standard 1, students in Standard 3 incur 50 percent more expenses, students in Standard 4 spend 2.4 times more and Standard 6 pupils spend 4.7 times more than Standard 1 pupils.<sup>16</sup>

This high level of household expenditure for primary school is a possible explanatory factor of student dropout in primary. A comparison of household and public expenditures in Standard 1 is particularly instructive. The extraordinarily high PTR of about 100 to 1 effectively means that per pupil public expenditure is about 40–50 percent below the average for the primary cycle. At this grade level, household expenditures actually exceed public expenditures. This finding is inconsistent with the principle of pro-poor spending which ideally should ensure that the largest subsidies benefit the poorest groups.

A comparison of household monetary contributions for primary schools shows that both



**Table 3.7: Annual household expenditures on primary education, 2001**

Mean annual per pupil hh expenditure	Kwacha	US\$	As % of per pupil public exp
Public schools	761	10.1	80
Private schools	3600	48.0	
Mean annual per pupil hh expenditure—public schools			
Lowest quintile	721	9.6	76
Second	589	7.9	62
Middle	445	5.9	47
Fourth	698	9.3	74
Highest	1259		133
Rural	648		68
Urban	1636		172
Mean annual per pupil expenditure—public plus private schools			As% of std 1 exp.
Standard 1	559	7.5	1
Standard 2	659	8.8	1.2
Standard 3	829	11.1	1.5
Standard 4	1359	18.1	2.4
Standard 5	1488	19.8	2.7
Standard 6	2652	35.4	4.7
Average for all grades	913	12.2	

Source: Ed Data of 2002.

Note: Exchange Rate 72.1 Kwacha to 1 USD.

the poorer and the rural Malawian household contribute a larger share of their incomes than in some of the neighboring countries (Annex 3.8). For example, in Malawi, the poorest quintile of households contributes 5–6 percent of its income for education and the richest quintile contributes only 1 percent whereas in countries like Uganda, Zambia and Kenya the poorest only contribute half the above amount.

These direct monetary contributions should be added to the indirect, or non-monetary/in-kind contributions (such as materials and labor) made by the poorer households—especially in the rural areas. Within the last year, 72 percent of rural households, in comparison to 25 percent of urban households, contributed labor to primary schools. In addition, 20 percent of rural households also contributed materials relative to only 6 percent in urban areas. Again, the poorest sector carried the largest burden with 77 percent of the poorer households contributing labor versus 40 percent for the highest quintile.

The current high levels of poverty, the susceptibility of agricultural and rural incomes to climatic shocks and poor terms of trade, and the relatively high dependence on household financing all result in greater instability. This particularly impacts the financing of critical teaching and learning materials, school repairs and construction costs. Instability in the financing of the education system impacts negatively on quality and on children's progress through the system. It also compounds the later problem of inefficiency in public resource use through high repetition and excessive dropout rates.

## Notes

1. A particular issue at present (2003) is the cash budget system, introduced in 1996 as a short-term stabilization measure to restore fiscal balance. This has resulted in unplanned and exogenous cuts in discretionary spending. Monthly expenditure allocations to line min-

istries depend on actual cash revenues and foreign loan inflows during the month—after taking into account non-discretionary expenditure on interest payments. Because of delays in the release of funds by external agencies (as have been the case over the past years in the absence of an IMF program) there are often cash management problems and delays in releases to implementing Ministries.

2. After about a two-year delay a new IMF PRGF program was approved in October 2003.

3. The principal subvented organizations are the tertiary institutions, notably University of Malawi and Mzuzu University. Other subvented organizations comprise the Malawi National Examination Board (MANEB), Malawi Institute of Education (MIE), Malawi National Library Services (MNLS) and Malawi National Commission for UNESCO

4. The normal budgetary process is that the Ministry of Education, Science and Technology and educational subvented organizations present forward estimates to the Ministry of Finance (MoF), which then approves the budget based on estimates of the total resource envelope. Revised estimates of expenditure are presented at the end of the fiscal year, but actual expenditures are only available a couple of years later, after it has been reviewed by the auditor general. Hence, data for the most recent years are usually approved or revised estimates, which may be above or below the actual expenditures. While revised estimates tend to be higher than the approved amounts, actual expenditures usually lie (but not always) in-between the forward estimate and the revised estimate.

5. It is important also to mention that after 1998/99 with the new cost center based accounting structure it has become almost impossible to calculate breakdowns to more detail than simply P.E. versus ORT for all of the education levels. This is partially due to the fact that the more elaborate budgeting tools are not always used consistently among the dif-

ferent divisions (cost centers). The last clear ORT breakdown in T&L and other categories therefore also dates from 1998/99.

6. It is stated GOM policy to increase cost sharing with students on items such as boarding and feeding at secondary level and particularly at university level. In practice, no drastic changes have occurred at the university level, mostly because it is the Education Act that foresees boarding provision at tertiary level, thereby contributing to the very high public unit cost at this level and at the same time prohibiting real chances to significantly increase enrollment. At secondary level, however, boarding expenditure should have diminished drastically in the last year or so, as one of the HIPC triggers is to shift the burden of boarding to the households and free up much needed resources, for the CDSSs, for example. The actual expenditure for the most recent year should therefore begin to reflect this change.

7. The question is whether such a high expenditure is justified. One possible explanation is that these expenditures are partly a means to supplement staff emoluments. However, without a more detailed breakdown of this category; one that would require piecing together this type of expenditure from the bottom up (since it is not immediately available in MOEST statistics, it is not possible to explain the increases in expenditure. The current accounting system should theoretically allow detailed analysis, but the low level of consistency in the use of the different categories by inadequately trained staff at the divisions and headquarters, have rather achieved the opposite in making even basic analysis more difficult. Therefore this kind of exercise is also beyond the scope of the present study.

8. While average PTRs were maintained, despite increased enrollment, this hides the fact that PTRs are very different between urban and rural areas and between lower and higher grades. Also hidden is the fact that the rapid expansion of the primary enrollment resulted in the employment of many unqualified teach-



ers, so that the PqTR increased dramatically. These issues are addressed in more detail elsewhere in the study.

9. Although it is clear that the unit cost for teacher training has been significantly reduced, the exact extent is difficult to establish because in recent years the MIITEP program (with theoretically 2 cohorts per year graduating whereas in the pre-service system half of one cohort would graduate per year) has not been running up to its maximum capacity. As such, there are quite wide fluctuations in number of graduates and in the ensuing unit cost by year.

10. This disparity may be explained by substantial inefficiencies at the tertiary level.

11. These ratios would need further adjustment because the expenditure figures exclude administration at the division level. Administration disproportionately benefits the conventional secondary schools.

12. Bruns et al. 2002. This study finds that the non-weighted average of non-teacher salary recurrent spending in 33 African countries is US\$9 and represents 24.1% of the total recurrent spending. Thus the average total recurrent spending would be  $9 \times 100 / 24.1$ , or US\$37.4

13. In analyzing the breakdown of unit cost in general the following key components were considered: (i) average teacher salary, (ii) pupil-teacher ratio, (iii) average other staff salary, (iv) pupil-other staff ratio, (v) per pupil spending on teaching-learning materials, (vi) per pupil spending on other operating expenses (including for example pedagogical support and travel); and (vii) per pupil spending on social welfare and boarding. In Malawi, however, the data for the last two components are not disaggregated and so the last two items covering travel, grants and boarding will constitute “other recurrent expenditures”.

14. Bruns et al. 2002.

15. Clearly, some expenditures in the development budget could be classified as recurrent expenditures, but they are included in the former because they are financed by donors and form part of the public investment plan—these include project staff salary expenditures, textbooks and rehabilitation of schools.

16. However, since these data include some private school children, they should be interpreted with caution.

## Internal Efficiency and Management Effectiveness in Resource Utilization

**T**his chapter further explores efficiency and management issues in the delivery of education. In a country like Malawi, where resources are scarce, it is a priority to ensure that available resources are used optimally if the desired objectives are to be achieved. As such, the chapter examines the relationship between inputs into the education system and student outcomes as measured by the level of grade attainment. It will also identify resource wastage resulting from the high repetition and pupil dropout rates and inequities in the allocation of teachers.

The efficiency analysis will reflect different perspectives and include analysis at the national, division, district and school levels. The discussion will examine how effectively inputs are translated into pupils who complete the course cycle, or pass the final exam, and examine if the same amount of inputs could produce additional graduates. The issue of learning outcomes will be explored in Chapter 5.

### Efficiency in student flow in primary and secondary education

#### Index of efficiency and schooling years to produce a graduate

The sudden expansion in the system in 1994 allowed most children to gain access to education. This expansion, however, was not matched with the additional trained teachers or the essential teaching and learning materials needed to assure quality. As a result, the lower standards are characterized by large class sizes taught by mostly untrained teachers teaching in bleak environments, often under a tree.<sup>1</sup> This has contributed to high repetition and dropout rates and has resulted in the wastage of a significant share of the resources allocated to the education sector.

The magnitude of the waste and inefficiency is reflected in Table 4.1. It shows that with the current level of repetition and dropout in the system, the government pays for 20 school

years in order to get one child to graduate from primary instead of the normal 8 school years. This is also reflected in the so-called 'index of efficiency', which for Malawi is 39.7 percent. This figure indicates that 60.3 percent of the public resources are used either on children who drop out before finishing primary,<sup>2</sup> or on repetition years (both of those who eventually finish and those who do not<sup>3</sup> and are also lost to the system). In comparison, similar data for Mozambique<sup>4</sup> indicate that 30 percent are used either on children who dropout or on repetition years, which is only half the level of Malawi. Paradoxically, this wastage may be due to insufficient spending on primary education (e.g. qualified teacher, appropriate PTR, sufficient T&L materials, adequate infrastructure, etc.), as reflected by the low unit cost for primary school in Malawi. Put another way, quality education probably requires a certain unit cost per child per year.

The table also shows that if the current level of repetition is maintained, and assuming no

student drops out, the index of efficiency would be as high as 81%; thus wastage less than 20%. In the same way, assuming no student needs to repeat and the current dropout rates are maintained, then half (50 percent) of the resources would be wasted. Clearly, high dropout rates have the greatest adverse affect on the efficiency of the system and, as such, any planned policy interventions would mainly need to target a reduction in dropout rates. However, since repetition and dropout are positively correlated, reductions in repetition will have a positive effect on dropout rates (see Annex 4.1 for a more detailed discussion).

Internal efficiency in secondary is significantly better than in primary but, nevertheless, inefficiencies still exist. At the secondary level, a little less than one-quarter of public resources are wasted due to repetition and dropout: it requires 5.2 school years instead of 4 to produce a graduate. Also, inefficiencies resulting from repetition alone are low, consuming about 5 percent of the public resources. Inefficiencies are substantially higher as a result of dropout only and consume close to one fifth of the available public resources.<sup>7</sup> This positive picture probably results from the rigorous selection process. However, as will be made clear, there are significant differences between the various types of secondary schools.

At first glance, repetition may appear to not make a difference from government's perspective since the cost of one teacher is the same, whether s(he) teaches ten or a hundred pupils. However, if a genuine effort is made to deploy teachers to roughly achieve the prescribed 60:1 PTR, then the total number of teachers required (and thus their cost) is much higher if there are more repeaters. Alternatively, if teachers are not deployed based upon numbers of children in a class due to repetition, then repetition obviously will have an impact on pedagogical practices and student learning due to overcrowding. This creates a vicious circle: students repeat partially as a result of very high PTRs, and the PTRs remain high because of the repetition. To lower

**Table 4.1: Index of efficiency in the different cycles of study, 1999/00**

	Primary	Secondary
	Total	Total
<b>Index of overall efficiency<sup>5</sup></b>		
Percent	39.7	76.8
Numbers of years necessary to have 1 graduate from primary	20.1	5.2
<b>Index of efficiency if the system would not have dropouts, i.e. the only source of inefficiency are repeaters</b>		
Percent	80	95
Numbers of years necessary to complete	10.0	4.2
<b>Index of efficiency without repeaters, i.e. the only source of inefficiency are Dropouts</b>		
Percent	50	81
Numbers of years necessary to complete	16.0 <sup>6</sup>	4.9

*Source:* School Survey Data in Basic Education Stats 1999 and 2000, and repetition rates from DHS2000 final report for primary and from DHS2000 dataset with authors' calculations for secondary.

the PTRs to the recommended PIF levels, and without reducing the repetition rate, more teachers would be required than without any, or with limited, repetition. For instance, if it is assumed that in primary there is a total enrollment of 3 million pupils and a repetition rate of 25 percent and MK 1000 (about US\$10) is spent on a child annually then total spending of MK750 million extra is required to achieve the same PTR as in a scenario without repetition. In other words, a reduction of one percentage point in the repetition rate will generate savings equivalent MK30 million (about US\$300,000) per year.

## Teacher deployment

The quality of an education system is generally associated with the supply of teachers in the schools, particularly qualified teachers. Since teachers' salaries in primary school constitute the lion's share of expenses—both as a share of unit cost and total public expenditures—teacher deployment is closely associated with unit cost per pupil or school, and therefore with the equitable distribution of funding. It is important, therefore, to explore how teachers are allocated at the division, district and school level.

The distribution of teachers is generally based on the targeted PTR, one that is deemed

effective for teaching and learning. A further important aspect is the qualifications and experience of teachers: unequal deployment, or the deployment of untrained and inexperienced teachers, can lead to poor student outcomes, which in turn contribute to both higher dropout and repetition rates and to lower survival rates.

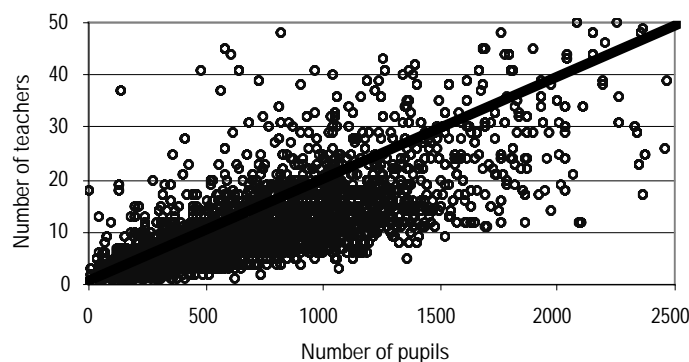
An important aspect of teacher distribution is associated with the formulation of clear criteria for providing schools of similar enrollment size with a comparable number of teachers.<sup>8</sup> The task, therefore, is to document to what extent current teacher allocations in Malawi are consistent with this principle.<sup>9</sup>

As such, the following analysis examines the extent that this principle holds true by formally estimating the average relationship between the number of teachers and the number of pupils at the school level by using a regression analysis. The result indicates the degree that schools deviate from the average relationship.<sup>10</sup> This technique is applied for the country as a whole, but separate data on the different divisions/districts and urban/rural areas are provided.

## Primary school level

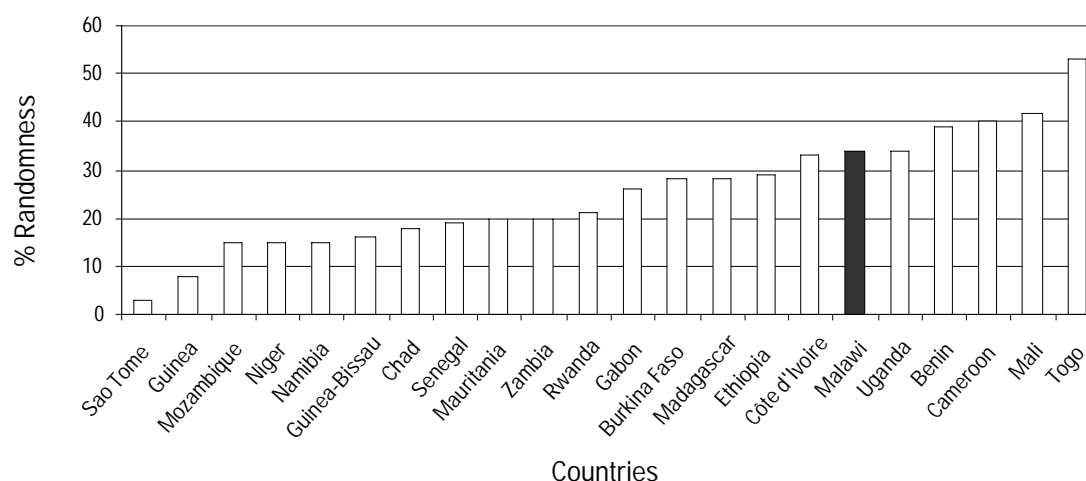
Figure 4.1 visualizes the regression results for all public primary schools in Malawi. It clear-

Figure 4.1: Teachers allocation in publicly funded primary schools



Source: Authors' calculations, using EMIS 2000<sup>11</sup>

**Figure 4.2: Comparison of degree of randomness in teachers allocation to individual primary schools for selected Sub-Saharan African countries**



Source: Mingat, 2003.

ly indicates that not all schools are on the straight line (each dot represents a school); rather there is a significant spread that corresponds to an R-square value of 66 percent, or to 34 percent 'randomness'—this means that this part of the variation in teacher deployment is not explained simply by difference in the number of pupils in the schools but by other factors.<sup>12</sup> For instance, schools with 1000 pupils can have anywhere between 5 and 40 teachers and, similarly, schools with 40 teachers have enrollments varying between 500 and 3800. There are a number of schools that are extremely far removed from the norm, where immediate action is most urgent.<sup>13</sup>

Figure 4.2 puts this 34 percent 'randomness' in perspective by comparing Malawi to a number of African countries based on this indicator. The average for the sample of countries is 25 percent; as such, Malawi is clearly among the countries with a more arbitrary teacher deployment system. This indicator also indicates that there are significant opportunities for immediate improvements.

To further identify where management problems might exist, it is possible to assess the extent to which the degree of randomness is a

result of variance, either between the divisions (i.e. some divisions over endowed in comparison to others), or somewhere at a lower level in the system. For this, a set of dummy variables for the different divisions in the regression model is used. By doing this, differences between the new 'randomness in teacher deployment' (33.6 percent=100–66.4) and the one noted earlier (34.1 percent), provides an indication of the variability that is explained by differences in allocations to different divisions (see Table 4.2). Since this difference is quite small, it is possible to state that teacher deployment between divisions is equitable since none appears strongly favored, or disfavored. This suggests that allocation of teachers by the Ministry Headquarters to divisions is fairly equitable, but that allocations within division and districts may not be. Table 4.2 also shows the average school size and the average number of teachers in each division. The national average school size is 671 pupils, with slightly less than 11 teachers.<sup>14</sup>

To further analyze the degree of inconsistency in allocating teachers within the divisions, a regression was run for various subsets of schools across each of the six divisions. In

**Table 4.2: The relationship between the number of teachers and pupils in public or subvented primary schools, 1999/00**

Divisions	Pupils Total / Avg. per school	Teachers Total / Avg. per school	Coefficient
Number of pupils	–	–	0.016
Central West	760,015 / 761	12134 / 12	Reference
Central East	509,080 / 594	7958 / 9.5	(–0.2)
Northern	469,864 / 458	8146 / 8	0.6
South Eastern	389,243 / 777	5435 / 11	–1.5
Shire Highlands	418,741 / 882	5960 / 12.8	–1.6
South Western	388,745 / 739	6476 / 12.3	(0.3)
Intercept	–	–	0.2
R <sup>2</sup> (%)	–	–	66.4

Source: Authors' calculations, using EMIS 2000.<sup>15</sup>

Regression values between brackets are not significant at the 5% level.

Table 4.3, below, the column 'Degree of randomness' indicates the variability established by the regression for each of the division subsets. The degree of inconsistency differs substantially from one division to another.

It is also possible to simulate what would be the average number of teachers in schools of a given size in each of the divisions. In Table 4.3, column one provides the results of these simulations for schools of 671 pupils, which is the average size of the primary schools in Malawi. The average number of teachers in an average size school ranges from 9.4 teachers (South Eastern division) to 11.9 teachers (Northern division).

The difference between both sets of randomness values in Table 4.3, above, provides an indication of the consistency of teacher deployment in each division across their

respective districts. In those divisions that lack a main urban area (Central East and Shire Highlands) it is clear that no district appears to be strongly favored, or disadvantaged. However, divisions with a clear urban center present a radically different picture. The current teacher human resource management system significantly favors urban areas in districts where the division has a major urban center.

Further analysis for the subset of schools in each district provides additional information on teacher deployment to individual schools within individual districts. The results of this analysis (see Annex 4.2) point to a wide variation in teacher deployment among the districts, and indicate a need to evaluate teacher deployment at the district level.

Large differences in PTRs exist between urban and rural districts (see Annex 4.2). The

**Table 4.3: Regression results with and without using district dummy variables within each of the division subsets**

Division	Number of teachers in average school (671 pupils)	Degree of randomness	Degree of randomness with dummy variables for districts	Percent difference between degree of randomness
Central East	10.6	49.4	49.2	0.4%
Central West (with Lilongwe)	10.9	39.5	29.7	24.8%
Northern (with Mzuzu)	11.9	30.7	24.8	19.2%
South East (with Zomba)	9.4	36.1	30.7	15.0%
South West (with Blantyre)	11.1	17.3	13.8	20.2%
Shire Highlands	9.8	41.6	40.2	3.4%

Source: Authors' calculations using EMIS 2000 data.



**Table 4.4: Efficiency ratios by rural and urban districts, 1999**

Efficiency Ratio	Urban	Rural	Total
Pupils per teacher	45	66	63
Pupils per qualified teacher	66	129	118
Pupils per stream	86	70	72
Pupils per stream (std 1–2)	100	93	n.a.
Pupils per stream (std 3–7)	82	60	n.a.
Pupils per stream (std 8)	74	44	n.a.
Pupils per school	1,865	606	646
Pupils per classroom	144	92	96
Teachers per stream	1.94	1.06	1.13
Teachers per school	42	9	10
Teachers per classroom	3.24	1.40	1.51

Source: PER (MOFEP 2001)

average PTR in 2000 was 1:63, a figure close to the PIF objective of 1:60. However, in all urban centers, the PTR falls below this target. On the other hand, the ratios in rural districts, such as Mangochi (82:1), Phalombe, Chikwawa, Machinga (75:1), Lilongwe Rural-East, Dedza (72:1) and Ntcheu, Thyolo, Mulanje (71:1) are far removed from the policy target.

A review of the deployment of qualified teachers clarifies the situation even more. The average pupil-to-qualified teacher ratio (PqTR) is enormously high at 123:1. The geographic discrepancies are clear: urban areas maintain a 60:1 ratio of qualified teachers, but rural areas are severely deprived of sufficient qualified teachers (PqTR is close to 200:1 for Lilongwe Rural East, Mangochi, and Phalombe). If expressed as a percentage of qualified teachers (of the total teaching staff) urban areas have a relatively high proportion of qualified teachers: it is 70 percent in Mzuzu; 87 percent in Zomba; 70 percent in Blantyre, and 58 percent in Lilongwe. The percent of qualified teachers

varies in the rural districts, ranging from 39 percent to 53 percent. In addition, the proportion of female teachers in urban centers (73–87 percent) is much higher than in rural areas (19–48 percent).

Table 4.4 illustrates that schools in urban districts are appreciably larger (about 3 times) than in rural districts. The urban institutions also have larger class size than their rural counterparts, even though they have much lower PTRs. This results from the dubious practice of urban schools employing almost two teachers for each stream of pupils—this practice is inappropriately referred to as ‘team teaching’. In effect, it invariably results in one teacher being present with all the entire group of children while his/her colleague is involved in some other activity, or is absent altogether.<sup>16</sup> So although urban areas have a liberal supply of teachers and are well below the target PTR, these deployment practices result in classes being even larger, on average, than in rural areas.

There are also notable differences in the PTRs by grade,<sup>17</sup> ranging from extremely high levels in the lowest grades to quite low levels in the highest grades (Table 4.5). One possible explanation for this may be that following the introduction of FPE, the redeployment of teachers from the higher standards to the lower standards has been limited, even though it is in these lower grades that the new influx of children has occurred. The higher grades have lower PTRs because a high percentage of the children drop out before reaching the higher grades. Another contributing factor is the continuing use of ‘specialized’ teachers for the higher standards; they frequently teach only certain subjects and consequently these individuals having abundant ‘free time’.

**Table 4.5: Pupil teacher ratios, standard 1 — 8, 2000**

Std 1	Std 2	Std 3	Std 4	Std 5	Std 6	Std 7	Std 8
100	76	64	52	45	39	33	28

Source: EMIS 2000



## Deployment process in primary

The current deployment process (discussed in depth in Annex 4.3) is clearly flawed. A more equitable distribution of teachers requires immediate consideration but this will necessarily take time because of the difficulties associated with redeploying teachers who are in — for them — comfortable positions, but which are not equitable nor efficient for the education system as a whole. However, *the large numbers of teachers that need to be recruited into the system over the next few years provides a window of opportunity to bring about some of the required changes.*

A more effective budget mechanism can deter unplanned teacher movement. However, to encourage teachers to move to areas where shortages are endemic, such a budget system needs to be complemented by incentives, and by insurances for teachers to not be ‘stuck’ their whole careers in undesirable locations.

Possible incentives might include a combination of the following: more speedy promotion opportunities for teachers working in less desired areas; higher rates of leave accumulation; larger and more regular annual increments; hardship allowances that reflect the difficulties of the place of employment; free housing and utilities; higher transport allowances to facilitate more frequent travel to centers; etc. At the same time extreme caution is required to establish mechanisms whereby the additional benefits are only given to the teacher as long as (s)he serves in a hardship area. In other words, a hardship bonus should not follow the teacher once (s)he relocates to a non-hardship posting. Another option would be to require new graduates to serve a number of years in a rural area, as some sort of reimbursement for the training received.

The myriad of inconsistencies in teacher deployment practices in many Malawian schools make it clear that the establishment of an equitable policy on teacher utilization will not, in itself, provide a magical panacea to

remediate the present anomalies. However, the recently established decentralization policy provides a great opportunity to improve the situation, by giving districts greater freedom to hire and pay teachers, and by supplying them with financial resources based upon a neutral formula using the number of pupils with some adjustment criteria for poverty level or population density. As a result, rural districts should be able to advertise open posts as soon as a teacher leaves.

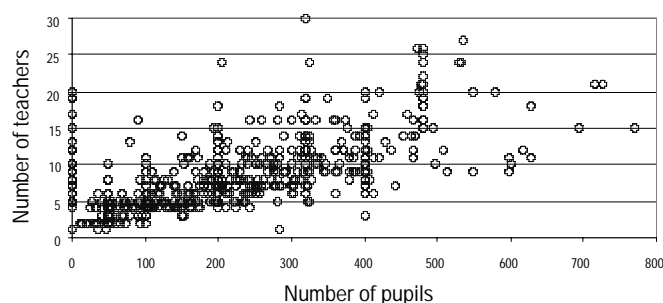
## Secondary schools

Figure 4.3 shows the distribution of teachers in public secondary schools<sup>18</sup>. In these schools, average size is 233 pupils while the average number of teachers is 8.9. The teacher deployment is even more unequal than in primary, as the R-square in the regression analysis explaining the number of teachers in a school by the number of students is only 41%, leaving as much as 59% of the variation unexplained. There are also some secondary schools with extreme differences to the norm, which may need immediate action to adjust the number of teachers.

When examining the PTRs and PqTRs at the secondary level, it is clear there are strong differences between rural and urban areas. For example, in 1999<sup>19</sup> the PTR and PqTR in urban areas were respectively 28:1 and 59:1 whereas these indicators for rural areas were 36:1 and 131:1.

In the publicly funded secondary school category, three main types of schools are found. The CDSSs are acknowledged to be performing under difficult circumstances, relative to CSSs and grant aided schools. For an average size secondary school (approximately 233), a CDSS has roughly 4 teachers less, while grant aided schools have about 1.8 teachers more than government day and boarding schools.<sup>21</sup>

Teachers' qualifications are equally important in determining pupil performance. The vast majority of CDSSs are staffed with trained

**Figure 4.3: Teacher allocation in all CSS, CDSS, and grant-aided secondary schools**

Source: Authors' calculations using EMIS 2000.<sup>20</sup>

primary teachers who are generally lacking in knowledge of subject content, but they are also often uncomfortable teaching at secondary level. Figure 4.4 clearly illustrates the radical difference between the various types of secondary schools.

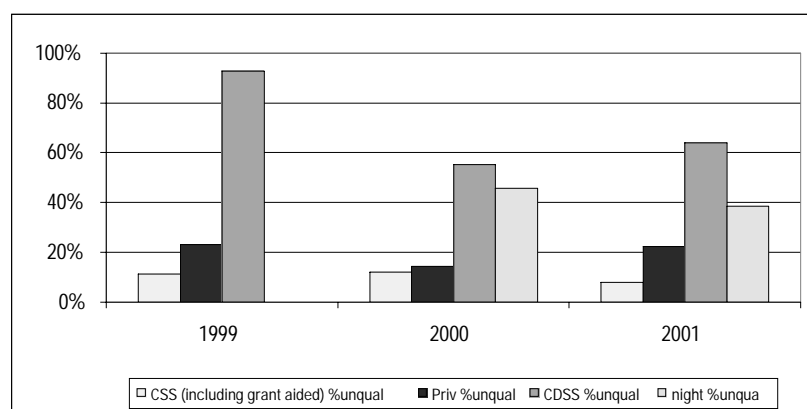
### Notes

1. In general, the higher standards in Malawi are allocated classrooms when demand does not match supply.

2. Pupils may of course have received some benefit from their time at school. However, the

assumption here is that the goal is to produce children with at least primary education completion. Another more valid argument might be that completing 8 grades is more than is required to achieve full literacy—and it can be seen a self-standing achievement of the education system. However, typically 5–6 years of quality education are perceived necessary to reach this level and more than half of the dropouts do not achieve either.

3. Note: because repetition rates are used in standard 8, the effect of having to pass the primary leaving exam to graduate from primary is taken into consideration.

**Figure 4.4: Percentage of qualified teachers in different types of secondary schools**

Source: Basic Education Statistics, 1999-2001

4. Mozambique: Cost and Financing of Education, World Bank, July 2003.

5. Calculated with the Quasi-time-series estimate for the survival rate, using years 1998/99 and 1999/00.

6. This means that even if there was no repetition, on average 16 years of schooling are required to produce 1 primary school graduate because for each child that completes primary, there are 2 who completed 4 grades only and then dropped out.

7. This includes those pupils who sit through the 4 forms, but who never pass the MSCE exam. Even though they finished the same number of grades as MSCE passers, their employment opportunities and especially expected salary levels are substantially lower (Kadzamira E.C. 2003).

8. An exception to this rule might be in the case of very small schools in remote areas where the student catchment area does not have enough children to achieve the PTR policy aim—even when incorporating multigrade teaching.

9. For example, an average PTR of 60:1—as prescribed in PIF for primary schools—can be achieved in an equitable manner and with the same PTR nearly everywhere throughout the system. However, it may also result from very different PTRs, with some far above and others far below the average.

10. Schools for which the number of teachers exceed the expected value based on the size of their enrollment are over-endowed, and vice-versa

11. Subset of 4384 schools with valid combinations of teachers and pupils, and not being private schools, are used out of a total of 4647 schools in EMIS 2000.

12. It is appropriate to use the [100%—R square], to obtain an aggregate quantitative indicator of the degree of inconsistency or randomness in teacher deployment. If the value of R square is 0, it implies the absence of any statistical relationship between the two variables (i.e. complete inconsistency in teachers' allocation).

If instead, R square is 100%, it indicates that there is a perfect consistency and that the number of teachers in any school is exactly what would be anticipated on the basis of the number of students enrolled. This can be presented by a straight line graph, as shown in figure 4.1. In the case of primary schools in Malawi, a school of 500 pupils would always have 8 teachers and a school with 1000 pupils would always have 16 teachers.

13. Some examples of these are: (i) 20 schools have a PTR of less than 40, with some less than 10, while on the other end of the spectrum, there are 10 schools with a PTR of more than 80—it actually goes as high as a PTR of 200; (ii) 15 very large schools having more than 4,000 pupils, up to a maximum of 8,600 pupils; (iii) schools with more than 100 teachers, combined with a low PTR of 25 or 37; etc. However, these schools do not represent the average teacher deployment situation in the country and so, to clarify the situation, schools with more than 60 teachers and/or more than 2,500 pupils are not included in Figure 4.1.

14. The fact that the Northern region has on average fewer teachers per school than Shire Highlands, does not automatically mean they are under endowed with teachers since they also have the smallest average schools. These average school sizes and average numbers of teachers in each school, of themselves, do not give an indication on the equity of teacher deployment!

15. Based on 4383 out of a total of 4647 listed schools with valid data.

16. The practice is also frequently accompanied by subject specialization.

17. If teachers are registered as teaching in more than 1 grade, then they are added to the group of teachers for each category.

18. It is important to note that in secondary schools a significant number of students attend private schools—official statistics indicate approximately 10%. However, there are also a number of non-registered private schools for

which no statistics are available so, here, the percentage might be higher. However, since the government has no direct influence on teacher deployment practices, these are not included in this analysis. The grant-aided schools, however, are included because their teachers are fully funded by government.

19. MOFEP, 2001.

20. 593 schools with valid data were used and this represents 138152 students. However, in the Basic Educ. Stats the total ESTIMATED enrollment is 274949, i.e. including those schools that did not provide data and the private schools that are not included here. The sample does include 31 schools that do not provide data on student numbers but have between 1 and 20 teachers.

21. When running a regression that includes dummy variables for the type of secondary school, the degree of randomness decreases from 59 percent to 52 percent (100–48.2)—or by about 12.2 percent. This indicates that a part of the variability is explained by the over-endowment of certain types of schools versus others (see Table 4.7). The coefficients show that in comparison to the reference government day and boarding school, the grant aided schools fair favorably, whereas the CDSSs have fewer teachers for a given number of students.

22. For 2001, the Draft Basic Education Statistics is used.

## School Effectiveness, Malnutrition and Learning Outcomes

**E**arlier chapters examined aspects of the Malawian education sub-sectors and critiqued the degrees of efficiency with which they succeed in progressing students through the system. However, it is also necessary to review how effectively students learn. This section provides this information and is based, mainly, on EMIS data, national examination data and internationally comparable standardized surveys of levels of achievement in basic skills in primary standards (Monitoring Learning Achievement (MLA) and Southern African Consortium for Monitoring Educational Quality (SACMEQ)). The section uses a cross-country perspective to detail student achievement levels and discusses the correlation between schooling characteristics and learning outcomes. The chapter includes a discussion of malnutrition, which has been consistently documented as a factor affecting children's attendance and ability to learn effectively.

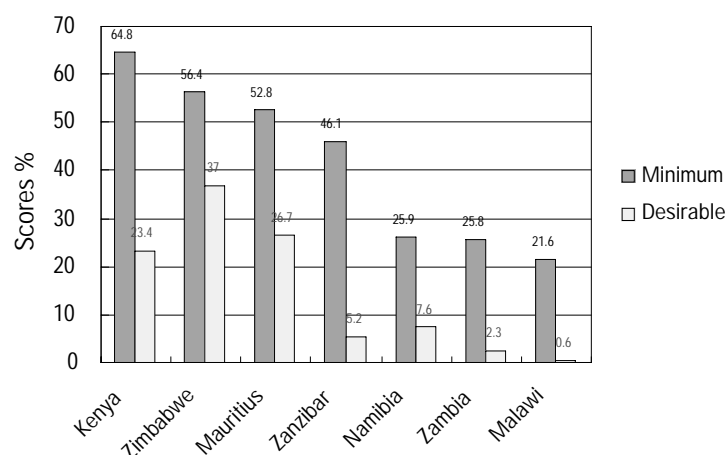
### Level of learning

The many challenges facing the primary education system in Malawi combine to produce a less than conducive learning environment for

its pupils. For example, SACMEQ<sup>1</sup> examined levels of English literacy achievement in Standard 6 (or its equivalent grades) in several countries in the region.<sup>2</sup> In Malawi, less than one percent of all measured pupils reached the 'desirable' mastery level in literacy, while 21.6 percent reached the 'minimum' mastery level.

The results show further that the most significant differences are between children in large towns and the rest of the country, and across socio-economic levels (see Annex 5.1). Some small differences also exist between (i) the wealthiest children versus children of all other socio-economic categories and (ii) children from rural areas/small towns versus those from urban areas.<sup>3</sup> There is also a small gender gap—the girls performed less well than the boys. Poor rural girls not only constitute the group most at risk of dropping out before achieving primary completion (see equity chapter), but they are also least likely to achieve satisfactory learning outcomes if they do manage to stay in school.

Compared with the SACMEQ test scores of six other countries from Eastern and Southern Africa, Malawi had the lowest percentage of pupils meeting the minimum and desirable mastery levels of reading literacy (see Figure 5.1).

**Figure 5.1: SACMEQ test score, Southern and Eastern Africa**

Source: SACMEQ.

A separate UNESCO study, Monitoring Learning Achievement (MLA, 1999), measured fourth-graders' scores in life skills, literacy and numeracy and compared a number of countries (See Table 5.1).

Table 5.1 reveals that Malawi's overall performance is roughly comparable to the other countries surveyed, although it has the lowest literacy rate. In numeracy, Malawi also ranked at the lower end. Interestingly, Malawi's performance in Life Skills is superior to all the countries in the study and this may prove important in trying to implement strategies to

improve health and reduce the prevalence of HIV/AIDS.

The level of English used in the literacy and numeracy tests may have contributed to Malawi's low scores. In contrast, the Life Skills test uses more simple English statements and also includes drawings. Another contributing factor could be that the Life Skills test assesses more general knowledge that children acquire outside school, while the numeracy and literacy tests measure skills specifically achievable through effective teaching in schools. Finally, the above results add fuel to the current debate

**Table 5.1: Fourth-graders' scores on Monitoring Learning Achievement (MLA), 1999 (percentage correct)**

Country	Life skills	Literacy	Numeracy	Average score
Botswana	56.0	48.0	51.0	51.7
Madagascar	72.1	54.7	43.7	56.8
Malawi	77.0	35.0	43.0	51.7
Mali	56.9	51.8	43.6	50.8
Mauritius	58.0	61.0	58.5	59.2
Morocco	62.3	67.6	56.4	62.1
Niger	47.7	41.1	37.3	42.0
Senegal	46.7	48.9	39.7	45.1
Tunisia	74.7	77.9	60.4	71.0
Uganda	66.8	58.0	49.3	58.0
Zambia	51.0	43.0	36.0	43.3
Average	60.8	53.4	47.2	53.8

Source: UNESCO (1999b).

on the important role of local language in initial learning achievement and suggests that full implementation of the existing national language policy<sup>4</sup> is likely to contribute to improved learning outcomes.

The MLA study also provides disaggregated data by gender, urban/rural, and type of school (public/private). The average test score for all areas (literacy, numeracy, Life Skills) shows a less than significant 3.3 percentage point difference in favor of boys. Differences between urban and rural students are also modest; there is a 2.2 percentage point difference in favor of urban schools and this is one of the lowest for the countries sampled. However, the differences between private schools and public schools are more pronounced with 6.2 percentage points in favor of private schools (8 percentage points for literacy alone).<sup>5</sup> This difference is approximately in the mid-range, relative to other countries.

## The learning environment in primary schools

In addition to looking at test scores, it is also necessary to understand characteristics of the learning environment. This section highlights a number of issues that are considered germane to the learning process.<sup>6</sup>

### School and home environment

Children in Standard 6 were greatly over-aged, a finding that confirms issues raised in the previous analysis on primary enrollment. The average age was slightly over 15 years whereas

the expected age range would be 11 to 12 years; there were also wide age ranges which would make effective instruction difficult.

The Standard 6 classroom environments were generally exceedingly bleak. The most basic piece of equipment, such as a usable chalkboard, was missing in 14 percent of the classrooms. Only 35 percent of pupils had a desk to sit at and a mere 29 percent of pupils had writing places; less than half of the classrooms had a teacher's chair and table; only half of the classes had an English dictionary; but other essential learning materials, such as maps, were even more infrequent. In addition, a mere 24 percent of Standard 6 pupils were in classrooms that contained library books while only 26 percent of schools had a school library.

Textbooks were also in short supply. Over one-third of Standard 6 pupils did not have an English textbook. Overall, EMIS 2001 finds the following pupil to textbook ratio for three major subjects (Table 5.2).

The situation should have changed drastically since then, as CIDA provided a total of 11 million textbooks distributed to all primary schools between the end of 2001 and June 2002. Unfortunately, no EMIS statistics after 2001 were available at the time of this report. Going forward, the government will need to ensure regular textbook provision as part of the primary education sector budget, or through long-term donor commitment.

About one-quarter of teachers reported never having met the parents/guardians of a pupil during an academic year, varying somewhat across divisions. Sixty-three percent of parents/guardians noted the existence of a PTA at the school their children were attending,

**Table 5.2: Students per textbook in primary, by standard**

Subject	Std. 1	Std. 2	Std. 3	Std. 4	Std. 5	Std. 6	Std. 7	Std. 8
English	2	2	3	3	2	2	1	1
Math	2	2	3	3	2	2	1	1
Chichewa	2	3	3	3	2	2	2	1

Source: Draft Basic Education Statistics 2001.



**Table 5.3: Time spent on school and homework in primary by grade**

	Std. 1	Std. 2	Std. 3	Std. 4	Std. 5	Std. 6	Std. 7	Std. 8
Percentage Max. 5 hours on school-related activities	73.5	65.5	28	26.5	7	3.5	1	(2)
Average number of hours on school-related activities	4.8	5.0	5.8	5.9	6.7	6.9	7.1	(7.1)
Percentage who do not have homework during the week	92	84	66	52	33	28	15	(5)
Average hours spent on homework per week outside school	1.7	1.9	1.6	2.2	2.4	2.8	3.0	(3.2)

Source: Ed Data 2002. Note: For Std. 8 these results are based on a sample of less than 50 pupils and, as such, are less reliable.

while 96 percent of respondents said that there was a school committee.<sup>7</sup> Eighty percent of parents who stated that there was a school committee indicated that it was doing a good job; 11 percent said it was not; and 8 percent either had no opinion or did not answer the question. Ninety-five percent of respondents indicated their belief that schools should teach more practical skills than done at present.

The Ed Data survey revealed that only slightly more than half of the children surveyed, aged 6–14 years, live with both of their biological parents. Twenty-two percent lived with their mother (but not with their father), 2 percent lived with their father (but not with their mother), and 22 percent lived with neither of their natural parents, although not all of these were orphans. In brief, around one in five children have lost one or both parents.

### Other factors influencing school effectiveness

Table 5.3 summarizes time children spend on school-related activities in an average school day.<sup>8</sup> This time includes time spent traveling to and from school; time spent in classes and

after-class study sessions; and time spent on extracurricular activities.

It is apparent that the time spent on school activities increases through the standards. Children in Standards 1 and 2 spend 5 hours per day on school activities; those in standards 3 and 4 spend 6 hours; and those in Standards 5 through 7 spend 7 hours on school-related activities. Only 2 percent of primary school pupils spend more than 8 hours on school-related activities. There is virtually no difference in the time spent on schooling by sex, by urban-rural residence, by region, or relative to wealth.

While the percentage of pupils doing homework outside of school increases through the standards, the amount of time spent per week on homework outside school varies little; it ranges from approximately 2 hours in the lower standards to 3 hours in the higher standards. Most striking are the differences by wealth, with 38 percent of pupils in the highest quintile and 24 percent of pupils in the lowest quintile doing homework outside of school hours.

On average, *pupils who were absent from school missed a total of 17 days during the*

**Table 5.4: Number of school days missed by primary school children during the 2001 school year**

	Urban	Rural	Public	Private	Lowest quintile	Highest quintile	Total
Days absent	12	17	17	12	19	12	16.7

Source: Ed Data 2002. Note: only asked to pupils who were absent at least one day during the year. However these represent 97 percent of total.

year. Pupils in rural areas were slightly more likely than those in urban areas to have missed school at least once, and they missed more days of school (17 rural versus 12 urban days missed). Children from households in the highest quintile missed fewer days than those from households in the lowest quintile (12 days versus 19 days). The SACMEQ study shows that one quarter of the Standard 6 pupils were absent on the day of testing.

In the Ed Data study, the reasons given by parents for the absenteeism of their children during the previous school year were: illness—86 percent, funeral—61 percent,<sup>9</sup> did not want to go—39 percent, school clothes dirty—34 percent, too hungry—28 percent (29 percent rural, 18 percent urban), any type of work—12.5 percent, no money for fees—10 percent.

*Teacher absenteeism in Malawi is reported as chronic.* The main reasons suggested for this high level of teacher absenteeism was attendance at the funerals of colleagues or being busy on errands, such as collecting salaries or examination correction payments. In some schools, teacher time-on-task was as low as 1–2 hours each day. Anecdotal evidence suggests that absenteeism is high also among district, division and Ministry staff. In summary, it is apparent that there is a breakdown in institutional accountability and that this is linked to the failure to provide appropriate incentives to perform assigned duties.

*Teacher Mobility.* While teacher absenteeism contributes significantly to interruptions in the teaching and learning processes, a related difficulty is causing additional disruptions, namely, the degree of teacher mobility. For example, a study in 2000 by the Improving Educational Quality (IEQ) Project (in partnership with the Malawi Institute of Education)<sup>10</sup> indicated that many teachers do not remain with the same standard for a reasonable length of time. For example, by October of the school year approximately 50 percent of the 188 teachers surveyed were no longer teaching the class they had commenced with in February of the same

year. This disturbing trend is at variance with the continuity children need if they are to acquire basic literacy and numeracy skills.

## Curriculum

The nature, scope and relevance of the school curriculum also significantly impacts school effectiveness. In the following section, the primary and secondary curricula are briefly reviewed.

*Primary Curriculum.* Recently, a Primary Curriculum and Assessment Reform (PCAR) document has been drafted and is expected to be presented to Cabinet for formal approval shortly. This revised curriculum will: (i) address the ‘crowded’ subject range; (ii) highlight child-centered, more effective teaching strategies; (iii) increase awareness of HIV/AIDS; (iv) promote heightened gender consciousness; and (v) provide an increased, and necessary, emphasis on ‘mother’ tongue instruction.<sup>11</sup> The draft curriculum advocates three groupings for the entire primary standards: Infant, Middle Primary and Upper Primary, and suggests organizing core subjects around these groupings. The curriculum reform also intends to develop resource materials to support teaching within each group. Finally, an Assessment and Training Module, already available, will assist teachers to implement the recommended continuous assessment practices.

A detailed plan for the introduction and evaluation of the new primary curriculum is now required. This plan should: (i) indicate the likely training required for existing TTC tutors and for practicing teachers; (ii) outline the manner in which newly qualified teachers will be aligned with the new curriculum; (iii) review deployment practices to ensure they are consistent with local language instructional requirements; and (iv) agree community and teacher sensitization programs to clarify the importance of local language to achieve positive learning outcomes.

*Secondary Curriculum.* A revised secondary curriculum was introduced to Forms 1 and 2 in 2000, and to Forms 3 and 4 in 2002. This revision reduced the excessive number of subjects to seven core subjects and approximately 14 possible elective subjects. This ‘new’ curriculum, however, has been challenged, principally by the universities. It is now necessary for MOEST to: (i) facilitate a review of the existing document; (ii) decide on subsequent teacher in-service efforts; and (iii) to indicate plans for revising teacher training in the context of previous, and intended, changes to the document.

Teacher education programs have not been fully responsive to changes in secondary school curricula. Therefore, the National Strategy for Teacher Education (2002) advocates the need to review both curricula concurrently.

### **Impact on pupils and teachers of HIV/AIDS**

The HIV prevalence rate is estimated to be around 20 percent in Malawi with severe consequences for the education system. Numerous studies on the impact of HIV/AIDS have been prepared and one study “The Impact of HIV/AIDS on Primary and Secondary Schooling in Malawi: Developing a Comprehensive Strategic Response”<sup>12</sup> as described in Annex 5.2, summarizes the results and impact on teachers over a 10-year period; both the direct effect from HIV/AIDS illness and loss of life, and its indirect negative impact on repetition and dropout rates. Evidence from the HIV/AIDS pandemic in Uganda and Zambia suggests that the population growth will diminish due to many adults dying at an early age, but that the growth of school age population will decline only slightly. In those countries, it is anticipated that the attrition rate due to death from AIDS may increase as much as 3 percentage points to around 8 percent in total. In order to make up for this higher attrition, government will need to train approximately

50% more teachers every year than in a situation without death from AIDS. Assuming that this evidence is applicable to Malawi, this has important implications for the development of the pre- and in-service teacher training systems, and for the costs of teacher training. In addition, keeping the increasing number of children who are orphaned in school may require additional investment and support structure. Furthermore, the higher level of teacher and student absenteeism because of illnesses and increasing opportunity costs will undoubtedly adversely affect teaching and learning conditions for all students, and there is evidence showing that absenteeism from HIV/AIDS is a greater problem to the education system than the cost of additional teacher training.

### **Prevalence and consequences of malnutrition affecting education attendance and outcomes**

Malawi has one of the highest levels of stunting in children for all countries in eastern and southern SSA. The problem is associated with periodic food shortages combined with poor child caring practices and has led to almost half of the children under 3 years of age being stunted (see Table 5.5). These high rates have persisted in the last decade—even during times when food supply has been adequate. Stunting and micronutrient malnutrition are associated with delayed school enrollment; decreased school attendance,<sup>13</sup> especially during the hunger period from November to April; and reduced capacity for adults to work and school-age children to learn satisfactorily. The recent food crisis has been extreme, and one that affected most of the population. It is evident that Malawi remains chronically food insecure because of food shortages in some areas and seasonal food shortages in most of the country. In this situation, young children are particularly at risk because they have the highest nutritional requirements of any age

**Table 5.5: Percent of children 0–3 years of age with stunting in the Eastern and Southern Africa region**

Country	% Stunted	Year of Study
Malawi	47.5	2000
Angola	47.5	2001
Lesotho	44.6	2000
Tanzania	41.3	1999
Zambia	44.0	2001/2
Uganda	35.5	2000/1
Mozambique	35.9	1997
Kenya	35.3	1998
Zimbabwe	26.5	1999
Botswana	25.3	2000

Source: National data from countries with available recent information for this age group.

Note: Stunting means <–2 S.D. below the NCHS standard for height for age.

group and are dependent on others for their food and health care.

While rates of malnutrition in young children have been documented, less is known about the national prevalence of malnutrition in school-age children. From the Demographic and Health Survey (DHS) 2000, it is apparent that many children are entering Standard 1 either short or underweight for their age: 57.4 percent of children 4–5 years of age are stunted and an alarming 28 percent are severely stunted. These high levels of malnutrition reflect cumulative nutritional insult and a dire nutritional situation, most of which occurs before 3 years of age.<sup>14</sup>

National figures on malnutrition in adolescence (usually defined as ages 10–19 years) are limited. In one study,<sup>15</sup> prevalence of malnutrition was high in 10–14 year-olds. The 2000 household survey shows that 17 percent of women 15–19 years of age have low body mass index (BMI<18.5); this is 2–3 times higher than any other age group of reproductive age women (20–49 years of age). However, on the positive side, there is some possibility of catch-up growth in children who are stunted during early childhood.

In Malawi, the beginning of the school year (January) occurs during the hunger season, which has a profoundly negative effect on

### **Box 5.1 The Impact of Stunting and Undernutrition on Education and Development:**

In young children, malnutrition is associated with half of all child deaths (Pelletier, 1994), i.e. *half of children who currently die from a childhood illness would not if they were well nourished*. Stunted children are less likely to enroll in school at the appropriate age than children without stunting and have lower test scores in school, particularly in mathematics (Drake, et. al., 2002). Physiologically, stunted individuals have less capacity to work than taller individuals. As a result of their reduced ability to work and impaired cognitive function, short individuals have lower earning potential than their taller counterparts.

enrollment, school attendance and dropout rates. Families keep children out of school during this period so children can earn money to buy food or look for food. In addition, hunger and fatigue are so severe that many children do not have enough energy to walk to school.

Anemia, caused by iron deficiency, is prevalent throughout the country, as is Vitamin A deficiency (VAD). AIDS is also a cause of malnutrition, anemia and other micronutrient deficiencies. Because diet is poor (both in quantity and quality), it is likely that school children are affected by these deficiencies, and also deficient in a number of other micronutrients that affect health and capacity to learn.

*Malnutrition and increasing education opportunity costs.* From the above, it is clear that the overall nutritional status of children in Malawi has an adverse effect on learning and raises opportunity costs during crisis periods. The nutritional status of school age children is a combination of the quality and quantity of their current food intake and also of their

**Box 5.2: The Impact of Anemia, of Iodine Deficiency, and of Selected Micronutrient Deficiencies on Education and Development:**

Iron deficiency anemia (IDA) in children (particularly <2 years) has irreversible negative consequences on learning in older children, even when IDA is corrected later in life (Booth and Aukett, 1997). Lower test scores are associated with anemia (Drake, et al., 2002). A recent study found that U.S. children with IDA had poorer math scores than children without IDA (Halterman, 2001). Giving iron supplements to young children increases growth (Drake, et al., 2002) and may decrease levels of stunting which also affects school enrollment and other indicators for coverage and quality of education. In Malawi, Shrestha (1994 as reported by Latham, et al., 1995) found that by giving iron supplements to children 6–8 years of age in Ntcheu District, eye-hand coordination improved and IQ increased by 7 points. Vitamin A deficiency increases mortality in young children, is a leading cause of blindness in young children worldwide and affects iron metabolism, increasing iron deficiency anemia. Zinc is another micronutrient, which is important for the growth of children under 5 years of age and pre-pubertal children (Brown, et al., 2002). Zinc deficient children who receive zinc supplementation have decreased severity of diarrheal disease and pneumonia (Bhutta, et al., 1999). Children living in iodine-deficient areas have lower IQs and poorer cognitive and motor function than children living in non-iodine deficient areas. Most of the damage to IQ occurs before birth but several studies show that improvement can occur in abstract reasoning and verbal fluency when urinary iodine status improves (Drake, et al., 2002). The Shrestha study (1994 as reported by Latham, et al., 1995) found that children 6–8 years of age performed better on tests for stamina and certain physiological tests when they received iodine supplements. Improvement in mental development translated to a 21-point increase in IQ. When iron was also given, IQ increased by 26 points.

intake *before* they enter school, particularly before the age of two years. Lack of food, either seasonally or year round, and poor child feeding practices are the major causes of malnutrition in the country. As such, ensuring good nutrition and health in very young children is an investment in school children. Furthermore, programs that promote good health and nutrition in school children are also needed and essential to maximize children's ability to learn while they are in school.

Lack of food has devastating effects on the energy intakes of school children. According to one study, in non-crisis years energy intakes in school children were only 74 percent of the recommended amounts (from Latham, et al., 1995), and presumably in crisis years this would decrease further. Morning hunger is a

recurrent problem in school children because children are normally not fed breakfast and often walk long distances to school and this results in their being unable to benefit from a day of learning. A 1995 report stated that “throughout Malawi's three regions, teachers reported that between 50–90 percent of children come to school hungry” (Latham, et al., 1995).

During periods of food shortage, attendance at primary school dropped dramatically (to zero in some schools) because children were kept home to look for food or they were too weak to attend. A report for UNICEF (Gallagher, et al., 2002) indicates that attendance rates dropped off seriously between November and April — the months prior to harvest, often referred to as the hunger period. In Malawi,



the academic year begins in January, which has a negative impact on student enrollment and dropout. While this drop in attendance is a chronic annual problem, in 1999 the problem persisted during most of the school year.<sup>16</sup> During the most recent food crisis, school meals were the only food some children were receiving and these helped stave off starvation in families that were without grain reserves or money to purchase food. There is also some anecdotal information to suggest that during this period, younger children (<6 years of age) were enrolling in school to obtain at least one meal per day.

However, access to education is different from a demand for education. As such, food can prove to be either a barrier or an incentive to attend school. Meanwhile, Malawian parents are faced with the stark reality of increasing opportunity costs at a time when the perceived benefits from education are, at best, minimal.

### **Correlation between schooling characteristics and learning outcomes**

To appreciate further those characteristics that influence learning, this section investigates the elasticity between education outcomes and input variables—in other words, the extent that learning outcomes improve with changes in inputs. The strength of this relationship will also provide insight into the overall management of the system; the expectation is that changes in the typical policy-related inputs should have a direct impact on learning outcomes. This analysis is especially important because of an emerging paradigm shift from inputs to outcomes.

The review measures changes in outcomes by examining changes in retention throughout primary and by investigating changes in the pass rates in the national PSLCE. Such an analysis only provides a partial picture of the education system, and it does not capture the

totality of student learning. Using the EMIS 2000 dataset, a regression analysis is performed to examine the correlation between the mentioned outcome changes and changes in schooling input characteristics—for example the percentage of qualified teachers, unit costs, repetition rate, PTR, proportion of female teachers, etc.

Table 5.6, below, summarizes the results of four regression models based on retention and pass rates of individual schools. The first three models use retention throughout primary as a measure of student achievement; the last one uses the pass rate in the PSLCE.<sup>17</sup> The first two models measure the variability in retention rates from Standard 1 to 8<sup>18</sup> based upon variability in the input variables. The models differ in that they use slightly different input variables. Retention is calculated with a simplified formula: in each school the non-repeating students in Standard 8 are divided by the non-repeating students in Standard 1. This process provides an average retention of 31 percent. The third model measures the variability in retention rates from Standards 1 to 4,<sup>19</sup> and the average retention measured in this manner is 49 percent.

It is important to note that the EMIS school census only reports school-related variables. The most important finding is that these selected variables only clarify a very minor part of the differences in retention and pass rates among schools. In other words, there are factors which are not included in the regression model that are much more powerful contributors to the differences in the selected outcome variables. For the regressions on retention in Standards 1 to 8, only about 10 percent of the differences can be explained by the differences among schools in respect to the selected input variables (urban/rural, proprietor, repetition rate, double shifting, proportion female teachers, text books per student, unit cost). In the same way the regression for retention in Standard 1 to 4 can explain only 5 percent of the differences in the retention among different schools. In the case of

**Table 5.6: Correlates of school variables with retention and exam pass rates**

Variable	(1) Retention 1 to 8 Model with unit cost	(2) Retention 1 to 8 Model without unit cost	(3) Retention 1 to 4	(4) Pass rate
Urban/rural <sup>20</sup>	(1.5)	(2.3)	9.4	(-1.1)
Central Gov <sup>21</sup>	(-2.0)	(-1.1)	-4.2	(2.3)
Religious <sup>22</sup>	-2.4	-2.4	(1.2)	(-.33)
Private <sup>23</sup>	(-3.7)	(-.5)	-1.4	(3.6)
Pupil:teach ratio		-.14		0.06
Repetition rate	(0.05)	(.011)	(-.19)	-.20 <sup>24</sup>
Double shift or overlap <sup>25</sup>	3.4	3.2	(5.6)	-4.3
Proportion female teachers	0.05 <sup>26</sup>	(0.02)	(0.08)	0.06
Percentage unqual. Teachers		-.17		(0.04)
Total books per student	(.17)	(.23)	(-.21)	(-0.08)
Unit cost	7.9		(3.1)	
Intercept	21.3	49.4	46.1	73.0
R-square	.090	.099	0.047	.020
No. schools	2585	2574	3722	2503

Source: Authors' calculations using EMIS 2000. Note: Values in brackets are not statistically significant at the 5% level.

the regression using pass rates, it can only explain about 2 percent of the differences in the PSLCE pass rates among schools.

In the regressions on retention in Standard 1 to 8, the significant variables<sup>27</sup> are the PTR, the percentage of unqualified teachers and the unit cost. In regression (2) the interpretation for the PTR variable is that if a school with a national average of 70 pupils per teacher could reduce this number to 60, retention would improve by nearly 1.5 percentage points. Similarly, for unqualified teachers, if a school with the national average of 52 percent unqualified teachers could lower this by 10 percentage points, then retention would improve by approximately 1.7 percentage points.

In regression (1) the interpretation for the unit cost is that if a school has a unit cost of about 100 MK more (as a result of a lower PTR and/or more qualified, thus better paid teachers) than the national average of about 1,115 MK, then retention is likely to be higher by about 0.8 percentage points.<sup>28</sup>

In a well-managed education system, a significant relation is expected between inputs and outcomes. In Malawi, however, there is very little relation shown when using these traditional school-based variables. What these

analyses have demonstrated—and confirmed through similar analyses in other countries—is that absolute resources (unit costs), the PTR, and the qualification of teachers are predictors for improvement in learning outcomes. Obviously the weak correlation between the variables means that there are important non-explained (by this model) factors to the learning process in schools, like for instance the limited time-on-task or the high teacher and student absenteeism. In summary, this review suggests that more efficient management of the system, greater accountability and improvements in the existing incentives are essential precursors for a successful intervention in Malawi's education system. Additionally, factors external to the system, like for instance malnutrition, can also have an important effect, and addressing such should be part of an overall strategy to improve children's learning opportunities.

## Notes

1. In Malawi the SACMEQ study only included the English literacy test, not the mathematics test, as it did in many of the other participating countries.



2. In the case of Malawi, approximately one third of the pupil data were missing—there were only 1983 valid responses out of planned sample of 3100. Several reasons were suggested for this; the major ones were a lack of transport for data collectors and pupil absenteeism on the day of testing. In most other countries the response rate was 90 percent or more. This means that the Malawi results have to be treated with caution but the gaps are unlikely to invalidate the general finding of the study.

3. A degree of caution is required when interpreting these results because many of the pupils who live in towns and from the higher socio-economic levels are also the ones who may regularly come in contact with English outside school, which may have an effect on their performance on English reading tests.

4. The draft Malawian language policy was reaffirmed in 1996 and stated that in the lower standards, local languages be used as the medium of instruction. But for a number of reasons, the policy is not fully implemented—these include: ambivalent attitudes about the value of this policy, lack of the required teaching and learning materials, language mismatching between various region and teacher posting decisions, time tabling difficulties, confusions about the distinction between teaching a language and developing literacy, etc. As such, many pupils frequently fail to acquire basic literacy skills because they are forced to learn in a language other than their L1 (MLA, 1999).

5. The number of private schools sampled is too small to allow for reliable generalizations.

6. The main sources are the 2002 household survey and the 1998 SACMEQ study.

7. PTAs are voluntary organizations run by parents and teachers and focus on the welfare of students and teachers and the overall development of the school. The school committees are the statutory representatives of the MOEST at the primary school level and are charged with overall development of the school.

8. The data is confined to children attending day schools; boarding pupils are excluded.

9. Attending funerals or assisting family members with funeral-related responsibilities.

10. See “American Institutes for Research. 2000.”

11. The reconfirmation of local language instruction for Standards 1 to 3 during a recent language symposium was a positive development.

12. Esme Chipo Kadzamira, Dixie Maluwa-Banda, Augustine Kamlongera, Nicola Swainson, September 2001, Center for Educational Research and Training (CERT), Malawi.

13. DHS—Ed Data 2002 found that 29% of rural children and 18% of urban children were absent some time during the previous school year because of being too hungry.

14. Studies in smaller areas of the country confirm high rates of malnutrition in all school-age children. Surveys conducted by Save the Children/U.S. (SCF/US) in selected schools of Mangochi district show high prevalence of stunting (39 percent), underweight (38 percent) and wasting (5 percent) in all school children (ages 6 years to over 14 years of age) (Save the Children. 2002). Stunting rates were highest in the 10–14 year age group (42 percent). Higher rates of stunting in older age groups have been corroborated by another group, which found that 43 percent of 11-year-old school children were stunted and by a 5-country study (Partnership for Child Development, 1998). This 5-country study found that stunting was higher in boys than girls—a finding also of the SCF/US study.

15. Save the Children. 2002.

16. In order to increase enrollment and attendance at schools, WFP, in partnership with MOEST and UNICEF, is implementing a pilot school-feeding program in selected schools in the country. In 1999 Dedza East district was selected as the pilot area for the school feeding program with the target of 23,500 primary school students attending 24 schools. The objectives of the program were to: improve child enrollment and attendance in all standards; improve pupils' capacity to concen-

trate and assimilate information by reducing short-term hunger; increase attendance and enrollment and reduce dropout rates of girls in Standards 5–8. The program in turn increased enrollment by 20 percent, stabilized class attendance patterns, reduced dropout rate of girls and boys in all standards, improved educational results for both girls and boys (according to interviews with parents, teachers and students) and attained a more equitable ratio of boys and girls in Standard 5–8.

It should be noted that school feeding programs elsewhere do not translate into better nutritional status of students because parents, knowing that their children receive a meal at school, reduce the food they provide to children at home. However, committees were encouraged to provide food more strategically in the day, when it would have the greatest impact on attentiveness and learning and would maximize its effect on educational outcomes. Students in Standards 1 and 2 attend school from 7 to 11 am and receive *Likuni phala* at about 9 am, which helps reduce hunger students experience at school and, in theory (there has been no evaluation on the program's impact on learning) increases attentiveness, attention span and ability to learn during the subsequent school hours. Because of the logistics of feeding all children at the same time, older students, who have a longer school day, usually receive their meal later in the day.

17. It is important to remember that it is the variability in the pass rates of schools that is analyzed. Children reaching the level sitting the PSLCE are already a minority group within the school system, irrespective of how the conditions of their school have been throughout the eight grades and irrespective of any other non-school related conditions experienced.

18. The Free Primary Education policy may distort the results somewhat. However, for the most part the extra enrollment as a result of FPE will be relatively proportional over the different schools, so that the variance in retention among schools (which is being examined here)

is not effected. Only the absolute level of retention might be underestimated.

19. The large influx as a result of the Free Primary Education policy in 1994 may distort the results somewhat. However, by the year 2000 (for which data exists), a major part of those entering primary in 1994 have either dropped out or are presently in standard 4—this means that the standard 4 enrollment has already incorporated the effect of FPE.

20. Dummy variable for urban versus rural schools. A positive value (if significant) means that urban schools perform better, given that all other variables in the model are the same. A potential reason why this variable is not significant in 3 models, may be because the main differences between rural and urban areas may be captured elsewhere in the model under the pupil: teacher ratio and pupil: qualified teacher ratio—which are much higher in rural areas—or under the unit cost which is much lower in the rural areas.

21. This is a dummy variable for central government schools. It reflects the difference in outcomes between a school where the central government is the proprietor versus the reference type of school which is one where LEA is the proprietor, considering all else the same about the schools.

22. This is a dummy variable for central government schools. It reflects the difference in outcomes between a school where a religious entity is the proprietor versus the reference type of school which is one where LEA is proprietor, considering all else the same about the schools.

23. Same as previous, but between private school and LEA school.

24. Interpretation is as follows: a 1 percentage point decrease in repetition in the whole of primary (below its average of about 16% as measured by EMIS) corresponds to a 0.2 percentage point increase in pass rate of the grade 8 students who take the exam.

25. Dummy variable for schools with double shift system or schools with an overlapping

system of classes with a single shift and classes with a double shift. The reference here are single shift schools. A positive value therefore means the result is better in schools with double shifting or overlapping.

26. Interpretation is as follows: a 10-percentage point increase in the proportion of women in the whole of primary (above its average of about 24%) corresponds to a 0.5

percentage point increase in the retention in primary.

27. Those that had a very high T-statistic as a measure of significance.

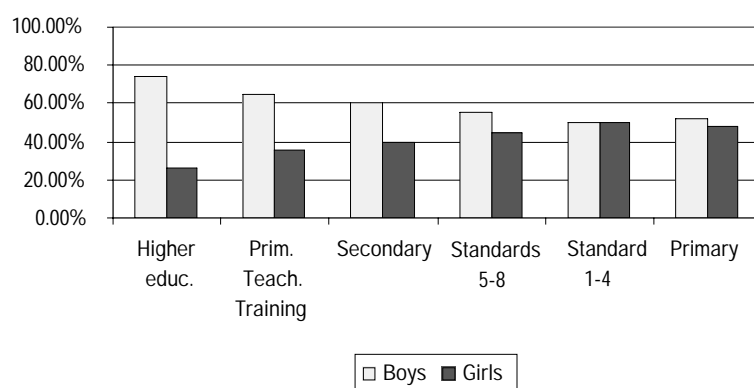
28. The unit cost is calculated using the number of teachers for a given number of students and their assumed income given their grade levels.

## Equity

**T**he present chapter discusses education equity and focuses on differences across gender, geographical location/region, household income groups and consumption quintiles. The underlying premise is that an equitable distribution of education resources plays an important role in reducing poverty and in improving the distribution of opportunities, of income and wealth and of participation in society. In addition, improving educational access by the poor, by the marginalized and by the most vulnerable groups leads, eventually, to fairer access to a number of public services. Furthermore, equitable access to education contributes to the re-distribution of income and this, in turn, benefits the poorest groups in society. This is particularly true in the education sector. It constitutes the largest government expenditure item and it has the widest outreach because almost all families in Malawi have children, or are guardians for children and, as such, have the potential to benefit from public subsidies through education. This means the education sector is an effective fiscal instrument for alleviating poverty and redistributing income. According-

ly, this section examines who benefits from public spending on education and other equity issues.

The government has implemented a number of initiatives, explicitly aimed at ensuring equitable access to education. Here, FPE, in particular, has improved the access of the poorer segments of society to primary education. At secondary and tertiary levels, also, a number of initiatives have been initiated. For example, the government has created extra secondary school places by changing Distance Education Centers into Community Day Secondary Schools; it has provided scholarships to girls and orphans; and has established education institutions in disadvantaged areas. At tertiary level, a bursary scheme to support female students studying non-traditional courses, such as engineering, is in place; there is also a loan scheme to assist needy students 'whose parents or guardians fail to pay the obligatory fees'.<sup>1</sup> Although these policy interventions are targeted, in part, to improve inequities in the distribution of education opportunities, there is a need to ascertain the extent of current inequities and tighten policy interventions as required.

**Figure 6.1: Enrollment by gender and level of education, 2000**

Source: Basic Education Statistics 2000. For secondary the estimated numbers are used.

## Enrollment patterns by gender and geographic location

### An overall perspective

Figure 6.1, shows that overall enrollment in the Malawi education system, by gender, favored boys in 1999/2000. The percentage of girls enrolled was 48.5 percent for primary education, 40 percent for secondary, 35 percent for primary teacher training, and 26 percent for higher education. However, in primary education there are as many girls as boys in first four grades while the share of girls drops to 45% in Standards 5 through 8. In public formal Technical and Vocational Training, between 2000–2003, girls represented 34 percent of the graduates.

Since primary Teacher Training Colleges (TTC) traditionally enroll a significantly higher number of male than female students, the share of women in the stock of primary teachers is much less than that of men. One crucial caveat, here, is that trying to balance the number of male and female teachers should take into account that most female teachers are currently deployed to urban areas—in rural areas only 22 percent of teachers are women, whereas in urban areas the figure is 75 percent. Accordingly, recruiting more female teachers

should be coupled with implementing policies to deploy more female teachers to rural areas.

If the *perspective over time* is considered, it is clear that improvements have occurred in secondary; girls' participation has grown from 35 percent of total enrollment in 1992/93 to 40 percent in 2000, and, in addition, female access to university level also increased slightly from 23 percent in 1993/94 to 26 percent. On the other hand, in primary teacher education, there has been a negative trend with a decline from 41 percent in 1993/94 to 35 percent in 2000.

Analyzing for regional differences, no significant difference was found in gender specific enrollment between the six divisions.<sup>2</sup> Annex 6.1 presents the Relative Gender Gap (RGG) by district.<sup>3</sup> To close the gap in gender specific enrollment, efforts need to be considered, such as providing targeted feeding for girls in the two districts with the most significant gender gaps (Nsanje and Chikwawa).

Table 6.1 indicates that there are significant differences in primary enrollment between rural and urban areas, both for NER and GER. Furthermore, the NER and GER are quite different by region, the Northern region having the highest enrollment and the South having the lowest. Differences are just as substantial between the richest and the poorest house-

**Table 6.1: Primary school enrollment ratios according to background characteristics, 2002**

	Residence		Region			Wealth index quintile <sup>4</sup>					
	Urban	Rural	North	Central	South	Lowest	2nd	3rd	4th	Highest	Total
NER	90	80	93	84	76	73	74	81	85	91	81
GER	127	113	129	119	108	106	106	116	118.5	126	114.5

Source: Ed Data 2002. Results are for the de jure household population age 5–24.

holds: for children aged 6–13 years in the highest income quintile, 91 percent attend primary school compared to 73 percent in the lowest quintile. The GER follows a similar pattern; it is 126 in the highest quintile and 106 in the lowest quintile.

There is no difference in the NER by gender (81 percent). However, the male GER exceeds the female GER in both the North and the South, but there is no difference in the GER in the Central region.<sup>5</sup> Thus, the full difference in enrollment in primary by gender is a result of the higher number of over-age boys in the system. This is an indication that a reduction in repetition will reduce the imbalance in the boys/girls enrollment. In general, the older girls are more prone to drop out and more likely to repeat. As such, if repetition is not lowered substantially in the lower standards, it will be necessary to target older girls to improve retention.

Inequities in the NER also arise as a result of differences in parents' education; studies suggest that the education of parents is a strong predictor of whether a child is likely to enroll in school. This is especially true for the education of girls and their mothers. The NER among children aged 6–13 years whose mothers never attended school is 71 percent, whereas the NER among children whose mothers

obtained some primary education is 87 percent, or 16 percentage points higher. Among children whose mothers attended at least some secondary school, NER is 97 percent, or 26 percentage points higher than for children whose mothers never went to school.

Another predictor of educational attainment is household income level. As Table 6.2 shows, the GER for all income quintiles in Standards 1–4 is above 100 percent and this reflects the large number of overage students, and possibly reflects some underage students. The poorest income quintiles have a higher GER than the richest for Standard 1 to 4 because children of poor parents repeat disproportionately more times in the lower grades. In upper primary, however, the picture is radically different: the GER for the richest quintile is about 100 percent whereas it is only 60 percent for the poorest quintile. In other words, even though primary education is free, certain factors impede the poorest children from progressing from Standards 5 to 8. The GER for boys versus girls only shows a minor difference of 6 percentage-points for lower primary (156 percent for boys, 150 percent for girls), whereas in upper primary the GER for girls is much lower than for boys (86 percent for boys, 70 percent for girls).

**Table 6.2: Gross enrollment rates in std. 1–4 versus std. 5–8**

	Poorest 20%	2nd	3rd	4th	Richest 20%
Standard 1–4	156	159	160	150	138
Standard 5–8	61	75	78	88	97

Source: Integrated Household Survey 1997/98. Notes: The GER for Std 1–4 is total enrollment in these grades divided by the Std 1–4 school age population (6–9) and the GER for Std 5–8 is total enrollment divided by the population aged 10–13. Quintiles are constructed here by ranking households by their consumption per adult equivalent. This is different from the quintile calculation in Ed Data 2002. However, it is unlikely this will affect the trends discerned.



**Table 6.3: Secondary school enrollment ratios, by gender, according to background characteristics, 2002**

	Residence		Region			Wealth index quintile <sup>6</sup>					Total
	Urban	Rural	North	Central	South	Lowest	2nd	3rd	4th	Highest	
NER Total	21	7	16	10	6	2.5	6	3.5	7	23	9
Male	18	8	12	13	6	3	8	3	6.5	26	9.5
Female	23	6	25.5	7.5	6	2	3.5	4	8	20	8
GER Total	57.5	22	50	27.5	21.5	11	18	14	23	62	26.5
Male	57	29	53	34	28	16	22.5	18	32	72	33
Female	58	14	47	20.5	15	5.5	13	9.5	14	52	20

Source: Ed Data 2002. Results are for the de jure household population age 5–24.

Table 6.3 shows that urban youth aged 14–17 years are three times more likely than their peers in rural areas to attend secondary school (NER 21 percent versus 7 percent), while the GER differences among them are only slightly smaller. Regional differences in the secondary NER are considerable and follow a similar pattern to the primary cycle: 6 percent of youths aged 14–17 years attend secondary school in the Southern region, compared to 10 percent in the Central region and 16 percent in the Northern region. There are thus significant regional inequities in the access to secondary education.

While the gender gap in the NER for secondary is minimal (8 percent of female and 10 percent of male youths aged 14–17 years attend secondary school), there is a considerable gender gap in the GER for secondary school. Male youths up to age 24 are far more likely (33%) than female youths (20%) to attend secondary school. This difference is a result of a significant gender gap in access to secondary school in rural areas, where male youths, often over-age, are twice as likely as female youths to attend secondary school. One conclusion, here, is that rural girls have extremely limited access to secondary school.

At the secondary level, differences in the NER as a factor of income level are far more striking than those found at the primary level: only youth in the highest income quintile appear to have access to secondary schooling. While 23 percent of the wealthiest youth aged 14–17 years attend secondary school, only 7

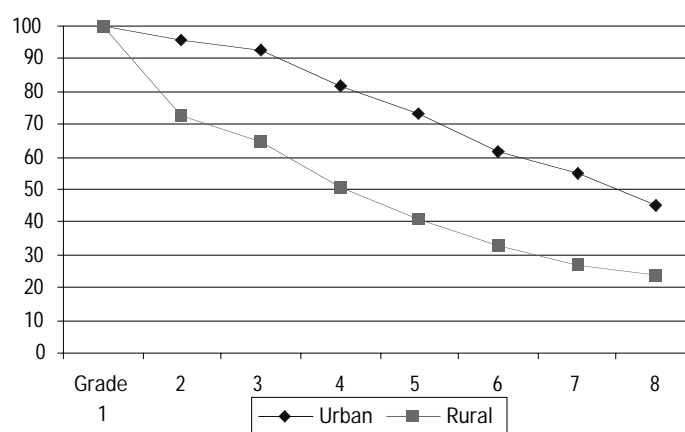
percent of the youth in the fourth quintile, and 3 percent of those in the lowest quintile, attend secondary school.<sup>7</sup> This pattern suggests that the monetary costs of schooling at the secondary level may present a substantial barrier both to entry and to persistence in school beyond the primary level. It is important to note that public subsidies to secondary education tend to benefit the wealthiest income groups. Therefore, public funding to secondary should not be at the expense of primary.

### Gender and geographical disparities in schooling profiles

The disparities in access to Standard 1—or the ‘gross admission rate’ or ‘cohort entry rate’ by division (using the school census information and UN-EFA population)—show that all divisions have rates of well over 1 (or over 100 percent, meaning more new entrants in Standard 1 than the population in the corresponding age groups). The figure ranges from as high as 2.55 for Central West to 1.41 in South East and it indicates a clear relative difference.<sup>8</sup> There are no divisions that show a significant difference between boys and girls. Using the repetition rates in the 2000 household survey, the access rates of primary for boys and girls are quite similar with values higher than 1 (1.32 for boys, 1.27 for girls).

Figure 6.2, above, shows that survival through primary is about 20 to 30 percentage points higher in urban areas than in rural, due to higher dropout rates in rural areas in the



**Figure 6.2: Survival in primary, urban<sup>9</sup> vs. rural (cross-sectional method)**

Source: EMIS for enrollment and repetition,<sup>10</sup> UN-EFA population (distributed between urban/rural according to proportion found in NSO population estimates for 2000).

first few grades. This indicates a need to focus on survival in early primary in rural areas; it also suggests that if rural children make it halfway through primary, they are more or as likely to complete their education as their urban counterparts. In Chapter 4, it was apparent that urban areas benefit proportionally more from teacher deployment arrangements, especially for the qualified teachers. Concurrently, the regressions on retention in primary show that the proportion of qualified teachers and the PTR impact retention levels. Therefore, the difference in survival rates between urban and rural areas are affected by the difference in PTR and by the percentage of qualified teachers.

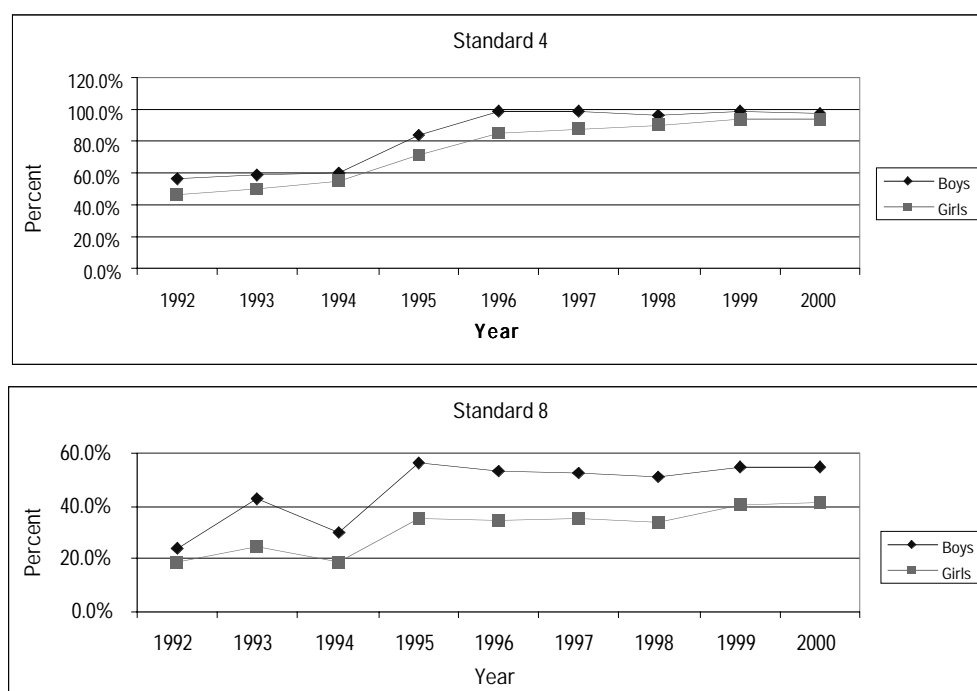
Retention is slightly better for boys than for girls in upper primary (see Annex 6.2). In secondary education the difference in the sur-

vival rate is slightly higher but it is still much more modest than the urban-rural differences, even in the primary sub-sector. The difference in the survival of boys versus girls is also quite similar in all divisions. Significant differences in survival exist between divisions themselves, as Table 6.4 below indicates.<sup>11</sup> Here, the Northern Division clearly has a significantly better retention than all other divisions, whereas Central West has the most worrying situation. Although it may be argued that the Northern Division is privileged, compared to the other divisions, the drop from 100 percent to below 50 percent by Standard 8 reflects inadequacies inherent in the entire education system. However, the magnitude of the intervention required for a positive change to occur would differ by division.

**Table 6.4: Retention standards 1–8 and 1–4 by division and by gender, 2000**

Division	Retention St.1–St.8 (%)	Retention St.1–St.4 (%)	PTR	Pupil–qualified teacher ratio
Northern	42.2	65.4	57	95
Central East	24.0	53.0	63	132
Central West	14.8	35.0	62	131
South East	21.2	49.5	70	146
South West	27.6	58	60	109
Shire highlands	20.3	48.1	70	136

Source: EMIS 2000 enrollment and repetition<sup>12</sup> and 2000 UN-EFA population (distributed over the divisions according to proportion found in NSO population estimates for 2000)

**Figure 6.3: Proxy std. 4 and std. 8 completion rates by gender**

Source: Basic Education Statistics for enrollment and repeaters, and NSO population.

'Proxy' completion is calculated as the number of non-repeating students in Std. 4 and Std. 8 divided by the corresponding age cohort. Note: UN-EFA population is not available for the beginning of the nineties, nor are household surveys for repetition rates. However, since the goal is to look at relative differences in completion by gender, the potential shortcomings in population estimates and repetition rates are less relevant.

One possible reason for the better performance in the North is the longer tradition and the higher esteem in which schooling is held—it was the region where many missionary schools were founded and where education has, in general, been of a better quality. Another reason for the disparity may be the lower PTR and the lower PqTR vis-à-vis the other divisions. It is interesting to see that South West is the second best performing division in retention, and also has a better PTR and PqTR. However, the difference in the retention rate between South West and Northern is larger than would be expected from the difference in the PTR and PqTR.

### Completion rates in primary and secondary

The PCR by gender shows a sizable difference, with a bigger gap for Standard 8 completion in

comparison to Standard 4 completion (see Figure 6.3 and Annex 6.3). Despite this discrepancy, the trend over time is positive and shows a narrowing of the gap.

Table 6.5, below, shows that the disparity in pass rates between girls and boys differ significantly by type of school, especially for students enrolled in a CDSS.<sup>13</sup> The differences between boys and girls may have to do with the selection policy at the beginning of secondary, which allows girls to enter more easily than boys with similar levels of achievement in the PSLCE test. Since the number of girls entering secondary is still lower than the number of boys, it is difficult to argue against this policy if gender equity is considered paramount. It is, however, important to verify whether other factors are contributing to the weaker performance of girls on the MSCE test.

**Table 6.5: MSCE and JCE results, 2002**

Type of school	MSCE	MSCE	JCE	JCE
	% female pass	% male pass	% female pass	% male pass
Community Day Total	10.2%	21.0%	48.4%	63.4%
Government Boarding Total	28.8%	54.7%	56.3%	75.8%
Government Day Total	37.9%	54.0%	60.8%	76.9%
Grant Aided Total	53.3%	65.0%	74.4%	86.9%
Night School Total	26.0%	50.3%	30.1%	64.3%
Private Total	28.7%	39.2%	55.6%	65.2%
Grand Total	23.9%	34.4%	52.8%	66.6%

Source: Authors' calculations, using data from MANEB database.

From the results of Table 6.5, it could be hypothesized that the grant-aided schools may offer lessons relevant to schools trying to improve their MSCE results. For example, perhaps the management styles of the grant-aided institutions elicit better student performance in examinations. However, it is also important not to overlook the fact that households who send their children to grant-aided schools also contribute significantly more funds, compared to government day and boarding schools. In addition, the selection process of potential candidates may also be different.

### Public expenditure breakdown by quintiles and gender at different education levels

To improve the equitable distribution of resources and pro-poor spending, it is impor-

tant to analyze the amount of public resources that different income groups receive in each education sub-sector. For example, if public education spending is distributed equally across the population, then each of the five income groups will receive an equal share of 20 percent.<sup>14</sup> Table 6.6, below, summarizes how education spending is distributed by level of education according to family wealth, comparing situations in 1997/1998 and 1990/1991.

It is apparent that the situation has improved: in 1990/1991, the poorest quintile received only 10 percent of public resources but by 1997/98 this share had increased to 16 percent and had been reduced for the richest quintiles (e.g. from 38 percent to 26 percent). Despite this progress, public spending remains regressive, benefiting the children of the richest households most (26 percent versus 16 percent for the poorest quintile).

**Table 6.6: Incidence of public education expenditure by level and quintile**

	Poorest 20%	2nd	3rd	4th	Richest 20%
<b>1997/98</b>					
All	16	19	19	20	26
Primary	22	22	21	19	16
Secondary	12	18	16	22	33
University	0	13	24	11	53
<b>1990/91</b>					
All	10	13	16	24	38
Primary	15	18	20	23	24
Secondary	7	11	14	28	41

Sources: 1997/98 data from Integrated Household Survey and MoE (1998); 1990/91 data is taken from Castro-Leal (1996), table 14 pp24 and table A.8 pp42. Notes: Under 'All' for 1997/98 only primary, secondary and university public education spending is included. 'All' for 1990/01 includes the same spending types but, in addition, it also includes other tertiary education (primary teacher education and technical training).

This is due to the fact that, in general, children from wealthier families tend to benefit more from secondary and tertiary education—because very few, if any, poorer children progress to higher grade levels. However, since 1990/91 the situation has been improving as a result of FPE and the expansion of secondary schools. In 1997/98, the poorer primary pupils benefited more than the highest income groups: the two poorest income groups each received 22 percent of public resources for primary education versus only 16 percent for the richest quintile. On the other hand, in 1997/98, children from the poorest quintile benefited almost not at all from subsidies in tertiary education.

As indicated earlier, primary PTRs across standards show substantial differences between the lowest and highest standards. Since the largest public expenditure item in primary is teacher salaries, a very high PTR in lower grades means that spending per child in lower primary is less than the spending per child in upper primary. Further, since fewer children from the poorest households progress beyond the lower grades, there is room for improvement in pro-poor spending in primary. At a minimum, balancing the spending per child in lower and upper primary (especially by lowering the PTR in lower primary and ensuring, at least, the same percentage of qualified teachers at this level as for upper primary<sup>15</sup>) could improve the situation further.

As discussed, the situation at the secondary level has improved since 1990/91; more children from poorer households are now accessing this sub-sector. For example, the share for the poorest quintile increased from 7 percent to 12 percent in 1997/98 while the share for the richest quintile declined from 41 percent to 33 percent. However, substantial inequities remain, with the children of the poorest 40 percent households receiving less than 30 percent of the public expenditure, while those of the richest 20 percent receive one-third.

At university level, where access to university is by and large only open to children of wealthier

families, more than half of the public resources were consumed by children from the richest 20 percent of the population in 1997/98. Those in the 2nd to 4th quintile, on average, benefit from about 16 percent from government spending. The subsidization of university is particularly contentious — since full board is a major expenditure item — at a time when hunger and chronic malnutrition is endemic for millions of Malawi's poorest. As such, overall public funding at the university level needs to be further investigated to determine possible funding and access increases while simultaneously increasing pro-poor spending and targeting the poorer qualified students at both secondary and tertiary education.

Improvement in the distribution of resources requires the allocation of public subsidies to the levels with the highest proportion of poor children. Prime targets include primary, generally, but also upper primary and secondary CDSSs. Continued efforts are required to ensure general cost recovery (or cost transparency) at secondary, and especially at the university level, combined with scholarships schemes for the poorest. However, this is a complex and difficult area that requires further analysis.

Looking at differences for boys and girls by income group (see Annex 6.4), it is clear that the most significant differences are found for the secondary and university sub-sectors: the share of spending apportioned to girls of richer families relative to girls of poorer families is more disproportionate than for boys. For instance, at secondary level it is 36 percent for girls for the richest quintile versus 9 percent for the poorest quintile, while for boys it is 30 percent versus 13 percent. At university level, it is 61 percent versus 0 percent for girls and 49 percent versus 0 percent for boys. This is not surprising since more boys progress to the higher levels even among the poorest income groups. In primary, the situation is similar for boys and girls and with both groups public spending is slightly pro-poor.

## Notes

1. In the academic year 2001/02, however, over 4000 students benefited from the loan scheme and this number is more than the total university enrollment, according to Basic Education Statistics.

2. At secondary school level, all divisions were close to the country average of 40 percent girls—the Central East division was the more equitable outlier with 43 percent girls and the Shire Highlands was the less equitable outlier with 36.5 percent girls.

3. The RGG is determined by dividing the difference between the GER of boys and girls by the GER of girls. The RGG, therefore, could be high as a result of large differences between the GER of boys and girls, or as a result of a small difference but combined with a small GER of girls. When the RGG is examined against the total GER of each district or region, there is an inverse relationship. Higher RGGs are typically found in regions with lower GER levels. The implication, obviously, is that increasing GER overall, would lower the gender gap, and, as such, a policy to increase retention and enrollment addresses gender inequities.

4. For an in-depth explanation of how the wealth index is constructed see page 30 in “Education Data for Decision-making, 2003” by NSO and ORC Macro.

5. South: Boys 114% vs. girls 102%; North: boys 134% vs. girls 123.5%; Central boys 118% vs. girls 119%.

6. For an in-depth explanation of how the wealth index is constructed here, see page 30 in “Education Data for Decision-making, 2003” by NSO and ORC Macro.

7. A similar pattern exists among youth up to age 24, with a GER of 62 percent among the wealthiest youth, 23 percent among youth in the fourth quintile, and 11 among the poorest youth.

8. It might be that if the reality of Central West is much closer to 1 than the results show, the situation in South East is one of a cohort rate of entry of well below 1

9. For urban areas, only Mzuzu City, Blantyre City, Zomba Urban, Lilongwe City are included.

10. Since the main aim, here, is to show relative differences, the perceived repetition rate inconsistency in EMIS probably effects both urban and rural areas in a similar way.

11. Remark: Although an assessment of inequity at secondary education level between districts, divisions and regions might reveal a number of disparities, such an exercise could also be misleading because some districts host national schools whilst others do not. Nonetheless, it would be plausible to isolate the national boarding schools from the “day” in order to determine the magnitude of difference between districts. Furthermore, the district analysis would offer an opportunity to determine whether or not the inequity problem has roots in the primary school sub-sector.

12. The repetition rates in the household surveys are not broken down by division and cannot be used in this context.

13. See Chapter 2, section ‘Survival / Completion in Secondary and Transition to Tertiary’.

14. The two caveats here, are, that the quintiles are based upon 5 groups of the same number of households. But since poorer households on average have more children, equality of public expenditure at household level does not imply that each individual child achieves as much as subsequent children. Secondly, even though in most circumstances achieving equality is going to be an enormous challenge, it could be argued that for education to be an equalizing factor in society, public expenditure on it should be pro-poor rather than merely equal among all quintiles.

15. There is a great deal of international evidence to suggest that allocating a society’s best and most qualified primary teachers to the initial grades is beneficial for the educational development of the population.

## University Sector

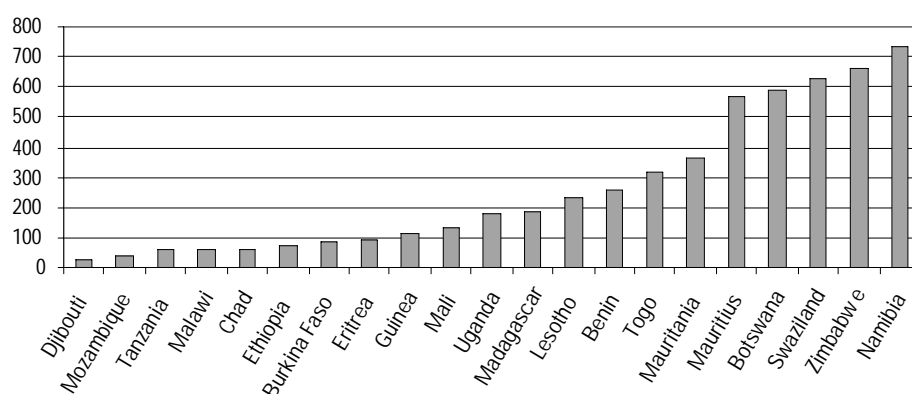
**I**n previous chapters a number of features of the Malawian education system were explored, particularly the primary and secondary education sub-sectors and teacher training strategies. As mentioned in Chapter 1, education constitutes a system and, thus, in the present chapter, the higher education sub-sector will be discussed; here the focus will be on access, equity, financing, efficiency, quality and relevance.

Malawi has one of the smallest higher education systems in Sub-Saharan Africa. The country has two public universities, the University of Malawi (UNIMA) and Mzuzu University. UNIMA is by far the largest and the oldest university, and it embraces a number of relatively autonomous colleges: Bunda College of Agriculture, Chancellor College, the College of Medicine, Polytechnic and Kamuzu College of Nursing. However, the development of the higher education sub-sector has been constrained by a number of factors. In particular, investment has been limited because of the failure to develop a national strategic plan for the education sector as a whole, one that reflects the role of higher education in relation to the education sector itself and the overall social and economic goals of

the country. In 1998, the Malawi Institute for Management (MIM) carried out an analysis of the university sector and concluded that: “Government has yet to develop a comprehensive policy framework for the University’s development in terms of defining/determining the demand for University’s products and services, broad parameters e.g. sectors of priority focus, quantity and quality of the University’s principal outputs (graduates and research) in line with economic requirements”.

While the MIM Report made a number of proposals and recommendations on the management of the university sector, to date, implementation of these recommendations has been limited. Apart from the establishment in 1998 of Mzuzu University—in a former teacher training college—there has been little expansion of higher education in Malawi. As such, the colleges have been forced to function with the existing facilities, staffing and infrastructure arrangements. Lack of investment and maintenance has led to the deterioration of the infrastructure and has left some of the colleges in need of significant rehabilitation. Paradoxically, in excess of 200 maintenance staff continue to be employed at the universities.



**Figure 7.1: Enrollment in tertiary per 100,000 inhabitants, Sub-Saharan Africa**

Source: USAID education statistics database. Results are generally for 1996 but it includes data from 1997 and 1995.

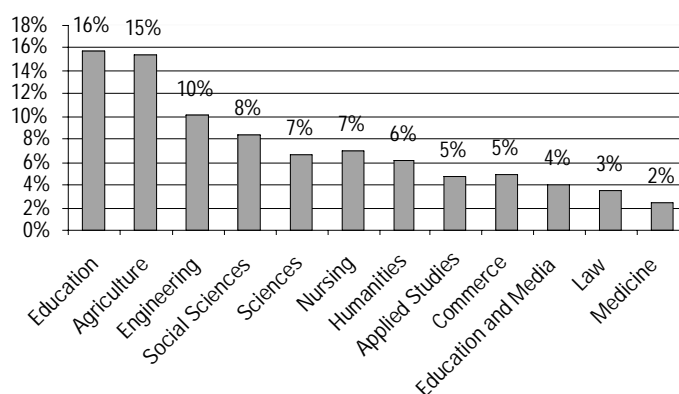
## Access and equity

Malawi's comparatively small higher education system enrolls approximately 4,000 students, which constitutes roughly 0.3 percent of students of eligible age. The last official data from 2001 was 4,128. Growth in enrollment has been very slow over time. In 1987/88, 2,330 students attended, in 1990/91 it was 3,117 and in 1994/95 enrollment reached 3,600. The only private university, Livingstonia, has yet to open but the projected initial intake will only be in the region of 56 students.

Figure 7.1, confirms that Malawi has one of the lowest proportions of enrolled tertiary students per 100,000 inhabitants in the whole of Sub-Saharan Africa. This data is from 1996 but enrollment has remained more or less unchanged since the mid-nineties.

With a limited number of students attending, it is interesting to disaggregate the areas of enrollment. Figure 7.2, provides a breakdown of enrollment in UNIMA and Mzuzu University across subject areas for 2001. Additionally, Annex 7.1 shows a detailed breakdown of recent enrollment trends and graduate output by college and by subject area. Here, it is apparent that there is some alignment in relation to areas of enrollment, the demands of the labor market and the structure of the economy: about 40 percent (or about 1,600 students) are enrolled in agriculture, education or engineering programs.

Despite this relative alignment to the needs of the labor market, the limited enrollment and skills mix means that the higher education sector fails to provide a sufficient number of high level human resources and professionals to assist in the conversion and diversification of

**Figure 7.2: University enrollment by subject area, 2001**

Source: UNIMA and Mzuzu University.

the economy. Several neighboring countries have focused on expanding tertiary programs in education, agricultural sciences, communication, science and technology. These efforts have generated increasing productivity and diversification of production. In contrast, Malawi has not sufficiently focused on these subject areas. The number of university graduates has remained low and is inadequate to satisfactorily contribute to the objectives of socio-economic development and poverty alleviation.

A recent tracer study of university graduates<sup>1</sup> examined the socio-economic background of 380 graduates from four different cohorts in time (1980, 1987, 1994, 1999) and noted that access is increasingly skewed in favor of students from higher socio-economic backgrounds. For example, both parents of graduates had, on average, at least ten years of formal schooling (mother 13.3 years for female graduates, 12.5 for male graduates; father 14.5 for female graduates, 11.6 for male graduates). It is also noticeable that the parents of female graduates have enjoyed more schooling, which suggests that that socio-economic status is still a more significant determinant of schooling for females than for males.

The proportion of tertiary students whose parents are professionals has increased over time, while the proportion of tertiary students from 'farmer' households and from other categories with non-professionals as parents has diminished over the years. As Annex 7.2 indicates, graduates whose parents are professionals (higher income groups) accounted for 22 percent of the traced 1980 cohort but increased to nearly 50 percent by 1999. Conversely, students whose parents were subsistence farmers comprised 33 percent of the 1980 cohort but this had shrunk to only 21 percent by 1999. There were also marked differences in the socio-economic status of female and male graduates: among all four cohorts, there were more female graduates from the higher income groups than in the case of the male graduates.

In brief, it is apparent that a clear majority of public resources for university is presently benefiting what are most likely students of the highest socio-economic strata. At the same time, women's access to higher education continues to lag significantly, only representing 30 percent of total enrollment. While it is recognized that these issues are both long term and difficult to address, it is clear that the current system and facilities are not sufficiently robust to cope with the inevitable future demand for post-secondary education following the introduction of FPE and the concomitant increases in enrollment at primary and secondary levels.

## Financing

Chapter 3 indicated that the universities are autonomous and sub-vented. As Annex 7.3.a illustrates, an approximate average of 50 percent of university recurrent expenditure went to 'personal emoluments' and 'benefits' between 1997/98 and 2001/02. Spending on 'students provisions & allowances' is high, and declined only slightly from 11.5 percent to 9.3 percent over the period. Utilities –which include the utility costs of the boarding facilities– accounted for 7 to 10 percent. 'Training and staff development' is below 1 percent and 'research, publications, conferences, workshops' together account for 1–2 percent. Also, development expenditure for sub-vented organizations has become almost non-existent. As a result, UNIMA increasingly uses its recurrent budget for development expenditures.

As can be seen from Annex 7.3.b, important sub-items like 'common services' comprise 'superannuation' and 'accumulated deficit'. Respectively these accounted for 33 percent and 4.5 percent of total 'common services' in 2001. However, the 2002/2003 estimates (not actuals) indicated an expected reduction for 'superannuation' to 2.4 percent of common services, while 'accumulated deficit' and 'advances revolving fund' rose to 16.8 percent

**Table 7.1: Unit cost in USD by college, UNIMA and Mzuzu University, 2000/01**

	Bunda Agriculture	Chancellor	Kamuzu Nursing	Polytechnic	College Medicine	Mzuzu
Emoluments + benefits	1,330	1,144	2,267	931	11,620	n.a.
Student provisions + allowances	275	301	534	273	828	n.a.
Teaching material + equipment	49	30	59	86	1,224	n.a.
Other	620	669	1,807	564	4,799	n.a.
Total per student	2,274	2,144	4,667	1,854	18,471	1,566

Source: Expenditure data and number of students received from University of Malawi. Mzuzu Univ. expenditure data from Consolidated Annual Appropriation Accounts for Financial Year Ended June 2001.

Note: Exchange rate 2000/01 was 65.9.

and 8.3 percent respectively. Other important items here are 'conference & workshop' (11.3 percent), 'examination/entrance' (8.9 percent), 'sports association/soccer club' (8 percent), 'staff welfare' (7.8 percent) and 'research/publication' (6.5 percent).

Real recurrent expenditures at UNIMA declined steadily between 1993/94 and 1996/97, then spiked for one year in 1997/98; and then fell again, before starting to climb more steadily (see Figure 3.4 in Chapter 3). Overall growth over this period has been roughly ten percent and this is lower than for MOEST expenditure.

**Unit costs.** Real unit costs have risen substantially over the period 1993/94 to 2000, as summarized in Table 3.2, Chapter 3. However, although unit costs have increased, they have fluctuated from year to year and this movement indicates uncertainty in the flow of government funds in periods of fiscal stress. This situation is confirmed by the fact that over the past two years (2002–2003), the university has accumulated considerable tax and pension contribution debts with the Malawi Revenue

Authority and with a number of external creditors for sundry goods. Here, Annex 7.3.c shows a breakdown of unit costs in US\$ for the last four available years: the total unit cost is US\$2,500–3,000, of which US\$1,200–1,600 is allocated to emoluments and benefits and about US\$250–300 to students provisions/allowances—this does not include the utilities component of boarding. On the other hand, slightly less than US\$100 is spent on teaching materials and equipment. Table 7.1 provides a breakdown of unit costs by the different colleges.

When the unit cost, presented in Table 7.1, is combined with the student/lecture ratio in Table 7.2, the direct correlation between the student/lecturer ratio and the unit costs at each college are apparent. By any measure, and especially when compared to other countries (see Figure 7.3), the colleges have inefficiently low student/lecturer ratios. In particular, Kamuzu College of Nursing and the College of Medicine have extremely low student/lecturer ratios combined with much higher than average total unit costs. Per student spending on

**Table 7.2: University enrollment and lecturer numbers by university and college, 2001**

	Bunda	Chancellor	Kamuzu	Polytechnic	Medicine	Mzuzu Univ.	Total
Students	592	1,555	270	1,239	87	385	4,128
Lecturers	73	194	54	148	86	51	606
Student/lecturer Ratio	8	8	5	8	1	8	7
Students per non-teaching staff*	6	23	29	18	3***	3**	9

Source: Basic Education Statistics 2001. \*Data from 1999; \*\* from 2001; \*\*\* in 2003 (in 2001 was 1:1).

teaching material and equipment appears to be low at most of the colleges, except the College of Medicine. While there may be credible explanations for these discrepancies, such as the general cost and features of the individual programs, the data indicates that it is necessary to analyze further the discrepancies, and address inefficiencies found in the allocation and use of resources in this sector.

*Budget Allocation.* The universities rely heavily on government for essential resources. Unfortunately, in the current economic environment, government is unable to guarantee the steady and timely supply of the necessary resources to support essential teaching activities and stimulate quality research. Except for Bunda College of Agriculture, the College of Medicine, and to some extent Mzuzu University, the remaining institutions have not developed adequate capacity, or produced realistic plans, for how to generate their own resources to supplement meager government resources. This is relevant since, at present, the institutions only generate about 10 percent of their total income. Moreover, the revenues generated by tuition fees are limited since the fee levels only constitute a fraction of the real costs. In addition, instead of collecting fees directly from students, the universities are forced to rely on the government to pay these fees. Until recently, all students received a 'loan' of MK25,000 from the government cover the tuition fee.<sup>2</sup> While this source of income is, in principle, limited, it should nevertheless ensure that the universities have access to some revenue but, again, these resources are generally not provided in a timely manner.

The present government debt to the universities for outstanding fees is in excess of MK 250 million. This underscores the urgency of exploring alternative ways of generating revenues to supplement government contributions. In addition to defining fee levels, and the mechanism for a loan system that will oblige beneficiaries to contribute to the cost of higher education through cost-sharing, the universi-

ties need to focus on applied research, to provide full tuition-based courses and to ensure that they benefit from any consultancy work carried out by university staff, which in most cases is carried out using university resources.

Current government policies for university education make the provision of higher education very costly. For instance, the Education Act links enrollment with number of bed spaces in hostels, and requires the provision of free boarding and loans for all students. These policies, while necessary in some cases, impose a significant administrative and financial burden on the colleges. As such, the funding and the structure within which these services are provided, needs to be revamped as the universities have drifted further towards precarious cash flow situations, with substantial unpaid fees to various entities and with associated high cost borrowing needs, because of these mandated generous provisions for tertiary students. It is therefore recommended to end the provision of free boarding, and only offer loans to the more needy, and to regulate repayment.

*Role of Development Partners.* Over the years, development partners have played an important role in the development of university education in Malawi. Their contribution has been in the provision of infrastructure, learning and teaching resource materials, including equipment. Donors have also provided fellowships and technical assistance. However, in the absence of a strategic university development plan, donor support tends to depend on how active the college administrations are in soliciting resources.

*Student Financing.* The PER indicates that in 1997, when tuition fees were MK1,500, the actual collection rate was 18 percent and that the total amount collected only represented 1 percent of public expenditure to the universities. At present, all students are theoretically required to pay a tuition fee of MK25,000 but a tiny minority in some of the colleges are required to pay a higher fee—this is supposed to be an 'economic fee'. Further, government

has decided that in future all students who are accepted into university will be provided with a loan of MK 25,000. In practice, this policy has already been implemented since, as mentioned, in 2002, *all* students received this so-called loan. However, there are no clear regulations to ensure repayment and these loans appear to be more in the nature of student grants.

## Efficiency

In the university sub-sector, there are a number of inefficiencies that limit the institutions' quantitative and qualitative outputs. Staffing levels, in particular, affect the efficiency of the institutions and their resource utilization. On the positive side, the student to lecturer ratio and the student to support staff ratio are extremely low and this could facilitate expanded access without concomitant and significant increases in staff numbers.

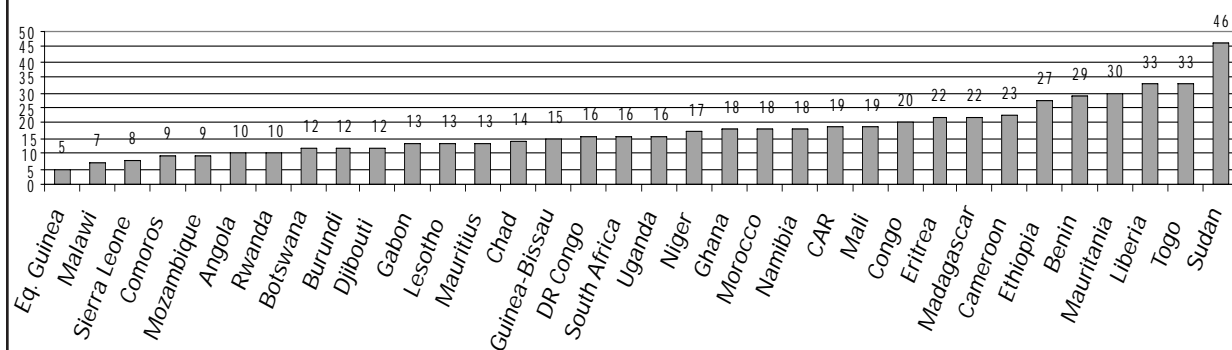
*Student Lecturer and Student Non-Teaching Staff Ratios.* Table 7.2 shows average lecturer/student ratios of 7 in 2001, and indicates a consistently low ratio for all colleges.

Figure 7.3 confirms that in comparison to all other Sub-Saharan African countries—for

which recent data is available—the student to lecturer ratio in Malawi is the lowest (with the exception of Equatorial Guinea). Not only is Malawi a low-end outlier, but it is also far below the ratio of the majority of countries (the non-weighted average is 17.8). This indicates that if Malawi manages to keep subject area specialization under control, it should be in a position to substantially increase its number of university students without needing to take on significant numbers of extra staff.

The universities also have a very low ratios of student to non-teaching staff: the average in 1999 was 11 students per non-teaching staff member. This ratio has possibly deteriorated in the interim because the available data for 2003 show that the ratio in the Polytechnic College was 3, and in the College of Medicine and Mzuzu University it was 4. These low ratios are related to the numerous additional services that the colleges provide (for example, cleaning, cooking, maintenance, gardening, 'helpers', etc.). These employees contribute to the large institutional wage bills and to high unit costs in the system. On the positive side, the UNIMA Council has authorized all colleges to out-source non-core activities to help reduce costs by limiting the number of non-academic staff. Unfortunately, colleges have

Figure 7.3: Student to lecturer ratios at tertiary level in Sub-Saharan Africa, 2000/01



Source: UNESCO Education website statistics. Note: some ratios are for 1999/00 or 1998/99.



been unable to implement this strategy because government has yet to produce the necessary retrenchment packages.

*Use of Facilities.* All tertiary colleges have adopted a two-semester academic year, leaving the institutions idle for about 3 months in the year. In addition, most of the colleges do not operate a credit hour system that would allow students to enroll as, and when, they are in a position to mobilize the necessary tuition fees and thus increase enrollment. With improved use of existing facilities and of teaching and non-teaching staff, enrollment could be increased without substantial additional costs. A clear option would be to increase the number of shorter diplomas, or individual courses for which there is a real demand in the labor market. These might be provided during the idle times in the institutions (e.g. night, weekend and holidays) on a cost recovery basis.

*Duplication of Programs.* There is duplication in many of the programs offered by the universities. For example, Biology, Chemistry, Law and Home Economics are offered in more than one institution. This wastage of scarce resources could be reduced, or eliminated completely, through a rationalization process that would ensure disciplines, which re-enforce each other, are only offered in the same institution. There may, however, be a need for balancing this process against trying to provide access to popular programs in different urban areas and regions. A potential option is to explore the creation of 'satellite colleges', which offer more general first year, and undergraduate programs with limited specialization.

*Student Accommodation.* The Education Act limits enrollments to available bed space in the colleges. Colleges are therefore forced to provide accommodation for their students, but lack of capital investment has inhibited expansion of the hostels, which in turn limits enrollment. The recurrent cost implication of expanding boarding places is substantial and unsustainable. As long as cost sharing, or cost recovery, mechanisms are not in place, univer-

sities will not be able to expand access. Mzuzu University has had some success using limited funding to use prefabricated structures in hostel construction. Furthermore, some colleges have begun to ignore this accommodation provision in the Act and have started enrolling non-residential students in parallel programs. These students, still few in number, pay closer to unit cost fees unlike government-sponsored students.

*Role of Central Administration.* The MIM Report observed that central administration is preoccupied with operational matters when it should really be concentrating on providing a strategic policy framework for university operations and activities. Efforts should be made to implement the recommendations of the MIM Report in terms of delivering a well-planned decentralization program—within a defined framework and with appropriate guidelines. This would result in the transfer of some of the functions, carried out by central administration, to the constituent colleges and would improve efficiency in decision-making processes.

## Relevance

Over time, the investment in infrastructure and quality inputs has deteriorated,<sup>3</sup> leaving most institutions with dilapidated buildings, inadequate and outdated equipment and lack of learning and teaching resources. The relevance of the teaching and research programs, and the skills and knowledge instilled in students, are critical for later employment and for the innovations that graduate students bring to the market place. Currently, however, there is an absence of a clear mechanism linking university research and teaching programs to the human resource and skill requirements of the economy and labor market. There is also inadequate linkage between research and teaching activities. As a result, teaching has not benefited from new knowledge being generated through research activities. The lack of train-



ing programs and refresher courses for lecturers raises doubts about the relevance and appropriateness of the current content being taught and about the teaching methodologies being used.

*Employment of Graduates.* The relevance and quality of university education merits some review. A recent study on skills for employment concluded that graduates do not have the skills needed by employers, nor are they equipped to start their own enterprises.<sup>4</sup> Limited contact between higher education institutions and employers was cited as the main reason for this poor preparation for the world of work.

On the other hand, and probably as a result of the low number of graduates from the universities relative to the need for university trained professionals in the country, this lack of contact has not really affected employment opportunities. A recent tracer study on university graduates and secondary leavers<sup>5</sup> found that unemployment of university graduates was negligible in 2001. Only three of the 380 traced graduates (0.8 percent) were unemployed.

However, there are indications that employment prospects declined among the 1990s cohorts relative to the 1980 cohort. Only forty percent of 1994 graduates secured employment immediately after graduating from university in comparison to 90 percent of 1980 graduates.<sup>6</sup> Employment opportunities for graduates varied according to the program of study.<sup>7</sup>

In order to expand the private sector and diversify the economy, it will be critical to have more graduates becoming private sector entrepreneurs, and the curriculum should be adjusted with this goal in mind. Only seven of the 380 traced graduates were self-employed in mid 2001, only 15 in total had ever been self-employed and the seven self-employed graduates employed only 45 other people in total. Particular attention should be paid to the areas

of science and technology, which are important for industrialization and economic growth. Finally, Malawi, like many other countries, has experienced a significant brain drain. This is particularly true of graduates from the Kamuzu College of Nursing, many of whom tend to leave Malawi to work in countries such as the US and the UK. The government will have to address this issue through incentives and by establishing accountability mechanisms.

*Relevance and Skill Utilization.* The tracer study also sought the opinion of the graduates themselves on a range of topics relating to their university education and their subsequent employment. It found that graduates appear to be generally quite satisfied with most aspects of their university education, with the overall satisfaction level highest among the 1980 cohort and slightly lower for the latter cohorts. While over 80 percent were satisfied with the knowledge and skills acquired, less than one-third were satisfied with their information and technology skills and just under half with their managerial and entrepreneurial skills. Annex 7.4 provides the response of the graduates to a number of questions on the relevance of their university education. A second table in Annex 7.4 shows the prioritized concerns of university graduates.

To summarize, it is clear that the university sector in Malawi needs to be restructured with respect to funding, efficiency, quality and relevance. The country needs to expand university education enrollment and graduate output, but it must do so strategically to ensure that programs and graduates meet the demands of both society and the economy.

## Notes

1. Kadzimir et al.

2. In the academic year 2002, 'loans' were provided to a total of 4,000 students.

3. Chapter 3: Educ. Financing indicates the complete breakdown of (on-budget) development spending to universities.

4. Thomas et al. 2001

5. Kadzamira et al.

6. As a result, unemployment was quite high (60 percent) in the immediate period after graduation. On average, it took 1980 graduates less than a month to find their first job. For the 1999 cohort, this period was three months but this is still low.

7. Bunda College, Kamuzu College of Nursing and the College of Medicine have a higher employment track record for their graduates because of the nature of their sectors. Chancellor College and the Polytechnic, which both have higher enrollments, face some challenges in providing programs that address the skill needs of the sectors and in producing employable graduates.

## Critical Challenges and Policy Choices

**T**his study has provided the analytical underpinning for synthesizing key issues and this chapter highlights the critical challenges. Using the results of a financial simulation model, an attempt is also made to lay the foundation for realigning the policy targets with resources.

### Macroeconomic context and education expenditures

For a country undergoing a transition period of huge enrollment expansion (FPE in primary, and CDSS expansion in secondary), the priority given to education, as reflected in government spending, has been relatively modest in the last 10 years in the range of 12–20% of total government expenditure. However, in the past couple of years, government spending has been in the higher end of this range as agreed within the framework of HIPC. As the economy is unlikely to generate much in additional resources, the government will either have to: *(i) improve the efficiency (productivity) of the system and resource distribution, (ii) increase the share of public spending on education, (iii) increase cost-recovery at post-primary or increase access on a full cost-recovery basis,*

*(iv) increase external (donor) funding, or a combination of the above.*

Furthermore, *it is important to ensure a more stable and predictable flow of funds to the education sector if the long-term benefits from this investment are to be harvested.* Funding of the sector should be in line with a well-defined, long-term strategic plan.

*Sub-sectoral allocations and allocations by type of school need to be closely aligned with education policy goals.* Although primary education obtains the highest share of recurrent expenditures, it is not clear whether its share of development expenditures is in line with the goals of universalizing access. A striking inconsistency in sub-sectoral allocations is also reflected in the stark differences within the dual secondary system, the CDSSs and the CSSs, and by the higher share of resources provided for tertiary relative to secondary.

*Unit costs in education are highly unbalanced between the university level and all other levels, and within secondary between traditional government schools and CSSs and CDSSs.* Here, the government will need to define acceptable levels of per pupil spending and adjust public financed access at the post-primary level. *This may entail capping public financed expansion at secondary level,*

although it would not exclude expansion through private provision.

*Managing expenditure on personal emoluments will be crucial to achieving sustainable levels of spending.* Average salary levels have been declining in real terms, partly due to the increase in untrained teachers—especially at primary and secondary levels. As the number of qualified teachers increases, and as more teachers are employed due to higher enrollment and a lowering of the PTR, personal emoluments will rise.

*In secondary education, medium-term targets need to be set for access to quality secondary education, in such a way that the financing requirements are sustainable.* Questions regarding cost-effective organization and delivery need to be addressed to ensure that personnel costs do not crowd out quality improving, non-salary inputs. While a rapid geographical expansion could increase access, it may result in available resources being used almost exclusively for salary expenditures, understaffed schools, and virtually no investment in crucial educational resources.

## Enrollment, repetition and survival

*Primary completion rate and internal efficiency:* Many children do not progress beyond lower primary because of high repetition rates. The level of repetition is very high throughout primary as a whole—an average of 25% of each grade repeat every year, and in particular in Standard 1 where about 40% of pupils repeat. This distorts the system right from the start. Dropout in primary is also relatively high, at between 5 and 10 percent in each grade. However, between 1992 and 2000, the Primary Completion Rate increased by about 15 percentage points from 20–25 percent to 35–40 percent. *To address problems of repetition and dropout, the improvement in overall quality is a critical element.*

*Pupil to Qualified Teacher Ratio:* There is an urgent need for additional qualified teachers to reduce the high PqTR of 123:1 in primary schools. This will require a continued effort to produce approximately 5,000 teachers per year for the next 10 years, facilitated by continuing the present in-service training program with at least 2 cohorts graduating per year. *Investing in teacher training is a pre-condition for improving the quality of primary school in Malawi.*

*Secondary:* CDSSs, which represent about 70 percent of secondary enrollment, are extremely under-endowed in many ways, for instance in the availability and qualification of teachers, in the range of teaching/learning materials, and in the dilapidated school infrastructure. Although the PTR is 40:1 in secondary, the high incidence of primary teachers teaching at CDSSs has produced a PqTR of 120:1. *As such, a determined effort is required to train teachers and fund schools adequately, which may entail putting a cap on the number of publicly financed secondary schools.*

*Safety net for the youngest and orphans:* The government might consider providing nursery schools for young children. While attending pre-school is educationally desirable, in the case of Malawi an expansion in publicly finances nursery schools for pre-school children may provide a strategy to reduce the number of under-aged children starting school, and thus reduce the overcrowded classroom in Standard 1. *One option is to use the communities and provide minimum incentives to locals to attend to the children at the school premises. These nursery schools could also facilitate improvements in under-five malnutrition provisions.*

## Equity

With the introduction of FPE, public expenditure on primary education became more equitable, however overall public education spend-

ing remains regressive and inequitable. As such, focusing resources more equally among the different grade levels in primary will have a positive and equalizing effect. It may simultaneously improve both efficiency and quality by reducing repetition and dropout.

While the primary survival rates for boys and girls are relatively even, there is a significant discrepancy in survival rates in rural and urban areas: urban students have about 20 to 30 percentage points more chance of survival through to the end of primary. In addition to microeconomic conditions like poverty levels, there is a clear difference between rural and urban areas in PTRs and, especially, in PqTRs. In addition, rural areas lack female teachers and this deprives rural girls of potential role models. *The recently implemented decentralization policy may provide an opportunity to prioritize rural areas in future teacher allocation decisions. For this to effectively take place, the overall composition of salary (salary, professional and housing allowance, potential rural hardship bonus, and other) needs to provide incentives for teachers to stay in rural areas, and a functional teacher rotation system needs to be put in place.*

At the secondary level, two crucial inequities are noted: the type of school in which pupils enroll and urban/rural differences. Urban youth age 14–17 years are three times more likely as their rural peers to attend secondary school (NER 21 versus 7 percent). Regional differences in the secondary NER are also considerable and follow a similar pattern as the primary level.<sup>1</sup> Differences in access by socioeconomic status at the secondary level are large, as seen from the GER of 62 among the wealthiest youth and 11 among the poorest youth.

## Quality of education and externalities

The performance, or learning outcomes, of Malawian students is unacceptably low. While

the children perform quite well in Life Skills, Malawi had the lowest percentage of pupils achieving ‘minimum’ and ‘desirable’ mastery levels in English literacy, relative to six other countries in the region.

In Malawi, using the traditional school-based variables, there appears to be little relationship between inputs and outcomes. Predictors for improvement in school achievement include: absolute resources levels (unit costs), the PTR and the qualification of teachers. The weak correlation, however, means that other important factors are associated with the learning process in schools, for example, the limited teacher time-on-task. Also, *absenteeism is a widespread problem, both among pupils and teachers.* This results from multiple factors, such as illness or hunger. The level of absenteeism also indicates that institutional accountability, or incentives to perform, are largely non-existing. Further, pedagogical management, and management in general, appears to be quite weak. *Any mechanisms established to improve student learning and the quality of schooling will need to: (i) improve accountability and devise teacher incentives to perform assigned duties, (ii) ensure timely and adequate provision of learning materials, (iii) empower headmasters and improve school management, and (iv) help low-achieving schools perform better.*

*Prevalence of malnutrition affects survival and learning capacity in the education system.* Malawi has one of the highest levels of stunting in children in eastern and southern Africa. Stunting and micronutrient malnutrition are associated with reduced capacity to learn, delayed school enrollment, decreased school attendance and, eventually, with dropout. These problems are especially critical during the hunger period from November to April. Malawi is chronically food insecure because of regular food shortages in some areas and seasonal food shortages in most of the country. *A minimum supply of de-worming and iron-fortification could contribute significantly to the*



*overall nutritional status of pupils. In addition, the government may wish to sustain current emergency food structures or to establish a direct support to schools, financed by donors, to ensure cash transfers that could be used to purchase food in times of crisis.*

*The on-going HIV/AIDS crisis will put further pressure on the education system, and result in higher dropout and repetition rates, and increase the number of orphans who will be especially vulnerable in relation to educational achievement. Government will need to develop an effective HIV/AIDS policy in order to prolong the active professional lives of infected teachers. Ensuring a supply of flexible voluntary teachers and teaching assistants, could also counter teacher absenteeism. A serious debate on the issue of reducing absences due to funeral attendance would also be advisable. In the same way, the issue of funeral benefits needs to be addressed so that this item does not completely absorb expenditure on basic teaching inputs. Possible options, here, are to set up a special fund for this purpose and reduce funeral costs by allowing sick teachers to transfer to their home districts.*

## Management of the system

*Teachers' deployment* is highly inconsistent. Some of the specific difficulties have to do with the manner in which the present system significantly favors urban areas. This situation is further aggravated by the significant discrepancy in Pupil to Qualified Teacher ratios between urban and rural districts; in urban districts it is between 60 and 70, in rural districts it is approximately double this figure.

*The management and deployment of teachers to schools needs to be based on an established PTR (funding formulae) and on the availability of teaching places.* The MOEST needs to develop an equitable PTR for each school. In line with this, there is a need to explore possible incentives (e.g. a 'rural

allowance'<sup>2</sup>) to encourage, and obligations to ensure that qualified teachers are available to teach in rural areas. *The decentralization process offers an ideal opportunity to rebalance these inequities in the teacher deployment system.* For example, under a decentralized management, the resources allocated from the central to district level to hire and pay teachers will be based on a neutral formula and reflect the number of pupils attending—with some adjustment criteria for poverty levels or population density. The direct management of these funds will allow rural districts to advertise open posts as soon as teachers leave. The PER has already indicated that *local recruitment of teachers* might be another way to reduce the tendency of teachers to move to urban areas. In the context of the current in-service teacher training framework, this is feasible because teachers are already teaching in a particular area, and only relocate to the teacher training college (TTC) for a relatively short period before returning to their schools. This reduces the probability they would automatically move to an urban area after leaving the TTC.

One potential measure to increase the number of qualified teachers in the system is to review the current teacher retirement age. Of course, this may have a limited impact in a country where the life expectancy is 8 years (although life expectancy may be higher among teachers).

*Teacher remuneration scale setting.* Since many new teachers are entering the system each year, and given that unqualified teachers will need to be trained, this is an *opportune moment to establish a sustainable salary policy for the next 10–20 years.* As indicated in a recent World Bank study on the Education For All-Fast Track Initiative,<sup>3</sup> a guideline for average qualified primary teacher salary, in African countries, is about four times GDP per capita. The study suggests introducing a dual system with the new salary scale only applying to newly qualified teachers.<sup>4</sup> The qualified teacher salary in Malawi is currently slightly



higher, at about 5.5 multiples of per capita GDP; on the other hand, this may be a reasonable level for Malawi where per capita GDP is lower than in many other African countries. An adjustment of teacher salaries in Malawi should be based on a comparison with earning in other professional occupations.

## Budget process, supporting systems and harmonization of procedures

*Budgetary reforms and improvements in accounting are required to accurately estimate financing needs, ensure a smooth flow of funds, reduce unit costs and monitor budget execution.* At a minimum, MOEST needs to establish an overview of the total flows into the education sector, especially off-budget funds. The second issue is to examine the cash budgeting system and the impact it has on the strategic prioritization of medium-term budgeting and the effective functioning of schools. A third issue is to accurately estimate the recurrent cost implications of existing development projects and to assess their financial sustainability. Efforts could be made to harmonize procedures and procurement rules with a view to using government procedures. Thus acceptable fiduciary arrangements in the education sector could pave the way for on-budget support.

The introduction of a new account structure—put in place to improve budget planning and analysis capacity—has actually made it very difficult to analyze anything at a level below emoluments and other spending (ORT). Different divisions/districts put major resource allocations under different headings, making consolidation in a more detailed manner nearly impossible. It is crucial, therefore, to establish simple, clear guidelines and, especially, to provide support training (at all levels, especially in the divisions/districts) on the use of budgeting and accounting. This will ensure consistency in recording so analysis is possible at an

aggregate level, and will facilitate comparisons at divisional/district level.

EMIS. *Availability of complete, timely, and reliable education statistics is critical to consistent planning of the education sector.* The current computerized EMIS system provides a solid basis, but both the organizational framework and the information technology aspects would benefit from an in-depth review. EMIS should also become more of a functional system, not just a central database, where data are stored and are used sparingly in decision-making. An important part of this is *information dissemination from the EMIS to education stakeholders*. The providers of information (i.e. schools) are given an information dividend at periodic intervals. A summary report could be published on an annual basis, even in newspapers. The list of potential areas for improvement of the EMIS is included in Annex 8.3.

## University education

At university level, there are fundamental inefficiencies, many of which arise from the small scale of operations. Enrollment is presently at less than 4,000 students and has shown only modest growth during the past decade. Malawi, therefore, has close to the lowest proportion of tertiary education students per 100,000 inhabitants relative to the whole of Sub-Saharan Africa. The sector needs to expand access in order to improve the utilization of existing resources, service the expanding education sector and provide more professionals to the workforce.

There are a number of challenges that face higher education, if it is to expand access and improve quality and relevance. It must: (i) establish a national strategy and policy framework for higher education which will include funding guidelines, accreditation criteria, establishment of private universities, credit hour system and new delivery modes, such as distance education; (ii) price out the real cost

of university education in order to establish student financing and support schemes; (iii) revise tuition fees to lessen the government's financial burden; (iv) reexamine the present policy of providing accommodation and feeding to students. The linkage of student enrollment to bed space, although ignored by some colleges, needs to be reviewed and the relevant section in the Act amended accordingly<sup>5</sup>; (v) make a concentrated effort to implement the recommendations in the MIM Report on outsourcing of non-core activities. To successfully implement this initiative, government will need to develop the required staff retrenchment packages.

### Realigning policy targets to resources

The Policy and Investment Framework for the education sector, developed in the late 1990s, provides an excellent basis for moving forward. However, the fiscal and external conditions for implementing the PIF have changed since its preparation. Furthermore, while the PIF is comprehensive it needs to be prioritized and aligned to existing internal and external resources as will be demonstrated in the following simulation model.<sup>6</sup> The model covers the period up to year 2015, analyzes the long-term financial sustainability of the system, and checks the realism of the general policy targets. It is based on one possible scenario of targets and assumptions that were discussed with government and it largely reflects the PIF. However, some alterations were made when PIF goals

were deemed unrealistic in the current macro-economic and social context. The ensuing results are presented as a basis for discussion with government and donors. The detailed scenario and assumptions are described in Annex 8.1.<sup>7</sup>

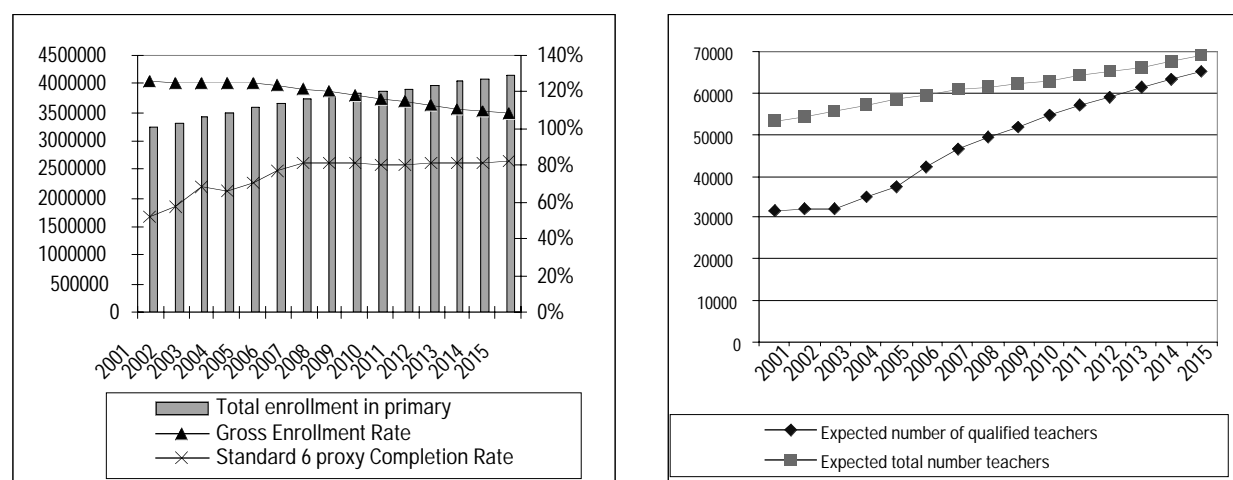
### Changes in repetition and dropout rates

If the situation regarding repetition, dropout and admission rates evolve as described in the PIF, this would result in an estimated primary enrollment of 3.5 million by 2012. The number of qualified primary teachers needed to achieve the PIF target PqTR teacher ratio of 60:1, under this assumption, would be 58,000 by 2012. If no changes occurred to the current repetition, dropout and admission rate, then the estimated enrollment for primary is 4.2 million by 2012. The number of qualified primary teachers needed to achieve the PIF target, under these assumptions, would be 70,000 by 2012 or 12,000 more teachers. It is clear that efforts to reduce repetition and dropout rates are critical in relation to both how many teachers will need to be recruited, and which teacher training model will be pursued. Obviously, both will have an impact on recurrent costs and additional funding required.

Under the 'in-between' scenario shown above, where repetition and dropout rates are reduced gradually (but still optimistically), primary enrollment would reach 3.9 million by

**Table 8.1: Projections for primary education: enrollment, repetition, and PqTR, 2001–2015**

PRIMARY	2001	2002	2003	2004	2005	2006	2009	2012 PIF	2015
Total enroll. <sup>8</sup>	3236319	3300423	3407299	3505522	3582180	3662103	3820127	3973231	4158317
Avg. repetition	25.2%	23.3%	21.9%	20.7%	19.7%	18.6%	15.9%	13.4%	11.1%
Qualified teachers <sup>9</sup>	31 799	31 891	31 978	34 859	37 567	42 113	51 948	59 101	65 041
Unqualified teachers <sup>10</sup>	21 645	22 281	23 782	22 372	20 813	17 502	10 258	5 977	3 855
Total teachers <sup>11</sup>	53 444	54 172	55 759	57 231	58 380	59 615	62 206	65 078	68 896
New teachers trained	1923	2000	2000	4800	4800	6800	5650	5650	5650
Pupil: Qualified Teacher Ratio	101	103	106	100	95	86	73	67	64



Source: Authors' calculations. Base year data are from EMIS 2001 and ED Data 2002.

2012 and the expectation would be 59,100 qualified teachers (92 percent of all teachers) and a 67:1 PqTR by 2012. The trend in PqTR would still be downward and the 60:1 goal could be reached over time because more teachers would be trained than would be lost due to attrition. This would assume the stock of qualified teachers to be sufficient to achieve a 60:1 PqTR, given attrition at maximum 6 percent. This evidently is a more realistic scenario but will require effective interventions to reduce the number of pupils repeating or dropping out.

One very important conclusion concerning the teacher training model can be derived: if the teacher training model reverts to a 2-year pre-service training program, the number of graduate teachers produced every year at the existing TTC and an additional new TTC, will be so little that by 2012, only the stock of qualified teachers will be only 33,700, and the PqTR will be as high as 115:1. Even if two additional TTCs are built, each with a capacity of 625 students, the stock of teachers will only reach 40,000 by 2012 corresponding to a PqTR of 96:1.

Political commitment and potentially pedagogical reasons (although in Malawi the verdict is still out on the latter aspect) could advocate a return to the pre-service system. However, the focus now should be on accelerating as much as possible teacher training, and once the system

has been balanced and the need for new teachers reduced, a teacher training program of a longer duration may be considered.

## Secondary education and secondary teacher training

In the scenario shown in Table 8.2, secondary enrollment can be expected to reach 393,000 by 2012, based on the assumption of maintaining GER in secondary at 30 percent.<sup>12</sup> Since the GER in the base year (2001) was already 29 percent, the growth in enrollment numbers will be in line with the growth in school age population 14–17.<sup>13</sup>

The Table shows that, in order to achieve a PqTR of 46:1 by 2012, 8,600 qualified secondary teachers are needed. This could be achieved by expanding secondary teacher training from the current about 400 to 970 graduates every year. If the attrition rate of teachers increases to 8 percent (instead of the 5 percent assumed in Table 8.2) as a result of HIV/AIDS, the PqTR would only reach 53:1 by 2012 unless even more teachers are trained.

If, however, the current capacity in secondary teacher training is not changed and the SSTEP program is phased out beyond its initial 3 cohorts, and the capacity of the university colleges is maintained roughly at its current

**Table 8.2: Projections for secondary education: enrollment, PCR, repetition, GER and PqTR, 2001–2015**

SECONDARY	2001	2002	2003	2004	2005	2006	2007	2009	2012	2015
Total enrollment <sup>14</sup>	274949	284036	293418	303106	313109	323437	334101	356480	392847	428025
Gross Enrollment	29%	29%	29%	29%	29%	29%	29%	30%	30%	30%
Qualified teachers <sup>15</sup>	2290	2547	3116	3681	4242	4750	5483	6840	8631	10167
Unqualified teachers <sup>16</sup>	5260	5127	4685	4252	3826	3458	2870	2072	1190	534
All teachers <sup>17</sup>	7550	7674	7801	7933	8069	8208	8353	8912	9821	10701
New teachers trained	347	372	696	721	745	720	970	970	970	970
Pupil:Qualified Teacher Ratio <sup>18</sup>	120	112	94	82	74	68	61	52	46	42

Source: Authors' calculations. Base year data are from EMIS 2001.

level, then, by 2012, the system will only have about 5,700 qualified teachers resulting in a PqTR of 70:1. The PqTR would not improve further, even with an attrition rate of 5 percent.

Finally, if secondary enrollment were to increase substantially, for example reaching an enrollment of about 600,000 by 2012 (corresponding to a GER of about 45%), the number of qualified teachers needed to achieve a PqTR of 40:1 would be more than 15,000, thus requiring far more new secondary teachers. In other words, public demand for secondary education is very likely to increase beyond the expected capacity to train teachers for secondary and especially the capacity to pay their salaries. If the government does not put clear limits on publicly funded secondary education, and expand support for private secondary education, it may face a critical political situation.

## Recurrent cost implications

The recurrent costs of education from pursuing the scenario described above will increase, because of the additional teachers required by 2012,<sup>19</sup> and due to the incremental cost of having a larger proportion of qualified teachers. The government may expect to have an average annual recurrent expenditure shortfall between now and 2012 of between 11 to 13 percent of the total national discretionary budget, if the education expenditure as a percentage of the national 'discretionary' recurrent budget is maintained at 21 percent. If the education expenditure share were increased to

27 percent (PIF target), then the average annual deficit would fall to about 6 to 8 percent of the national 'discretionary' recurrent budget.

As has been shown above, the model targets and assumptions indicate that recurrent cost implications of the different policies would be larger than the domestic resource availability. It is clear that MOEST, MOF and the donor community need to determine the realism of this type of scenario. For instance, the expected total resources available and the teacher salary costs (both unit cost and total cost) are crucial issues for dialogue. Other issues, such as planning teacher training, must not be done in isolation from the general issue of sustainability, which centers on the ability to pay teachers once they are hired and trained. It is also crucial to understand what the expectations are in terms of resource availability under the HIPC debt relief program. The results of this financial model can facilitate such a dialogue. It is clear that the magnitude in the financing gaps or shortfall in reaching the set policy targets should be used to reopen and redefine targets and priorities.

## Possible priority areas of policy intervention

Table 8.3 lists the most urgent policy reforms in the education sector, as discussed in the various chapters of this Study. Most of the proposed actions are already known by government and donors, and have been flagged for the past decade. The Table also provides an evaluation of the feasibility of such policy interventions.

**Table 8.3: Possible areas of policy intervention, including assessment of Cost (C), Feasibility (F), Political Risk (P) and Success Probability (S) (low, medium or high)**

Objective	Policy Options: Medium Term (<4 years)	Policy Options: Long term (4 years +)	C	F	P	S
Re-balance the education system	<ul style="list-style-type: none"> <li>Recalibrate PIF (EFA) goals to financial and human resources</li> <li>Amend Education Act</li> </ul>	<ul style="list-style-type: none"> <li>Take a strategic long term view and establish caps on public funding for secondary and tertiary education</li> </ul>	L	H	M	H
Re-establish accountability, and establish incentives for teachers and headmasters to perform their duties	<ul style="list-style-type: none"> <li>Establish accountability at school level through social contracting between communities and schools and transparency systems</li> <li>Reward/Bonus scheme at school level enabling communities to reward teachers</li> <li>Launch public information campaign about the educational strategy</li> <li>Ensure teachers accept strategies/consensus building</li> </ul>	<ul style="list-style-type: none"> <li>Restructure teacher salary provisions</li> <li>Empower headmasters (role in promotions and in reprimanding teachers)</li> <li>Improve supervision and inspection through an increase in ORT</li> <li>Provide career development and rotation, especially for rural assignments</li> </ul>	M	H	M	M
Equitable expansion of enrollment	<ul style="list-style-type: none"> <li>Lower repetition and dropout rates to shorten average of school completion (automatic promotion/cycles of learning Standard 1–4)</li> <li>Target districts or regions with inequitable access using incentives. E.g. Expand food for education of girls during the hungry season (November to April)</li> </ul>	<ul style="list-style-type: none"> <li>Target disadvantaged areas and population groups</li> <li>Utilize classrooms and other school facilities efficiently (double shift)</li> <li>Use teachers efficiently, redeploy teachers; evaluate and adjust accordingly the teacher resource requirements under a streamlined curriculum at secondary level</li> <li>Improve incentives for private provision of education, particularly at secondary level</li> </ul>	M	L	L	L

*(continued on next page)*

Table 8.3 (continued)

Objective	Policy Options: Medium Term (<4 years)	Policy Options: Long term (4 years +)	C	F	P	S
Quality and internal efficiency improvement	<ul style="list-style-type: none"> <li>• Redeployment of teachers to ensure adequate availability of teachers at school level as an integral part of the decentralization plans</li> <li>• Targeting of PTR in Standards 1–4</li> <li>• Curriculum Reform: Continue the Primary Curriculum and Assessment (PCAR) process and complete the proposed review of secondary curriculum</li> <li>• Improvements in the conditions in classrooms, other school facilities and learning materials through a direct support to school program financed under the development budget</li> <li>• Improve community involvement and through the DSS program lower indirect cost of education</li> <li>• Distribute iron supplements and support de-worming</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthen in-service teacher training and other teacher professional support. Gradually rebuild the pre-service teacher training system in primary (this will depend on the output capacity of a combined in-service (MIITEP) training system and the partial pre-service system relative to the immediate needs for qualified teachers in the system)</li> <li>• Continue supervision of teachers and provide teaching and learning materials at primary level, targeted provision of teaching and learning materials at secondary level</li> <li>• Expand enrollment at teacher training colleges and at university level</li> <li>• Implement national policy on mother tongue instruction</li> </ul>	C	H	M	M
Efficiency enhancement of public resource allocation and utilization	<ul style="list-style-type: none"> <li>• Appropriate distribution of teachers according to enrollment</li> <li>• Voluntary re-deployment of existing teachers with an incentive package or transfer of pupils where feasible</li> <li>• Budget and expenditure framework for all resources/ common procedures using GoM systems</li> </ul>	<ul style="list-style-type: none"> <li>• Adapt EMIS and funding formulae to meet enrollment changes at district level</li> <li>• Adjust cross sub-sector resource allocation for future balanced sector development</li> </ul>	L	M	L	L
Strengthening institutional arrangements and capacity for service delivery	<ul style="list-style-type: none"> <li>• Improve data; EMIS, codification of all schools and teachers, merging of MOF and MOEST salary and financial databases</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthen central function of sector analysis, policy and planning, and system monitoring</li> <li>• Strengthen district-level capacity of local system management, including school inspection, teacher development, monitoring and reporting</li> <li>• Strengthen management capacity at the school level, including the capacity of School Management Committee at primary level</li> </ul>	L	L	L	L



## Notes

1. 6 percent of youth age 14–17 attend secondary school in the Southern region, compared with 10 percent in the Central region and 16 percent in the Northern region.

2. It would be crucial to ensure that this allowance is linked to location, not to teacher so teachers cease to receive the allowance once they leave the rural area. This would require that appropriate administrative systems be put in place to track teacher's locations.

3. Bruns, B. et al. 2002.

4. It is crucial to review the total benefits packages (salary plus allowances) when discussing teacher remuneration, particularly as allowances in Malawi represent higher public expenditures than the basic salary element.

5. Students currently enrolled in parallel tertiary programs pay fees that are closer to the real unit costs and in this way they are sources of revenue for these institutions. Such parallel programs could include students regularly attending normal classes—but not in receipt of publicly supported boarding—or it could result in students attending a completely modified university program comprising distance education and/or usage of facilities during off-time for regular classes

6. The simulation model is based on the Education For All, Fast Track Initiative model but it has been adjusted to reflect the specifics of the Malawian education system, and specially to reflect crucial targets in the PIF document. The enrollment estimates for primary are completed separately but they are based on the simulation model that was used initially as part of the PIF since it allowed a more detailed estimate using repetition rates and dropout rates by standard. This simulation model was provided by UNESCO, and adjusted for Malawi, with the help of Sussex University. For key indicators in the model the assumption is made that the system moves from the current situation to the target value (by the target year) in a linear manner.

7. The model based on EMIS data from 2001 projects student enrollment until year 2015. Based on the PIF target of a PTR ratio of 60:1, certain assumptions of repetition and dropout rates by each Standard and assuming that two of the six teacher training colleges will revert to pre-service training while the remaining four TTC will continue the MIITEP program, estimate (i) the recurrent cost implications for pursuing the target of a PTR 60:1 and hiring more teachers and (ii) the share of qualified teachers. The model covers primary and secondary education, primary and secondary teacher training, and higher education. These are most relevant for MoEST, since the recurrent costs and the human resources availability will most directly influence the sustainability of the education system over time by changing some of the above assumptions. For target parameters, the PIF targets by 2012 are used, unless indicated otherwise.

8. Public and private

9. The *number of qualified teachers expected* is a result of the output of the teacher training scenario that is used and of the expected attrition (assumes all qualified teachers work in public primary schools, not in private ones)

10. The *number of unqualified teachers expected* is the difference between the total number of teachers expected and the expected number of qualified teachers.

11. The *total number of teachers expected* in public primary schools is a result of a gradual expected transition from the current 77:1 pupil: stream ratio to 60:1 at the end of the period, while at the same time the teacher: stream ratio is set to increase from 0.8 at present to 1 at the end of the period.

12. However, it is worthwhile mentioning that in case the percentage of students enrolled in private secondary schools (thus without requiring public funding allocation) would increase from its current level, the gross enrollment rate could grow beyond 30% without overburdening the public expenditure system further.

13. This would however mean that the current transition rate from primary to secondary of 74 percent would not be maintained as more children pass the PSLCE.

14. Public and private.

15. The *number of qualified teachers expected* is a result of the output of the teacher training scenario that is used here and of the expected attrition. This need for qualified teachers is based upon expected enrollment in both public and private schools, since teachers for private schools—if qualified—will also have to come from the same teacher training institutions. Of course the teacher remuneration cost only reflect those teachers teaching in public schools.

16. The *number of unqualified teachers expected* is the difference between the total number of teachers expected and the expected number of qualified teachers.

17. The *total number of teachers expected* in public and private schools is a result of a gradual transition from the current 36:1 pupil:teacher ratio to 40:1 by 2007, and of the expected total student enrollment.

18. This is the average for the secondary system as a whole, i.e. including public and private schools.

19. About 12,000 primary teachers and 2,300 secondary teachers.

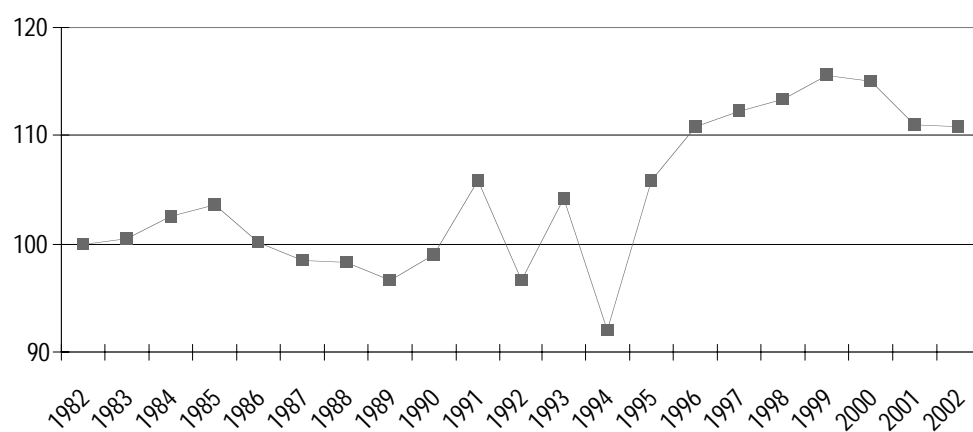


## ANNEXES

## Evolution in population, GDP, total government revenue and expenditure

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
Population (in million)	8.71	8.85	8.99	9.14	9.33	9.55	9.77	9.99	10.20	10.41	10.63	10.87
GDP in current million MK	6331	7801	9721	16080	29534	39447	47810	66881	90413	116963	139357	155387
GDP deflator (1994=100)	58.22	70.55	89.63	140.59	234.53	299.12	349.71	471.09	622.92	783.08	949.84	1026.26
GDP in const. 1994 million MK	10874	11057	10846	11438	12593	13188	13671	14197	14514	14936	14672	15141
Real growth rates	n.a.	1.7%	-1.9%	5.5%	10.1%	4.7%	3.7%	3.8%	2.2%	2.9%	-1.8%	3.2%
Inflation	n.a.	n.a.	n.a.	58.9%	60.4%	23.4%	19.5%	37.3%	37.2%	29.6% <sup>1</sup>	n.a.	n.a.
Exchange Rate (MK/US\$, average)	3.20	4.00	6.57	12.01	15.30	15.88	23.76	37.58	51.82	65.87	74.45	76.7 <sup>2</sup>
Total Domestic Revenue <sup>3</sup> (current million MK)	1,182	1,331	1,629	2,231	4,437	5,943	8,598	12,075	15,808	20,880	22,853	31419
Total Grant (External), including HIPC, but before loan (current million MK)	208	174	284	1,515	1,986	1,708	1,968	4,242	6,296	10,353	9,144	10675
Total Revenues (current million MK)	1,390	1,505	1,913	3,746	6,423	7,651	10,566	16,317	22,104	31,233	31,997	42,094
Total Government Expenditures (current million MK)	1,577	2,379	2,428	6,123	7,864	8,714	13,844	19,475	27,221	37,303	42,490	54015
– Current	1,262	1,910	1,964	5,056	6,225	6,976	10,940	13,952	17,638	25,772	32,675	42167
– Develop (cap) expenditure	315	469	464	1,066	1,639	1,738	2,904	5,524	9,583	11,530	9,816	11,787
Overall balance after grant (current million MK)	-187	-874	-515	-2377	-1441	-1063	-3278	-3158	-5117	-6070	-10493	-11921

Sources: IMF "Selected Issues and Statistical Appendix, August 2002"; WB SIMA database; and authors' calculations. The data for 2001/02 and 2002/03 are estimates from IMF "First Review under the Poverty and Growth Facility and a Request for Waivers of Performance Criteria, August 2003". Population data are from WB-HNP Stats. Inflation and exchange rates are from IMF as referenced in PER.

**GDP per capita in constant USD, indexed to 100 for the year 1982**

Source: World Bank—SIMA database.



## Government expenditure by functional classification, in percentages

Percent of recurrent expenditures	1990/91	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
General Administration	33.3	33.1	34.0	21.5	26.3	37.4	28.9	23.1	50.0	32.9
General Public Services	21.0	23.4	23.7	12.3	15.5	27.5	21.6	15.0	41.8	26.0
Defense	5.2	4.9	3.3	2.8	5.1	4.8	3.6	3.8	3.7	2.9
Public Order and safety	7.1	4.7	6.9	6.5	5.7	5.1	3.7	4.3	4.5	4.0
Social Services	19.9	17.7	32.5	30.6	35.2	45.5	27.4	35.3	27.6	27.2
Education	10.6	9.9	10.5	16.3	19.0	20.8	13.6	15.6	12.2	16.1
Health	6.4	6.0	8.3	6.2	9.2	8.5	6.2	8.7	8.7	9.5
Social Security and welfare services	2.9	0.0	13.8	8.1	7.0	12.7	6.2	9.7	5.6	0.9
Community and Social Development		1.9	0.0	0.0	0.0	3.4	1.3	1.3	1.0	0.8
Economic Services	13.4	23.1	11.9	12.1	7.7	9.3	5.5	6.9	5.7	8.7
Unallocable Services	33.5	26.1	27.8	37.4	35.4	33.0	33.2	29.2	16.7	31.2
Public debt service	n.a.	n.a.	15.1	27.0	28.1	14.2	20.6	19.9	22.5	21.4
Pensions and gratuities	n.a.	n.a.	3.5	4.0	5.6	5.7	5.3	9.3	5.2	4.2
Other	n.a.	n.a.	9.2	6.5	1.7	6.6	7.3	0.0	-11.0	5.6
Adjustment			-6.2	-1.6	-4.6	-25.2	5.0	5.4	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Percent of development expenditures</b>	<b>1990/91</b>	<b>1993/94</b>	<b>1994/95</b>	<b>1995/96</b>	<b>1996/97</b>	<b>1997/98</b>	<b>1998/99</b>	<b>1999/00</b>	<b>2000/01</b>	<b>2001/02</b>
General Administration	17.8	13.4	28.04	15.90	39.76	11.45	9.32	21.13	20.48	38.24
General Public Services	16.4	11.4	27.32	15.48	38.46	9.11	8.90	18.43	19.26	34.18
Defense	0	0.4	-0.01	0.03	0.83	0.98	0.13	0.77	0.62	0.82
Public Order and safety	1.4	1.6	0.73	0.39	0.47	1.36	0.30	1.92	0.60	3.22
Social Services	21.2	10.6	50.93	53.95	28.72	35.80	53.74	35.65	30.27	27.21
Education	12.9	6.6	27.94	22.60	8.43	15.29	13.35	8.74	11.89	14.89
Health	8.3	4.1	0.45	16.21	3.63	5.89	16.45	5.78	1.14	11.93
Social Security and Welfare Services			0.07	0.06	0.71	0.22	1.53	1.01	0.00	0.00
Community and Social Development			22.47	15.08	15.95	14.40	22.41	20.12	17.24	0.39
Economic Services	59.7	27.2	15.12	24.21	16.23	32.20	25.17	39.54	49.25	34.56
Unallocable Services	1.3	48.8	0.00	6.00	15.29	2.56	3.80	0.00	0.00	0.00
Adjustment			5.91	-0.06	-0.01	17.98	7.97	3.67	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Malawi Economic Report, various issues.

Note: All percentages are based on 'actuals', except for 2001/02, which is based on the 'estimate'.

## Education recurrent expenditure as a proportion of total government discretionary recurrent spending

In current million MK	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	Yearly average
Recurrent expenditure before debt amortization	11405	11083	13950	21856	32199	25036	
Interest on debt	2081	3430	3251	5327	6571	5171	
Pensions & gratuities	571	656	1524	1161	1499	1431	
Discretionary recurrent spending	8753	6997	9175	15368	24129	18434	
<b>Source for educ. exp. data: Economic Report</b>							
Education recurrent expenditure (including univ. and other subvented)	2092	1679	2556	2491	4300	5968	
Educ. recurrent exp. as % of total discr. spending	23.9%	24.0%	27.9%	16.2%	17.8%	32.4%	23.7%
<b>Source for educ. exp. data: directly from the budget expenditures</b>							
Education recurrent expenditure (including univ. and other subvented)	1773	1861	3010	3168	5467		
Educ. recurrent exp. as % of total discr. spending	20.3%	26.6%	32.8%	20.6%	22.7%		24.6%

Source: Discretionary spending and its components are from different years of the Economic Report.

Note: Till 2000/01 all are 'actuals', thereafter 'revised' estimates.

## Nursery school attendance

Background Characteristics	Percentage who Attended Nursery School	Mean Number of Years Attended Nursery School
Age (Years)		
6–7	15.1	1.5
8–10	11.5	1.6
11–14	4.9	2.0
Residence		
Urban	38.8	1.9
Rural	5.6	1.4
Wealth Index Quintile		
Lowest	2.7	1.0
Second	4.2	1.7
Middle	4.4	1.2
Fourth	7.1	1.5
Highest	26.7	1.8
TOTAL	9.4	1.7

Source: Malawi EdDATA Survey 2002.<sup>4</sup>

## Comparing gross enrollment ratios (GER) using different sources in 1987, 1998, 2000 and 2002

	1987	1998	2000	2002
a) Population census based estimates <sup>5</sup>				
Population ages 6–13	1,818,910	2,115,870	–	–
Enrollment in primary (standard 1–8)	1,002,343	2,165,528 <sup>6</sup>	–	–
GER	55.1%	102.4%	–	–
b) Survey based estimates				
Integrated Household Survey – GER <sup>7</sup>	–	120.1% <sup>8</sup>	–	–
DHS 2000 – GER	–	–	106.8%	–
Ed Data 2002 – GER	–	–	–	114.6%
c) School census based estimates				
Enrollment in primary (standard 1–8)	1,022,765	2,805,785	3,016,972	–
Population estimates				
(i) Population census (ages 6–13)	1,818,910	2,115,870	–	–
(ii) NSO – adjusted pop estimates (ages 6–13)	–	2,456,000	2,448,000	2,504,000
(iii) Unesco estimates (ages 6–13)	1,767,700	2,421,500	2,493,500	–
(iv) UN–EFA (ages 6–13)	–	2,437,000	2,524,000	2,565,000
GER estimates				
(i)	56.3%	132.6%	–	–
(ii)	–	114.2%	123.2%	–
(iii)	57.9%	115.9%	121.0%	–
(iv)	–	115.1%	119.5%	–

Sources: – Population Census data are from '1998 Population and Housing Census – Analytical Report' ([www.nso.malawi.net](http://www.nso.malawi.net)), and for 2000 the data are provided by Jameson Ndawala (Chief of Demographics Department – NSO)

– School census data: Basic Education Statistics of the corresponding years.

– IHS 1998: authors' calculations using dataset.

– DHS 2000: "Malawi Demographics and Household Survey – Final Report. August 2001"

– Ed Data 2002: 'Malawi DHS EdData Survey: Preliminary report'

– NSO – adjusted population estimates: NSO website under 'Data/Malawi Population Projections'.

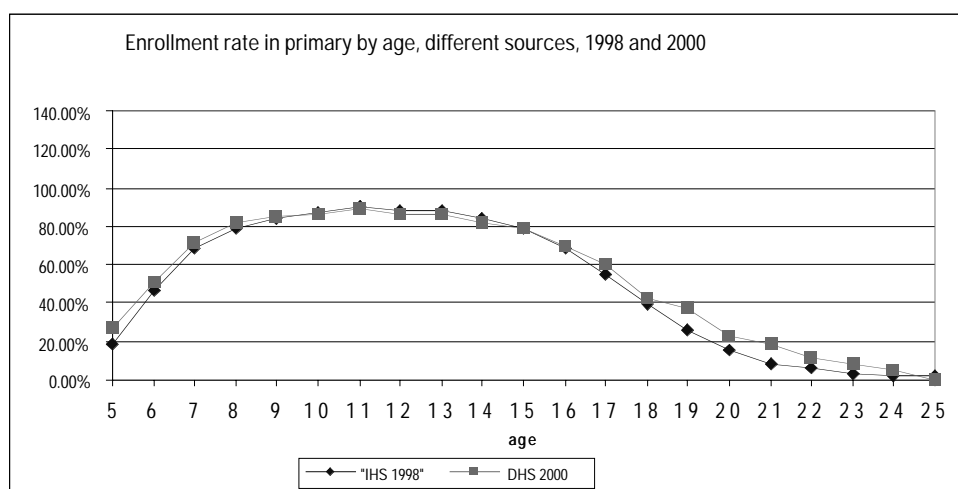
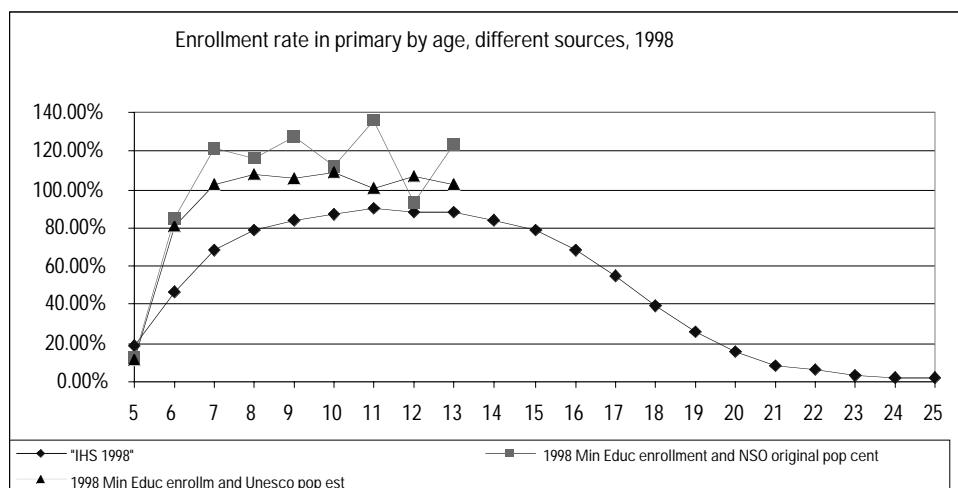
– UNESCO population estimates: World Bank SIMA database connecting to UNESCO Education Statistics.

– UN–EFA population estimates

## Enrollment by age comparing household surveys and school census

**F**igure 2.3 shows enrollment rates in primary by age group using three different data sources.<sup>9</sup> The results after combining school census data and population data from both sources are different from the results suggested in the household surveys.<sup>10</sup> This implies that the number of over-aged children is much higher in the primary education system than what the official school census statistics records. The enrollment rates of over 100 percent, found for the age group 7–10 years olds, are actually largely because of the many under-aged children being registered. As far as the under-age children in primary are concerned, the survey results show that close to 30 percent of the population, aged 5, are already enrolled (representing close to 100,000 children) whereas school census data puts this

estimate at 15 percent.<sup>11</sup> This probably arises because parents claim their children are older than they actually are so they may avoid the problems associated with official policy and continue to attend primary school. These discrepancies in the recorded ages of children is further complicated by the fact that the children themselves, possibly as a result of peer-pressure, may indicate an age closer to the ‘normal’ age for that standard—or at least within the most common age range indicated by their classmates. The first table below is the equivalent of Figure 2.3, but for year 1998. The second table shows the similarity between the results from the two completely independent household surveys in 1998 and 2000. This strengthens the case for the reliability of the results from these household surveys.



Sources: Authors' calculation using data from the IHS 1998 survey, the DHS 2000 Survey, and from the National Statistics Office and UNESCO for population estimates.



## Analytical review of entry rate to standard 1

Obviously, in an expanding system, one moving towards universal coverage, the issue of children being over-aged due to late entry, or repetition, is commonplace. This was the case in Malawi. Primary fees were abolished in 1994 and the number of new entrants (i.e. those who had not yet entered school) increased significantly—in fact, it approached universal coverage relative to the population group. This increase was short-term (the ‘big bang’ effect) and in subsequent years an increasing proportion of children of appropriate age entered the system. Therefore, it should not be possible to continually have more “new” entrants than children in the population group of normal age of entry by the year 2003—almost 10 years after the introduction of FPE.<sup>12</sup>

It follows that the 2.29 rate of entry, noted in 1998, is not logically possible<sup>13</sup>; it suggests possible confusion in: (i) an over-count of total enrollment; (ii) the definition of new entrants into Standard 1 versus repeaters; and/or (iii) an under-count of school-age population. Since enrollment data is obtained through head teachers (both for the school census or in separate studies<sup>14</sup>), and no other source is available, clarification of the level of error related to over-count of enrollment is not possible. How-

ever, in the following section, possible explanations for the discrepancies in recorded repetition and population estimates will be reviewed.

The table below indicates that repetition rates recorded in the DHS 2000 and EdData 2002 were much higher than the repetition rates recorded by the number of repeaters versus total enrollment in the Basic Education Statistics. For primary, as a whole, there is a difference of at least 10 percentage points, and for standard a difference of approximately 20 to 25 percentage points.

One explanation for discrepancies in recorded levels of repetition may be connected to the definition of ‘repeater’. In the household surveys, a repeater is either a child that completed a school year and then repeated the same standard the following year, but it can also be a child that interrupted his/her schooling during the school year but subsequently returned to the same standard in the following school year. The latter occurrence may be quite common, particularly in Standard 1, as children may start but later be considered too immature for Standard 1, drop out but return the following year. Although head teachers were not provided with specific instructions, it is acknowledged that in the school census, only children who completed the year in school and are not

**Comparing repetition rates using different sources, 1998, 2000 and 2002.**

	1998	2000	2002
School census based estimates			
Primary total	14.5%	15.6%	–
Standard 1	18.2%	19.2%	–
Household surveys			
DHS 2000			
Primary total	–	29%*	–
Standard 1	–	45.3%	–
EdData 2002			
Primary total			25.8%
Standard 1	–	–	40.6%

Sources: Authors' calculations, using Basic Education Statistics 1998 and 2000.

"Malawi Demographics and Household Survey – Final Report. August 2001."

Ed Data 2002: 'Malawi DHS EdData Survey: Preliminary report'.

\* Authors' calculation using DHS 2000 dataset.

considered sufficiently mature to progress to the next standard are recorded as repeaters while children who left during the year and return to the same grade the next year are registered as new entrants again.

The definition of repeaters may vary, but in international comparisons the accepted definition is a child who takes up the teachers time and absorbs resources. Furthermore, to measure efficiency in resource usage, it is logical to separate the children returning the subsequent year to the same grade from the real new entrants. Otherwise, if PTR is based on enrollment numbers at the beginning of the year, the public expenditure will be incurred twice and, as a result, more teachers will be assigned on the basis of the children who begin the school year, but who subsequently drop out. The data anomalies between household surveys and school census data might also be explained by a separate factor: teachers have no system to establish whether or not a child has been previously enrolled in school. In such a situation, children may be incorrectly listed as enrolled in a grade for the first time.<sup>15</sup>

If the repetition rate from the household surveys is applied to total enrollment in Standard 1, as found by the school census statistics (see Table below, point (b)), then the cohort rate of entry reduces from 2.29 to 1.60 (160 percent).<sup>16</sup> The 1998 population census could also

be underestimating the total number of children of the corresponding age. Using a high-end population estimate for Malawi from UN-EFA (United Nations-Education For All), the cohort rate of entry is further lowered to 1.33 (see Table below, (c)).

With a cohort rate of entry to Standard 1 of 1.33 for 1998 (and of 1.39 for 2000), there is still significant unexplained variance. However, given the lack of alternative data, in particular in enrollment numbers, the cohort rate of entry of 1.33 (for 1998) and 1.39 (for 2000) will be used as the most credible estimate.

Population in the 1998 population census may have undercounted the actual population at the entry age to primary. Three scenarios were compared:

- (i) original 1998 population census which represents an annual growth rate for the 6–13 age group of 1.4 percent<sup>17</sup> since the previous population census from 1987;
- (ii) high-end population estimate (UN-EFA) which represents an annual growth rate for the 6–13 age group of 2.7 percent<sup>18</sup> between 1987 and 1998;
- (iii) using the same annual growth rate of 4.9 percent between 1987 and 1998, as

**Entry rate to standard 1, different data sources**

1998 situation	Enrollment standard 1	New entrants	Population age of entry	Cohort rate of entry
(a) MoEST enrollment and 1998 population census data	751,002	638,865	278,438	2.29
(b) MoEST enrollment, but survey average repetition rate (42.9% standard 1), and 1998 population census data	751,002	441,087	278,438	1.60
(c) MoEST enrollment, but survey average repetition rate (42.9% standard 1), and UN-EFA population	751,002	441,087	330,900	1.33

Source: Authors' calculations.

was recorded between 1977 and 1987.<sup>19</sup>

Under scenario (iii) the estimated population of age 6–13 would be 3,118,142<sup>20</sup> for 1998 or 3,439,195<sup>21</sup> for 2000. With an enrollment in primary of 2,805,785 in 1998, and 3,016,972 in 2000 according to the school census, this would give a GER of 90.0 percent in 1998 and of 87.7 percent in 2000, which is significantly below the GER found by the household surveys, and therefore not very plausible.

Also, as can be seen from the table below, the annual growth between 1977 and 1987 is

**Total Populations: 1901–1998 Censuses**

Census Year	Total Population	Avg. Annual Intercensal Growth (%)
1901	737,153*	–
1911	970,430*	2.8
1921	1,201,983*	2.2
1926	1,263,291	1.5
1931	1,573,454	4.4
1945	2,049,914	2.2
1966	4,039,583	3.3
1977	5,547,460	2.9
1987	7,988,507	3.7
1998	9,933,868	1.9

Source: NSO

at the very high end given the historic population data for Malawi. According to the NSO, two specific factors contributed to the more than average population growth from 1977 until 1987 and to lower population growth in the period from 1987 until 1998. First there was the influx of Mozambican refugees during the civil war and the then returning in the period thereafter. For instance, annual population growth rates at district level show that population in the districts that lie along the border with Mozambique grew with the slowest rates.<sup>22</sup> This suggests that the repatriation of Mozambican war refugees who were concentrated in these districts during the 1987–1998 intercensal period had an impact on the growth of the population. The second factor is the impact on population of the AIDS crisis, slowing the growth rate.

Given the fact that UN-EFA estimates take the previously mentioned factors into account, additionally to using advanced demographic modeling, based upon a longer historic trend, this will be considered the most plausible population estimate and will be used. Using the population from UN-EFA and the household survey repetition rate, the cohort rate of entry would be 1.33<sup>23</sup> in 1998 and 1.395 in 2000.<sup>24</sup>

## Repetition rates in the first four grades of primary, comparing countries participating in Monitoring Learning Achievement study, 1999

	Years spent in grade 1				Years spent in grade 2				Years spent in grade 3				Years spent in grade 4			
	1	2	3	>= 4	1	2	3	>= 4	1	2	3	>= 4	1	2	3	>= 4
Botswana	88.5	10.8	.7	.1	93.6	5.7	.6	.1	94.0	4.9	1.0	.1	85.3	13.4	.7	.5
Madagascar	78.5	21.5	0	0	79.2	20.8	0.	0	85	15	0	0	n.a.	n.a.	n.a.	n.a.
Malawi	74.3	21.6	3.5	.6	76.5	21.2	1.9	.4	74.9	22.0	2.7	.4	85.3	13.5	.6	.6
Mali	92.7	7.3	0	0	94.7	5.3	0	0	92.8	6.9	0	0	88.1	11.9	0	0
Mauritius	99.9	.1	0	0	99.7	.3	0	0	99.3	.5	.2	.1	99.1	.6	.1	.1
Morocco	88.6	11.4	0	0	90.7	9.2	.1	0	88.1	11.5	.4	0	91.7	8.3	0	0
Niger	97.8	2.2	0	0	97.2	2.8	0	0	96.5	3.4	.1	0	94.7	5.3	0	0
Senegal	88.6	5.5	.1	5.8	86.7	6.8	.2	0	84.3	7.9	.7	7.1	79.8	12.4	.4	7.4
Tunisia	87.6	12.2	.1	0	85.3	14.5	.1	0	82.0	17.4	.5	.1	85.1	14.5	.3	0
Uganda	83.1	14.0	2.1	.8	83.1	15.1	1.5	.2	85.1	11.4	2.7	.8	83.2	13.9	.7	2.1
Zambia	93.2	6.6	.2	0	92.9	7.0	.1	.1	93.2	5.7	1.1	0	88.5	10.0	.3	1.2

Source: MLA 1999. With Africa for Africa: Towards Quality Education for All.

## Factors in primary school pupil dropout (from Ed Data 2002)

Percentage of de jure children age 5–14, who had dropped out of school, 2002.

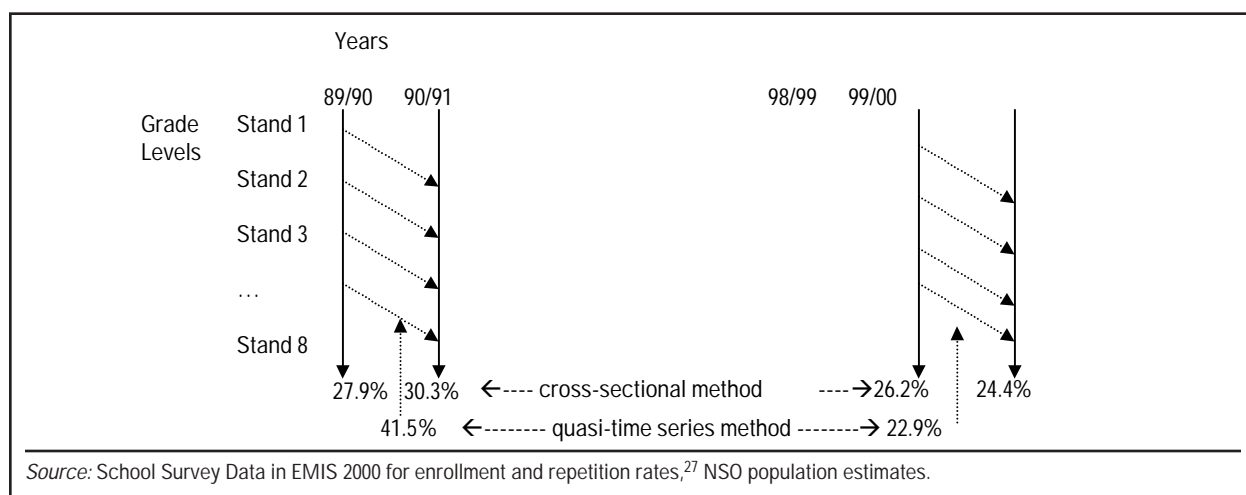
Background characteristic	Cost-related factors			Child factors			School factors				
	Monetary cost	Labour needed	Repeat / exam fail	Enough school	Long- term illness	Disabled	School too far	School travel unsafe	Poor quality	No places in secondary	No jobs
Percentage	24.1	30.4	13.2	44.5	11.7	5.4	9.6	3.5	8.5	1.1	2.9

*Note:* More than one response possible. Questions were asked about a total of 284 children who had dropped out of school. First, the parent/guardian was asked whether a child had dropped out because (s)he was physically or mentally disabled, and if the answer was yes, no further questions were asked about reasons for leaving school. Next, the respondent was asked whether a child had dropped out because (s)he had been very sick for 3 months or longer, and if the answer was yes, no additional questions were asked. There were 16 children who had dropped out because of a disability and 33 who had left because of long illness, so for the remainder of the questions, the sample size was only 237.

## Survival rate in primary, different methods and moments in time

In the table below, different methods and years to calculate the survival rates for primary education are used.<sup>25</sup> They indicate that there is a decline in the number of pupils surviving through to the end of primary in the years prior to FPE (28–30 percent) relative to recent years (24–26 percent) when using a simplified cross sectional approach. Based on the results from the quasi-time series survival estimates<sup>26</sup>, a similar, albeit more stark, picture emerges: it indicates that a student's chances of “survival” throughout primary went down from 41.5 percent in 1989/91 to 22.9 percent in 1998/00.

In this context, it is important to highlight the likely impact of the FPE policy, since after its introduction enrollment increased by more than one million pupils. Here, both the cross-sectional method for recent years and the full-time series method are likely to be distorted by this major enrollment surge that has yet to be reflected in analysis across all grades. The full-time series perspective indicates a figure of 44.9 percent from 1989/90 to 1999/00<sup>28</sup> and this, in effect, reflects the position prior to FPE. Those in Standard 8 in 1999/00 were not very affected yet by the FPE policy, because the huge increase in the number of



children who entered in 1994 as a result of FPE were primarily in Standard 1. The quasi-time series calculations for 1998/00, using data from only two consecutive years, is not

distorted by the FPE policy<sup>29</sup> It therefore more accurately reflects the situation a few years before, and after, the FPE policy.



## Survival rates for primary and secondary using different data sources

### The pattern of access and survival (cross-sectional method), 1999/00<sup>30</sup>

	Intake rate to the grade <sup>31</sup>	Survival Rates (%)
Student in grade 1	129.9	100.0
Student in grade 4	93.1	71.7
Student in grade 5	82.9	63.9
Student in grade 8	33.0	25.4
Student in form 1	29.5	22.7
Student in form 2	30.5	23.5
Student in form 3	23.7	18.3
Student in form 4	17.1	13.2

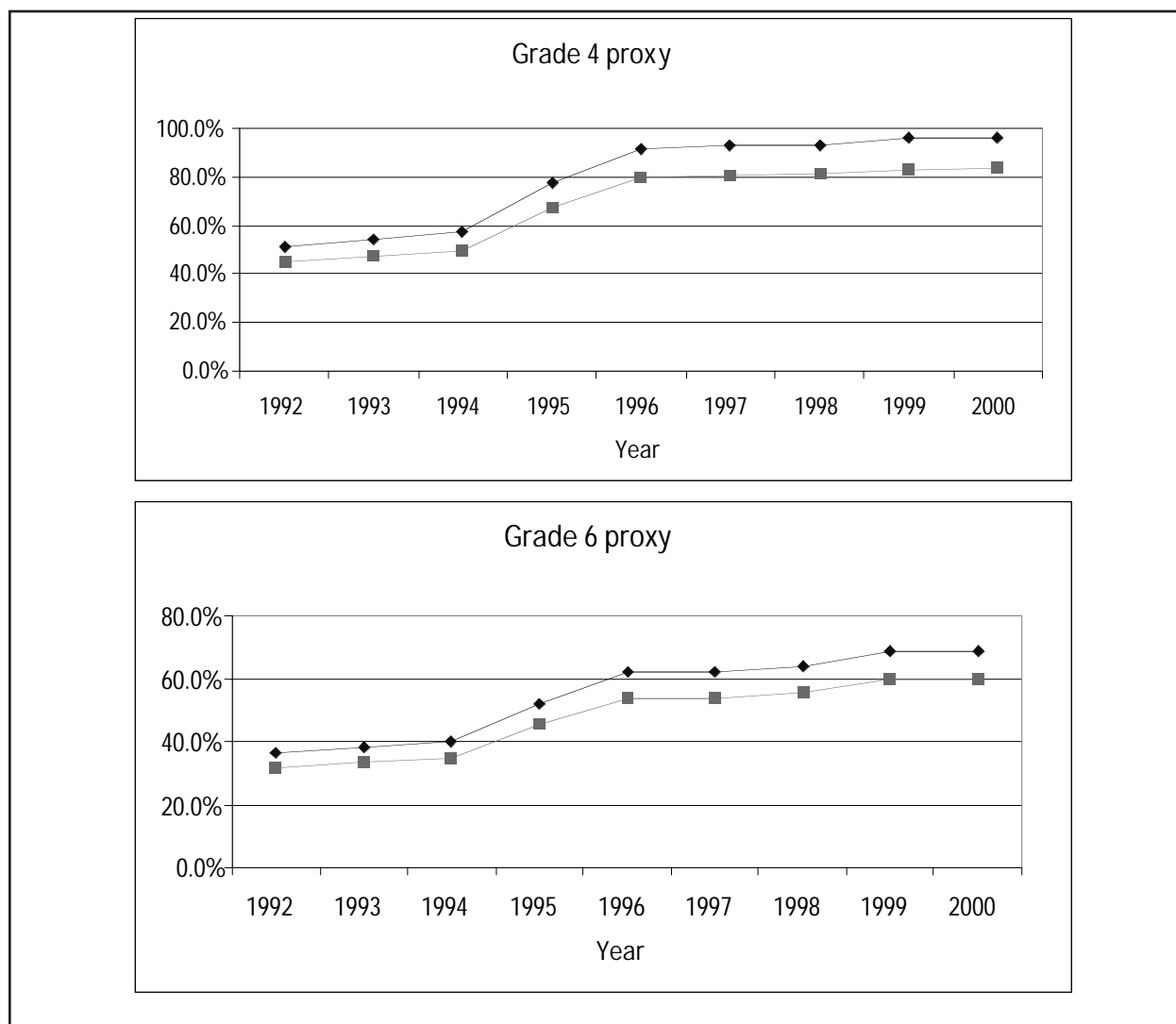
Source: School Survey Data: in EMIS and Basic Education Stats, 2000. DHS 2000 for repetition rates, UN-EFA population. The non-repeaters are calculated using the repetition rate from DHS 2000.

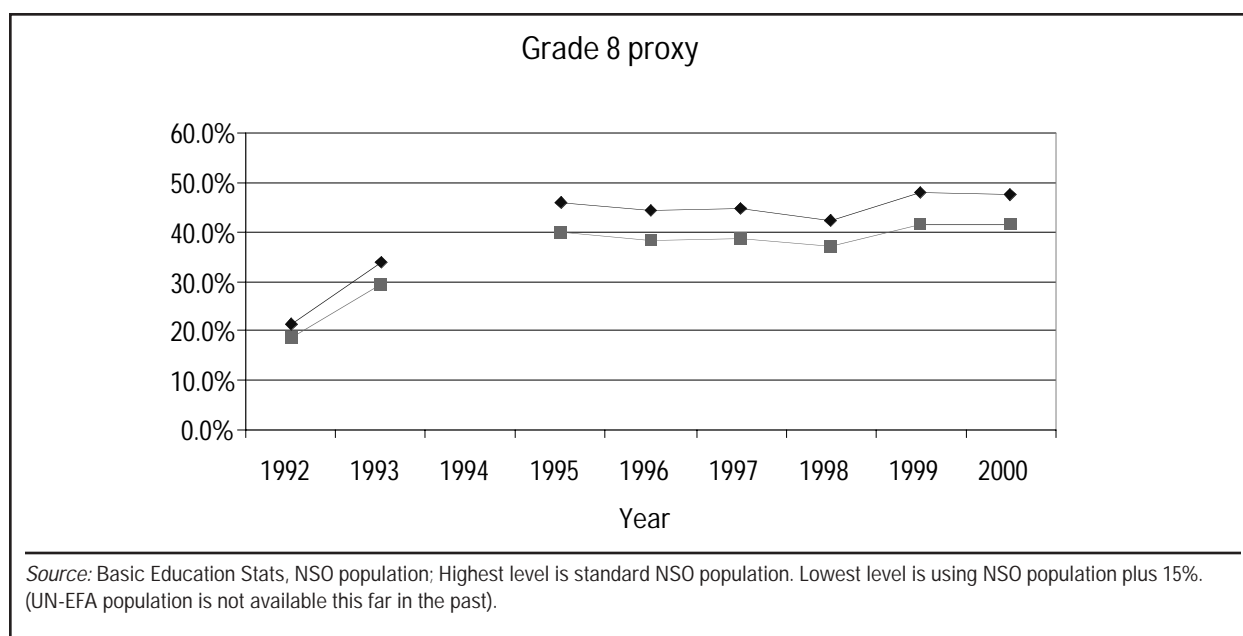
### The pattern of access and survival (cross-sectional method), 1999/00<sup>32</sup>

	Intake rate to the grade	Survival Rates (%)
Students in grade 1	217.3	100.0
Students in grade 4	108.0	49.7
Students in grade 5	97.7	44.9
Students in grade 8	53.1	24.4
Students in form 1	33.6	15.5
Students in form 2	35.1	16.1
Students in form 3	26.2	12.1
Students in form 4	22.7	10.4

Source: School Survey Data: in EMIS and Basic Education Stats, 2000, also for repetition rates. NSO population estimates, version from Oct 2002.

## Proxy primary completion rates for standards 4, 6 and 8 and international comparison





#### Primary GER and completion rates for selected African countries, 1997–2000

Country	Year	GER	Completion Rate
Kenya	1999	91.3	58
Lesotho	2000	102.7	77
Malawi	1999	117	50
Mozambique*	1998	78.5	36
Nigeria	2000	85.1	67
Tanzania	1999	66.4	59
Uganda	2000	102	82
Zambia	1998	84.9	80
Zimbabwe	1997	112	103
Average for 33 African countries	76.6	45.1	

*Source:* Bruns et al. 2002. Note: The numbers are related to the entire primary cycle – or to the first 6 grades, whenever primary is longer than 6 grades.

## Highest grade of instruction offered in primary, and walking time and distance to the nearest school

**Distribution of primary schools by highest grade of instruction offered, 1999/00**

Highest grade of instruction offered	Number of schools		Non-repeaters (new entrants) in Standard 1			
	Long established	Recently established	Long established	Cumulative share	Recently established	Cumulative share
1	2	2	94	0.0%	66	0.0%
2	31	85	3,435	0.5%	7,926	1.2%
3	33	121	3,704	1.1%	10,489	2.8%
4	80	261	10,726	2.8%	23,706	6.5%
5	95	310	10,655	4.4%	31,350	11.3%
6	112	273	13,110	6.4%	28,362	15.7%
7	97	167	13,617	8.5%	17,992	18.4%
Total	4,392		650,829 <sup>33</sup>			

Source: Authors' calculation using EMIS 2000 dataset.

**Walking time and distance to the nearest primary school, in percentage per category, de jure children age 6–14**

Minutes to nearest primary school	0–15	16–30	31–45	45–60	60+	Mean walking time in minutes
Urban	64%	28%	2%	6%	0%	19
Rural	33%	33%	6%	18%	10%	41
Total	36%	32%	6%	17%	9%	39
Kilometers to nearest prim. school	<1	1–2	3–4	5–6	>6	Mean distance
Urban	58%	33%	3%	4%	1%	0.9
Rural	37%	38%	14%	6%	4%	1.9
Total	39%	37%	13%	5%	4%	1.8

Source: Ed Data 2002.

## Description of secondary school types

- (i) **Government Day Schools and Government Boarding Schools:** Operated and funded directly by Government through Education Division Offices.
- (ii) **Grant-Aided Schools:** Operated by church organizations with Government contribution to teachers' salaries and monthly grants for day-to-day running costs. Student tuition and boarding fees are cumulatively much higher than in government schools.
- (i) and (ii) together are also called **Conventional Secondary Schools (CSS)**
- (iii) **Community Day Secondary Schools (CDSSs):** Mostly established and financed by School Committees but in receipt of some government funding to support teacher and staff salaries and assist day-to-day administration requirements.
- (iv) **Private Schools:** Owned by private individuals, or non-governmental organizations, in receipt of no government grants and charge economic fees.
- (v) **Malawi College of Distance Education (MCDE) and Night Schools:** Cater for full-time workers or adults interested in improving their academic qualifications. In addition, youths who fail to secure a place in other secondary institutions can opt to join the MCDE.

## Technical and vocational training description

**T**raditional public technical and vocational training in Malawi consist mainly of two types: an apprenticeship training system; or full-time institutional training. They have been limited in scope; they only enrolled 1,500 students in the combined programs up to the end of the last decade.

Between the years 2000–2003, the Ministry of Labor and Vocational Training indicated that a total of 1,723 male and 883 female students have graduated from the public Technical Colleges, as follows: 936 in ‘construction’; 780 in ‘commercial’; 540 in ‘automobile engineering’ and 350 in the field of ‘engineering’. So despite the large increase during the last decade, the absolute numbers are still small compared to enrollments in secondary education and primary education.

The apprenticeship combines on-the-job training by industry with institutional training by seven Technical colleges—all managed by the Ministry of Labour and Vocational Training. It is a four-year training scheme and is offered in a significant number of technical

trades. The full-time institutional training programs take place in some of the technical colleges and they provide courses to cover the same range of technical trades.

A range of courses are available at the public technical colleges. These include: bricklaying, carpentry & joinery, painting and decorating, plumbing, wood work machining (as a component of ‘construction’), bookkeeping and accounts, secretarial, ICT, auto electrics, motor vehicle mechanics, vehicle body repair and refinishing under ‘automobile engineering’; and electrics/electronics, general fitting, welding and fabrication.<sup>34</sup>

Since 1999, a new TEVET Act has become effective and it also established an independent secretariat called Technical, Entrepreneurial, Vocational Education and Training Authority (TEVETA). The main aim is to link Technical & Vocational Training more closely with the private sector by promoting a demand driven, modular, technical and vocational training system; monitoring gaps between supply and demand; supporting the application of appro-

### Enrollment in public technical & vocational colleges

Year	1991/92	1993/94	1995/96	1998	1999	2000 (estimate)
Enrollment	840	1007	1054	1308	1290	1504

Source: Basic Education Statistics.

prate technologies; and promoting managerial and business skills and a spirit of entrepreneurial culture in respect to both wage and self-employed personnel.

Funding for this new approach is innovative in the Malawian context. Since the fees paid by trainees do not cover the economic cost of the training provided, additional funding is generated in two ways. Firstly, the training provider institutions arrange various parallel income-generating activities and secondly, a TEVET fund has been set up into which private sector and government employers pay a 1 percent payroll-levy. It is also intended that the funding will be further topped-up through additional available HIPC debt relief and cooperating partner support.

In addition to assuming responsibility for the traditional technical colleges, TEVETA also supports staff training programs for private sector employees and it reimburses part of the training costs incurred by the employer for approved training. This scheme benefited 259 employees from 13 companies in 18 courses between July 2002 and June 2003. TEVETA conducts a number of other training programs which use local masters, for instance, in carpentry, cane furniture production, etc. and it is intended to increase the range of available course still further. On completion of all courses official certificates are issued.

The box below provides a typical example of the ad-hoc training supported by TEVETA.

### **Example of training scheme supported by TEVETA**

In an effort to promote skills training for unemployed people, four partners are working together. First there is the German donor KfW, which supports the construction activities of income-generating urban infrastructure, such as craft centers, markets, bus stations, commercial areas, etc. They contract construction companies and make training activities a part of their tender papers. The selected construction company, as another partner, is responsible for providing skilled laborers who will implement the training. The company contracts trainees, for three months, who are entitled to receive a wage lower than the skilled laborers.

The town assemblies of the smaller urban centers where the infrastructure works are taking place form a third party in the initiative. They are responsible for the selection of young people to serve as trainees, for example, school dropouts or unemployed.

TEVETA has the overall responsibility for ensuring a consistent quality assurance system is in place. The training staff and the site agents of the construction companies have participated in a seminar on how to conduct the training and assessment and TEVETA developed the assessment documentation. In order to ensure greater public confidence and confirmation of the internal assessment results, external assessors from industry, and from private and public training institutions, have been trained and contracted by TEVETA. The assessment results are forwarded to TEVETA to validate and certify the candidates. The training participants can also gain credits and build up a national, recognized qualification if they wish to extend the training with other providers.

TEVETA also attempts to implement similar training arrangements with other industrial partners or donor agencies. It is currently in discussion with DFID on how to include this initiative in their school construction program and with the World Bank MASAF program which funds construction and rehabilitation projects with community participation.

*Source:* "Promotion of non-formal Technical Entrepreneurial Vocational Education Training components in Malawi" by TEVETA.



## Recurrent and development expenditures at real prices

REAL 1994 MK	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–00	2000–01
Total educ sect	660,732,755	524,632,658	593,277,761	560,237,053	610,623,791	547,507,087	576,552,527	183,193,436
Recurrent	367,145,786	337,897,231	414,627,724	397,063,144	506,864,170	443,771,990	483,224,170	98,377,295
Development	293,586,969	186,735,427	178,650,037	163,173,909	103,759,621	103,735,097	93,328,357	84,816,141
MOEST	550,477,362	418,203,500	490,731,479	465,321,484	503,978,060	457,758,775	468,978,521	373,051,496
Recurrent	268,955,551	250,238,212	323,570,621	313,547,606	400,765,483	354,023,679	375,650,164	302,468,863
PE	199,320,515	166,302,180	240,546,637	223,742,530	297,765,647	262,137,348	248,828,100	n.a.
other	69,635,035	83,936,032	83,023,985	89,805,076	102,999,836	91,886,331	126,822,064	n.a.
Development	281,521,812	167,965,288	167,160,857	151,773,878	103,212,577	103,735,097	93,328,357	70,564,633
Subvented org	110,255,392	106,429,157	102,546,283	94,915,569	106,645,731	89,748,312	107,574,006	112,628,803
Recurrent	98,190,235	87,659,018	91,057,103	83,515,538	106,098,687	89,748,312	107,574,006	98,377,295
Development	12,065,157	18,770,139	11,489,180	11,400,031	547,044	n.a.	n.a.	14,251,508

*Source:* PER for data until 1998/99. For 1999/00, primarily from Basic Education Statistics. For 2000/01, from 'Consolidated annual appropriation accounts'.

## Recurrent, development and total expenditure by sub-sector over time, in real 1994 MK and in percentage of total

REAL TERMS (1994 '000 MK)	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001/02	2002/03
Recurrent	367450	337897	406019	397048	506864	394942	484428	400864	577031	628947
Admin	29956	36416	19412	20517	29475	17549	27676	56203	29169	20547
Primary	178662	165638	240028	236883	300739	240183	275846	193023	307109	381581
Secondary (including MCDE)	44066	32137	38322	38679	45409	40835	67264	46031	90280	66514
Teacher ed.	12849	12173	13238	13796	16676	6627	6068	7230	37597	34992
Tech & voc.	3726	3873	3961	3658	8468	n.a.	n.a.	n.a.	n.a.	n.a.
Tertiary	70202	66465	70792	66436	90168	74953	90397	79932	83956	107667
Other subvented orgs.	27988	21195	20265	17080	15931	14795	17177	18445	28921	17645
Development	293587	186735	178650	163174	103760	103735	93328	123059	157434	179126
Admin.	25054	14453	15129	3181	3298	8147	4340	2470	13511	13887
Primary	95312	77283	82640	91323	86607	85232	29292	43979	35633	9401
Secondary (including MCDE)	89322	65705	44608	26780	6782	9477	56614	71807	104190	144872
Teacher ed.	71834	10524	24784	30490	6526	880	3082	4803	4101	10966
Tertiary	4246	12531	8570	6929	494	n.a.	n.a.	n.a.	n.a.	n.a.
Other subvented orgs.	7819	6239	2919	4471	53	n.a.	n.a.	n.a.	n.a.	n.a.
Recurrent+development	657311	520759	580708	556564	602156	408929	470183	425546	621588	682760
Admin.	55011	50869	34541	23698	32773	25695	32016	58673	42679	34434
Primary	273973	242922	322668	328207	387346	325415	305138	237002	342742	390982
Secondary (including MCDE)	133388	97842	82930	65459	52191	50311	123878	117837	194469	211387
Teacher ed.	84684	22697	38023	44286	23201	7507	9151	12034	41697	45958
Tertiary	74449	78996	79362	73365	90662	n.a.	n.a.	n.a.	n.a.	n.a.
Other subvented orgs.	35807	27433	23184	21550	15984	n.a.	n.a.	n.a.	n.a.	n.a.

*(continued on next page)*

	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
Recurrent expenditure	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Admin	8%	11%	5%	5%	6%	4%	6%	14%	5%	3%
Primary	49%	49%	59%	60%	59%	61%	57%	48%	53%	61%
Secondary (including MCDE)	12%	10%	9%	10%	9%	10%	14%	11%	16%	11%
Teacher ed.	3%	4%	3%	3%	3%	2%	1%	2%	7%	6%
Tech & voc.	1%	1%	1%	1%	2%	n.a.	n.a.	n.a.	n.a.	n.a.
Tertiary	19%	20%	17%	17%	18%	19%	19%	20%	15%	17%
Other subvented orgs	8%	6%	5%	4%	3%	4%	4%	5%	5%	3%
Development expenditure (on-budget only)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Admin.	9%	8%	8%	2%	3%	8%	5%	2%	9%	8%
Primary	32%	41%	46%	56%	83%	82%	31%	36%	23%	5%
Secondary (including MCDE)	30%	35%	25%	16%	7%	9%	61%	58%	66%	81%
Teacher ed.	24%	6%	14%	19%	6%	1%	3%	4%	3%	6%
Tertiary	1%	7%	5%	4%	0%	n.a.	n.a.	n.a.	n.a.	n.a.
Other subvented orgs.	3%	3%	2%	3%	0%	n.a.	n.a.	n.a.	n.a.	n.a.
Total expenditure	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Admin	8%	10%	6%	4%	5%	6%	7%	14%	7%	5%
Primary	42%	47%	56%	59%	64%	80%	65%	56%	55%	57%
Secondary (including MCDE)	20%	19%	14%	12%	9%	12%	26%	28%	31%	31%
Teacher ed.	13%	4%	7%	8%	4%	2%	2%	3%	7%	7%
Tertiary	11%	15%	14%	13%	15%	n.a.	n.a.	n.a.	n.a.	n.a.
Other subvented orgs	5%	5%	4%	4%	3%	n.a.	n.a.	n.a.	n.a.	n.a.

Sources: PER for data until 1998/99. For 1999/00, primarily from Basic Education Statistics. For 2000/01, from 'Consolidated annual appropriation accounts'. For 2001/02 and 2003/03 the data are 'approved estimates' from FOM Draft Estimates of Expenditure and Financial Statements.

Note: it is important to remember that the percentages from 1998/99 onwards for development expenditure and total expenditure are not completely comparable to the years before, seen no data is available on development expenditure for sub-vented organizations.

## International comparisons of unit costs

Region <sup>35</sup>	Number of countries	Public spending as a multiple of per capita GNP			Public spending as a multiple of spending in primary education	
		Primary	Secondary	Higher	Secondary	Higher
Francophone Africa	15	0.15	0.49	5.6	3.3	37.3
Anglophone Africa	9	0.10	0.66	6.3	6.6	63.0
Latin America/Caribbean	10	0.07	0.11	0.7	1.6	10.0
Asia	8	0.08	0.19	0.9	2.4	11.3
Middle East/North Africa	6	0.11	0.30	0.9	2.7	8.2
Malawi		0.04	0.21	14.89	5	348
Mozambique		0.07	0.40	6.41		
Kenya		0.12	0.34	4.0		
Zambia		0.04	0.37	2.3		
Madagascar		0.06	0.20	2.6		

*Source:* Mingat and Suchaut (2000) for the regional values, with data from 1993. World Bank Sector Studies for individual countries, with data from 1998. For Malawi authors' calculations, using 2000/01 actual expenditure data. Note: For higher education, refers to per-student spending in traditional public institutions.

## Nominal per pupil expenditure by sub-sector (current USD)

	93/94	94/95	95/96	96/97	97/98	98/99	99/00
Primary	10	5	13	15	12	9	14
Secondary CSS only	116	80	132	148	125	71	118
Secondary as a whole	61	33	49	46	30	19	29
Teacher ed.	366	363	687	317	119	45	n.a.
Technical	382	330	576	517	740	n.a.	n.a.
University	2,900	2,434	2,998	3,271	4,571	2,617	2,650

*Source:* PER and authors' calculations. For university 93/94 – 96/97 is from PER, thereafter authors' calculations using official enrollment, exchange rate, and actual expenditure data received from UNIMA (thus this does not include Mzuzu University).

## Decomposition of 1999/00 and 2000/01 education sector development expenditure by source

### 1999/00 Education Sector Development Expenditure

Program	Part I: Loans	% of dev bud	Part II: GoM	% of dev bud	Develop- ment budget	% of total	Bilateral (Estimate)	% of total	Total	% of total
Total	516,234,000	89%	65,127,000	11%	581,361,000	35%	1,065,360,000	65%	1,646,721,000	100%
Primary	146,814,000	80%	35,650,000	20%	182,464,000	26%	506,620,000	74%	689,084,000	42%
Secondary	324,023,000	92%	28,636,000	8%	352,659,000	60%	238,000,000	40%	590,659,000	36%
Teacher. ed	19,096,000	99%	105,000	1%	19,201,000	6%	313,740,000	94%	332,941,000	20%
Admin.	26,301,000	97%	736,000	3%	27,037,000	79%	7,000,000	21%	34,037,000	2%

### 2000/01 Education Sector Development Expenditure

Total	492,902,000	89%	59,672,000	11%	552,574,000	30%	1,295,235,000	70%	1,847,809,000	100%
Primary	302,617,000	88%	41,772,000	12%	344,389,000	33%	691,451,000	67%	1,035,840,000	56%
Secondary	134,409,000	89%	16,818,000	11%	151,227,000	43%	204,490,000	57%	355,717,000	19%
T. Ed	37,615,000	100%	0	0%	37,615,000	14%	234,016,000	86%	271,631,000	15%
Tertiary	0	n.a.	0	n.a.	0	n.a.	n.a.	n.a.	n.a.	n.a.
Other ed. orgs.			0							
Admin.	18,261,000	94%	1,082,000	6%	19,343,000	10%	165,278,000	90%	184,621,000	10%

Source: PER for 1999/00 and for 2000/01 off-budget estimates. For 2000/01, from 'Consolidated annual appropriation accounts'.

## Off-budget bilateral grant support for education

Project		Years	Currency	Cost (mill.)	Disbursed to date	2002 disbursement
<b>Primary Education</b>						
USAID	Quality and Efficiency	2001–06	US\$	22.0	10.5	
UNICEF	School health and hygiene	2002–06	US\$	2.4		1.3
KFW	Physical infrastructure	1997–2004	Euro	13.8	12.0	2.9
DFID	Sector support program	2001–07	Sterling	61.0	1.7	
Netherlands	Sector support program	2001–07	Sterling	17.7	2.2	
WFP	mid-day meals	2002–06	US\$	7.7		
<b>Primary and Secondary</b>						
GTZ	Teacher education/curriculum	2002–05	US\$	4.7	0.6	
CIDA	Textbooks	1999–04	US\$	15.0		
CIDA	Trained teachers for CDSS	1999–04	US\$	5.0		



## Examples of potential problems from extra-budgetary funding and uncoordinated donor financing

The externally financed textbook initiative costs US\$4.80 per enrolled primary student<sup>36</sup>; this figure can be compared to the current US\$2.70 per student provision for teaching learning materials. However, inclusion of a similar level of textbook provision would raise expenditure on teaching-learning materials by 1.8 times and result in substantial increases in the recurrent budget. As such, the financing of textbooks through extra-budgetary grants, artificially lowers the cost to the government—and to the recurrent budget—but it also results in a failure to explore more cost-effective, and sustainable, strategies to provide textbooks. Since a regular supply of textbooks is obviously important if the quality goals, outlined in the government policy documents, is paramount.

This should include a more detailed analysis of sustainable textbook provision, including examination of the book chain and measures to improve writing, publishing, printing and distribution. The second example relates to construction costs and illustrates how uncoordinated donor funding can undercut efforts to find cost-effective strategies that might eventually become domestically sustainable. As the table below shows, the cost of constructing one classroom, a single pit latrine and a borehole, varies from one donor project to another. For example, the Malawi Social Action Fund (MASAF) uses a community based approach and is about 30–60 percent cheaper—although this lower cost may hide (i) in-kind contribution by communities, (ii) variance in standards and (iii) likely lifespan.

**Cost of construction in different projects**

Project	Donor	Cost \$'000	MASAF cost \$'000	Percentage Difference
Classroom Block	DFID	15	9.5	36.7
Classroom Block	DANIDA	22.5	9.5	57.7
Classroom	GOM Building	15	9.5	36.7
Single Pit Latrine	DFID	1.4	0.4	71.4
Single Pit Latrine	GOM Building	1.5	0.7	53.3
Borehole	DFID / DANIDA	4.4	3.2	27.3
Water – Borehole	GOM Building	16.2	8	50.6

Source: January 2003, "Review of cost Effectiveness and Design Standards." EMC Jatula Associates, Malawi (in "PAD – Third Social Action Fund." Report 25562–MW. April 2003)

## Household monetary contribution to primary education as a percentage of household income (or expenditure)

In percentages	Uganda	Malawi	Zambia	Kenya**
Urban	5.5	7.7	5.0	
Rural	1.8	8.2	1.7	
Lowest	1.5	5.1	2.0	3.0 (15.6)
Second	1.5	2.2	1.0	4.0 (21.0)
Third	1.1	1.2	0.9	4.5 (20.2)
Fourth	1.2	1.2	1.2	5.0 (16.3)
Highest	2.7	1.0	3.1	5.9 (12.1)
Total			4.2	4.8 (14.9)

*Sources:* Authors' calculations using Malawi, Uganda, Zambia DHS EdData Survey 2001 for household (HH) education spending. For Kenya results are from WB education sector review draft "Education and Training in Kenya" from 2003 using DHS 1998 input data. \*\* In the case of Kenya this represents the results for both primary and secondary education and not just for primary. The number in parentheses indicates education expenditure as a % of only non-food expenditure.

## Index of efficiency for primary

	Promotion rate	Repetition rate	Dropout rate	Yearly dropout	Cumulative dropout	Survivors
1	55.3%	45.3%	-0.6%*	-0.6	-0.6	100.0
2	63.7%	24.2%	12.1%	12.1	11.6	88.4
3	64.1%	27.2%	8.7%	7.7	19.3	80.7
4	75.4%	17.2%	7.4%	6.0	25.3	74.7
5	64.8%	15.2%	20.0%	15.0	40.2	59.8
6	73.0%	12.5%	14.5%	8.6	48.9	51.1
7	58.0%	11.4%	30.6%	15.6	64.5	35.5
8	53.3%	38.6%	8.1%	2.9	67.4	32.6

Sources: EMIS 2000 for enrollment, DHS 2000 for repetition rates, UN-EFA for population

- Promotion rate = non repeaters in grade X+1 in year 2 divided by total enrollment in grade X in year 1
- Repetition rate (as used in DHS2000) = percentage of students in a given grade who are repeating that grade
- Dropout rate = 1 – Promotion rate – Repetition rate
- Cumulative dropout year 2 = Cumulative dropout year 1 + Yearly dropout
- Yearly dropout in year 2 = dropout rate in year 2 \* (100 – Cumulative dropout year 1)
- Survivors year 2 = 100 – Cumulative dropout year 1

(Calculating the yearly dropout is a step that is required because the absolute numbers of dropouts as a result of the same dropout rate in standard 5 for instance will be lower than in standard 1, seen we are already dealing with a lot fewer pupils in the system)

\* The slightly negative value here is a result of combining data from two different sources, i.e. enrollment from the school census and repetition rate from the DHS household survey.

To indicate how the efficiency index is calculated, it is convenient to use a pseudo cohort of 100 pupils entering Standard 1 and see how they progress. As shown in the table above, it is estimated that 33 eventually will survive through to Standard 8. To produce these 33 students in Standard 8, it would have been necessary theoretically to finance 261 (32.6x8) years of schooling in absence of repetition and dropouts.

However, in reality the system requires a larger number in early grades that progressively shrinks as grades evolve. The consequence is that to finally produce the 33 pupils in Standard 8, the system has to finance in each grade the number of survivors until that level, increased by the repeaters. For instance in Standard 1 that would be 145, as a result of  $100 + (100 \times 45.3\%)$ ; or in Standard 5 that would be 69, as a result of the 60 survivors

until this level plus the repeaters  $60 \times 15.2\%$ . Summing this over all the grades for primary, this would give a total of required actual years to finance of 657 to ultimately produce the 33 students in Standard 8.

Dividing the number of school years the system effectively needs to finance to produce these 33 Standard 8 students by the theoretical number of years (261), we get the efficiency ratio (a value of 1 would describe a system without dropout nor repetition). The index of overall efficiency in the case of Malawi is 39.7 percent, indicating by complement to 1, that 60.3 percent ( $100 - 39.7$ ) of the public resources are used on children who never finish primary or on repetition years (even of those who eventually finish).

Additionally, it is possible to look at what would be the situation in case there would be

no repetition in the system (only drop-out). In that case, to produce the 33 pupils in Standard 8, the system has to finance in each grade the number of survivors (not loaded by the repetition rate). For instance in Standard 1, that would be 100; or in Standard 5 that would be 59.8. Summing this over all the grades for primary, this would give a total of required actual years to finance of 523 to ultimately produce the 33 students in Standard 8. Therefore the efficiency ratio in this case would increase to 49.9 percent.

It is also possible to look at the difference between the number of years required under the previous two scenarios (657 and 523). This gives an indication for the efficiency of a system where no dropout would exist but only the actually existing repetition would remain. This efficiency is 79.6 percent ( $523 / 657$ ).

## Allocation of teachers in public primary schools in each individual district, and pupil teacher ratio by district, 2000

District	No. of schools	Randomness	PTR	PTR qualified teacher
Mchinji	154	37	60	127
Lilongwe City	44	(48)	38	66
Lilongwe Rural East	197	45	72	186
Lilongwe Rural West	193	60	64	148
Dedza	188	60	72	136
Ntcheu	223	54	71	155
<i>Central Western</i>			62	131
Mangochi	165	28	82	192
Balaka	95	34	58	125
Machinga	96	27	76	179
Zomba Urban	12	(9)	49	57
Zomba Rural	133	69	70	146
<i>South Eastern</i>			70	146
Blantyre City	40	(17)	56	80
Blantyre Rural	145	24	54	128
Mwanza	99	29	62	111
Chikwawa	141	22	75	152
Nsanje	101	67	62	115
<i>South Western</i>			60	109
Chiradzulu	80	48	62	104
Thyolo	174	37	71	146
Mulanje	140	48	71	132
Phalombe	81	21	75	184
<i>Shire Highlands</i>			70	136

(continued on next page)

District	No. of schools	Randomness	PTR	PTR qualified teacher
Mzuzu City	22	(17)	42	60
Chitipa	158	51	52	82
Karonga	293	29	58	90
Rumphi	121	39	52	82
Mzimba North	224	55	61	110
Mzimba South	220	52	61	114
Nkhata Bay	147	40	64	118
<i>Northern</i>			57	95
Kasungu	293	54	64	134
Nkhotakota	132	30	65	131
Dowa	201	47	59	134
Salima	116	50	67	138
Ntchisi	115	61	66	117
<i>Central Eastern</i>			63	132
<b>TOTAL</b>			<b>65</b>	<b>133</b>

Source for randomness: authors' calculations based upon EMIS 2000.

Source for PTR and PTR qualified teacher: Basic Education Statistics 2000.

Note: The values in parentheses are less reliable, because they represent very few schools and as result even very few schools that are extremely different from the norm can significantly influence the overall result.

## Current teacher deployment process in primary

**T**he inequities in teacher deployment result from inadequate enforcement of existing policies and a need to improve existing policies, particularly at the district level where the recruitment of teachers needs to take account of the following:

- Pupil-teacher ratio (objective 60:1);
- Teacher attrition due to retirement, death and resignations;
- The assignment of teachers to newly completed schools on the basis of the number of classrooms and standard classroom/teacher ratios.

However, the above criteria, especially the pupil-teacher ratio, are not fully applied, because there are recruitment constraints set by:

- The amount of finances allocated to the education sector for man power development by both the Department of Human Resource Management and Development (HRMD) and the Ministry of Finance education sector; and

- The budgetary ceilings allocated to personal emoluments for the different levels of education.

Once districts have prepared their teacher requirements, the information is circulated to the division for consolidation. Thereafter, the divisions pass district teacher requirements data to the HR services section of the MOEST for further consolidation and an estimation of national teacher requirements. These national teacher needs are then submitted to the HRMD, Ministry of Finance, Office of the President and Cabinet. If all three departments approve these numbers, then MOEST's HR services section sends the information to the Teacher Service Commission (TSC) and they initiate the recruitment process by instructing the districts to recruit.

At the district level, a district manager has to approve all transfers where a teacher is accompanying a spouse.<sup>37</sup> Although most district managers endeavor to reflect local PTRs, they are persistently pressurized by families who wish to remain together when a spouse is relocating (typically from rural to urban areas). Furthermore, teachers appear to apply pressure through various networks and thereby make it even more difficult for the DEMs to manage deployment in an



impartial manner. Indeed, at times, teachers do not report that they have moved.

In addition, teachers employed at central level can work anywhere in Malawi. For example, if teachers wish to transfer from one district to another, they do not need to resign—even if it is known that the district they are going to has already achieved the required PTR—and this practice results in a disproportionate number of teachers in urban schools. When this happens, the budgetary salary allocation follows these teachers wherever they go rather than remaining with the district that initially hired these teachers.

The reasons for the inconsistencies in deployment practices among individual schools within single districts are not fully clear, but issues that motivate this frequent mobility are: spouse relocation considerations; a desire for improved access to roads and facilities; lack of housing or incentives to remain in remote rural regions; and lack of promotional opportunities. In addition, the lack of knowledge or information sharing by schools and PTAs about the situation in other schools in the district, or about the existence of powers to redress the situation for individual schools, may be equally significant.

## Percentage of pupils in standard 6 reaching minimum and desirable mastery levels in reading literacy, 1998

	Minimum Mastery Level %	Desirable Mastery Level %
Gender		
Boys	24.3	0.7
Girls	18.7	0.6
Socio-Economic Level <sup>38</sup>		
Very Low (0–2)	14.4	0.0
Low (3)	14.0	0.6
High (6–7)	27.3	0.8
Very High (8–9)	32.4	3.1
School Location		
Rural	19.7	0.2
Small Town	19.9	0.0
Large Town	43.8	5.0
Malawi	21.6	0.6

*Source:* SACMEQ Study, 2001.

## AIDS/HIV

**T**he table below summarizes the results and impact on teachers over a 10-year period, with and without HIV/AIDS, and with negative impact on repetition and dropout rates. The growth rates for the total and the school-age population are assumed to be 2.2 and 3.0 percent, respectively, in the absence of HIV/AIDS.<sup>39</sup>

The attrition rate, without AIDS, reflects current attrition rates due to retirement, death, or changes in employment. But HIV/AIDS will impact on women's fertility and mortality rates and result in lower growth rates in the population of school-age children. As a result, fewer teachers will be needed to maintain the ratio of pupils per teacher. For example, instead of

requiring 75,600 teachers by 2014, only 73,600 teachers will be required because of the slightly smaller school-age population. This scenario assumes that with the current growth in the school population (3.2 percent in 1987 and 2.2 percent in 1998), the number of teachers would need to increase from 50,000 in 2000 to 75,600 by 2014—an increase of 25,600. However, because HIV/AIDS also affects the mortality rate of teachers, the replacement of teachers due to deaths caused by AIDS will need to double by 2014—from approximately 3,000 teachers under normal attrition conditions to 6,500 teachers due to normal attrition combined with the impact of AIDS.

**Increases or decreases in school enrollment, teachers under three AIDS scenarios from 2000 to 2014 assuming steady state (no changes in pupil teacher ratio (PTR))**

	Without AIDS	With AIDS	With AIDS and adverse impact on repetition and drop out rates
School Population	+ 1,500,000	+1,400,000	–100,000
Total teachers 2000	50,000	50,000	50,000
Total teachers 2014	75,600	73,600	48,300
Total increase in teachers	+25,600	+23,600	–1,700
Teachers required per year	+3,000	+6,500	+3,700

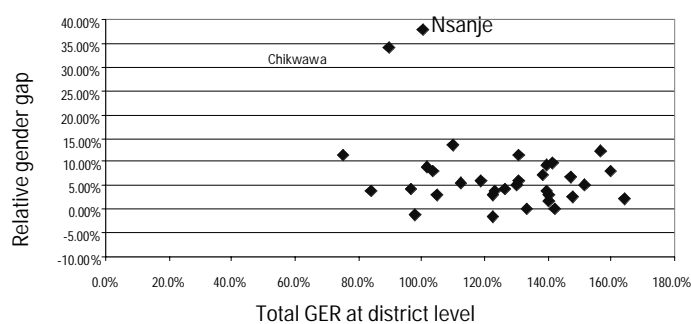
Source: 2001 study "The Impact of HIV/AIDS on Primary and Secondary Schooling in Malawi: Developing a Comprehensive Strategic Response."<sup>40</sup> World Bank calculations.

Evidence from the HIV/AIDS pandemic in Uganda, Malawi, and Zambia suggests that the growth rates in both total and school-age population will decline. Both population groups will grow at a slower pace, although growth of the school population will remain almost unchanged. It is assumed that the attrition rate due to death from AIDS will increase in the region of 3 percentage points to 7 percent. Therefore, it is calculated that during the period 2000 to 2014, government will need to increase the annual replacement of teachers by 100 percent because of deaths from AIDS. This phenomenon clearly has important implications for the development of the pre- and in-service teacher training systems and the issue is discussed in the main body of this report. Finally, the total number of teachers that will be required by 2014, and the recurrent cost implication, appear largely neutral; however the cost and training implications for the replacement of these teachers is enormous.

The 2001 study<sup>41</sup> estimates that the school age population will actually decline from its current level of approximately 3 million pupils to 2.8 million pupils. This decline reflects the negative impact on repetition and dropout rates, as described in the last scenario. It also

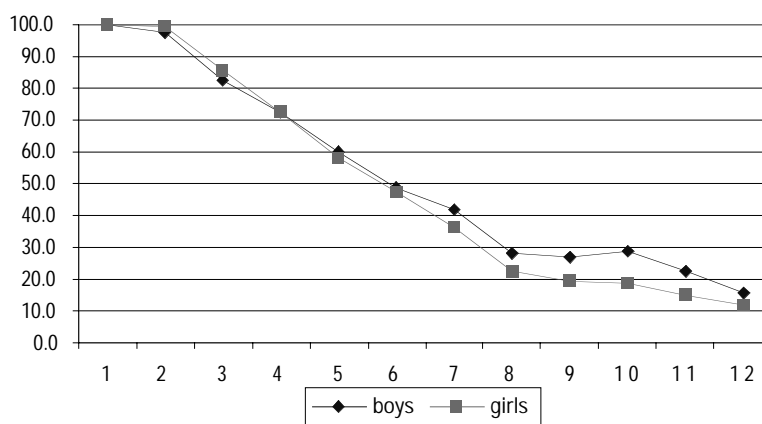
reflects the adverse effects on attendance, the increasing number of orphans and the growing poverty—especially during the hungry season—as a result of HIV/AIDS. Furthermore, the many orphaned and impoverished children will not have access to education under the current framework and support mechanism. Based on this scenario, namely, maintaining a constant PTR with no improvement in the retention rate, the number of teachers required will actually fall by 1,700 teachers to a total of approximately 48,300. Consequently, government will need to recruit additional teachers but on a smaller scale. In effect, an additional 700 (total + 3,700 p.a.) new teachers need to be recruited annually to replace the teachers who have died from AIDS. The negative consequences of both the annual training and the replacement of teachers, as well as improving the retention and access of an increasing number of children who will be orphaned, has significant implications for attaining universal primary education in Malawi. Furthermore, the teaching and learning conditions for students who actually attend school will undoubtedly be adversely affected by the higher level of teacher and student absenteeism because of illnesses and increasing opportunity costs.

## Relative gender gap and GER in the different districts, 2000



Source: Basic Education Statistics and UN-EFA population.

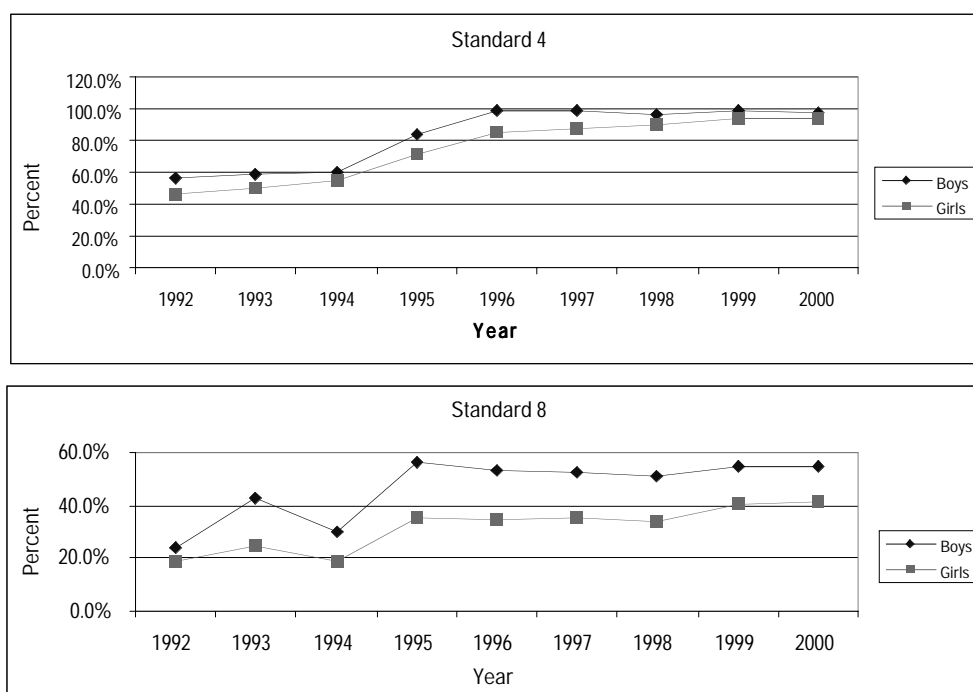
## Estimated survival rate by gender in primary and secondary, 2000 (cross-sectional method)



Source: EMIS for enrollment, DHS2000 for repetition, UN-EFA population.

Note: The last point of measurement is the new enrollment (non-repeaters) in form 4, NOT the MSCE passers.

## Completion rates for standards 6 and 8 (PSLCE passers), by gender



*Source:* Basic Education Statistics for enrollment and repeaters, and NSO population.

*Notes:* 'Proxy' completion is calculated as the number of non-repeating students in Std. 6 divided by the corresponding age cohort. UN-EFA population is not available this far in the past, nor are household surveys for repetition rates. However, seen that the goal is to look at relative difference in completion by gender, the potential shortcomings in population estimates and repetition rate are less relevant.



## Incidence of public education expenditure by consumption quintile and sex, 1997/98

	Poorest 20%	2nd	3rd	4th	Richest 20%
Female					
All	16	19	20	20	26
Primary	22	21	21	20	16
Secondary	9	16	16	23	36
University	0	11	28	0	61
Male					
All	16	20	19	20	25
Primary	21	22	21	19	16
Secondary	13	19	16	21	30
University	0	14	22	16	49

Source: 1997/98 Malawi data from IHS 1997/98 and MoE (1998) as found in PER

## Recent enrollment numbers and graduates from UNIMA and Mzuzu University

**Student Enrollment By College/Faculty And Year, Unima<sup>42</sup>**

COLLEGE	1997		1998		1999		2000		2001	
Faculty	M	F	M	F	M	F	M	F	M	F
<b>BUNDA COLLEGE OF AGRICULTURE</b>										
Agriculture (Total)	382	116	370	120	400	109	382	72	488	104
<b>CHANCELLOR COLLEGE</b>										
Education	388	162	385	134	441	117	430	117	467	140
Humanities	115	82	107	72	114	73	147	93	150	88
Law	51	19	68	28	76	29	95	34	95	37
Science	192	48	189	53	210	50	207	61	194	61
Social Science	322	114	182	74	237	101	210	114	201	122
Total (College)	1068	425	931	361	1078	370	1089	419	1107	448
<b>COLLEGE OF MEDICINE</b>										
Medicine (Total)	70	23	70	23	70	23	70	23	70	23
<b>KAMUZU COLLEGE OF NURSING</b>										
Nursing (Total)	47	192	65	198	67	164	80	168	74	196
<b>THE POLYTECHNIC</b>										
Applied Studies	142	40	165	37	172	40	262	44	149	35
Commerce	385	123	352	110	317	121	295	118	355	151
Education and Media Studies	—	—	—	—	—	—	—	—	125	32
Engineering	374	25	350	27	373	27	353	29	357	35
Total (College)	901	188	867	174	862	188	910	191	986	253
<b>TOTAL (University)</b>	<b>2468</b>	<b>944</b>	<b>2303</b>	<b>876</b>	<b>2480</b>	<b>853</b>	<b>2528</b>	<b>874</b>	<b>2726</b>	<b>1018</b>
<b>GRAND TOTAL</b>	<b>3412</b>		<b>3179</b>		<b>3333</b>		<b>3402</b>		<b>3744</b>	

Source: UNIMA.

**Graduates by degree, Unima<sup>43</sup>, 1995–2001**

Award	95		96		97		98		99		00		01	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Bachelor of Arts	8	6	10	11	21	26	19	27	10	20	23	21	18	22
Bachelor of Arts (Hum.R/Mgt)	0	0	0	0	0	7	12	7	12	8	0	0	8	45
Bachelor of Arts (Pub. Adm)	18	7	18	5	24	2	12	3	14	4	9	3	13	32
Bachelor of Arts Theo. & Relig.Studies	0	15	2	10	1	0	1	17	0	10	0	18	0	18
Bachelor of Accountancy	11	69	9	56	19	42	8	45	6	53	10	42	4	24
Bachelor of Business Admin	8	55	10	78	13	42	18	56	15	34	19	31	19	21
Bachelor of Education – Humanities	19	54	14	87	60	170	48	74	20	72	48	106	20	84
Bachelor of Science	9	75	15	49	8	38	5	39	10	37	11	39	14	35
Bachelor of Science in Agriculture	12	48	12	47	23	53	21	69	44	126	22	67	16	87
Bachelor of Science in Engin ) – Civil	1	49	3	69	2	69	3	43	3	73	3	60	5	64
Bachelor of Science (Tech. Education)	0	4	0	5	0	0	0	0	0	17	0	0	0	13
Bachelor of Scie. (Environmental Health)	0	0	0	0	0	0	2	24	1	6	11	40	2	13
Bachelor of Scie.(Environ. Scie. &Tech	0	0	0	0	0	0	1	15	7	4	11	22	2	16
Bachelor of Science (Nursing)	19	3	0	0	0	7	0	1	58	11	66	13	26	14
Bachelor of Social Science	14	80	30	77	33	68	16	63	13	39	18	33		
Bachelor of Science Honours	0	0	0	12	2	5	1	8	0	2	1	3	0	2
Bachelor of Social Science (Honours)	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Bachelor of Laws (Honours)	7	9	5	12	2	9	3	6	1	19	6	12	0	0
Master of Arts – Sociology	4	5	0	1	2	12	0	2	6	27	3	9	5	8
Bachelor of Medicine, Surgery	4	14	0	15	1	17	5	13	9	7	3	18	2	15
Master of Science – Biological Science	0	2	0	6	5	19	2	6	6	11	9	23	11	23
Doctor of Philosophy	0	0	0	0	1	0	3	0	1	0	0	0	0	2
Honourary Doctorate (Honoris Causa)									0	3	0	2	0	3
Diploma in Agriculture	24	73	27	104	30	101	1	8	0	0	0	0	0	0
Diploma in Architectural Technology	2	14	1	7	2	5	2	11	3	15	0	0	14	2
Diploma in Business Studies	0	0	0	0	0	0	2	11	3	11	0	0	0	0
Diploma in Education	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diploma in Engineering	2	115	2	65	5	86	0	1	0	0	0	0	0	0
Diploma in Laboratory Technology	1	16	3	20	9	4	4	12	0	0	0	0	0	0
Diploma in Management	0	0	0	0	0	0	0	0	2	7	0	0	0	0
Diploma in Nursing	53	5	52	5	50	11	5	1	0	0	0	0	0	0
Diploma in Public Health	2	14	1	21	4	19	4	16	4	12	0	0	0	0
Postgraduate Dip in Computer Science	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Postgraduate Dip in Management Studies													2	9
University Certificate in Education	10	0	0	0	0	0	0	0	10	13	0	0	0	0
University Certificate in Midwifery	48	7	50	6	33	1	20	1	4	0	26	0	24	4
TOTALS	276	739	264	768	350	813	218	579	262	641	299	562	##	##

Source: UNIMA.

**Enrollment Mzuzu, mid-2003**

	Male	Female
Bachelor Arts (Educ)	141	46
Bachelor Science (Education)	108	19
Bachelor Science (HSE)	36	34
Bachelor Science (Forestry)	44	10

*Source:* Mzuzu University.

**Graduates since inception till mid-2003, Mzuzu**

	Male	Female
Bachelor Science	25	19
Bachelor Arts (Education)	30	8
Bachelor Science (Education)	21	3

*Source:* Mzuzu University.

## Paternal educational attainment among university graduates (percentages)

Category	1980		1987		1994		1999	
	F	M	F	M	F	M	F	M
Professional	57	17	44	33	56	39	61	45
Skilled non manual	14	31	22	22	0	9	0	12
Skilled manual	0	5	11	0	19	11	9	2
Semi/unskilled	0	2	0	11	6	15	13	13
Farmer	14	36	22	31	6	23	13	23
Not in Labor Force	14	0	0	3	6	3	4	5
Other	0	0	0	0	6	0	0	1
Number of graduates	7	42	9	36	16	66	23	87

*Source:* Kadzamira et al (tracer study). Note: given the relatively small sample of graduates, especially among girls, the general trend is more relevant rather than absolute percentage levels.

## Actual expenditure data from University of Malawi, 1997/98 till 2001/02

**a. Proportion of actual recurrent expenditure University of Malawi, 1997/98 till 2001/02**

	1997/98	1998/99	1999/00	2000/01	2001/02
Emoluments	45.3%	35.2%	31.9%	36.9%	43.6%
Benefits	2.7%	15.3%	15.9%	14.4%	15.2%
Emoluments + benefits	48.0%	50.5%	47.7%	51.3%	58.7%
Utilities	7.0%	9.2%	7.8%	9.6%	7.4%
Students provisions/allowances	11.5%	10.2%	10.2%	10.9%	9.3%
Teaching materials/equipment	3.7%	4.1%	4.5%	2.8%	3.1%
Books and periodicals	0.7%	0.5%	0.7%	0.5%	0.5%
Travel subsistence	1.7%	1.5%	1.5%	1.2%	0.7%
Vehicle maintenance/fuel&oils	3.9%	4.3%	3.5%	4.4%	2.5%
Repairs houses, buildings, equipment	2.5%	4.6%	3.6%	1.9%	2.8%
Lease financing & asset purchase	2.3%	2.5%	3.7%	5.7%	3.7%
Cleaning materials/rates&sanitation/ kitchen equipment	2.3%	1.3%	1.4%	1.5%	1.3%
Training & staff development	0.0%	0.8%	0.8%	0.6%	0.6%
Research&publications/ conferences&workshops	0.6%	0.8%	1.2%	0.0%	0.0%
Common services	13.2%	6.4%	10.8%	7.2%	6.6%
Other	2.9%	3.3%	2.5%	2.5%	2.8%
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

*Source:* Expenditure data received from University of Malawi. Note: Mzuzu University is not included here.

**b. Breakdown of 'common services' component for 2000/01**

	Actual in nominal terms (thousand MK )	As % of total common services	As % of total expenditure
Superannuation	16,800	33.0%	2.3%
Accumulated deficit	2,291	4.5%	0.3%
Advances revolving fund	565	1.1%	0.1%
Conference/workshop	5,741	11.3%	0.8%
Examination/entrance	4,539	8.9%	0.6%
Research/publication	3,325	6.5%	0.5%
Staff welfare/medical	3,956	7.8%	0.5%
Training/staff dev	547	1.1%	0.1%
University football club/ UNIMA sports association	4,063	8.0%	0.6%
Gratuity	2,443	4.8%	0.3%
Passages	1,083	2.1%	0.2%
Other items	5,612	11.0%	0.9%
TOTAL	50,965	100.0%	7.2%

Source: Expenditure data received from University of Malawi.

**c. Breakdown of unit cost expenditure in USD, 1998/99 till 2001/02**

	1998/99	1999/00	2000/01	2001/02
Emoluments	921	844	1076	1195
Benefits	400	420	420	416
Emoluments + benefits	1322	1265	1496	1611
Utilities	240	206	279	202
Students provisions/allowances	266	270	317	254
Teaching materials/equipment	106	119	81	86
Books and periodicals	12	18	14	15
Travel subsistence	39	39	35	20
Vehicle maintenance/fuel&oils	113	93	129	68
Repairs houses, buildings, equipment	121	96	56	76
Lease financing & asset purchase	66	99	165	101
Cleaning materials/rates&sanitation/ kitchen equipment	35	38	43	36
Training & staff development	22	21	18	17
Research&publications/conferences &workshops	22	31	0	0
Common services (represents general administration)	168	287	210	180
Other	86	67	74	77
TOTAL	2,617	2,650	2,919	2,742

Source: Expenditure data received from University of Malawi; enrollment from Basic Educations Stats.



## University graduates who ‘agreed strongly’ and ‘agreed’ with the relevance and quality statements (rounded percentages)

Overall, the majority of both female and male graduates were more concerned with the quality of university education (45 percent) and curricula issues (44 percent) than with the competence and commitment of lecturers (36 percent), student welfare (11 percent) and the acquisition of relevant knowledge and skills (11 percent) (see second table). The proportion of graduates who were concerned with the competence and commitment of lecturers was significantly higher among the 1990s cohorts than the 1980s cohorts, whereas perceived curricula problems were slightly lower. In part, this is because the university has been unable to retain well-qualified staff due to the general decline in real incomes, particularly since the 1980s, and the failure of university to offer competitive salaries.

When queried about recommendations to improve university education, graduates were concerned about the outdated and irrelevant stocks of library books, the deterioration of the physical infrastructure and the general lack of reading and learning materials and equipment. Many graduates also emphasized the urgent

need to strengthen the links between university and ‘industry’. Here, graduates suggested a number of steps that should be taken. These include: organizing industrial attachments for all students, more practical work in the curriculum, more industrial/employer sponsored projects, and greater involvement of employers in the development of curriculum.

Sixteen percent of the graduates also suggested that government should increase funding to the university. However, this suggestion was made in the light of the frequent closures experienced by the university, which are partly due to lack of adequate funding from government. The students cited the frequent interruptions as one of the weaknesses of university education, and this was seen as negatively affecting curriculum delivery and quality. Given the probably fiscal pressure on government spending for the foreseeable future, large increases in government funding to the universities will not be possible. However, ensuring a reasonable, but stable and predictable flow of funds is just as crucial at this level. More realistic tuition fees can clearly contribute to this objective.

Statement	1980	1987	1994	1999	Total
My university education was a good preparation for my working life	100	96	64	95	96
Most of my lecturers at university were committed to their work	96	79	86	816	85
Most of my lecturers at university were competent	92	84	82	83	84
The curriculum for my degree course was relevant and up to date	83	69	70	65	71
The job expectations have been fulfilled	67	56	52	43	52
I had acquired the necessary knowledge and skills required for my chosen profession	85	82	82	82	83
I was satisfied with my verbal communication skills	92	91	86	97	90
I was satisfied with my written communication skills	96	93	86	93	91
I was satisfied with my information technology/computer skills	20	27	39	36	32
I was satisfied with my analytical/problem solving skills	75	73	74	79	76
I was satisfied with my managerial/entrepreneurship skills	46	45	48	54	49

Weaknesses	1980	1987	1994	1999	Total
The quality of education was poor	45	44	39	46	43
The curriculum was irrelevant, too academic & overloaded	55	53	39	33	42
The lecturers were inadequate, not well qualified and demotivated	15	33	48	37	36
Poor student welfare regime	25	17	13	11	11
Did not provide skills and knowledge required for the job market	13	17	8	11	11

Source: Kadzamira et al (tracer study). Note: results are from a tracer study with 380 university graduates from four separate cohorts.

## Details of policy scenario and cost implications

**T**his section discusses the long-term sustainability of the general evolution of the education system. It is based on one possible scenario of targets and assumptions that were discussed with government and it largely reflects the PIF—although alterations were made when PIF goals were deemed unrealistic. The ensuing results are presented as a basis for discussion with government and donors.

The scenario attempted to be more realistic than would be possible if the pure PIF targets, established several years ago, were strictly adhered to; however, assumptions about the lowering of repetition and drop-out rates may still turn out to be overly optimistic. The simulation model is based on the Education For All, Fast Track Initiative model but it has been adjusted to reflect the specifics of the Malawian education system, and specially to reflect crucial targets in the PIF document. The enrollment estimates for primary are completed separately but they are based on the simulation model that was used initially as part of the PIF since it allowed a more detailed estimate using repetition rates and dropout rates by standard. This simulation model was provided by UNESCO, and adjusted for Malawi, with the help of Sussex University.<sup>44</sup>

*At present the model looks at the expected human resource flow (students and teachers) through the education system, and at the recurrent cost items, related to primary and secondary education, primary and secondary teacher training, and higher education. These are most relevant for MOEST, since the recurrent costs and the human resources availability will most directly influence the sustainability of the education system over time.*<sup>45</sup> The scenario for which the results are presented here is based on the assumptions mentioned hereafter. For target parameters, the PIF targets by 2012 are used, unless indicated otherwise.

### Scenario assumptions

**Primary enrollment estimates.** To estimate primary enrollment, the key indicators are set by the target year to levels somewhere between the PIF targets<sup>46</sup> and the current situation.<sup>47</sup> Repetition in Standards 1 and 8 are set to reach 15 percent by 2015,<sup>48</sup> for standards 2 to 6 to reach 10 percent; drop-out is set to reach 5 percent on average over all grades; and admission rate to reach 110.

**Secondary enrollment estimates.** Secondary enrollment projections, and thus the need for

qualified teachers in secondary can be derived by using the current transition rate from primary to secondary or by using the target GER for secondary, as stated in the PIF. Both will have a substantially different outcome in enrollment projections. The issue of placing a cap on the GER and on public funded secondary education is a major but important policy issue and it will have a wide range of implications on secondary teacher needs and recurrent teacher remuneration costs.

The scenario presented here uses the GER target for secondary as the driving factor for enrollment estimates. Since it is already 29 percent in the base year 2001, the GER will hardly have to change and thus growth in enrollment is almost exclusively a result of growth in the school age population 14–17 years.

*Primary and secondary teacher training.*

There are a number of varied models for teacher training and in the analysis several scenarios were examined to assess the impact on primary goals by maintaining the current MIITEP program, as planned, or alternatively, re-introducing the traditional 2-year pre-service teacher training program. A similar strategy was followed for secondary teacher training, although it should be noted that the scenario retained and presented, here, does not suggest it is specifically endorsed—or that other options are not equally, or more, valid.

For primary teacher training, the scenario assumes that two of the six Teacher Training Colleges (TTC) will revert to the traditional pre-service system, but with the first group of students only starting the pre-service program in 2006 (thus graduating in 2008). The remaining four TTCs continue with the current MIITEP program and manage two cohorts each year. One extra TTC is already planned to be built and it would start producing graduates under the MIITEP program in 2006.

For secondary teacher training, it is assumed that Domasi pre-service training remains at its current capacity level and that the present SSTEP program will also continue beyond the current three cohorts and with one cohort of 270 teachers expected graduates each year. As far as the university colleges are concerned, the current on-site capacity would remain the same but there would be a separate distance learning model with a total of 250 graduates each year (e.g. Mzuzu 100 and Chancellor College 150). Their first teachers would graduate in 2007 given the four year duration of the course.

## Resources availability and population estimates

The GDP for the base year is taken from the IMF for 2001<sup>49</sup> and a GDP growth rate of 2.9 percent per year is applied.<sup>50</sup> For national recurrent ‘discretionary’<sup>51</sup> expenditure (i.e. less statutory expenditure) it is assumed that it will remain at about 14 percent.<sup>52</sup> For the recurrent spending on education, the actual expenditures (‘actuals’) are used for 2000/01.<sup>53</sup> The result of the scenario, presented here, is based on using the recurrent education spending as a percentage of total recurrent spending as a constant over time (21–22 percent). A second scenario, but not presented here, assumes this percentage would increase rapidly to 27 percent (as indicated in the PIF).<sup>54</sup>

For the total population, NSO projections for each individual year between 2001 and 2015 are used; for the population age 6–13 and population age 14–17 the population estimate from NSO for the base year 2001 is used and then a growth rate of 2.9 percent per year applied (which is a high end growth rate estimated by UNESCO).

**Assumptions and projections, 2001–2015**

	2001	2002	2003	2004	2005	2006	2009	2012	2015
Recurr. educ. spending as % of national recurrent discretionary budget	21%	21%	21%	22%	22%	22%	22%	22%	22%
National recurrent discretionary budget as percentage of GDP	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%
GDP (million MK)	120308	123748	127288	130928	134673	138524	150753	164061	178544
Population (thousands)	10816	11175	11549	11938	12341	12758	14085	15528	17102
GDP/capita (MK)	11123	11074	11022	10967	10912	10858	10703	10566	10440

Sources: Authors' calculations. Base year data are from IMF (GDP), Malawi economic report (budget) and NSO (population). The population growth rate is from UNESCO

**Primary education and primary teacher training**

Total enrollment by standard in primary is taken from EMIS 2001 statistics for the base

year. Repetition and drop-out rates for the base year are taken from the Ed Data 2002 household survey (with very similar results as the DHS2000 survey).

**Assumptions**

Ed Data 2002	Stand 1	Stand 2	Stand 3	Stand 4	Stand 5	Stand 6	Stand 7	Stand 8
Repetition (%)	40.6	24.2	27.7	19.1	10.3	9.8	12.2	19.5
Dropout (%)	8.5	5.9	4.8	6.3	10.3	11.8	9.9	20.1

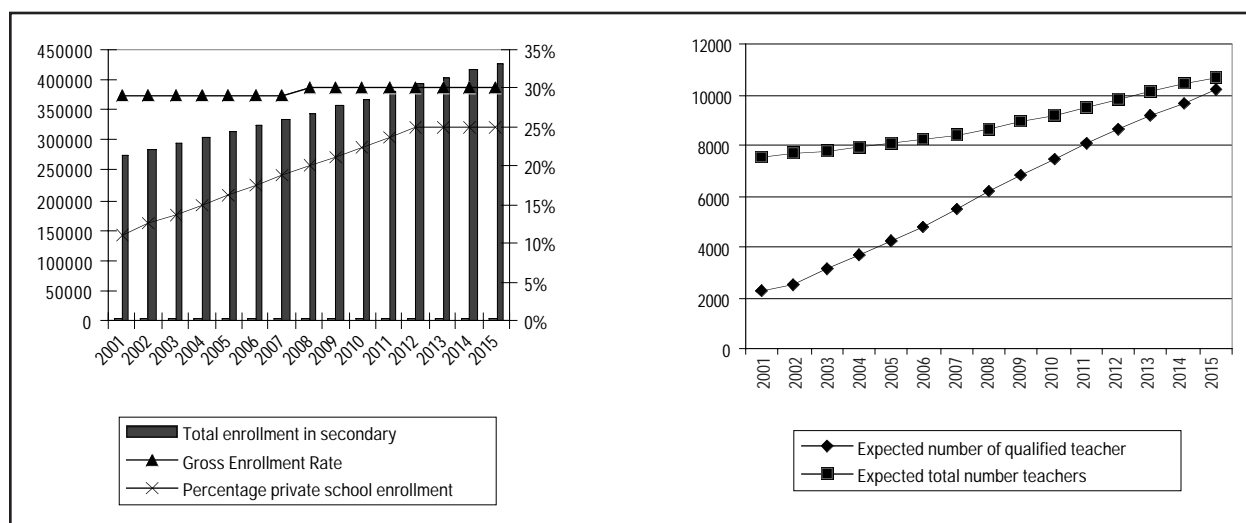
Source: Ed Data 2002.

Private school enrollment in primary is considered to remain at less than one percent over time—this is what it is at present, according to EMIS 2001. EFA-FTI targets estimate this at

10 percent by 2015 (because it reduces costs for government), but the PIF does not suggest any target for primary. Teacher attrition rate is considered 6 percent.<sup>55</sup>

**Primary projections: enrollment, PCR, repetition, GER and PqTR, 2001–2015.**

PRIMARY	2001	2002	2003	2004	2005	2006	2009	2012	2015
Total enroll. <sup>56</sup>	3236319	3300423	3407299	3505522	3582180	3662103	3820127	3973231	4158317
Avg. repetition	25.2%	23.3%	21.9%	20.7%	19.7%	18.6%	15.9%	13.4%	11.1%
Gross Admission	132%	130%	129%	127%	126%	124%	119%	115%	110%
Gross enroll.	126%	125%	125%	125%	125%	124%	118%	113%	109%
Standard 6 proxy complet.	52%	57%	68%	66%	71%	77%	81%	81%	82%
Qualify teachers <sup>57</sup>	31 799	31 891	31 978	34 859	37 567	42 113	51 948	59 101	65 041
Unqualified teachers <sup>58</sup>	21 645	22 281	23 782	22 372	20 813	17 502	10 258	5 977	3 855
Total teachers <sup>59</sup>	53 444	54 172	55 759	57 231	58 380	59 615	62 206	65 078	68 896
New teachers trained	1923	2000	2000	4800	4800	6800	5650	5650	5650
Pupil:Qualified Teacher Ratio	101	103	106	100	95	86	73	67	64



Sources: Authors' calculations. Base year data are from EMIS 2001 and Ed Data 2002.

This scenario results in an estimated primary enrollment of 3.9 million by 2012. The qualified primary teacher needs to achieve the PIF target of a PqTR of 60:1, under this scenario, is 64,500 by 2012. If instead the situation regarding repetition, dropout and admission rate evolved as described in the PIF, this would result in an estimated primary enrollment of 3.5 million by 2012. The qualified primary teacher needs to achieve the PIF target PqTR teacher ratio of 60:1, under this scenario, is 58,000 by 2012.

If no changes occurred to the current repetition, dropout rate, and admission rate, then the estimated enrollment for primary is 4.2 million by 2012. The qualified primary teacher needs to achieve the PIF target PqTR teacher ratio of 60:1, under this scenario, is 70,000 by 2012. It is clear that the failure to reduce repetition and dropout rates will result in having to train, and pay, a large numbers of extra teachers.

Under the 'in-between' scenario, the expectation is to have 59,100 qualified teachers, or 92.5 percent of all teachers qualified, and a 67:1 PqTR by 2012. The trend in PqTR would still be downward and the 60:1 goal could be reached over time because more teachers would be trained than would be lost due to attrition if the stock of qualified teachers was

sufficient to have a 60:1 PqTR, given attrition remains at 6 percent.

If however, all TTCs reverted to the 2-year pre-service training program, with the first graduates available in 2005 (and only MIITEP graduates until then), and the planned extra TTC also runs the pre-service system, then by 2012 the expectation is to have 33,700 qualified teachers, and a 115:1 PqTR. Even if two further TTCs are built with 625 enrollment capacity each, and commence producing graduates in 2007, the PqTR will not reduce anywhere near the PIF target, because in total 40,000 qualified teachers are expected by 2012, and a 96:1 PqTR. Thus, while pedagogical reasons and political commitment would advocate a return to the pre-service system, the impact of maintaining a high PqTR is evident.

## Secondary education and secondary teacher training

Transition from primary to secondary is estimated in the PIF by dividing the non-repeaters in Form 1 in 2001 by the PLSCE passers in 2000, and gives a 74.2 percent result. Therefore, access to secondary, as measured by transition from primary to secondary, is presently

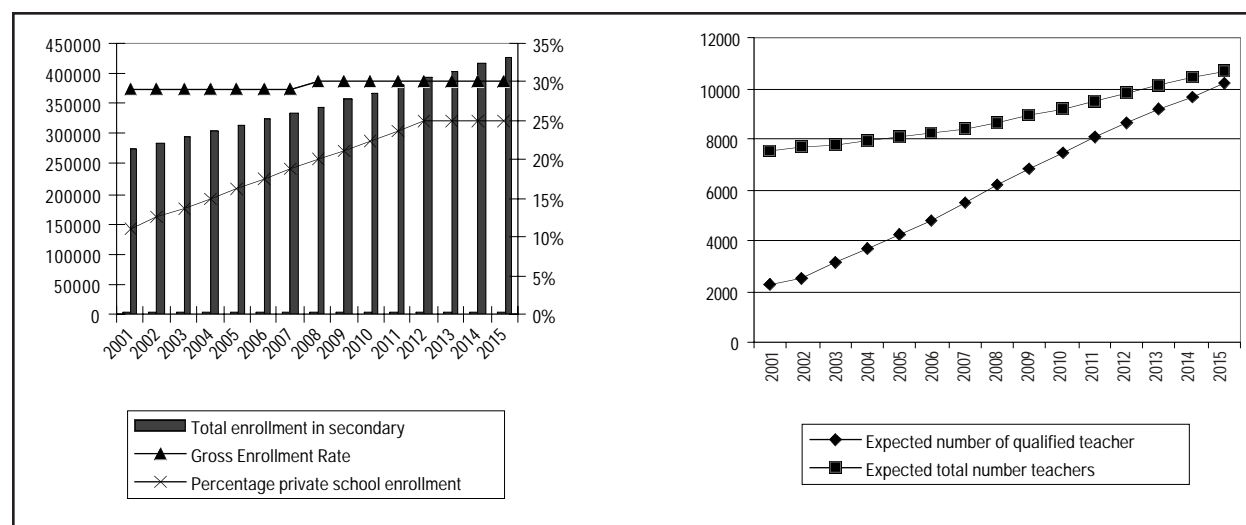
far beyond the PIF target to be reached by 2012 (30 percent). This is the case because of the introduction of the CDSSs. As indicated previously, two very different enrollment scenarios for secondary can be modeled. The first, whereby the GER of 30 percent is taken as a driving factor to estimate the number of enrolled students in secondary, and the second,

whereby the transition from primary to secondary of 74.2 percent is taken as a driving factor. The scenario used here is based on the GER of 30 percent.

Private school enrollment in secondary was found to be 11 percent in 2001 (EMIS 2001), and set to further increase to 25 percent by 2012, as put forward in the PIF. Teacher attri-

#### Secondary projections: enrollment, PCR, repetition, GER and PqTR, 2001–2015

SECONDARY	2001	2002	2003	2004	2005	2006	2007	2009	2012	2015
Total enrollment <sup>61</sup>	274949	284036	293418	303106	313109	323437	334101	356480	392847	428025
Gross Enrollment	29%	29%	29%	29%	29%	29%	29%	30%	30%	30%
Percentage private school enrollment										
school enrollment	11%	12.5%	13.7%	15.0%	16.2%	17.5%	18.7%	21.2%	25.0%	25.0%
Qualified teachers <sup>62</sup>	2 290	2 547	3 116	3 681	4 242	4 750	5 483	6 840	8 631	10 167
Unqualified teachers <sup>63</sup>	5,260	5 127	4 685	4 252	3 826	3 458	2 870	2 072	1 190	534
All teachers <sup>64</sup>	7,550	7674	7801	7933	8069	8208	8353	8912	9821	10701
New teachers trained	347	372	696	721	745	720	970	970	970	970
Pupil:Qualified Teacher Ratio <sup>65</sup>	120	112	94	82	74	68	61	52	46	42



Source: Authors' calculations. Base year data are from EMIS 2001.



tion rate is considered 5 percent for the standard scenarios.<sup>60</sup>

Secondary enrollment by 2012 can be expected to reach 393,000, since the GER in the base year (2001) was already 29 percent and therefore the growth in enrollment numbers will be in line with the growth in school age population 14–17. (This would however mean that the current transition rate from primary to secondary of 74 percent will not be maintained as more children pass the PSLCE.) The required number of qualified teachers required under this assumption to achieve the PIF target of 40:1 PqTR, and having only qualified teachers after 2007, is 9,800.

If the driving factor for secondary enrollment is to maintain the 2001 transition rate of 74 percent (which is much higher than the PIF target of 30 percent by 2012), then the enrollment projections will be strongly dependent on the number of children who are expected to pass the PSLCE over time. This in itself depends on what will happen with primary enrollment over time. If, as before, the ‘in-between’ scenario is used for primary, the transition rate is kept at the current level, then GER in secondary will be approximately 46 percent by 2012, and secondary enrollment at about 608,000. The required number of qualified teachers to achieve the PIF target of 40:1 PTR, and having only qualified teachers after 2007, would be 15,200.

Under the scenario of a 30 percent GER as the driving factor, the expectation is to have 8,600 qualified teachers by 2012, and a 46:1 PqTR. With attrition of 8 percent (instead of 5 percent) as a result of HIV/AIDS, the PqTR would come down to around 53:1 by 2012. If, however, the current capacity in secondary teacher training is maintained, without continuing the SSTEP program beyond its initial 3 cohorts, and without increasing the capacity of the university colleges by 250 by 2012, the expectation is to have 5,700 qualified teachers and a 70:1 PqTR. As a consequence there would be no real further downward trend in

the PqTR even if an attrition rate of 5 percent is achieved.

## Recurrent cost implications

*Assumptions for primary.* Teacher remuneration is a crucial element of the recurrent cost calculation and qualified teacher remuneration in primary was found to be about 5.5 times GDP per capita, and was assumed to be kept at that level, i.e. only increasing in real terms at the same rate of the GDP per capita.<sup>66</sup> Unqualified teacher remuneration was found to be about 2.9 times GDP per capita, and was assumed to be kept at that level.<sup>67</sup> Spending on teaching and learning materials (T&L) as a percentage of total recurrent spending in primary was found to be 6 percent,<sup>68</sup> and was set to increase to 13 percent by the end of the period—as prescribed in the PIF. Spending on total ORT as a percentage of total recurrent spending in primary was found to be about 15 percent.<sup>69</sup> It was assumed that over time this percentage would only increase as a result of the increase of the T&L component. This results in an estimate of total ORT as a percentage of total recurrent spending in primary of about 18 percent by 2012.

*Assumptions for secondary.* Qualified teacher remuneration was found to be about 11.5 times GDP per capita, and was assumed to be kept at that level, i.e. only increasing in real terms at the same rate of the GDP per capita, although it is likely there will be further nominal increases to compensate for inflation).<sup>70</sup> Unqualified teacher remuneration was found to be about 5.5 times GDP per capita. This is realistic since they are qualified primary school teachers and this is the amount noted for qualified primary teachers.

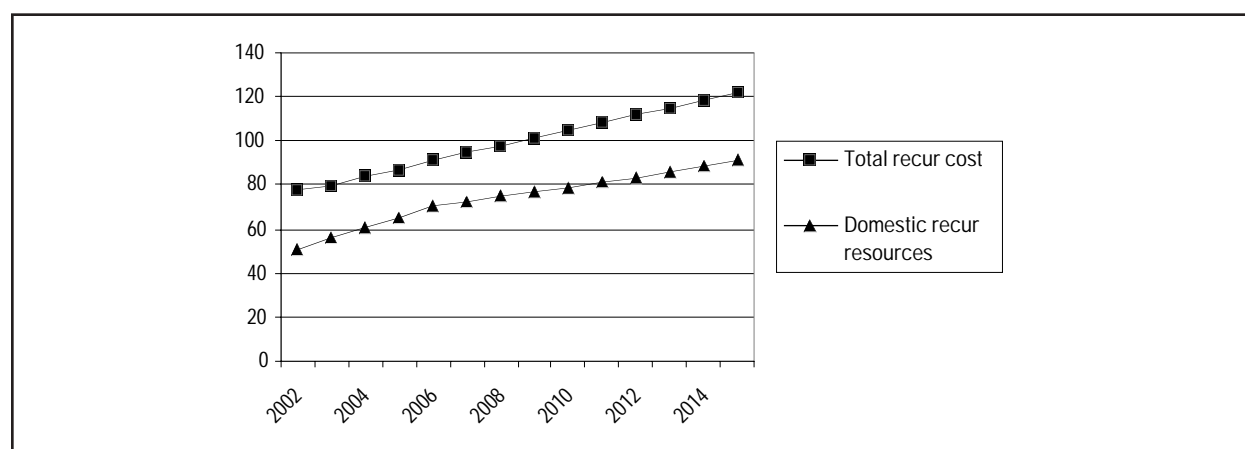
Spending on total ORT as a percentage of total recurrent spending in primary was found to be about 50 percent.<sup>71</sup> It was assumed that this percentage would decrease to 40 percent by 2007 due to a large increase in teacher

remuneration as a result of the many more qualified teachers in the system, and the resultant higher salaries than for unqualified secondary teachers. In the total recurrent cost calculation, the secondary teacher training cost at university colleges is not added separately because it is considered automatically included in the fixed portion of funding allocated to universities. This, however, is also a major simplification since a substantial increase in teacher training costs at the university colleges means savings will have to happen elsewhere in the universities to ensure the universities, as a whole, have the same portion of the total education budget over time.

*Assumptions for universities and other subvented organizations.* According to the PER (Public Expenditure Review—MOF website), the proportion of recurrent education cost that is allocated to the universities, and other subvented organizations, fluctuated between 27 percent in 1993/94 and an expected 20 percent in 2001/02. Given the PIF goals to make university education more efficient (lower unit cost per graduate, especially the publicly paid component of the unit cost), the assumption was made that this 20 percent would be maintained over time until 2012 even though there is strong system expansion. Since there is an estimate of the recurrent costs of primary, sec-

#### Recurrent cost implications, 2001–2015

Constant million USD <sup>73</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2015
Total recurrent cost	77.9	79.6	83.7	86.5	91.3	95.0	97.9	101.5	104.9	108.4	111.8	115.1	121.6
Domestic recur resources	51	55.6	60.3	65.3	70.5	72.5	74.6	76.7	78.9	81.2	83.5	85.9	90.9
Gap	-22.3	-19.2	-18.4	-16.0	-18.8	-20.4	-21.2	-22.5	-23.7	-24.9	-25.9	-26.7	-28.1
Gap as % of nat. discret. recur. budget	9.3%	7.8%	7.2%	6.1%	7.0%	7.4%	7.5%	7.7%	7.9%	8.0%	8.1%	8.2%	8.1%



Sources: Authors' calculations. Base year data are from EMIS 2001.

ondary and teacher training, this allows a calculation of the expected recurrent costs of universities and other sub-vented organizations.<sup>72</sup>

In the table above, the assumptions made are similar to assumptions made in the first table, but with spending on education as a percentage of national 'discretionary' recurrent budget increasing to the PIF target of 27 percent by 2005. This will have the following repercussions:

- Recurrent expenditure on primary education would require about 71 percent of total available recurrent education budget in 2012
- Recurrent expenditure on secondary education would require about 29.5 percent of total available recurrent education budget by 2012
- The total shortage between the expected recurrent education costs and expected recurrent education budget seen as a percentage of the total national discretionary

budget will be continuously around 6–8 percent over time between now and 2012.

The model targets and assumptions indicate that recurrent cost implications of the different policies would be larger than the domestic resource availability. It is clear that there is a need to have in-depth discussions with MOEST, MOF and the donor community, at large, on the realism of this type of scenario. For instance, the expected total resources available and the teacher salary costs (both unit cost and total cost) are crucial issues for dialogue: the latter because it requires such a major portion of the total resources. In fact, this is also why issues such as planning teacher training must not be done in isolation from the general issue of sustainability. This issue centers on the payment of teachers once they are hired and trained. It is also crucial to understand what the expectation is for further involvement of the HIPC debt relief program. The results of this financial model can facilitate such a dialogue.

## EMIS

**T**his list is only intended as a starting point for a review of the EMIS system and does not claim to be exhaustive.

(1) At the end of 2003, no EMIS statistics were available because there is always more than a one year backlog between data collection and dissemination. As such, a speeding up of this process would ensure policy decisions are based more on the current situation. (2) The fact that in recent years a large number of secondary government schools and private registered schools did not provide feedback to EMIS questionnaires should not be acceptable as it makes estimates of even the most basic indicator of total enrollment unreliable. It also makes any serious analysis of the current situation, and planning for the future, close to impossible. It is also in the government's interest to work with private schools to provide statistics and it may be an effective tool to show the public at large that because of the 'stimulating environment' for private secondary school sector, a significant percentage of Malawians still have access to secondary—even though severe budget constraints require the government to keep its focus mainly on primary. (3) Household surveys consistently show much higher repetition rates than the

school census and, as such, a clarification reflecting internationally accepted guidelines of the definition of repeaters versus new entrants into a grade, and the subsequent consistent use of this definition, would improve the reliability of the data. (4) There is also a probable overrepresentation of the enrollment numbers from the school census (albeit clearly less extreme than the issue of repeaters vs new entrants). It would be good to look at the institutional mechanics behind the reporting of the enrollment data in the school census. It might be that certain changes in the incentives structure have contributed to a tendency to over-report. On the other hand, it might also be that even without changes in the formal incentives structure, the introduction of FPE generated a behavioral change.<sup>74</sup> (5) Statistics gathering should be adjusted to the reality of repetition in secondary (at present no repetition is assumed). With the enrollment of masses of pupils in typically low quality CDSSs, the pressure for repetition must surely have increased, and the policy of not allowing repetition in secondary is certainly untenable in this context. (6). It is clear that there are enormous inequities in teacher deployment between primary grades. As such, it is necessary to provide data on PTR and PqTR by

grade since these are crucial indicators to track. It might even be possible to obtain this information from the current EMIS questionnaires but currently this indicator is not reported on. (7) There is an enormous discrepancy between ages of primary pupils according to household surveys versus data from EMIS. Establishing better age estimates from questionnaires in schools will remain difficult as long as no birth certificates are avail-

able. However, it makes little sense to place all primary students, older than 14, in one single category, particularly when the household surveys indicate that substantial numbers of young adults aged between 15 and 22 years are attending primary schools. However, it is only intended as a starting point for a review of the EMIS system and does not claim to be exhaustive.

## Annexes Notes

1. This is the 2000 value instead of 2000/01.
2. This is the 2002 value instead of 2002/03.
3. For 1990/91–1991/92 the source is IMF “Malawi: Statistical Appendix. June 1995”. For 1992/93–1995/96 data are from IMF “Malawi: Recent Economic Developments. August 1997.” The remainder is from IMF “Selected Issues and Statistical Appendix. August 2002.” From 1996/97 till 2000/01 are actuals. For 2001/02 is estimate. For “Total Grant”, “Total Revenues”, “Total Government Expenditures”, “Total current expenditures”, “Total development expenditure” the source is the same.
4. Information used in this section was extracted from the Malawi Ed Data 2002 and is summarized in Table 2. A sample of children, aged 6–14 years, who had ever attended school, were involved in the survey.
5. The GER based upon the population census uses one set of data for both the nominator (enrollment) and denominator (population), which is not the case for the school census that only can provide enrollment data. The fact that a ratio is presented also preempts the argument that maybe not the whole population is accounted for in the population census, because any no-counts will cut out both primary pupils and people in the age group 6–13, unless the no-counts would be disproportionately from the ones in primary but outside 6–13 age range.
6. Only includes children age 5 to 29.
7. Another interesting piece of data is that IHS 1998 calculated a weighted population of 2,256,896 for the 6–13 age group.
8. The result here is very similar to the other estimate based upon GER for boys and girls separately, as done in ‘Profile of Poverty in Malawi, 1998. Poverty Analysis of the Malawi Integrated Household Survey 1997–98’, which has GER 125.9 (boys) and 115.2 (girls).
9. Calculated in three ways: (i) based on the DHS 2000 household survey; (ii) based upon the results from the school census (EMIS 2000)

on enrollment by age combined with population data by age from the National Statistical Office (NSO) (low-end estimate); and (iii) based upon the results from the school census combined with population data by age from UNESCO (high-end estimate). To ensure comparability, children who are already in secondary, or beyond, were eliminated and only those pupils attending primary were included. As expected, the enrollment rates from the household survey show a gradual increase until the age of 8 or 9 years (due to some late enrollments), and they then remain largely stable until the age of 13–14 years before declining once more. However, this decline is at a slower pace than would be expected. The survey also finds that a very high percentage of children ages 14 to 21 years were still in primary (e.g. 80% at age 14, 60% at age 17, 20% at age 21) and that it was only young adults of ages 22 years and above that had an enrollment rate of less than 10%. It is clear that many of the children entering primary remain until at least the normal age of finishing primary. This does not mean they finish standard 8 but rather that they may be repeating the same, or several grades, before eventually dropping out. The findings from the DHS survey closely match the results from the Integrated Household Survey (IHS) of 1998 (see Annex 2.2).

10. Here, using the high-end population estimates, enrollment rates for children of normal primary school age (6 to 13) are consistently higher than those of the household surveys. For the children of ages 7 to 10, more children are found to be in school than are present in the corresponding population group (enrollment rate more than 100%), even when using one of the highest available population estimates for the country (UNESCO). At the same time, however, the school census statistics indicate that the category ‘*all children older than 14*’ represented less than 80 percent of the population at age 15. This is slightly less than the 80 percent that DHS 2000 indicates is the



enrollment by age for children aged 15. In other words, all the enrollment rates for those age 16 or higher from the DHS 2000 would not be accounted for in the school census estimates.

11. The school census also categorizes all children of age 5, or below, in one category and the 15%, here, represents all these children as a proportion of the children of age 5 only. The surveys on the other hand only start gathering data from children age 5. As such, some children may need to be added to the approximate 30% for children age 5, who already attend primary at age 4, or below.

12. This assertion holds irrespective of all children, in practice, entering primary at age 6 or at another age (typically anywhere between 5 and 10), because a new entrant of age 10 should never before (i.e. theoretically 4 years earlier) have been counted as a new entrant in the system. As such, in a steady state system—as the Malawi one would be predicted to be by now—each child can only be a new entrant once, and the number of new entrants into Standard 1 should be influenced only by population fluctuations and the degree of access to primary.

13. Using the 1987 non-repeating enrollment numbers from the Basic Education Statistics, together with the population found from the population census in that year, the rate of entry to Standard 1 is 0.87, which is actually close to the estimate of 0.84 found based on data from the 1992 Demographic and Health Survey (DHS). It is also noteworthy that in 1987, the enrollments reported by the school census—1,022,765 children—are very close to the 1,002,343 children in primary schools enumerated in the 1987 population census. The consistency in these cross-checks increases the confidence that the data for 1987 are probably reasonably accurate. For 1998 however, the situation is different. According to the 1998 Integrated Household Survey it is estimated that about 96 percent of each age cohort eventually begin primary schooling, which is

confirmed by the DHS 2000 Survey indicating 95 percent eventually start primary. Given the assumption that the new entrants into standard 1 in a system that has reached a steady state (which Malawi should have for at least the first grade of primary in 1998 or at the latest by 2000) cannot be more than the number of children of the entry age, it is possible to estimate what the population at entry age should be in order to be able to have a number of new entrants to Standard 1 at the level found in the school census statistics. The size of the entry age population in 1998 would have to be about 665,484 ( $=638,865/0.96$ ), with 638,865 being the new entrants to Standard 1 according to the school census. Comparing the result with the children at entry age in the 1987 census (which we assume to be correct in light of the arguments presented above), the population in this age cohort would have grown at the rate of 8.4 percent a year ( $=[\ln(665,484/263,643)]/11$ ) between 1987 and 1998—surely an implausible rate of increase in any human population. This is why it is worthwhile to review the number of new entrants into Standard 1 in more depth.

14. For instance one performed by CIDA in relation to its primary school book distribution project.

15. In the survey, data it is automatically meaningful if the child is repeating because both the child's current grade level is asked as well as the grade level (s)he attended the previous year.

16. Using for instance the average repetition rate for standard 1 according to the DHS 2000 and Ed Data 2002 household surveys, which is 42.9% (Average of 45.3% from DHS 2000 and 40.6% from Ed Data 2002; which is a conservative value, lower than when using the higher rate from only DHS 2000.), it is possible to recalculate the number of new entrants for both 2000 and 1998 (assuming the repetition rate was already at that level in 1998). The number of new entrants would have been 441,087 in 1998 (deduct 42.9% of 772481;



and for 2000 deduct 42.9% of 804,312; which are respectively the total enrollment numbers for 1998 and 2000 from the school census), and 459,263 in 2000. With this new count of non-repeating enrollments in standard 1, the size of the population at entry age in 1998 would have to be about 459,466 ( $=441,087/0.96$ ) in 1998 and 478,399 ( $=459,263/0.96$ ) in 2000. The population in this age cohort would have grown at the rate of 5.1 percent a year ( $=[\ln(459,466/263,643)]/11$ ) between 1987 and 1998, which is more plausible than the 8.4 percent a year found earlier, but is still quite unlikely given the analysis in the section on population. The average age of standard 1 pupils was 7.7 years in 1998; given that the corresponding rate of repetition is assumed 42.9%, it means that the average age of new entrants is 7.3 years. The algebra is as follows:  $A=N(1-r)+R(r)$  where A, N and R are, respectively, the average age of all pupils, non-repeaters (i.e. new entrants) and repeaters (i.e. only looking at if the pupil is a repeater in the current year, not at the past); and r is the proportion of repeaters. Since  $R=N+1$  by definition, we can make the appropriate substitution into the first equation, and obtain after rearranging, the desired function,  $N=A-r$ . Relating the number of non-repeaters in standard 1 to the population corresponding to these ages (using original population census data), a new estimate of the cohort rate of entry to standard 1 is obtained: 1.60 for 1998 (The population corresponding to age 7.3, is obtained simply by prorating the population enumerated for ages 7 and 8, i.e.  $(0.7 \times 270,036) + (0.3 \times 286,841 = 275,077$ ). The difference of using this more advanced way to estimate the corresponding population cohort versus simply using the population of official age of entry 6 (315,612), is not of such magnitude to make a huge difference. Using age 6 population, the cohort rate of entry to grade 1 would still be 1.40 in 1998). For 2000 this would be 1.55. (2000 age 6 population 303,785, age 7 298,554, age 8 291,792. Population corresponding to age 7.3

is  $(0.7 \times 298,554) + (0.3 \times 291,792) = 296,526$ . Using age 6 pop the cohort rate of entry would be 1.51.)

17. The 1998 population census (see 1998 Population Census Analytical Report on [www.nso.malawi.net](http://www.nso.malawi.net)) states that between 1987 and 1998 pop grew with 23.2 percent, or 1.9 % per annum. The growth for age group 6–13 was 1.4 percent ( $[\ln(2,115,870/1,818,910)] / 11$ ), with 2,115,870 the 6–13 population in 1998 and 1,818,910 the one in 1987.

18.  $= [\ln(2437000/1818910)] / 11$

19. The 1987 population census (see Government of Malawi. 1991 and 1993.) states that between 1977 and 1987 population grew with 44 percent, or 3.7 % per annum. Estimated growth per year for the 5–14 age group between 1977 and 1987 is 4.9 percent ( $[\ln(2,286,959/1,395,961)] / 10$ ). Specific growth rates for the 6–13 age group are not given, but should not significantly differ.

20. The 6–13 age group population in 1987 was 1,818,910.  $\ln(x) = (11 \times 0.049) + \ln(1,818,910) = 14.95275 \rightarrow \text{ex of this is } 3,118,142$

21.  $\ln(x) = (13 \times 0.049) + \ln(1,818,910) = 0.637 + 14.6427335 = 15.05075 \rightarrow \text{ex of this is } 3,439,195$

22. The results, reveal that the population of the Northern Region increased by 35 percent while that of the Central and Southern Regions—where the districts are found that border with Mozambique—rose by 31 and 17 percent respectively between 1987 and 1998

23. 1998 age 7: 333000, age 8: 326000. Population corresponding to age 7.3 is  $(0.7 \times 333000) + (0.3 \times 326000) = 330,900$ . This is used together with the new entrants at 441,087 for 1998.

24. 2000 age 7: 330000, age 8": 327000. Population corresponding to age 7.3 is 329,100. This is used together with the new entrants at 459,263 for 2000.

25. *Cross sectional method* is calculated as the gross admission rate to the last grade of

cycle divided by the gross admission rate to first grade of cycle of the same year, with the gross admission rate being the non-repeaters in a certain grade divided by the population of normal age for that grade. For instance for standard 8 this would be the non-repeating pupils in standard 8 divided by the children of age 13.

*Quasi-time-series* estimate is calculated as the multiplication over the whole cycle of the division of the number of non-repeaters in 2 consecutive grades in 2 consecutive years. For primary in Malawi this would be:

(Non rep year 2 standard 2 / Non rep year 1 standard 1) \* (Non rep year 2 standard 3 / Non rep year 1 standard 2) \* (Non rep year 2 standard 4 / Non rep year 1 standard 3) \* (Non rep year 2 standard 5 / Non rep year 1 standard 4) \* (Non rep year 2 standard 6 / Non rep year 1 standard 5) \* (Non rep year 2 standard 7 / Non rep year 1 standard 6) \* (Non rep year 2 standard 8 / Non rep year 1 standard 7)

These survival rate calculations are usually done at different points in time to try to assess what has been the evolution. *Full time series perspective* of survival for a cycle is calculated by dividing the non repeaters in the last grade of the cycle in year 'X' by the non repeaters in the first grade of the cycle in year 'X minus length of cycle for the average student' (under ideal circumstances this would be 'X minus the number of grades in cycle'; however, because an average student might repeat one or more times before reaching the end of the cycle the time frame can be increased for to make up for that and to ensure it is the same cohort of pupils that is considered)

The Quasi-time-series method has two advantages in the case of Malawi. First, the result is not 'spoiled' by the effect of the Free Primary Enrollment policy, seen it only uses data from two subsequent years, which can both be years that come after the policy was introduced, and thus are in the same situation in relation to the effect of the FPE policy. The

cross-sectional method and the full time series method on the other hand are both influenced by the effect of the FPE policy. Second, opposite to the cross-sectional method, the quasi-time-series method also abides by the rule that for survival it is best to compare the same cohort of students over time, instead of two different cohorts at one point in time. The semi-time series method follows this rule for 6 separate cohorts.

26. These are generally considered a more accurate measures.

27. Since repetition rates are only available from household surveys in 2000 and 2002, it was decided to use repeater numbers as indicated in Basic Education Statistics to ensure greater consistency between the results from a wide range of years. The fact that the repetition rate seems to be significantly underestimated in the EMIS data matters to the absolute levels of the results, but not to the relative differences between the two periods.

28. The larger than 8 year interval is to adjust for primary graduate repetition.

29. The method compares the non-repeaters in grade x in 1998/99 with the non-repeaters in grade x+1 in 1999/00. For each of the 8 grades, both sides of this grade by grade comparison are always either affected by the FPE policy (up to standard 5 in 1998/99, up to standard 6 in 1999/00) or not yet (beyond standard 5 in 1998/99, and beyond standard 6 in 1999/00)

30. For secondary education always the estimated enrollment numbers (through extrapolation) are used as found in the Basic Education Statistics 2000.

31. Non-repeaters in the corresponding grade divided by the population group at the official age for the grade (standard 1 intake rate = non-repeaters stand 1 / children age 6 in the population)

32. For secondary education always the estimated enrollment numbers (through extrapolation) are used as found in the Basic Education Statistics 2000.

33. In total 92 schools were not included because they had negative numbers for enrollment minus repeaters in one of the grades, or because they listed no enrollment in standard 1.

34. Ministry of Labour and Vocational Training, 2002.

35. The averages are based only on data for countries with per capita GNP below \$1,000 in 1993.

36. Some of this cost includes a non-recurring cost of providing storage cabinets for the books.

37. There are many examples of district managers authorizing teacher transfers on the production of marriage certificates. This system is considered open to fraudulent transfer practices.

38. Measured by 'possessions in the home'.

39. The scenario in Annex 3 builds on the assumption that there will be no change in coverage (no change in enrollment rates) or in the ratio of the number of pupils to the number of teachers. Thus it describes the system as it was in 1998 and its evolution with or without the impact of HIV/AIDS. The 1997 figures for total population and school-age population are based on the 1997 Malawi census. The school-age population covers the age group 6 to 15 years old, or grades 1 to 10 (lower and upper primary education and lower secondary education); the teacher stock is based on 34,000 lower primary teachers, 4,000 upper primary teachers, and 2,000 lower secondary teachers, as registered in 1997.

40. Esme Chipo Kadamira, Dixie Maluwa-Banda, Augustine Kamlongera, Nicola Swainson, September 2001, Centre for educational research and Training (CERT), Malawi.

41. Kadamira et al., 2001.

42. Does not include Mzuzu university

43. Does not include Mzuzu university

44. For key indicators in the model the assumption is made that the system moves from the current situation to the target value (by the target year) in a linear manner. The

assumptions used in the model (with baseline data for 2001) are the best that could be obtained in the time-frame available and with the assistance received. It is clear that improvements by MoEST staff can be made if more precise data is available.

45. The capital expenditure (with classroom and other construction as main cost drivers) has not been included at this point. It would be relatively easy to include this later in the model

46. 5 % repetition for standard 1-7, 10% repetition for standard 8; 5% dropout, admission rate 100

47. Average rep rate in primary of 25.8%, average dropout 8.2%, admission rate 132% (according to the Ed Data 2002 household survey)

48. In this case the timing reflects a minor modification from the PIF target year 2012.

49. Very similar to what is found in Econ Report 2003 for 2001/02.

50. Taken from Econ Report 2003 as average for last 6 years.

51. Recurrent expenditure before debt amortization minus interests on debt and minus pensions & gratuities.

52. From the Economic Report 2003: for 2000/01 actual results in 14.1% of GDP of corresponding year, for 2001/02 actual it is 18.1% of GDP, for 2002/03 revised it is 11.8% of GDP, and for 2003/04 estimate it is 9.7% of GDP. The serious difference that still exists between the discretionary recurrent government budget and the total recurrent government budget is largely a result of interest payments and debt amortization on domestic debt, not on international debt. For 2002/03 (revised) the discretionary budget is 18,434 million MK vs. a total budget of 39,755 million MK, and for 2003/04 (estimate) it is 16,882 million MK vs. 41,375 million MK. This means that the current level of discretionary recurrent budget, as a percentage of GDP, will not be able to increase much more as a result of further HIPC debt relief, but only as

a result of the government's ability to reduce its domestic debt burden.

53. For both MoEST and the subvented education organizations (including universities) 'actuals' are taken from "Consolidated Annual appropriation accounts for the financial year ended 30 June 2001".

54. There is actually a HIPC trigger for education requiring the share of recurrent education expenditure (including universities and other subvented organizations) of at least 23% of the discretionary recurrent budget.

55. This is deemed a prudent scenario, since death and retirement together, for 2001, were less than 3%, but partial numbers from the divisions for 2003 seem to put attrition due to death at a significantly higher rate of 3–4%. As such, another 3% for resignations and to make up for the higher attrition due to deaths was seen by the group as probably quite acceptable. (EMIS 2001 captured 907 teachers who passed away out of a total stock of 53000. EMIS 2001 also shows 7059 out of 53000 teachers between age 45 and 80, meaning on average about 700 per year at most could retire over the next decade.)

56. Public and private

57. The *number of qualified teachers expected* is a result of the output of the teacher training scenario that is used and of the expected attrition (assumes all qualified teachers work in public primary schools, not in private ones)

58. The *number of unqualified teachers expected* is the difference between the total number of teachers expected and the expected number of qualified teachers.

59. The *total number of teachers expected* in public primary schools is a result of a gradual expected transition from the current 77:1 pupil:stream ratio to 60:1 at the end of the period, while at the same time, the teacher:stream ratio is set to increase from 0.8 at present to 1 at the end of the period.

60. PRSP uses 5%, PIF uses 10% on p.30, Nat Strat teacher training has projections with 10% and with 5%. Attrition as a result of

deaths is lower than in the case of primary school teachers according to the study "Impact of HIV/AIDS on HR in the Malawi public sector". On the other hand, the qualified teachers (in particular with a science background) might resign quicker to find other type of work in the private sector. In addition, secondary teachers often switch from public to private schools—especially when they can take their optional retirement after 20 years of service. However, since secondary enrollment for both private and public schools is reflected here, this effect does not mean extra attrition for the teaching body.

61. Public and private

62. The *number of qualified teachers expected* is a result of the output of the teacher training scenario that is used here and of the expected attrition. This need for qualified teachers is based upon expected enrollment in both public and private schools, since teachers for private schools—if qualified—will also have to come from the same teacher training institutions. Of course the teacher remuneration cost only reflect those teachers teaching in public schools.

63. The *number of unqualified teachers expected* is the difference between the total number of teachers expected and the expected number of qualified teachers.

64. The *total number of teachers expected* in public and private schools is a result of a gradual transition from the current 36:1 pupil:teacher ratio to 40:1 by 2007, and of the expected total student enrollment.

65. This is the average for the secondary system as a whole, i.e. including public and private schools.

66. The sources of information for the current teacher remuneration calculation were MoEST Payroll 2002 and the Teacher Salary Scale. The number of qualified teachers was: PT4: 23255, PT3: 6513, PT2: 2232, PT1: 1197, and the average yearly salary package for PT4: 62256, PT3: 130440, PT2: 183780, PT1: 183396. The sum of the products of

average yearly salary and number of teachers for each grade gives an estimate of total qualified teacher remuneration per year. The average qualified teacher salary of 88171 (total remuneration/total qual teachers) divided by the 2002 Malawi GDP per Capita of 15915 results in the average qualified teacher's salary being 5.5 times GDP/Capita.

67. This result was obtained using total OCT salary for TT including allowances (K3853pm\*12=46236pa) and the 2002 per capita GDP of US\$207.5 (1\$=76.7).

68. Not readily available for 2001. However, according to PER it was fluctuating between 4 and 8% in the period 94/95 to 98/99

69. From 1994/95 till 1999/00 roughly 85 to 90% of recurrent primary spending was on teacher salaries (source PER)

70. Data used from PPPI at end of 2002 on the number of secondary teachers in each level and the total salary package for each level, the total average salary (including allowances) was 150000 to 175000. Using the 2002 GDP/cap of 15915 (Econ Report 2003), this means between 9.5 and 10.9 times GDP/cap.

71. between 1994/95 and 1998/99 PE was roughly 40 to 60% of secondary budget according to PER.

72.  $= (0.2 / (1 - 0.2)) * \text{recurrent cost of all other levels.}$



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