Working Paper 210

Poverty Reduction Outcomes in Education and Health: Public Expenditure and Aid

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Acronyms

CFAA	Country Financial Accountability Assessment
DALE	Disability-adjusted life expectation
DALY	Disability-adjusted life year
DPT	Diphtheria, para-typhoid, typhoid
EFA	Education for All
EPI	Expanded Programme of Immunisation
GAVI	Global Alliance for Vaccination and Immunisation
GER	Gross Enrolment Rate
GDP	Gross Domestic Product
GFATM	Global Fund for AIDS, TB and Malaria
GNI	Gross National Income
HIV	Human immunodeficiency virus
MDG	Millennium Development Goal
NER	Net Enrolment Rate
PCR	Primary Completion Rate
PCY	Per Capita Income
PHC	Primary Health Centre
PPP	Purchasing power parity
PRS(P)	Poverty Reduction Strategy (Paper)
PTR	Pupil/Teacher Ratio
SWAp	Sector-wide approach
UPE	Universal Primary Education
UNESCO	United Nations Education and Science Organisation
UNFPA	United Nations Family Planning Association
UNICEF	United Nations Children's Fund
WHO	World Health Organisation

Executive Summary

This paper is a survey of the literature and evidence on the determinants of development outcomes in the social sectors, and into the role of public expenditure programmes in promoting them. Coming at a time when donors have pledged major increases in aid much of which will support government programmes, and when a new mechanism for doubling aid flows is being canvassed, it asks how well public expenditure works to deliver social sector MDGs – specifically universal primary education and a two-thirds reduction in under-5 mortality – and how should donors should best support public programmes to achieve MDG outcomes.

The evidence reviewed shows that progress towards the MDGs has slowed in some low income countries, notably in Sub-Saharan Africa. Public expenditure has a much less powerful impact on outcomes than demand-side factors. Policies and practices for making public programmes more effective that have been recognised for some time remain unimplemented. Therefore, notwithstanding recent reforms in budget and public expenditure management practice and the growing popularity of budget support, the case remains for close donor involvement at the sector level.

Education

Trends. Progress towards UPE continues, albeit more slowly, but has stopped in parts of sub-Saharan Africa and some other least developed countries. Rising rates of enrolment are distorted by high rates of repetition and of attendance by over aged children, and they mask the still large numbers who never attend school or who drop out, and the glaring inequalities of access and quality in educational provision, especially in the poorest countries.

Economic impact. Microeconomic studies repeatedly confirm the positive impact of education on economic performance, with returns to primary education higher than to secondary or tertiary education. However, the growth literature, which tests the importance of the volume and quality of human capital and other factors of production as proximate sources of economic growth, finds that education has low explanatory power. The micro-macro paradox is at least in part explicable by cross-country differences in the quality of education and by inequality in its distribution. Education yields the highest economic benefits where there are pro-growth policies and effective demand for educated manpower.

Public expenditure role and impact. Developing countries' expenditure on education, relative to GDP, has increased slowly and erratically since 1970. It varies widely between countries. Expenditure levels bear no strong relationship to primary enrolment and completion rates. Recent cross-country evidence suggests that two-thirds of the inter-country variance in primary completion rates and nearly half of the variance in gross enrolment rates is explained by demand-side factors – adult literacy and per capita income. The wide quality and cost effectiveness differentials in education programmes explain the lack of significance of the of education expenditure variable in econometric evidence.

Explaining evidence of poor performance. There are wide differences within and between countries in educational efficiency and quality, and in school performance. Many countries are well below the efficiency frontier in their use of public expenditure to produce educational outcomes. Low standards of quality and efficiency in poorly performing schooling systems are prevalent and persistent in poor countries, in poor regions within countries and among poor populations. Low

standard schooling and the effects of poverty on demand are the principal cause for concern about prospects for achieving the MDG target.

Low standards cannot be corrected by higher levels of expenditure: without management and service delivery reform. The cases of Madagascar and Tanzania in the 1970s and 1980s warn against ambitious educational expansion without proper resource planning and commitment, and without tackling inherited problems if quality, efficiency and effectiveness.

Attainment of the MDG. Demographic transition in most regions apart from sub-Saharan Africa is facilitating the achievement of universal primary education target. On the other hand dealing with the bulge caused by enrolling the backlog of over-aged but unschooled children exacerbates the problem of creating enough capacity. Most countries outside Africa could, with some additional financial commitment to primary education, create capacity sufficient to reach the target. In seriously affected parts of sub-Saharan Africa the HIV/AIDS epidemic will be a net setback to the provision of sufficient capacity. The effect of AIDS is to reduce demand, but by less than supply.

However, higher school capacity per se is not enough. There has to be simultaneous attention to quality and to easing demand side barriers.

There have been recent attempts by multilateral institutions to calculate the cost of reaching the MDG. These indicate the need for considerable increases in resources for primary education in countries remote from the target. These calculations can only be indicative in view of the poor state of our knowledge of the scope in each country for internal efficiency improvement and of the cost of relieving demand-side restraints.

Reform and re-allocation. To increase primary enrolments countries can:

- commit more effective resources to primary education, by increasing public expenditure where it is low as a share of GDP, and/or by redirecting it to the primary sector;
- take performance management measures to reduce waste and excess costs, and to increase the internal efficiency of school systems;
- improve educational quality, through proper attention to the deployment and motivation of trained teachers and the provision of learning materials;
- reduce the private costs of sending children to school for poor people.

Wide expenditure and cost differences between countries make it different to establish norms of cost-effectiveness or standard prescriptions for reform. Expenditure and efficiency levels achievable in some parts of the world may simply not be attainable elsewhere. Asian countries have been able to achieve significant educational results at modest cost. Drop-out rates are lower, test scores are higher and education expenditure as a share of GNP is lower in East Asia than in other regions. In many African countries similar levels of expenditure relative to GNP are inadequate to raise achievements to within striking distance of international goals.

Expert opinion doubts if reform and performance improvement can proceed fast enough in laggard countries to attain the MDG – in spite of the renewed impetus given to planning for and financing UPE since the Dakar Education for All Forum In 2000.

Health

Trends. The health status of developing countries has improved greatly. Over the last 40 years child mortality has halved in low income countries, and has fallen by three-quarters in middle income countries. The exception is Sub-Saharan Africa where child mortality, after falling somewhat, has now begun to increase.

The differences between the health status of the poor and the non-poor within countries is more stark than differences in country averages between countries of differing per capita incomes. Child mortality rate for lowest income quintile households in many low income countries is more than double that of highest income quintile households.

Developing countries' expenditure on health has risen slowly and is now typically 4-6% of GDP. On average some 40% of expenditure is public. Although per capita expenditure is low it may be sufficient to cover the cost of a minimum package of interventions, except in South Asia and Sub-Saharan Africa.

Effects of public expenditure on health. Health outcomes are a function of a wide variety of factors – economic, social, cultural, geographical and environmental, as well as on health sector interventions. Econometric evidence shows that most cross-country variance in outcomes is explained by per capita income (poverty level) differences and that public expenditure has limited explanatory power. Public expenditure has often been mis-allocated (relative to the objective of child mortality reduction), inter alia by substituting for private expenditure: there has been no clear benefit to health from primary health care facilities. Some public health programmes have been demonstrably successful, for example Immunisation, but these have been low cost, minor, elements in health budgets, and so have not influenced greatly the aggregate picture of the effectiveness of public expenditure.

Developing countries' health policies. The 1980s and 1990s saw heavy emphasis in health sector policy on care in the primary health sector to counter balance previous bias towards hospital based care in urban areas. The results in terms of health indicators have been disappointing. Since the mid 1990s there has been pressure from multilateral institutions for a 'minimum package' approach focusing public expenditure on interventions known to have high impact. This prescription has generally not been followed.

Theory and practice of public policy in health. The essential role of the state in health is to provide public goods, to regulate health care and health insurance, and to offer a safety net for the poor. Good health itself, and many preventive and curative interventions, have public goods characteristics and strong positive externalities, causing market failure and justifying state provision. Poor households are, without a safety net, prone to serious impoverishment if victims to catastrophic injury or illness.

Public expenditure should, therefore, be primarily devoted to interventions with public goods characteristics and strong positive externalities, and should be biased towards the poor. In practice beneficiary incidence surveys reveal an anti-poor bias in public expenditure in the health sector in most developing countries, and a concentration of resources on curative care of non-catastrophic conditions which, in urban areas, may compete with established private providers.

Challenge of reform in health. Tackling the challenge of reform involves both courage in reallocating resources to serve poverty reduction objectives at the expense of existing low impact programmes, close attention to results-oriented planning and budgeting, and the institution of active

performance management. Malawi is a not untypical case where there was a well intentioned National Health Plan that was not implemented because poorly planned and opposed by vested interests.

Budget reform and strategy for aid effectiveness

Doubts about the efficiency and effectiveness of public expenditure raise questions about how to deploy external support for poverty objectives. Recent budget and expenditure management reforms are relevant.

Expenditure management reform and poverty focus. Public expenditure management is undergoing reform in many low income countries, albeit at an uneven pace and with differing success. Budget reform will help to make expenditure programmes more efficient, policy-focused and effective. There are three related strands in these reforms:

- the planning of expenditures over the medium term on the basis of increasingly reliable forecasts of resource availability,
- a strengthening focus on commitment by spending ministries and agencies to achieving defined and monitorable results, and
- higher standards of financial accountability and transparency.

These reforms underpin and reinforce countries' commitments to pursue poverty reduction strategies for which they usually designate public expenditure as their principal policy instrument.

However, budget reforms will not in themselves solve the problems of the education and health sectors. They are a technical tool that will only become truly effective if used in combination with a determination to implement pro-poor sector strategy.

Aid for education. International support for education is now focused on mobilising additional resources for those countries in need of more finance for primary education (and other services such as teacher training associated with it) and supporting the reforms needed to make the educational finance effective. There is little discernible dissent from the reigning paradigm.

There is wide consensus among donors about objectives and strategy. The diversity among donors about cooperation modalities and instruments of assistance remains, but is diminishing as more aid id committed within sector-wide approaches.

SWAps have so far been only a qualified success, but they have shown themselves to be superior to project aid in support of countries with low primary schooling. They have introduced performance-based planning, budgeting and management. Their shortcomings are their excessive ambition and the extra-budgetary character of their external financing.

An approach to external financing with better long term prospects for sustainability is to provide budgetary support while maintaining sector-level involvement pending the introduction of thoroughgoing performance management.

Aid for Health. Sector-wide approaches have become the preferred form of broad-focus donor support to the health sector, bringing advantages in strategic coherence, integration of vertical programmes into health sector systems, poverty-focus and reforms in financial and personnel administration, and in local 'ownership' of these processes. Budget support has advantages over SWAps in terms of fuller local ownership of central budgetary processes and reduced transaction costs. Where health is a priority concern in poverty reduction, however, there is often earmarking of

budget support to health. Global initiatives for HIV, malaria, TB and vaccination risk turning the clock back to single-purpose vertical campaigns. In countries with weak health delivery systems facing health crises caused by HIV/AIDS, however, it ban be best practice for donors to support, for a time, separate programmes dedicated to crisis management.

Marrying good donor practice and aid effectiveness. The emerging consensus among donors is that aid should support partner countries' poverty reduction strategies with flexible aid instruments, and use local expenditure management processes and procedures. Reforms in public expenditure management and in donor practice, combined in the pursuit of poverty reduction strategies, offer some grounds for hope of increased effectiveness in pro-poor social sector expenditure programmes. However, the implementation of reforms will be a slow process and resource re-allocation to favour high impact programmes is likely to meet institutional and stakeholder resistance.

External assistance to help countries reach the social sector MDGs should therefore comprise combinations of three instruments: (i) resource transfer (preferably by budget support), (ii) national and sectoral dialogue and follow-up on strategies, implementation and performance, and (iii) support for capacity building and lesson-learning, particularly at the sector level.

As they increase their support for public expenditure programmes to accelerate poverty reduction donors should be wary of naively uncritical backing for inherited policies, practices and processes featuring waste, low cost effectiveness and low impact.

Chapter 1: Introduction

'The State spends a lot, and badly'
Antônio Palocci, Finance Minister, Brazil

The genesis of this paper was an enquiry into the determinants of development outcomes in the social sectors, and into the role of public expenditure programmes in promoting them. The issues it sets out to elucidate are: does public expenditure work, if so how well, if not what factors adversely affect public service delivery, and how should donors respond so as best to achieve development outcomes? The paper is not a treatise on the economics of the social sectors; it is a survey of literature and evidence on why public programmes in these sectors may yield disappointing results, and the implications of this for the development community. Its premise is that where public expenditure is ineffective in delivering social sector outcomes, the effectiveness of most forms of development assistance in these sectors is likely to be impaired; therefore donors should pay close attention to the quality of public expenditure.

The outcomes in question, for present purposes, are the widely recognised and intensively monitored Millennium Development Goals for poverty reduction. The eight Goals are subdivided into 18 targets progress towards which is monitored by reference to 48 indicators. This paper concentrates on the outcomes defined by Target 3 (all children should be able to complete a full course of primary education by 2015) and Target 5 (reducing child mortality by two-thirds between 1990 and 2015). The education goal presents an intrinsically greater challenge because it relates to all children in all countries, and not just to an average percentage improvement in outcomes.

The development community is committed to pursuing the MDGs with all the resources it can muster. Donors' recognition of the need to redouble efforts to reduce world poverty led to commitments, announced just before the Monterrey conference on Financing for Development in March 2002, of additional aid amounting to at least $12 billion p.a. by 2006. The British Government has now proposed an International Finance Facility for poverty reduction which would double the current level of flows. Much of the increase would finance developing countries' public expenditure.

This growing volume of aid, moreover, is intended to be used purposefully. The World Bank/IMF Development Committee meeting in September 2002 adopted a paper on Better Measuring, Monitoring and Managing for Development Results which arose from a joint statement by the heads of multilateral development banks setting out, in the aftermath of Monterrey, their commitment to development effectiveness. The paper emphasised country-focused approaches articulated around Poverty Reduction Strategy Papers, and the importance of information and building domestic capacity for results-based management, as well as the transfer of financial resources.

Implicit in these commitments to provide more, and more effective, assistance is the thought that government action is essential in the fight against poverty, and that public expenditure programmes – supported by external assistance – have a key role to play. The assumption is perfectly valid inasmuch as there are obvious market failures in the supply of services – especially health and education services – to poor people. There are demonstrable external disbenefits from underconsumption by the poor of these services – as later chapters in this paper will show – and the poor cannot afford to pay for a socially optimal level of consumption. However, there remain question marks over whether public expenditure has delivered, and can deliver, the requisite services to the poor, so long as they remain poor. As later chapters will demonstrate, the record of programmes of public expenditure is far from exemplary.

The donor community is also questioning its aid practices – with a view to making them more appropriate to the support of poverty reduction strategies and to restoring 'ownership' of policies to recipient countries. There is a growing conviction among donors that, where there are convincing poverty reduction strategies, aid finance should if possible be provided in programme form, flexibly, and in support of recipients' public expenditures. Close attention has recently been paid to financial accountability and to the features of it that would allow donors to provide general or sectoral budget support.

The implicit assumption behind budget support is that public expenditure programmes are by-and-large efficient and effective in bringing about development outcomes. However, this appears to ignore an uncomfortable body of empirical evidence that seems to show that health and education outcomes are mostly functions of demand side factors, particularly household income, and that public expenditure, as configured hitherto, has had little positive impact.

The 'efficiency' of public expenditure programmes is usefully defined as the relationship of the proximate outputs of these programmes to inputs they consume. In economists' terminology this is 'technical efficiency'. 'Effectiveness' is used to describe the impact of programmes on policy objectives and targets, or the relationship final or intermediate outcomes attained and proximate outputs produced. It comprises the notion of 'allocative efficiency', in other words whether public expenditure is appropriately directed, given its economic and social returns and/or policy goals. The paper uses both criteria in its reflections on developing countries' public education and health programmes.

The purposes of this working paper are to survey the evidence on progress towards MDG targets 3 (primary education) and 5 (child mortality) and the role of public expenditure therein, and to draw out some conclusions about how to deploy prospectively rising levels of aid so as to correct mistakes of the past and to maximise the likelihood of reaching the targets. The survey is based on recent literature and on recently compiled performance data.

The paper consists of two main chapters – on education and health. These examine evidence on the efficiency and effectiveness of public expenditure in promoting the two Millennium Development Goals in the social sectors. A third and final chapter considers the role and form of development assistance for poverty reduction in support of public expenditure programmes in these sectors.

The paper's basic contentions are that, in the two sectors:

- there has been progress towards the MDGs over the last 30-40 years,
- there, is surprisingly weak statistical evidence of the role in this of public expenditure,
- other economic and social factors are strongly significant influences over education and health outcomes,
- public expenditure programmes still in varying degrees feature poor management, inefficiencies and waste, unreformed (non-pro-poor) policies and misallocations of resources which curtail their effectiveness and ability to achieve poverty reduction objectives.
- The causes of inefficiency and ineffectiveness in public expenditure need to be identified country-by-country and tackled frontally, with multi-faceted support by the international community, in sector strategies for poverty reduction featuring active performance management.
- Public expenditure *per se* is, for these reasons a poor or very poor guide to outcomes. In many poor countries that do not now meet the MDG targets more expenditure, from internal or external sources, is probably needed to attain set goals. But simply spending more on sector programmes will not guarantee their attainment. Some of these countries have the economic capacity to meet their own financial needs. Others do not. In yet other countries the problems of

reaching the MDG targets are overwhelmingly ones of technical and allocative efficiency on the supply side and of proper attention to complementary measures to overcome demand side restraints.

The message from this work for aid donors is 'look before you leap'. The circumstances specific to each country need to be understood, and the value of sector and national strategies and institutions assessed. Thereafter, development partners should face these challenges together, building a performance culture among programme managers and service providers, and using for this purpose the results-oriented approaches to public expenditure management on which the education and health sectors have already made an encouraging start in many countries.

Chapter 2: Public Expenditure and Outcomes in Primary Education

2.1   The Issues in Education for All

This first part of the paper sets out to review the public policy and expenditure linkages through which development assistance seeks to contribute to the achievement of poverty-reducing development outcomes in education. It does so against the background of international commitment to the Millennium Development Goals for education, of mounting concern about whether they are attainable, and of the decision of the World Bank in April 2002 to 'fast track' its support through the International Development Association for Education for All (EFA).

The Millennium Development Goals (MDGs) for education, agreed by the special session of the UN General Assembly in June 2000, are that there should be universal primary education and gender equality. The specific targets set were to:

- ensure that, by 2015, children everywhere, boys and girls and girls alike, will be able to complete a full course of primary schooling (cf Box 1), and
- eliminate gender disparity in primary and secondary education, preferably by 2005, and at all levels of education by 2015.

Also in 2000 UNESCO's Education for All Forum in Dakar enunciated goals for attainment by 2015, covering early childhood education, universal primary education, education quality, adult literacy and gender parity. Developing countries committed themselves to preparing specific, properly financed and time-bound plans for achieving these objectives.

The following chapters focus on the target of universal primary education (UPE) which, under the guidance of UNESCO, has been an international commitment for many years. They will consider its interpretation, value and prospects for its attainment.

Box 1: The Education MDG

Goal 2: Achieve universal primary education

Target 3: Ensure that, by 2015, children, everywhere, boys and girls alike, will be able to complete a full course of primary education	Indicators: 6. Net enrolment ratio in primary education 7. Proportion of pupils starting grade 1 who reach grade 5 8. Literacy rate of 15-24 year olds

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If education is a preparation for adult life and if the reduction of poverty requires, *inter alia*, higher labour productivity, one important measure of the success of education policy lies in the assessed impact of learning on GDP and personal incomes. The MDG target, it can be argued, is not so much a development outcome as an output of the primary education system. The effectiveness of education in raising incomes has been a matter of debate – with micro-level evidence suggesting that education raises both personal and social incomes, while evidence from growth accounting studies suggests otherwise.

There is less debate about the importance of public programmes in raising access to and the quality of education. However public expenditure and outcomes/outputs may be only weakly correlated because of a range of factors affecting the effectiveness and efficiency of the supply of schooling. Reforms may be required both in education policies and priorities and more broadly in the management of public expenditure.

An important assumption in the development community is that public expenditure is the prime policy instrument for achieving desired educational outcomes. Public provision far exceeds non-governmental provision in the supply of schooling, particularly at the primary level, and public expenditure greatly exceeds private expenditure. Improving performance and achieving yet unfulfilled outcomes therefore involves increasing the volume, efficiency and effectiveness of public expenditure on education, though not to the exclusion of expanded non-governmental involvement.

However, the supply of education services by governmental and non-governmental providers is only one side of the equation. There are long recognised demand-side factors also which affect school attendance and learning success. The main factors on the demand side are parental perceptions of the benefits to themselves and their children of school attendance, household income and the private costs to households of sending children to school. Public policy can help to mitigate negative demand side influences. There are thus two important questions to explore:

- the respective roles of public expenditure and of other factors in promoting educational achievement, and
- the technical and allocative efficiency of expenditure on education: whether current practices are wasteful and in need of reform.

The following chapters, based on published sources, will argue that education is vital to improving the personal lot of individuals and is important in achieving income growth and the reduction of poverty. However, more expenditure on education does not automatically spell more education and wider access to education. In low income countries, in particular, public expenditure on education is still biased against the poor and against females. Expenditure in many countries at risk of not achieving the MDG remains inefficient (because of high repetition rates) and a significant proportion is wasted or is misapplied. There are many reforms that could be undertaken to reduce unit costs and improve the quality of education. If accompanied by other measures to reduce private costs and improve access, these reforms can increase the demand for education by poor households by making education seem more relevant to their livelihood and their children's prospects.

By way of background Sections 2.2 and 2.3 briefly review trends and developments in the performance of primary education in developing areas, and evidence on the impact of education on economic performance. Section 2.4 examines variations by region and country in patterns of public expenditure on primary education. This leads on to reflections in Section 2.5 on the efficiency and effectiveness of expenditures. Section 2.6 looks at the ground to be covered by countries which are still remote from the MDG, and Section 2.7 discusses some of the reforms that would accelerate progress to the goals and raise the efficiency and effectiveness of expenditures.

There is no new revelation about how to reach the MDG. The need for quality- and efficiency-raising reform and the effective deployment of resources to redress inequities in education provision has been long understood. However, there remain enormous disparities in translating received wisdom into practice.

2.2   Education targets and performance: some progress on the long march

Summary

The aggregate picture of recent progress towards UPE is one of continuing but slowing advance in schooling and literacy across the developing world, but with notable exceptions in parts of sub-Saharan Africa and in many least developed countries. However, rising rates of enrolment are distorted by high rates of repetition and of attendance by over aged children, and they mask the still large numbers who never attend school or who drop out, and the glaring inequalities of access and quality in educational provision, especially in the poorest countries.

Universal primary education (UPE) – measures, targets and achievements

In the early 1960s UNESCO convened a series of regional conferences on education development[1] whose principal conclusion was that all eligible children should be enrolled in primary school by 1980 (or, in the case of Latin America, by 1970). The target was defined in terms of *Gross Enrolment Rates (GERs)*, i.e. the ratio of children attending primary schools to the number of children of primary school age. A GER of 100 was regarded as synonymous with the achievement of UPE.

Substantial progress was made (cf. Table 2.1), with increases in primary school gross enrolment rates between 1965 and 1980, notably in South Asia, where the GER rose from 68 to 77, in sub-Saharan Africa, where the GER rose from 41 to 80, and in the Middle East and N. Africa.

Table 1: Gross enrolment by region and country income group

	1965	1970	1975	1980	1985	1990	1997	1999
East Asia and Pacific	88.0	89.8	114	110.6	118.5	120.1	119.0	105.7
Europe & Central Asia	..	..	..	99.3	102.5	98.3	100.0	94.1
Middle East & North Africa		70.1	82.0	86.6	92.00	95.8	95.00	95.4
Latin American & Caribbean	98.0	107.3	98.8	104.8	105.3	105.6	113.0	131.0
South Asia	68.0	70.6	75.0	76.7	86.4	90.4	100	100.8
Sub-Saharan Africa	41.0	51.0	59.4	80.3	76.0	74.5	78.0	79.3
Least Developed countries (UN)	..	48.2	57.8	68.3	64.6	67.4	..	..
Low Income	73.0	66.0	73.2	82.9	88.4	88.5	97.0	97.9
Lower middle income	88.0	90.1	113.9	107.5	114.7	116.3	120.0	103.8
Upper middle income	98.0	106.0	99.8	101.6	103.6	104.6	109.0	127.7
World	**85.0**	**85.4**	**95.1**	**96.9**	**101.6**	**102.3**	**106.0**	

However, the global target was missed, notably in Africa and in South Asia.

Low GERs continue to be a feature of low income countries, and in particular of the least developed. In sub-Saharan Africa, GERs – as per capita incomes – have stagnated, in aggregate, since 1980. South Asia, which has, since 1980, experienced two decades of steady per capita income growth, has also achieved steady progress in its GER. In the Middle East and North Africa, per capita incomes and GERs grew in the 1980s, but have made little progress in the 1990s. In Latin America enrolment expanded rapidly in the 1990s, having marked time in the 1980s.

UNESCO and UNICEF convened a further landmark international conference in Jomtien in Thailand in 1990 which concluded with a commitment to achieving UPE by 2000. Progress was

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[1] in Karachi for Asia(1960), Addis Ababa for Africa (1961), Santiago for Latin America (1962) and Tripoli for the Arab states (1966) – cf Colclough & Lewin (1993), Chapter 1.

reviewed in 2000 at the Dakar Education for All Forum where it was recognised that the Jomtien target had still not been reached by a number of countries – notably in sub-Saharan Africa.

Although for long an international policy target the GER is in reality a capacity and output measure, rather than a measure of educational outcomes. It measures school places filled, not educational achievement, as in exam results or graduation rates. The primary school GER is even an imperfect measure of primary participation. It is derived from national statistics which relate to primary education cycles of varying length (4-7 years in 85% of countries). The data are collected in annual school surveys which occur early in the school year, and which often exaggerate average attendance. Measured enrolments include repeaters and over-age children, thus exaggerating participation by primary school age children. The GER is in effect a measure of primary school capacity, not of school attendance by the intended age cohort.

The number of school age children of children out-of-school at 113 million in 1998[2] remains high (Chart 2.1), though it has fallen as a percentage of the primary school age cohort from 23% in 1990 to 18% in 1998. The decrease of 10 million between 1990 and 1998 is a result of progress in South and West Asia (mainly India, see Box 1) where numbers out of school fell by 7 million and in Latin America where they fell by 6 million. Numbers out of school rose in sub-Saharan Africa and in the Arab Middle East and North Africa.

Chart 1: Primary school age children in and out of school 1990 & 1998
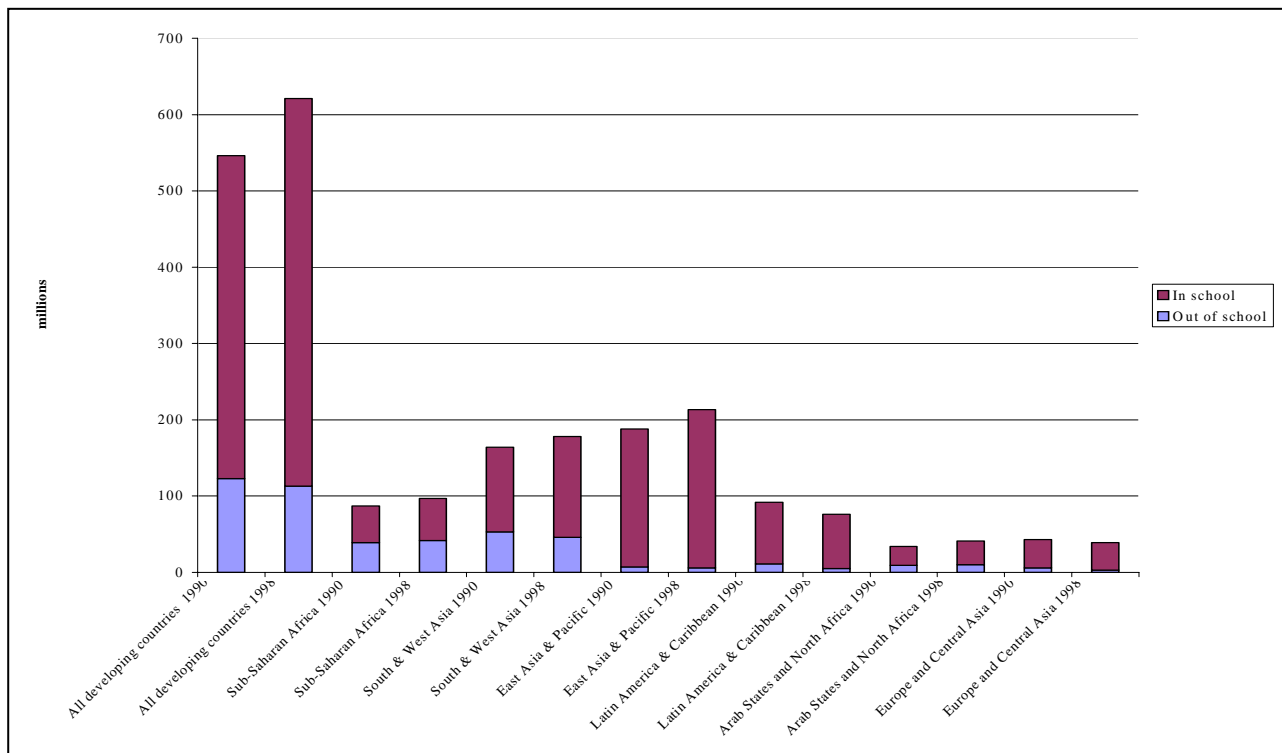
Source: UNESCO Education for All 2000 Assessment Statistical Document

The calculated number of children out of school, however, exaggerates the problem of non-enrolment because it is based on net enrolments, and does not allow for late starting and completion by over age children. At a time when governments are seeking to implement education for all by making schools more accessible it is inevitable that school attendance will rise well above its long

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[2] Revised to 115 million in 1999 (UNESCO 2002b)

run rate as older children hitherto out of school take advantage of the new opportunities for education offered to them.

The *Net Enrolment Rate (NER),* i.e. the proportion of school-age children recorded as attending school, is a better output measure than the GER, because it does not give equal weight to repeaters and to attendance by non school-age children. NERs are one of the three indicators specified in the UN's list of MDGs for monitoring progress towards the Target of a complete cycle of primary education for all children (Box 1). NERs are typically 10-20 percentage points lowers than GERs (Table 2).

However, NERs have two major drawbacks. First, they are still not available for many low income and least developed countries (including India), which are the focus of policies to achieve the MDG (cf Annex 1). Second, the NER does not capture the spirit of the MDG which is not specific about children's age when they complete primary education. The MDG implies that there is no harm if children are over-age when they complete primary education, provided that they complete.

Table 2: Enrolment and Completion Rates in 1999 by Region and country income group

	GER	NER	PCR
East Asia & Pacific	105.7	92.4	81.0
Europe & Central Asia	94.1	92.0	93.0
Middle East & North Africa	95.4	83.1	74.0
Latin America & Caribbean	131.5	97.0	83.0
South Asia	100.8	79.0	56.0
Sub-Saharan Africa	79.3	54.4	55.0
Low & middle income	103.7	82.0	73.0
Low income	97.9	66.4	
Lower middle income	103.8	91.6	
Upper middle income	126.7	95.5	
World	106.0		
Source: EdStats; NERs for LMICs & S. Asia: UNESCO			

UNESCO and the World Bank have begun to use the *Primary School Completion Rate (PCR)* as their preferred measure of progress towards the MDG target.[3] The PCR (World Bank version) is the ratio of the number of students actually completing the final year of primary education (as defined in national practice) to the size of the final year primary age cohort.[4] The picture of educational performance and prospects painted by PCRs is more gloomy than might be inferred from GER figures, or even from NERs. It is apparent, from Table 2, that GERs as high as 130 (as in Latin America) are consistent with primary completion rates as low as 80 and that a GER of 100 (as in South Asia), far from indicating that all children complete the primary cycle, may mean that only little over half of them do. (See also Annex 1 for country level data on these indicators).

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[3] cf UNESCO (2002a) and UNESCO (2002b). The latter document distinguishes three different interpretations of a 100% PCR in 2015: (i) all children of primary school leaving age should have completed their final year, (ii) all primary school age children should be enrolled (NER = 100) and will all complete primary school, but not necessarily on time, (iii) all children should by 2015 be able to join, and (subsequently) complete primary school, i.e. with at least year NER of 100%. None of these definitions exactly corresponds to the one used by the World Bank which relates the enrolment in the final year of primary school to the size of the normal-aged final year cohort.

[4] For countries which do not report actual completion or graduation rates a proxy measure is used, viz. final year enrolments minus the number of students which repeat the grade in a typical year.

Chart 2: Attainment Profiles
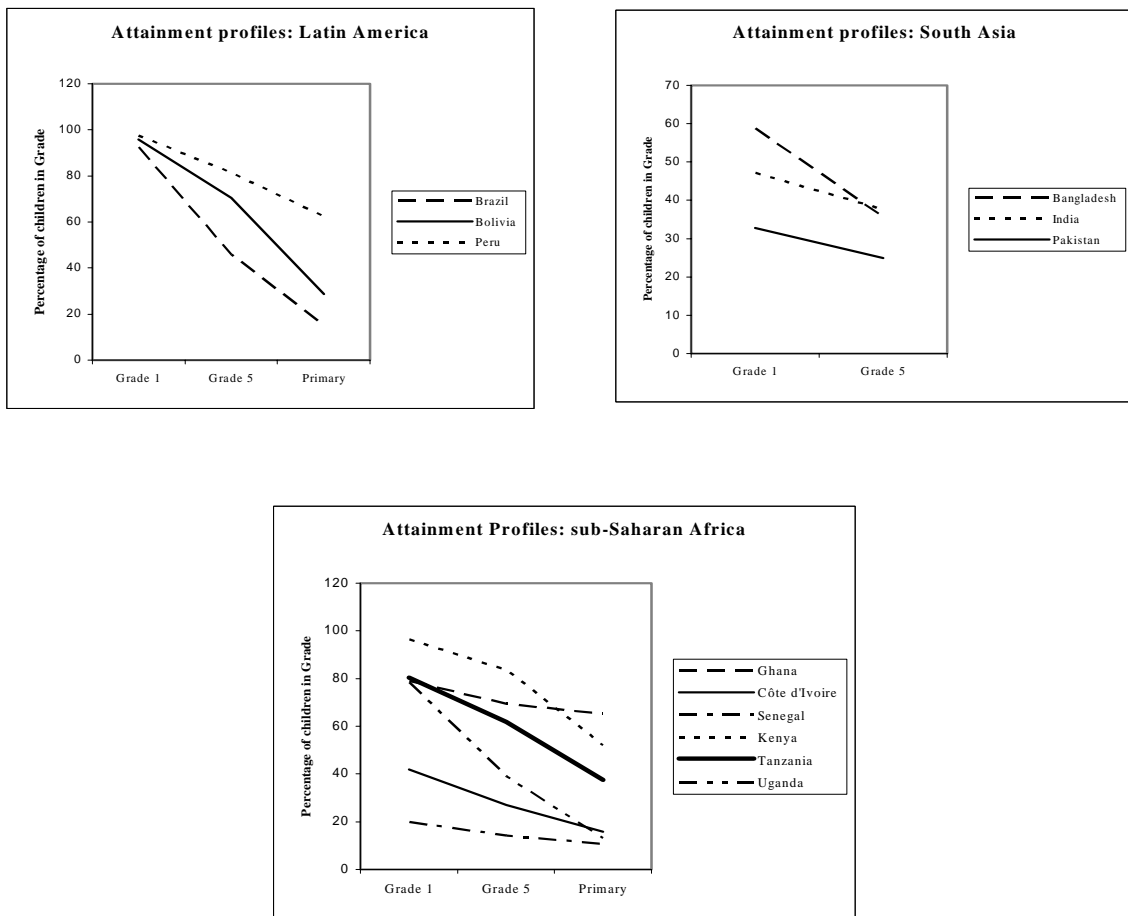
One technical reason for the disappointingly low PCR numbers sometimes used is that they are derived from a survey source – Demographic and Health Surveys – which avoids the upward bias characteristic of statistics reported by countries' education authorities. Filmer and Pritchett[5] have exploited data from this source to link information about the distribution of the highest grade of school attendance to income and gender characteristics. In the more recent staff work for its Education for All initiative the World Bank have reverted to using official enrolment by grade data as reported to UNESCO. These are reflected in Table 2.

The substantive reason for low PCR numbers is the high drop-out rate observed in the course of the primary cycle in many countries. These are illustrated in Chart 2 for selected countries in Latin America, South Asia and sub-Saharan Africa. High drop-out rates are associated, statistically, with high rates of over-age enrolment in Grade 1, suggesting that entry at the right age is important in achieving goals for primary education.[6]

It is common for a quarter the children who enrol in Grade 1 to abandon primary school before completing the cycle, especially in some Latin American countries where primary cycles are unusually long. Often over 40% drop out – cf. Annex 1, column 7.

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[5] Filmer & Pritchett (1996)
[6] UNESCO (2002b)

Box 2: Case of India – one push not enough[1]

India has made significant progress over the last 15 years in increasing enrolment and retention and reducing the gender gap through policies to improve the quality of and access to basic education. This followed the Union Government's adoption in 1986 of a National Policy on Education intended to accelerate the pace at which India recovered its educational backlog.

The policy covered *inter alia* access to education for those hitherto excluded, including women and minority groups. The central government provided much to the necessary funding to ensure that the momentum of its initiative was not dissipated by state governments. The central government appealed to the donor community to assist.

Public expenditure on education rose sharply in the late 1980s, but then levelled off after 1992/93 – though at a level relative to GDP (3.6%) comparable to other low income countries.

Progress was most pronounced between 1987 and 1993 when primary school enrolments rose from 85 million to 100 million, taking the GER from 95.8 to 104.5. But this still left 32 million 6-10 year olds out of school. The recorded (but probably inaccurate) GER then declined to 89.7 in 1997/98. Drop-out rates remained high at 35%.

As children grow older and more potentially productive in the household or as child labour, the opportunity cost of school attendance for their parents increases. This is an important cause of falling enrolments in higher grades, particularly for the children of poor households and for girls. The pecuniary and opportunity costs of sending their children to school are higher relative to household income in low-income households than in richer households. This accounts for much of the difference in the enrolment rates of the children of poor and rich parents. Poorer households whose incomes fall tend to withdraw their children from school. The decline in Tanzania's and Ghana's GERs from 73 and 80 respectively in 1980 to 68 and 70 respectively in 1986-97 is attributed to economic decline in this period.[7]

Another common measure of educational performance is *Adult Literacy.* Unlike schooling rates, which are outputs, literacy has the character of an educational outcome, albeit only a basic one. Literacy is a skill which confers direct potential for earning higher income on those who possess it. The rate of adult and youth illiteracy is regularly sampled by countries' education authorities, yielding more up-to-date and better quality information than is available on schooling.

Performance on literacy is much more encouraging than on schooling. As Tables 3 and 4 show, there has been steady, unflagging, progress over the last thirty years in reducing both adult and youth illiteracy. Since 1970 illiteracy among 15-24 year olds has fallen in sub-Saharan Africa by over 60% and in South Asia by over 45% – the two regions with the worst access to primary schooling. In these two regions, and in the least developed countries, progress has accelerated over the period.

It is remarkable that progress in youth literacy has not been impeded in sub-Saharan Africa by the failure of primary school enrolments to rise since 1980. There may be optimistic bias in the reporting of rates of literacy, some of which is based on self reporting by sampled individuals, but would not affect the general picture of improvement unless the bias has increased through time – for which there is no evidence. The obvious implication is that some lifetime skills, normally acquired in school, can also be acquired informally where there are incentives for this.

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[7] Colclough & Lewin (1993), Chapters 2 and 3

Table 3: Adult Literacy

	1970	1975	1980	1985	1990	2000
East Asia & Pacific	44.0	37.4	31.0	25.4	20.8	14.2
Europe & Central Asia	7.4	6.5	5.7	5.0	4.4	3.3
Latin America & Caribbean	26.2	23.1	20.1	17.5	15.2	11.6
Middle East & North Africa	70.2	64.3	58.4	52.3	46.2	35.2
South Asia	68.1	64.5	60.7	56.8	52.9	45.2
Sub-Saharan Africa	72.0	67.2	61.9	56.1	50.2	38.5
Least developed countries	72.2	68.6	64.9	60.7	56.4	47.0
Low & middle income	46.7	42.4	38.1	34.1	30.5	24.4
Low income	61.2	57.4	53.5	49.5	45.4	37.6
Lower middle income	39.9	34.8	29.6	25.0	21.2	15.3
Middle income	36.3	31.6	27.0	23.0	19.5	14.1
Upper middle income	23.6	20.6	18.0	15.7	13.7	10.2

Source: World Development Indicators

Table 4: Youth Illiteracy (15-24 age group)

	1970	1975	1980	1985	1990	1995	2000
East Asia & Pacific	18.3	14.1	9.6	6.9	5.3	3.7	2.6
Europe & Central Asia	3.6	3.0	2.6	2.4	2.0	1.5	1.1
Latin America & Caribbean	16.1	13.2	10.8	9.1	8.0	6.9	5.9
Middle East & North Africa	53.7	46.7	40.1	33.4	27.3	22.1	17.7
South Asia	56.9	52.4	47.8	43.5	39.3	35.1	31.5
Sub-Saharan Africa	58.5	51.7	45.2	38.5	32.3	26.6	22.0
Least developed countries	61.9	57.3	52.7	47.8	42.7	37.7	33.8
Low & middle income	31.3	27.4	23.8	20.5	18.1	16.1	14.7
Low income	50.0	44.8	40.3	36.1	31.8	27.7	24.4
Lower middle income	19.4	15.8	11.7	9.0	7.3	5.9	4.9
Upper middle income	13.5	10.8	8.9	7.6	6.5	5.3	4.3

Source: World Development indicators

A measure of educational outcome used by economists is the number of years of education, on average, undergone by adult labour market participants. This is a lagging indicator of current educational performance, but it is commonly considered used as one of the most relevant variables in assessments of the effects of education on GDP and growth.

Inequality in education

Many authors, including Filmer and Pritchett [8] and the World Bank[9] emphasise the pronounced effects of poverty and gender on PCRs. Several studies have also looked at the distribution of education – enrolments, financing or attainments – using the Gini coefficient. The evidence is unambiguous that there is persistent inequality in education, and that this is strongly related to income poverty and gender.

Poor people's children are universally less likely to enrol at all in primary school, and they are more likely to drop out in the course of the primary cycle, than the children of the better off. This is

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[8] Filmer and Pritchett (1996)
[9] World Bank (2002f)

confirmed by Filmer and Pritchett who have also extracted evidence from Demographic and Health Survey returns showing that drop-out rates for the poor are consistently higher for the poor than for the rich.[10]

Using evidence from 35 countries they identify two different enrolment gap patterns:

- in South Asia and West and Central Africa many poor children never enrol or very rapidly drop out, leading to large numbers of school age children being out of school; in sub-Saharan Africa apparent intake rates[11] into Grade 1 are generally well below 100% – cf Annex 1.
- in Latin America first year primary enrolment is almost 100%, but poor children drop out steadily – so that in Brazil only 50% of all children complete.

There is also a wealth gap in the number of primary grades completed by 15-19 year olds – which is very large in South Asia, High in Latin America and West and Central Africa, and low in Eastern and Southern Africa. In India and Pakistan the children of the richest 20% complete 10 and 9 more years of education respectively than those of the poorest 40%, in Senegal and Burkina Faso 6 more years, and in Colombia and the Dominican Republic 4 more years.

The picture as regards girls' education is more nuanced. Overall, girls are educationally deprived compared with boys, with lower average intake, enrolment and completion rates. However, UNESCO data for 1998/99 and 1999/2000 on the percentage of primary school pupils who complete Grade 5 suggest that once enrolled, girls has as good if not better chance of completing primary education as boys. Of the 49 countries reporting Grade 5 survival rates for these years 33 has high rates of survival for girls than for boys.

Income (and wealth) inequality has a major impact on enrolment and educational outcomes. A survey of Indian states in 1992-1993 revealed that the wealth gap (the difference between the to 20 % and the bottom 40% on an asset index) accounted for a large proportion of differences in school attendance. Another study of 15-19 year-olds in 20 countries finds that over half of the poorest 40% completed less than one year in school.[12]

Trends in educational Gini coefficients vary between countries. Enrolment Gini coefficients, self-evidently, are highest on countries with the lowest enrolment rates – such as Afghanistan and Mali. They fall to zero as full primary completion is reached. Attainment Ginis, however, remain positive, even where there is UPE, though they fall as parental income rises. Inequality in attainment is much more persistent than inequality in attendance. Korea's attainment Gini, which approached 0.6 in 1960, was by 1990 a relatively equal 0.2. China's 1990 attainment Gini was 0.4 and those of Mali and India 0.9 and 0.7 respectively, indicating high inequality in educational achievement in these poor countries.[13]

Rising income inequality may raise attainment Gini coefficients. Inequality in educational attainment has fallen since 1960 in India, China and Korea, but has increased in Peru, Colombia, Costa Rica and Venezuela.[14]

Educational inequality also has regional and ethnic dimensions. Disfavoured regions and minority groups receive disproportionately low shares of public expenditure, have poor quality schools and have relatively low rates of school attendance and achievement. In Karnataka (and other Indian

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[10] As the DHS yields no direct evidence on the incomes of respondents Filmer and Pritchett estimate approximate income levels from asset holdings.

[11] Ratio of Grade 1 intake (including overage children) to the size of the normal age Grade 1 population cohort.

[12] Filmer & Pritchett (1999a) and Filmer & Pritchett (1999b) quoted in Thomas *et al* (2000)

[13] Lopez *et al* (1998)

[14] Thomas *et al* (2000) Chapter 3

states) educationally backward districts have higher pupil/teacher ratios and lower per pupil expenditures than elsewhere. The problem of minorities may persist even where there are conscious efforts to overcome it. In Kerala the percentage of dalit dropouts is considerably higher than the average, even though the state government makes additional resources available to assist this group.[15]

As discussed in Section 2.3 below, inequality of access to or persistence in education has serious implications not only for the distribution of income earning prospects of individuals but also for a country's potential overall economic growth. Because of externalities, the whole in terms of educational achievement is greater than the sum of the parts.

One intuitively plausible explanation for this bias in educational performance against the poor and against girls is that, relative to household income, the sum of opportunity costs and out-of-pocket costs of sending children to school is higher for the poor than for richer households, and that poor households perceive the opportunity cost of girls' time to be higher than that of boys. However, demand side factors, though powerful, are not an excuse for inaction on persistent inequality of outcomes. A recent survey of primary school attendance in Honduras[16] sets out to measure the relative strengths of demand and supply side effects. It found that two-thirds of missed school days for pupils in different grades were caused by supply side factors (e.g. teacher absence). Furthermore, as seen in recent years in Malawi and Uganda where enrolments rocketed after the abolition of school fees, there are readily available policy measures which can mitigate poor households' low demand for education.

The conclusion is nevertheless inescapable that reaching the education MDG will require a particular effort to improve access for girls and for the poor.

2.3   Education and economic performance

Summary

This section opens a parenthesis to consider the controversy over the impact of education on economic performance and the light it throws on educational outcomes. If publicly financed programmes succeed in having all children complete their primary education does this contribute to economic growth? The strong intuition of most development economists and practitioners that education, by raising students' knowledge, literacy and numeracy skills, and cognitive abilities, increases their productivity in the workforce, so increasing real GDP. It is also widely believed that, beyond a critical minimum mass, having educated people in the workforce confers positive external benefits by also raising the productivity of the uneducated.

Microeconomic studies have repeatedly confirmed this intuition, usually showing, on cross-country evidence, that the returns to primary education are higher than returns to secondary or tertiary education. However, the growth literature, which tests the importance of the volume and quality of human capital and other factors of production as proximate sources of economic growth, finds otherwise. There is a micro-macro paradox in the evidence about the impact of educational achievement on economic performance. This is at least in part resolved by taking the quality of education and the equality of its distribution into account. But education yields the highest economic benefits where there are pro-growth policies and effective demand for educated manpower.

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[15] Abadzi (2002)
[16] Bedi & Marshall (2002)

Evidence from earnings: the benefit/cost ratio of education

More educated people in most countries, including low income developing countries, enjoy higher earnings than less educated ones. There is thus at least private benefit from education. The impact of differing levels of educational attainment (or years of schooling) on earnings has been tested econometrically 5many times and is invariably found to be strongly positive.[17] (The estimated equations are referred to as Mincerian equations, after James Mincer who first tested the relationship in 1974).

Mincerian equations usually show that social and private returns to extra years of schooling at the primary level are higher than at the secondary and tertiary levels. The evidence was reviewed and the conclusion confirmed quite recently by Psacharopoulos[18] and Schultz.[19] This evidence supports the emphasis given in international education policy for developing countries since the 1960s to UPE. However, Bennell[20] and more recently Bigsten *et al*[21] have cast doubt on this standard conclusion, at least for sub-Saharan Africa. They find returns to primary education fell below those of secondary education, and they surmise that this is due to slow economic growth and poor employment opportunities in sub-Saharan Africa for the growing numbers of labour market participants with only basic education. This kind of interpretation is corroborated by Birdsall *et. al.* who find that returns to schooling are higher where there is higher growth of manufactured exports.[22]

The results of Mincerian regressions have become the basis of the social cost-benefit analysis of education. For this purpose the costs – social as well as private – of years of education are quantified, and, on the benefit side, estimates are made of total incremental earnings -– including externalities and payroll taxes paid by employers. Benefit/cost ratios are typically strongly positive, more so for primary education where per pupil government subsidy is low, and less so for tertiary education where per student subsidy is often very high.[23]

This microeconomic evidence of the positive impact of education in developing countries is criticised because of the nature of the earnings evidence used. In the absence of reliable information about personal earnings in the informal sector, particularly among the self employed and those working in household enterprises, the data used in early regressions usually covered only the formal sector where employees have individual contracts of employment. Formal sector employment is heavily dominated by public sector employment where remunerations are institutionally determined, and not related in a market-determined way to workers' marginal productivity. Formal

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[17] Coefficients reported by Psaracharopoulos (1993) for regressions of the log of earnings on years of schooling are: sub-Saharan Africa 13.4, Asia 9.6, Latin America 12.4, Europe, Middle East and N Africa 8.2, and OECD countries 6.8. These coefficients are percentage increases in earnings for each additional year of schooling. The fact that they are higher for regions with less schooling (Africa) and lower for those where children stay longer in school (OECD) is interpreted as indicating falling marginal returns to education (Pritchett, 1996).

[18] Psacharopoulos (1994)

[19] Schultz (1999)

[20] Bennell (1996)

[21] Bigsten et al (1998)

[22] Birdsall, Ross, Sabot (1995)

[23] Psacharopoulos & Patrinos (2002) calculate the following regional average social rates of return for different levels of education from data for the latest available year:

Region	Primary	Secondary	Tertiary
Non OECD Asia	16.2	11.1	11.0
Non OECD Europe, Middle East, North Africa	15.6	9.7	9.9
Latin America, Caribbean	17.4	12.9	12.3
Sub-Saharan Africa	25.4	18.8	11.3

sector wage differentials are thus often a very unreliable indicator of the marginal social benefits of extra years of education.

Another criticism of much regression based evidence is that conclusions are reached without controlling for other factors of production and influences, other than educational attainment, on labour productivity and personal incomes. These include the stock of productive capital individuals' inherited assets, personal and household characteristics, and the external benefits to individual workers' incomes of (a) general economic growth and (b) the presence in the labour force of large numbers of educated personnel. A growing economy creates more opportunities for workers to make productive use of the cognitive skills they acquire through education, and there are recognised 'network' externalities or spillover effects for individual workers in the labour market from the presence of other skilled and educated workers which often more than compensate for the tendency to diminishing returns in educated labour.

More recent work using the growing body of repeated household budget survey data on income or consumption has corrected this defect, and has vindicated the microeconomic approach to the economics of education by controlling for other factors of production (though not for externalities). It has compared the incomes or consumption levels of households whose heads – self-employed as well as employed – have different educational attainment levels and work in different sectors. Appleton has exploited household surveys in Uganda conducted in 1992 and in 1999/2000.[24] He finds, after controlling for other pertinent factors (land holding, capital assets, age, household head gender) that there are positive returns to primary education in the farm sector and in non-farm self employment, as well as in wage employment. However, these returns are higher in employment than in self employment. Returns to primary education increased between 1992 and 1999 as the Ugandan economy strengthened, and as employment opportunities and the demand for farm produce increased. Primary education increased the probability of receiving non-farm self-employment income (and post-primary education increased the likelihood of receipt of wage income).

Impact of education and its distribution on economic growth

The conclusions reached about the benefits of education from cross-country evidence in the econometrics of growth literature are much more disturbing than those in the Mincerian one. The authors of this literature point out that some poorly performing countries, notably in sub-Saharan Africa, have achieved a rapid increase in their stock of human capital – as measured by the average number of years of schooling of the working-age population, but without corresponding growth in per capita output. Easterly[25] summarises papers by Barro and Sala-i-Martin and by Benhabib and Speigel that find no relationship between the growth in human capital and economic growth – even when African data is excluded, though there is some evidence that an initial high level of schooling gives a temporary stimulus to growth. He points out that transition countries in central and eastern Europe and Cuba have highly educated populations but relatively low per capita incomes.

Pritchett[26] fitted a Cobb-Douglas production function to two different panel data sets covering respectively 91 and 79 countries and finds that the educational status of the labour force has a negative (though not always significant) effect on the growth of per worker GDP. Investment per worker is the main determinant of growth. This result confirmed a succession of earlier studies of similar type, though using different data.[27] It has led to a questioning of relationship of education to

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[24] Appleton (2001)
[25] Easterly (2001)
[26] Pritchett (1996)
[27] e.g. Lou, Jamison, Louat (1991), Jovanovic, Lach, Lavy (1992), World Bank (1995), Caseli, Esquivel, Lefort (1996)

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development and to a better understanding of the characteristics of education most conducive to development success.

One inference drawn from the negative results of Pritchett and others is that the quality of education, and thus the effect of a year of schooling on labour productivity, varies greatly from country-to-country, leading to a specification error in cross country regressions that use as a variable the average educational attainment of different countries' labour forces. This hypothesis has been confirmed by Lopez, Thomas and Wang[28] and by Dessus.[29] A second conclusion reached by the same authors is that, given educational externalities, the distribution of educational attainment matters, as well as its aggregate volume, so that human capital generates more growth if more widely distributed.

Dessus posits diminishing returns to additional years of schooling and proposes that estimates of the educational attainment of the labour force should reflect this. This point is taken up by Lopez *et.al.* who find that there is a significant non-linear relationship between the size of the human capital stock and national income. They also find that this non-linear relationship becomes stronger when inequality in the distribution of educational attainment is taken into account.

Lopez *et.al.* also find a plausible and statistically significant relationship between the growth and an inter-active term linking human capital measured by years of education and economic policy variables, including a measure of economic openness. This result implies that the elasticity of GDP with respect to educational attainment will higher in policy environments favourable to enterprise and economic efficiency, where labour is likely to be more productive. Easterly emphasises the point that education yields high returns when there is effective demand by enterprise for educated labour. The Lopez *et.al.* result lends additional credence to the finding of Birdsall *et.al.* that returns to schooling are higher where exports of manufactures are successful.

Conclusion

These recent studies point to a resolution of the micro-macro paradox about the effects of education on economic performance along the following lines:

- There can be no presumption that higher levels of, or growth of, human capital will lead *ipso facto* to higher income or income growth; but
- returns to education are higher where the policy environment is favourable to growth.
- Quality of education counts: there would be less contradiction between cross-country and micro analysis if years of education in the former were weighted by quality.
- There are, at least in aggregate, diminishing returns to additional years of education, so the relationship between years of schooling and productivity is non-linear; and human capital, as measured by years of education per worker, is lower in countries where there are wide variations in the number of years of education per worker than it is in countries where the number of years of education per worker is more evenly distributed.

2.4   Public expenditure: levels and impact

The shares of developing countries' GDP devoted to education is generally taken, for the purposes of international comparisons, as a measure not only of commitment but also of countries' real outlays on education. The reason for this is that most expenditure on education is non-tradable, 75%

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[28] Lopez, Thomas, Wang (2001)
[29] Dessus (2001)

or more consisting of wages and salaries, and that education input costs are very roughly proportional to per capita GDP.[30] This section looks briefly at patterns of total public expenditure on education and at the share devoted to primary education, and at evidence of effect of expenditure on UPE outcomes.

Summary

Developing countries' expenditure on education, relative to GDP, has increased slowly and erratically since 1970. It varies widely between countries. Expenditure levels bear no strong relationship to primary enrolment and completion rates. Recent cross-country evidence suggests that two-thirds of the inter-country variance in completion rates and nearly half of the variance in GERs is explained by demand-side factors – adult literacy and per capita income. The wide quality and cost effectiveness differentials in education programmes explain the apparent ineffectiveness of education expenditure.

Wide variance in levels

Shares devoted to public expenditure on education of developing countries' GDP, and of their governments' budgets, were remarkably constant in the twenty years up to 1990. Since 1990 there has been some increase in the GDP share – from 3.6% in 1990 to 4.1% in 1998 (Table 5).

Table 5: Public expenditure on education as a percentage of GDP							
	1970	1975	1980	1985	1990	1995	1998
East Asia & Pacific	3.2	2.2	3.0	3.1	3.2	3.0	..
Europe & Central Asia	..	..	..	..	5.2	5.0	4.4
Latin America & Caribbean	3.3	3.6	3.8	3.1	2.8	3.3	..
Middle East & North Africa	3.9	5.1	4.9	5.9	5.3	4.7	..
South Asia	1.7	2.2	2.0	2.7	2.6	3.1	..
Sub-Saharan Africa	3.7	3.4	3.5	2.9	3.4	4.2	3.6
Least developed countries	..	..	2.9	2.5	3.0	..	2.9
Low & middle income	3.5	3.5	3.4	3.4	3.6	4.2	4.1
Low income	..	..	3.1	..	3.3	3.8	3.4
Lower middle income	3.4	3.5	3.4	3.5	3.8	4.2	..
Upper middle income	3.9	4.5	4.1	4.3	4.0	4.6	4.2
World	3.7	3.8	3.9	3.9	4.0	4.6	4.5
Source: World Development Indicators							

In most regions the (weighted) average share in GDP has varied little through time. But it has increased in South Asia from below 2% in 1970 to over 3% of GDP in 1995, and in the Middle East and North Africa from below 4% in 1970 to nearly 6% in 1985. In sub-Saharan Africa the expenditure on education/GDP ratio rose sharply in the late 1980s and early 1990s to 4.2% from 2.9% in 1985, but has since fallen.

The share of GDP devoted to education by low income countries (3.4% in 1998) and by the least developed (2.9% in 1998) is lower than the average for all developing countries (4.1% in 1998) and by an increasingly wide margin.

However, behind the averages there are enormous differences from one country to another, even within the same region. Chart 3 shows that in sub-Saharan Africa the median share of GDP devoted

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[30] However, Mingat & Tan (1998) point out that teachers salaries fall as a share of per capita income and per capita income rises

to education (in 1998) was 3.7%, but that the range extended from below 1% (Sierra Leone) to nearly 11% (Zimbabwe). The range was not so wide in Latin America and the Caribbean where (in1996) the median share was 3.6%, the maximum was 6.7% (Cuba) and the minimum was 1.6% (Guatemala), nor in East Asia and the Pacific (min 1.3% Indonesia, max 6.2 % Mongolia), nor in the Middle East and North Africa (min 2.3% Lebanon, max 8.2% Jordan).

There is also wide inter-country variation in the shares of public expenditure devoted to education in all regions of the world (Table 6). These shares, which relate to all levels of education, are only partially explained by degrees of commitment to poverty reduction and to widening access to schooling.

Chart 3: Public Expenditure in Education as a Share of GDP 1995-1998
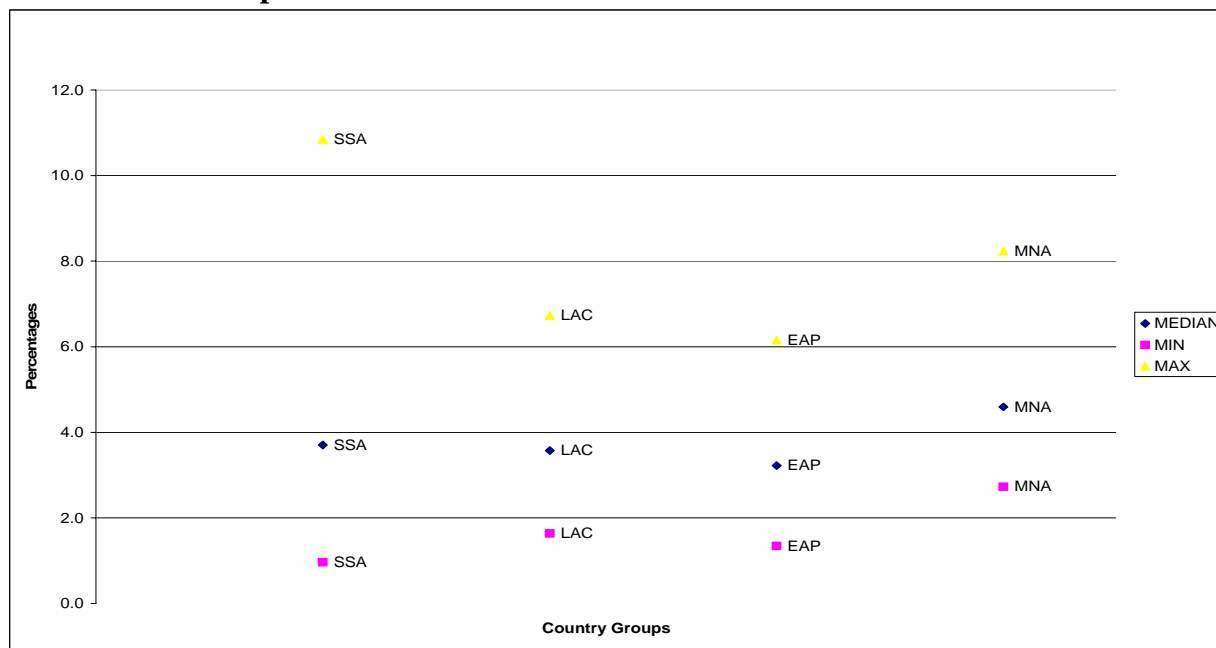
Source: WDI

Table 6: Public expenditure on education as a percentage of total public expenditure (1995)

Region	Two lowest	Two highest
Sub-Saharan Africa	Zambia (7.1%) Nigeria (11.5)	Senegal (33.1) Côte d'Ivoire (28.8)
Latin America & Caribbean	Jamaica (7.7) Guyana (8.1)	Mexico (23.0) Panama (22.1)
Central, East & SE Asia	Indonesia (7.8) Maldives (10.5)	Singapore (23.4) Kyrgystan (23.1)
South Asia	Pakistan (7.8) Sri Lanka (8.1)	Nepal (14.0) India (11.6)
Middle East & N Africa	Lebanon (8.7) Syria (11.2)	Morocco (24.7) Jordan (21.4)

Source: UNESCO

Colclough and Lewin make the important observation that real expenditures and expenditure shares of budgets do little to explain enrolment levels. There are major variations between countries in expenditure per pupil which are only in part explained by variations in per capita income (Table 7). It is immediately noticeable that expenditure per pupil in Sub-Saharan Africa where education outcomes are poor are not only quadruple those in South Asia where they are comparably poor but also 50% above those in East Asia where outcomes are significantly better.

The variations betray, therefore, not only differences in commitment but also large differences in countries' quality-equivalent unit costs. In the Colclough and Al Samarrai sample of African countries costs per pupil in primary education, expressed as a percentage of per capita GNP, ranged from 3 (Sierra Leone) to 43 (Ethiopia).

Table 7: Public current expenditure per pupil (primary+secondary) in 1996-97 by region

(US$ at current exchange rates)

Sub-Saharan Africa	Arab States	Latin America & Caribbean	Eastern Asia & Oceania	Southern Asia	Least Developed Countries
Total: $252 Excl. tertiary: $190	Total: $416 Excl. tertiary: $332	Total: $465 Excl. tertiary: $392	Total: $182 Excl. tertiary: $136	Total: $64 Excl. tertiary: $44	Total: $39 Excl. tertiary: $28
Highest: S Africa $942 Lowest: Sudan: $30	Highest: Qatar $3456 Lowest: Yemen $107	Highest Argentina $1191: Lowest: Guatemala $137	Highest: Malaysia $1039 Lowest: Cambodia $40	Highest: Sri Lanka $112 Lowest: Nepal $31	

Source UNESCO and author's calculations
NB: Regional averages unweighted; country coverage in source incomplete

Unit costs are recorded expenditures per pupil enrolled. Enrolment numbers are calculated from attendance surveys conducted early in the school year. They are not annual averages. Real unit costs are higher than those presented in countries where pupils drop out in the course of the school year – as is quite common. A key question is what interpretation to place on observed expenditure levels and by what standards of efficiency and effectiveness they should be judged.

One striking example of institutionally determined unit cost differences has been the difference in teachers' salaries between Francophone and Anglophone countries in Africa. Colclough and Al Samarrai[31] find that, in their sample of 22 Sub-Saharan African countries, in the Francophone ones teachers' salaries averaged 5.27 times per capita GNP while in Anglophone ones the average salary was 2.58 times per capita GNP. They conclude that this is the main reason why the average GER in Anglophone countries (89) is well above the GER of Francophone countries (72).

Expenditure on primary education

The share of primary education in total public expenditure on education is another factor which varies widely from country-to-country. Country-level data have been assembled as a contribution to EFA monitoring. The figures for total and primary education expenditure as a share of GNI for a number of developing countries are shown in columns 10 and 11 in Annex 1.

These figures show that the primary sector's share of education expenditure:

- lies in most countries between 35% and 65%; in some it is apparently as high as 85% and as low as 16% – though this may reflect inconsistencies in data sources;
- if generally above 50% in sub-Saharan Africa, but below 50% in South and South-East Asia and Latin America.
- Greater emphasis in expenditure on the primary sector is evidently not related to success in achieving primary schooling policy outcomes.

Countries which spend the most on primary education as a share of GNI are Côte d'Ivoire (4.9%), Kenya (3.6%), Algeria (3.4%) and South Africa (3.3%). There is no clear correlation between high primary expenditure and high GERs. None of these countries has a GER above 120, and Côte d'Ivoire's GER is only 77. Differences in relative spending are more explicable by differences in cost than by differences in output.

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[31] Loc. cit.

Factors underlying education results

These data serve to highlight the importance of efficiency considerations in assessing the impact of public expenditure on educational outputs and outcomes. In education there is no one-to-one relationship between financial inputs and results obtained.

There has been a succession of empirical studies based on cross-country regressions of the impact of public expenditure on education and other variables on schooling performance. The studies test 'models' of the production of educational results which seek to identify and measure the relative strength of supply-side and demand-side factors in producing school performance (enrolment, completion) and pupil attainment performance (literacy, test scores). On the demand side the main factors tested are per capita income (a proxy for poverty), parents' education levels (or literacy), main sector of occupation and location (urban/rural), demographic features (relative size and growth of the school age population, and economic growth (proxy for perceived employment prospects for children).

These studies identify that per capita income as the most powerful factor affecting enrolments and attainments. Education expenditure/GNP has a positive coefficient in the regression equations, but this becomes statistically insignificant once per capita income is controlled for. This result, discussed by Colclough and Lewin, has been known for a long time.

In a recent contribution to this literature Filmer and Pritchett examine the determinants of Grade 5 completion rates among 15-19 year olds in a sample of 35 countries.[32] They find that, once per capita income is taken into account public expenditure on education loses explanatory power.

UNESCO and the World Bank have recently compiled a new international data base – Edstats – of educational statistics useful for tracking countries' progress towards the NDG targets. Edstats has made it possible to conduct new cross-country analyses for this paper of the factors driving enrolment and primary completion rates, and to assess the relative importance of supply- and demand-side influences. Public expenditure on primary education is *prima facie* the principle driver on the demand side. The data make it possible to test this hypothesis.

The results of cross-country regression analysis are summarised in Annex 3.[33] They show that:

- 66% of the inter-country variance of PCRs is explained by demand side factors – the rate of adult literacy and per capita income; on the supply side only the pupil/teacher ratio counts:
- demand side and supply side variables are more evenly balanced in explaining the inter-country variance in GERs, but their combined explanatory power is quite weak; on the demand side adult literacy once again exercises a powerful influence, and on the supply side primary education unit costs are the main factor; between them they explain 45% of the variance of GERs;
- adult literacy exercises the strongest, most consistent and most statistically significant effect on both PCRs and GERs – a point of difference from previous studies;[34]
- public expenditure on primary education as a share of GNI adds little explanatory power to either dependent variable.

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[32] Filmer & Pritchett (1999)

[33] The best fitted equations are (with 't' statistics in brackets):

$$GER = 74.9 + 0.488 ADULTLIT - 0.099 PTR - 0.896 UNIT\ COST \qquad R^2 = 0.448$$
$$(3.489)*** \qquad\qquad (-0.48) \qquad (-3.125)***$$
$$PCR = 23.44 + 0.678 ADULTLIT + 0.00186 PCY + 2.473 PRIEXPEND - 0.282 PTR \qquad R^2 = 0.724$$
$$(4.732)*** \qquad (2.418)** (1.512) \qquad\qquad (-1.525)$$

[34] Gupta *et.al.* (1999) find that adult literacy is a highly significant variable in explaining combined primary and secondary enrolment rates.

These results suggest that demand side influences – such as adult literacy (a proxy for the educational status of the adult population) and per capita income (a rough proxy for household poverty) – are key contextual determinants of the MDG target of primary completion for all children, and that educational outcomes are path-dependent.

Adult literacy may also be a proxy for parents' perceptions of their children's career opportunities. The better they perceive the opportunities to be the more likely parents are to make the sacrifices necessary to keep their children in school. Bhat, examining the circumstances of the fall in fertility in India in the 1980s (when the total fertility rate fell from 4.7 to 3.9), found that nearly half the decline was accounted for by illiterate women, among whom contraceptive prevalence rose and whose children's school attendance also rose.[35] Bhat concludes that illiterate women reacted this way to raised expectations on their part of the benefits of schooling for their children.

The inertial effects of demand side factors are likely to delay the benefits of efforts to improve the supply of primary education through higher expenditure on staff, facilities and curricula, and managerial improvements. Public sector action on the supply side – through higher levels of expenditure, cost reduction and reforms to raise standards of provision – though necessary, may not quickly translate into desired results.

The weak showing of public expenditure in the regression equations probably reflects the wide variations mentioned in above in the efficiency and effectiveness of expenditure programmes and thus in the performance of educational systems. The same level of expenditure relative to national income gives rise to widely different outputs on the ground, vitiating the statistical relationship between input and output. There is high cross-country variance in unit costs caused by historical and institutional factors. A dollar of public expenditure at purchasing power parity simply does not buy the same volume of educational inputs from one country to another (or even from school to school within a given country).

The picture is further complicated by (i) the existence of private expenditure – constituting some 15-25% of total expenditure on primary education and (ii) the fact that the relative price of effective educational inputs is high in low income countries and declines as countries' per capita incomes increase.[36] This is principally because the ratio of teachers' salaries to per capita GNP falls as per capita income rises.

For all these reasons public expenditure on education is an inefficient regressor.

Country-level case studies confirm the message that the impact of expenditure on outcomes is uncertain. A recent study of five Francophone African countries finds that the percentage of pupils acquiring a basic standard of knowledge is uncorrelated with the share of public expenditure on primary education in GNP.[37] In some Latin American countries in the 1990s increases in expenditure through time were followed by rising drop-out rates. Test scores have been observed to be unresponsive to increases in school budgets.[38] Increases in school budgets can easily be absorbed by higher input unit costs (e.g. if salaries are raised to increase the supply of teachers), leading to no increase in real input supply.

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[35] Bhat PNM (2002)
[36] Mingat & Tan (1998)
[37] Michaelowa (2000)
[38] cf Thomas *et al* (2000) Chapter 3

Conclusion

Education expenditure is an indicator of fiscal effort and political commitment, but it is an unreliable metric of the effective supply of educational inputs. There are not only major variations nationally and internationally in education expenditure, but there are also major differences in its quality and cost-effectiveness. There may be little value in raising school budgets if the effect of so doing is counteracted by poor resource allocation and management, poor educational method, and low morale. Section 2.5 looks into these issues.

2.5   Performance in education: evidence and interpretation

This section explores issues in the efficiency and effectiveness of education and the causation of educational outcomes. Specifically it asks if performance is properly documented and recorded and whether expenditure, though globally adequate to reach the MDG target, may be:

* wasted or not spent for ostensible purposes
* inefficient and ineffective in its use of resources,

and thus in practice insufficient.

Summary

Although evidence of educational performance in developing countries is incomplete and over-optimistic wide differences within and between countries in educational efficiency and quality appear. There is much scope at the country level for levelling up standards. Nevertheless, low standards of quality and efficiency in countries with poorly performing schooling systems have become institutionalised and persistent. Poor countries, poor regions within countries and poor people suffer most from these shortcomings.

Low standards cannot be wholly offset by higher levels of expenditure: without management and service delivery reform, it may only lead to further loss of cost effectiveness and breakdown in unreconstructed management systems. The cases of Madagascar and Tanzania in the 1970s and 1980s warn against ambitious educational expansion without proper resource planning and commitment, and without tackling inherited problems if quality, efficiency and effectiveness.

Education results may be poorly documented and recorded

International data on education performance, and on expenditure on education, depend on national reporting, and are subject to frequent revisions, and may be misleading. There are significant variations in successive annual statistical reports by UNESCO and other multilateral sources in regional aggregates for the same year.

Many countries compile their education performance data tardily and incompletely. UNESCO, the international organisation with responsibility for data compilation, and performance monitoring and analysis, has until recently only been able to present comparable international data with a delay of 4-6 years. Timeliness has improved significantly since the World Education Forum in Dakar in 2000 for which all countries were requested to report in standard format on their progress towards Education for All. The quality and coverage of the information provided is variable, but nearly all countries, including those in sub-Saharan Africa, supplied data up to 1998.

Dakar provided an impetus to collaborative EFA monitoring by UNESCO and the World Bank which has given rise to more the publication of timely and abundant international performance data. However, the data are still not complete for many countries, and there are inconsistencies between data for more recent years (now extending to 1999-2000) and those for earlier years. Major countries where gender-disaggregated gross enrolment and net enrolment data are not available include Brazil and Vietnam.

Information on school enrolments is generally gathered through surveys conducted early in the school year. This means that, in countries where there is a tendency to absenteeism from school or to dropping-out in the course if the school year, recorded enrolment figures exaggerate the actual average enrolment of pupils over the year.[39] The veracity of reports on enrolments generally depends on the honesty of education officials and teachers involved in completing survey questionnaires. These personnel have an interest in presenting enrolment levels in a favourable light, especially in cases where their employment and remuneration depend on the numbers reported. The incentive structure is loaded in favour of exaggerating performance. There is rarely an independent audit of the numbers reported. Where these have taken place they reveal an upward bias in official statistics.

Costs relative are high relative to the efficiency frontier

A crude but graphic way of demonstrating that efficiency in public education provision varies greatly between countries is to draw a scatter diagram – with one point for each country – relating normalised per-pupil expenditures (unit costs) to educational output (enrolment rates). The higher per-pupil expenditure (relative to per capita GDP) the higher the enrolment rate should be – with the slope of the function diminishing as full enrolment is approached. The upper bound of the points in the scatter diagram is the efficiency frontier. Countries represented by points lying below the frontier are less than full efficient because they are not transforming inputs into as many outputs as countries lying on the frontier.

Figure 1, using recent data[40] on primary enrolment (NER) and unit cost (expenditure per pupil relative to per capita income), shows the distribution of 66 developing countries in relation to their efficiency frontier. The mean efficiency of countries in the sample is only 76% of the frontier, implying a mean unit cost 31.5% higher than the unit costs of frontier countries. In a few countries (e.g. Niger) they appear to be four times as high.

The average distances from the efficiency frontier is even greater when unit costs are related to PCRs (Figure 2). Here the mean efficiency is only 68% of the frontier, implying that the average unit cost of primary completion is 47% above that of frontier countries.

The analysis is crude because educational quality and demand side factors are not explicitly taken into account. Quality teaching costs more, but enrolment rates, as seen in Section 2.4, may be more responsive to demand side influences than to higher quality schooling. The frontier does not represent a feasible target cost for most countries. Nevertheless, the analysis adds weight to the intuition that present costs mask waste and should not, without questioning, be taken as the basis for planning.

Similar levels of expenditure in different countries, or in different regions within a country, with different initial conditions will not necessarily yield similar outcomes.[41]

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[39] UNESCO (2002b) compares attendance rates recorded in household surveys with NERs reported by education authorities. Seventeen out of 25 surveys in the sample show attendance rates below NERs – by an average of 14%.
[40] EdStats, most recent available data
[41] DFID (2001) Chapter 4

Figure 1: Net enrolment rate efficiency frontier
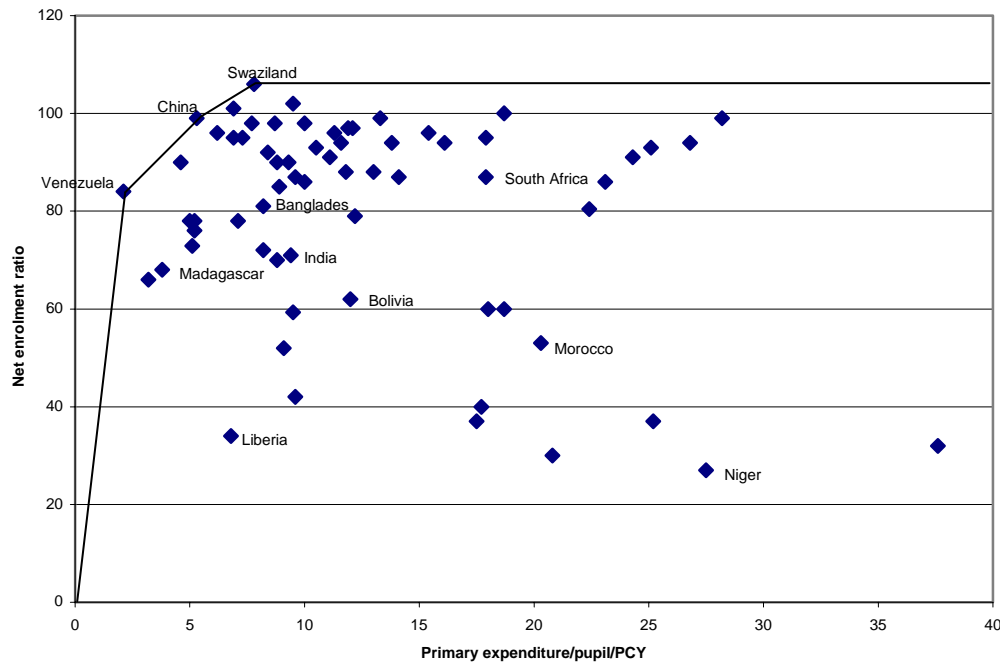
Figure 2:Primary completion rate efficiency frontier
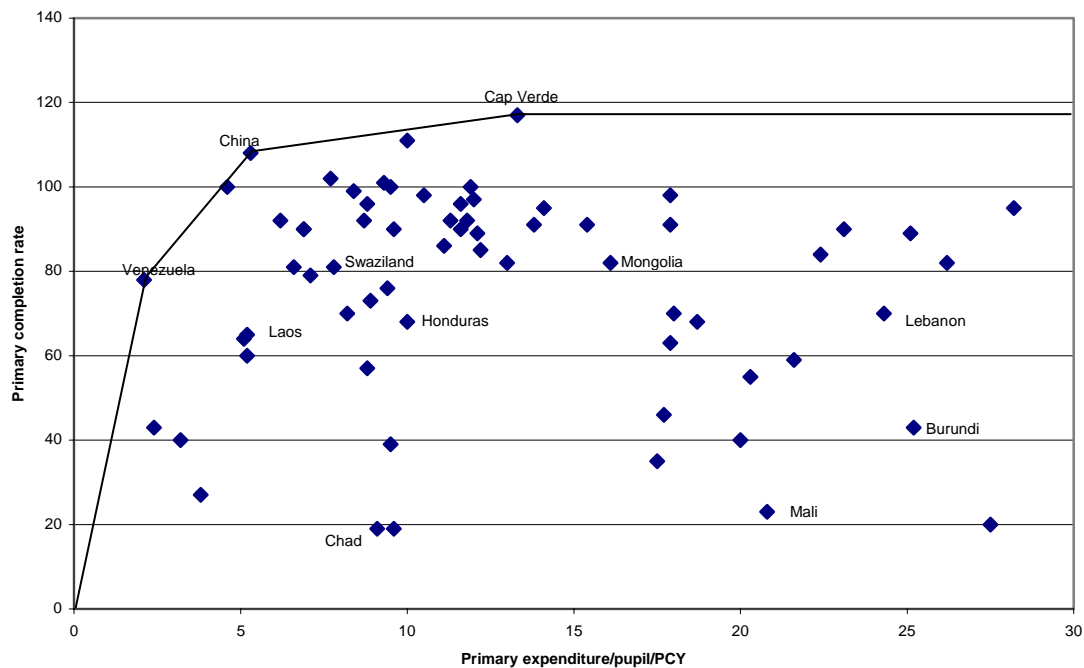
External Inefficiency and waste in expenditure on education

Misallocation of budgeted funds. A common source of waste and inefficiency in education is resource misallocation and misappropriation within education ministries and the devolved bureaucracies through which public expenditure on education is channelled. Expenditure tracking studies conducted by the World Bank and IMF to ascertain the uses made of resources released by HIPC debt relief have highlighted low standards of expenditure recording and accounting, which make it hard to relate actual outlays to budget estimates.

Reinikka and Svensson[42] used panel data for 1991-1995 from a quantitative service delivery survey (QSDS) in Uganda to measure the 'leakage' of funds for education from their intended purposes. They found that only 13% of non-wage expenditures allocated to schools were actually received. The bulk of allocated spending was used by officials for administration, or for purposes unrelated to education, or was privately appropriated. (Non-wage recurrent expenditures are typically 25-35% of total recurrent outlays, though in Uganda they declined from 54% to 14% over the period as teachers' salaries were raised).

In order to counteract these diversions, which occurred at the level of local government, the central government moved from block grants for local authorities to conditional grants, and initiated a programme of informing parents of the numbers of school places in their localities for which it had made financial provision. These policies have been an effective foil to misappropriation in the case of Uganda.

Quantitative service delivery surveys of a similar nature are underway (or have been completed) in Ghana, Honduras, Mozambique, Tanzania and other countries. They will help to quantify the rectifiable scope of current expenditure diversions and misappropriations.

Procurement costs. Another source of waste of funds appropriated for education is excessive procurement costs – whether or not linked to corrupt practice. Local procurement procedures – and those of donors – often remain unchanged for many years, failing to take account of new opportunities arising to procure equivalent goods and services at lower prices.

Two cases in point are the procurement of books and classroom supplies and school buildings. In Uganda there are recent examples of substantial economies achieved in procuring textbooks and in building costs. The previous system involved centralised textbook procurement. A DFID–supported pilot scheme for decentralised procurement – with teaching staff vetting new book purchases – was able to achieve unit cost reductions of up to 70%. A pilot scheme for community-managed classroom construction with flexibility about construction standards was able to achieve similarly dramatic reductions in the unit cost of schoolroom provision.[43]

The case of Uganda provides a salutary warning about the quality and significance of expenditure data reported in the standard sources of statistical information on education. It also inspires hope that, in other countries also, it will prove possible to mobilise additional effective resources for primary education from within existing budgets through better financial housekeeping and audit.

Use of trained teachers. Trained teachers are at a premium in poor countries, particularly in rural areas. Teachers' salaries tend to be higher in poor countries, relative to per capita income, than they are in rich countries,[44] yet teacher morale may be low, leading to absenteeism. It is thus important that this valuable and relatively expensive resource should be properly managed and deployed. Professional teachers should be used for teaching, and not for other supervisory duties, and they should be required to teach for a reasonably high number of hours per week. Non-professional duties should be fulfilled by untrained personnel. In many countries, however, the teaching cadre is ill-managed and wastefully deployed, thus impairing the efficiency of schooling systems.

Internal inefficiency and Quality

A great deal of comparative analysis, using available data, has been devoted to quality and cost-effectiveness in education expenditure. A major preoccupation has been that similar levels of

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[42] Reinikka & Svensson (2001)
[43] A Riddell (2002)
[44] Mingat & Tan (1998)

educational expenditure per pupil (relative to per capita GDP) produce very different educational outcomes both within and between countries. Major differences are found within countries between the performance of different schools of similar kind in similar environments.

In-country evidence. Micro level analysis finds that there is great disparity in school performance at the same level within individual countries. Hanushek[45] reports very large differences in Egyptian primary schools' success in raising pupils' year-by-year achievements, and a similar picture in rural Brazil. He observes that high quality schools with low rates of repetition raise pupils' achievement expectations and thus have lower drop-out rates. In a sample of primary schools in Egypt in 1980 the average drop-out rate was 9.3%, but that of highest quality one was only 3.2%. These differences are not readily explicable in terms of the measured characteristics of teachers and schools.

Glewwe *et* al carried out a statistical study of the cognitive (reading comprehension and mathematical) skill achievements of Jamaican primary school pupils in 1990.[46] They ranked schools by pupils' composite test scores. They found that measured differences in school organisation and pedagogical processes accounted for 55% of the variance in mean pupil achievement scores between schools those in the top quartile and those in the bottom quartile. They also noted that, in relatively well endowed school systems like Jamaica's, the returns to higher input levels (e.g. textbook supply) are diminishing, so that differences in performance are increasingly attributable to differences in internal efficiency and pedagogical quality. Nevertheless, their evidence adds weight to the conclusion that educational outputs and, *a fortiori* outcomes, bear no simple functional relationship to inputs, and that there is in general considerable scope for improving performance within existing resource envelopes.

International comparisons. There is only limited scope for making international comparisons of educational attainment on the basis of test scores because test standards and marking criteria are not internationally normalised. International comparisons of the quality and efficiency of school systems therefore largely focus on rates of repetition and survival and unit costs, i.e. on internal efficiency rates. Repetition is inefficient because it increases the school capacity needed to provide schooling for all.

Low rates of survival are also symptomatic of cost-ineffectiveness because children need a critical minimum number of years in school to acquire essential cognitive skills. Low survival rates are also indicative of low educational quality as more parents withdraw their children from school if they are learning little than if they are well taught. Pupils who drop out before completing 4-5 years of primary education are unlikely to have acquired functional literacy and numeracy, and are thus unlikely to reap much pecuniary return on their educational experience.[47] Dropping-out therefore impairs the cost-effectiveness of the schooling system: resources devoted to educating pupils who fail to complete primary education are likely to be in good part wasted.

Low income countries and countries in sub-Saharan Africa exhibit the strongest signs of poor educational quality and low efficiency.

Survival. Drop-out rates are highest in the poorest countries where only some two-thirds of pupils starting primary education complete the primary cycle. Mingat & Tan (1998) show that countries with a per capita income (in 1993) of $200, $400 and $800 respectively had primary completion rates of 62%, 68% and 74%, but that completion rates reached 85% at $3000 and 95% at $10 000

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[45] Hanushek (1995)

[46] Glewwe et al (1995)

[47] Greaney & Kellaghan (1996) found that in Bangladesh 80% of children who had completed five years of primary education had not acquired basic cognitive skills. The World Bank (1999) estimated that in some sub-Saharan African countries 60% of pupils left primary school functionally illiterate (cf DFID 2001).

per capita. UNESCO reports the percentage of pupils enrolled in the first year of primary education who go on to complete five years of primary schooling. Data on survival to Grade 5 is patchy, but the evidence for those countries which report this statistic (reproduced selectively in Annex 1) is that survival rates are low in low income countries, notably India. In sub-Saharan Africa the five year completion rate declined in the course of the 1990s.[48]

Repetition. Table 8 shows that the unweighted average rate of repetition in low income countries is about twice that of middle income countries, and that for sub-Saharan Africa about twice the average for all developing countries. Mingat & Tan[49] show that, in 1993, the rate of repetition was 17% for countries with a per capita income of $200, but that this fell to 14% at $400 per capita and to 11% at $800 per capita. The repetition rate in high income countries is only 3%.

The pupil-teacher ratio (PTR). The PTR is important because teachers' salaries typically represent 65-85% of educational costs. If there is scope for increasing the ratio of pupils to teachers without impairing educational quality this should be exploited. A repeated finding of empirical studies is that raising the PTR in primary schools above current levels does no harm to pupils' ability to succeed.[50]

Table 8: Repeaters as % of total enrolled, primary 1999

	Median	Unweighted average	Weighted average
Low and middle income	6.1	9.4	*5.8*
Low income	5.2	7.0	*2.5*
Lower middle income	6.1	5.8	*15.4*
Region			
Sub-Saharan Africa	18.3	17.0	..
East Asia & Pacific	3.3	4.9	*1.2*
Europe & Central Asia	0.9	1.5	..
Latin America & Caribbean	6.2	7.1	*14.1*
Middle East & North Africa	7.9	8.8	*8.9*
South Asia	*5.1*	*5.0*	*3.9*

Source: Edstats (UNESCO-World Bank)

PTRs are on average higher for low income countries than for middle and high income countries, but there is a wide range in ratios observed in low income countries, from below 20 to over 70.

An important feature of education economics is that there is usually no trade-off, except in the very short term, between quality and efficiency. Some cost-cutting is quite consistent with maintaining educational quality, e.g. where there is wasteful deployment of resources or where pupil/teacher ratios are low. Other cost-cutting measures, such as failing to maintain buildings or provide teaching materials, or excessively large class sizes, cause the quality of the learning environment to fall, which leads sooner or later to falling efficiency as drop-out and repetition rates begin to rise. Higher expenditure on books, buildings and teacher incentives which improve the leaning environment causes unit costs to rise in the short term, but in the medium-longer term reaps dividends in terms of higher efficiency as well as better test scores.

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[48] Bennell (2002)
[49] Mingat & Tan (1998)
[50] Mingat & Tan (1998) used regression analysis to explain educational attainment in maths and science. They found that the PTR had no impact on attainment.

Incoherent planning, inadequate resource mobilisation. Poorly planned education expansion initiatives have experienced spectacular failures.[51] The politically driven attempts of Madagascar and Tanzania in the 1970s and 1980s to achieve UPE are cases in point. Starting in 1975 and 1969 respectively these two countries were able for a time to increase their GERs dramatically. Madagascar achieved a 128% gross enrolment rate in 1982, up from 50% a decade earlier. But their achievements were insubstantial and did not last. In Tanzania the GER rose from 48% in 1974 to a lower peak, but started to decline in the 1980s and by 1997 was only 78%. Both countries' expansion plans were under-resourced – in terms of finance, management, trained teachers, and teaching materials. As the domestic political profile of UPE dropped so did educational quality and enrolment rates. Madagascar's GER was down to 72% in 1993, just below the average for sub-Saharan Africa. In both countries rates of repetition and abandonment rose.

Ill-planned and under-resourced UPE policy produced only short-lived benefits and did little to reduce poverty

2.6   Is the primary completion MDG achievable?

The education MDG target, unlike those for the health sector, is absolute, not relative. The target cannot merely be met by reducing the percentage of children out of school. Better performing countries cannot compensate for other countries' under-performance. It requires primary completion by all children in all countries. This implies that the development community should focus its attention on countries which are now furthest from the goal and are least able to reach it by their own efforts.

Monitoring progress towards the target of full primary completion is being monitored closely by the World Bank and UNDP. UNESCO is conducting comprehensive annual surveys of progress towards virtually identical EFA targets. The purpose of this section is not to second-guess these sources, but to survey their recent conclusions and to highlight some background factors and areas meriting concentrated attention. Section 2.7 goes on to look at the elements of a resource mobilisation and reform agenda.

Summary

Demographic transition in most regions apart from sub-Saharan Africa is facilitating the achievement of the target. On the other hand dealing with the bulge caused by enrolling the backlog of over-aged but unschooled children exacerbates the problem of creating enough capacity. On balance, most countries outside Africa could, with some additional financial commitment to primary education, create capacity sufficient to reach the target. In seriously affected parts of sub-Saharan Africa the HIV/AIDS epidemic will be a net setback to the provision of sufficient capacity. The effect of AIDS is to reduce demand, but by less than supply.

However, higher school capacity *per se* is not enough. There has to be simultaneous attention to quality and to easing demand side barriers in order to raise retention and attendance rates that are stil low in countries with apparently adequate capacity.

There have been recent attempts by multilateral institutions to calculate the cost of reaching the MDG. These indicate the need for considerable increases in resources for primary education in countries remote from the target. These calculations can only be indicative in view of the poor state

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[51] OECD Development Centre (2002)

of our knowledge of the scope in each country for internal efficiency improvement and of the cost of relieving demand-side restraints.

Demographic divergence

Demographic pressures determine the size of primary school age cohorts. Developing countries' demographic prognoses divide into three groups: (a) sub-Saharan Africa, where few countries have advanced far into the demographic transition and where the primary school age cohort continues to grow at over 2% p.a. – and is expanding at 3% p.a. in a few cases such as DRC and Uganda, (b) South Asia, North Africa and Latin America – where primary school age cohorts are expanding at 1-2% p.a., though they are expected soon to level off in South Asia, and (c) South-East Asia and Europe where primary school age cohorts are declining. For a given rate of economic growth it will be easier for countries with static school-age cohorts to sustain increased expenditure on primary education than for countries with expanding cohorts.

Table 9 shows that the number of children in Asia, Africa, the Middle East and Latin America is expected to rise by only 35 million (5.5%) between 2000 and 2015. In sub-Saharan Africa, however, the increase is projected to be around 43 million, or 39%. In other regions the cohort size is stabilising (as in South Asia, Latin America and the Middle East and North Africa) or declining (as in East and South East Asia). It is therefore to be expected that sub-Saharan Africa will have greater difficulty in reaching the target than, for example, South Asia, though current enrolment rates are at present comparable in the two regions.

Table 9: Numbers of children in developing countries of primary school age (6-11) millions

	1990	2000	2015
Asia	392.0	437.7	428.7
excl W Asia	374.5	413.5	399.7
Africa	103.9	128.5	171.3
o/w sub-Saharan	85.1	108.8	151.7
Latin America/ Caribbean	63.0	65.2	66.1
Total	558.9	631.4	666.1

Source: UN Population Prospects population data base (median projections)

However, enrolments must rise faster that the size of school age cohorts if the target is to be reached by countries that have not yet attained full primary completion. Table 10 assumes that a GER of 120 will provide sufficient capacity in 2015 to enable all children to complete primary schooling. It shows that the average rate of enrolment growth must increase in sub-Saharan Africa and the Middle East and North Africa if these regions are to reach the target. (Averages, though, mask large inter-country differences, especially in Africa). Countries in Asia and Latin America with stable or declining school age population cohorts will obviously find it easier to expand capacity sufficiently to meet the primary school completion target than those in sub-Saharan Africa and the Middle East where cohorts continue to rise.[52]

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[52] The calculation underlying Table 10 yields qualitatively the same message as projections in UNESCO (2001) and Delmonica *et al* (2001). However, these authors base their projections of required enrolment growth rates on NERs which, though an MDG indicator, are not the MDG target. To reach the MDG target of full primary completion will require a school capacity to accommodate some over-aged children.

Table 10: Enrolments (in millions) and enrolment growth rates to reach the MDG target

	1990	1998[a]	Actual annual increase 1990-1998	2015 projected[b]	Required annual % increase 1998-2015
Asia (incl Iran, excl W Asia)	329	381	1.8	480	1.4
sub-Saharan Africa	66	82	2.7	182	4.7
Latin America & Caribbean[c]	78	88	1.6	79	-0.06
Middle East & North Africa	30	34	1.5	47.	2.0
Total	503	586		788	

Notes: a. Source: UNESCO-WEF (2000)

b. from Table 9, but increased by 20% because of the assumed GER of 120

c. In Latin America the calculated required enrolment growth rate 1998-2015 understates the true requirement because primary school cycles are typically longer in that region than allowed for in Table 2.9

The road to the target is steep because of over-age enrolment

Building capacity to accommodate school-age cohorts, though necessary, is not sufficient. It is also necessary to cope with poor retention and the needs of over-aged children.

Around 80 developing countries now have the capacity to enrol all primary school age children, but only 27 of these have full primary completion rates.[53] The remainder experience persistent retention problems related to quality and efficiency, and significant over-age enrolment. The target of school attendance by all children for a complete cycle of primary education will be a significant challenge in parts of Asia and Latin America, even though their GERs exceed 100. These countries now have only 13 years left in which to cope with the 'bulge' of over-aged children now enrolling in primary school to take advantage of its wider availability, and to eliminate drop-out rates, now as high as 40-60% at Grade 5, through quality and incentive measures to improve retention.

There are some 75 other countries which still have inadequate capacity to enrol all primary age children. Some of these countries, particularly in sub-Saharan Africa, but also in South Asia and parts of Latin America, experience acute problems of quality and efficiency leading to lower effective capacity (due to high rates of repetition) and lower demand for schooling (indicated by higher drop-out rates) (cf Annex 1).

The World Bank considers, on recent trends, that 88 out of 155 developing countries risk not attaining full primary completion by 2015, of which 29 are seriously at risk of falling short of the target.[54] UNESCO's EFA monitoring report for 2002,[55] covering fewer countries, broadly concurs. It enumerates 50 countries as having achieved UPE[56] in 1999, and finds, on the basis of present achievement and past trend, that a further 21 are likely to achieve it by 2015, and that the remaining 57 are either unlikely or very unlikely to achieve it. Figure 3 is an extract from UNESCO's classification of countries as they relate to the UPE target, showing, counter-intuitively, that some affluent middle income countries are at risk or serious risk of non-achievement, and that some least developed countries are likely to achieve.

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[53] World Bank (2002f)
[54] World Bank (2002f)
[55] UNESCO (2002b)
[56] defined as NER>95

Figure 3: Likelihood of reaching UPE by 2015

Distance from UPE in 1999	Moving away from target	Moving towards target
Close (NER 80-95)	**At risk of not achieving:** Barbados, Botswana, China, Cyprus, Gabon, Georgia, Guyana, Indonesia, Jamaica, Mauritius. Paraguay, Syria, Turkey, Venezuela	**Likely to achieve:** Azerbaijan, Bangladesh, Chile, Guatemala, Honduras, Jordan, Laos, Sri Lanka, Swaziland, Thailand, Togo, Uganda
Far (NER<80)	**Serious risk of not achieving:** Burundi, CAR, Croatia, Equatorial Guinea, Serbia/Montenegro, Iran, Kuwait, Lebanon, Lesotho, Madagascar, Namibia, Nigeria, S. Arabia, UAE, Tanzania, Zambia	**Unlikely to achieve:** Benin, Burkina Faso, Chad, Côte d'Ivoire, DRC, Ethiopia, Haiti, Malawi, Mali, Mauritania, Morocco, Mozambique, Nicaragua

Source UNESCO (2002b)

The nub of the challenge of reaching the MDG target lies in achieving rapidly improving performance in low capacity, low 'survival' and low educational efficiency countries experiencing the greatest demographic pressure.

Recent UNESCO Institute of Statistics evidence (selectively summarised in Annex 1) shows that countries with GERs below 100 are now largely to be found in sub-Saharan Africa. In South Asia, primary school capacity remains globally insufficient, but GERs are below 100 only in Pakistan and Nepal. Conflict-affected and recently conflict affected countries such as DRC, Sudan and Ethiopia have particularly low primary enrolments.

If the primary completion target is to be met in 2015 with reasonable certainty, and given mean length of the primary cycle is 6 years, all children should enrol in Grade 1 by 2009. This challenge is apparently already met already in the great majority of countries (cf Annex 1, col. 6), but only thanks to over-aged enrolment. As already noted, over-age children have a reduced probability of completion. In some countries like Malawi and Uganda that have recently abolished primary school fees gross first year enrolments exceed 200% of the normal first year age group. The net intake into Grade 1[57] of normal-age children is well below 100% of the age group in most countries, even in countries classified by UNESCO as likely to achieve UPE. Assuming that most children will attend school at some stage, even at above-normal age, the main challenge in low performing countries is retention to the end of the primary cycle.

Countries furthest from the MDG target will need to move to exceptionally high GERs to reach the target, given their current inefficiencies, their backlog of out-of-school children and their need, therefore to accommodate a throughput bulge. Bennell[58] argues with regard to countries in sub-Saharan Africa that, even if they make the financial commitment necessary to create capacity sufficient to enrol all primary school age children, many will in practice drop out. This is because of the poor quality of education in many countries, poor prospects for obtaining wage employment after leaving school, and other persistent demand side factors. The over-aged children now crowding into primary school systems where, as in East Africa, fees have recently been abolished, will be especially likely to drop out. But, before doing so, they will be absorbing resources that would otherwise be available for educating normal-aged children. Most of South Asia and parts of Latin America also experience seriously diminished attendance in the later years of the primary cycle (cf Annex 1).

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[57] according to EdStats
[58] Bennell (2002)

The rate of repetition is particularly high in sub-Saharan Africa, especially in Francophone countries where it sometimes exceeds 30%, compared with a normal 5%. Major improvements on the efficiency of school systems are needed in these countries in order to be able to accommodate at reasonable expense all children of primary school age. Elsewhere, repetition is generally within reach of the norm.

On present form, therefore, the target seems beyond reach for the lower capacity (GER well below 100%) school systems of sub-Saharan Africa. It is in these countries that the coefficient of variation in school performance tends to be the widest.

The reforms discussed in Section 2.7 are hardest to achieve, but also the most needed, in countries that are furthest from the target.

Cost of increasing capacity

The challenge of Education for All has stimulated studies by the World Bank,[59] UNESCO[60] and UNICEF[61] of the cost of achieving the target for primary education. The studies use an accounting framework suggested some years ago by Colclough and Lewin.[62]

Colclough and Lewin propose a formula, adapted to UNESCO's presentation of data on comparative educational performance,[63] for decomposing the GER by its political commitment, efficiency and structural determinants and for identifying priorities for performance improvement. The formula (which is an identity) states that:

$$GER = \frac{\text{public + private expenditure on education as \% of GDP}}{(\text{public + private unit costs of education as a \% of per capita GNP}) \times \text{share of population of school age}}$$

In the numerator public expenditure on primary education as a share of GNP is a measure of a country's commitment to achieving 'education for all'. In the denominator feature the efficiency with which the financial input is translated into educational output (the cost per pupil enrolled) and the burden for the education system created by the size of the school age population. The GER is higher, *cet. par.*, if the budget for primary education is higher, and/or if unit costs are lower and the primary school age population is smaller.

A clear implication is that it is harder to raise the GER if the primary age population cohort is growing fast (as in sub-Saharan Africa) than if it is static or falling (as in India and China). As teachers' salaries constitute 65-85% of total costs in primary and secondary education, and as public service salaries tend to vary with per capita incomes, costs of providing education are expressed relative to per capita income.[64]

The efficiency/quality reforms discussed in Section 2.7, along with prospective additional (internally and externally funded) resource mobilisation, make it likely that one-third to one-half of those countries which now have inadequate capacity could, with political commitment, create sufficient capacity to meet the MDG target by 2015. Figure 4 illustrates how the cost-commitment framework can be used as a signpost to the requisite policy emphases. It is based on a classification

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[59] World Bank (2002a)
[60] Brossard *et.al.* (2000)
[61] Delamonica *et.al.* (2001)
[62] Colclough and Lewin (1993)
[63] for example in the statistical appendices to its World Education Reports
[64] In practice, teachers' salaries decline as a multiple of per capita income as per capita incomes rise (cf Mingat & Tan).

of countries by unit cost and commitment level used by Colclough and Lewin and Colclough and Al Samarrai.

In an extension to this supply-side approach the World Bank has, for a sample of 47 mostly low income countries, simulated ability to create the capacity for primary completion for all children on the basis of norms of domestic financial commitment, efficiency, salary levels and building costs, combined with projections of the size of the primary school age group. It estimates that the necessary capacity can be created in these countries, following efficiency and qualitative reforms and improved mobilisation of domestic resources, but only if domestic financing of primary education is augmented to the tune of 30% ($2.5 billion p.a., on average, over the 15 years to 2015) by external financing.[65]

Figure 4: Achieving UPE: classification of countries by unit cost and expenditure commitment

Expenditure Commitment:	Low Cost (Primary unit cost<13% of PCY)	High Cost (Primary unit cost > 13% of PCY)
Low Recurrent expenditure on primary schooling < 2 of GNP	Most countries in this group have a GER of less than110. They should be able to reach the MDG with modest extra expenditure (up to 2% of GNP). They should concentrate in the first instance on 100% net enrolment in grade 1 and then mobilise resources needed to prevent dropping out from higher grades. They also need to focus on relaxing demand-side restraints on enrolment. Those with already high GERs (India, China) should concentrate on, and raising quality. Examples: Uganda, Tanzania, Ghana, Bangladesh, Nepal, Pakistan, El Salvador, Guatemala, Philippines	One priority is to raise public expenditure on primary education above 2% of GNP. Some reallocation of subsidy from tertiary may be possible. But without reforms expenditure levels needed to reach the MDG are politically infeasible. A second priority for these countries is to reduce unit costs, e.g. by increasing class sizes, double-shifting, curtailing the length of the primary cycle (if too long) using lower paid teaching assistants, thus deploying trained teachers more efficiently, redirecting expenditure to quality enhancement, e.g. by improving the supply of books, so reducing repetition. Examples: Brazil, Côte d'Ivoire, Morocco, Mozambique, Ethiopia
High Recurrent expenditure on primary schooling > 2 of GNP	Countries in this group should already have the means of reaching the MDG, though may need expenditure Reallocation and incentive reforms to do so. Examples: Syria, Tunisia	These countries have the potential for reaching the MDG, but many need a significant tightening of the efficiency of their systems (see above), and improved incentives for pupils to complete the primary cycle. Examples: Kenya, Zimbabwe, Botswana, Thailand, Malaysia, Chile

The Bank's calculation, though methodologically sound and empirically based,[66] is open to criticism:

- its unit cost and domestic budgetary commitment norms may be politically and managerially hard to achieve, even where current high coefficients of variation in efficiency and relative expenditure levels indicate major scope for improvement; domestic expenditure would have to rise by 7.5% p.a.;

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[65] World Bank (2002a)

[66] "values adopted for the target parameters … are broadly similar to those suggested by some earlier work, and in other ways they are consistent both with known research results and with common sense" (UNESCO 2002b)

- absorptive capacity problems could retard the implementation of the required expansion in capacity;
- the supply of capacity is not the whole answer: parents have to be able to afford the private costs associated with sending children to school for the full duration of the primary cycle and to feel motivated to do so;
- even if demand side restraints are lifted there will be a period of catch-up in which over-aged, hitherto out-of-school, children compete for primary school places with children of normal primary school age; thus, even if there are major improvements in school efficiency, system capacity will have to exceed a normal GER for some years while this 'bulge' works its way through;[67]
- the sharply increased growth in primary enrolment needed to reach the MDG in countries that are not now on course to achieve full primary completion by 2015 would call for a step function increase in the supply of trained teachers which may not be forthcoming in some countries without a significant increase in teacher salaries; the bulge effect would add to this requirement.

Nevertheless, this simulation of the beneficial effects of combining reform with the political will to increase education budgets indicates clear scope for making major strides towards the target. For example, India should be able comfortably to cope using domestically mobilised resources, and Bangladesh, Malawi, Mozambique and Zambia appear to have rather modest external resource requirements.

The UNESCO and UNICEF studies start, unlike the World Bank, from current unit costs, and on this basis and for larger samples of countries, project public expenditure requirements in 2015 assuming NERs of 100. Their estimates of the additional financing required to meet the target are lower than those of the World Bank.

The original Colclough-Lewin formula includes private, as well as public, costs and private expenditures. These include fees paid to (or private endowments of) private providers of schooling. The share of the private sector in the provision of primary education varies widely, from negligible proportions to 100% (Lesotho). In most Latin American countries it lies in the range 10-40%, but elsewhere it is centred around 10-15%. Private costs also include other pecuniary and opportunity costs borne by households that send children to school. Even if public education is provided free parents have to pay for travel to school, books and materials, uniforms and participation in extra-curricular activities.

However, the GER measures the capacity of the primary education system relative to the school age population, not the progression of pupils through the system. The expenditure and unit-cost variables used in the Colclough-Lewin formula determine the system's capacity, but not the adequacy of capacity to meet the MDG target. To ensure that all children compete the primary cycle the capacity of the system has to be sufficient to accommodate all primary school age children, plus the repeaters and over-aged, *and* there have to be increases in the quality of education and in the demand for education sufficient to reduce drop-out rates to insignificant proportions.

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[67] In 1996 Uganda abolished abolished primary school fees for up to four children per family which led to an immediate 67% increase in primary enrolment (2.3 million children) and a fast continuing rise thereafter, taking the GER to 145 and the first year intake rate to around 200. To accommodate this the government mobilised additional resources – with donor budget support – on an exceptional scale. The share of education expenditure in GNP rose from 2.6% in 1996 (typical of low income countries) to 4% in 2000, and it increased the share of primary education within the education budget from 50% to 70%. In the aftermath of the step-function rise in enrolments average test scores declined, giving rise to higher repetition. The experience of Malawi following school fee abolition was similar. (World Bank 2002b).

The effect of AIDS

AIDS will affect educational achievement mostly in sub-Saharan Africa. It will depress both the supply of and demand for primary education, with the most likely net effect being that enrolment rates will fall.

On the supply side AIDS is already increasing mortality and morbidity among primary school teachers. Annual recorded death rates in AIDS-affected countries range from 0.5% in Uganda and 1.5% in Kenya to 2.1% in Zimbabwe.[68] To this must be added teacher absences from work caused by opportunistic infections associated with AIDS. Educational quality is declining as a consequence, with increasing pupil/teacher ratios and disruption to learning programmes.

AIDS is having some effect in reducing the size of the primary school age cohort, but, in most countries, the age cohort will continue to grow rapidly as a result of continuing high (albeit reduced) fertility rates.[69]

However, AIDS-affected households' demand for primary education is falling. The illness and death of parents is retarding enrolment and increasing dropping-out, as the need for child labour increases and the opportunity cost of school attendance rises. USAID has estimated that by 2010 9% of all children in sub-Saharan Africa under 15 will be orphans.[70] Demographic and Health Surveys of various African countries show that orphans have lower attendance at school than non-orphans – typically 20-65% lower.[71] This particularly affects girls' attendance, as girls are called on to perform household and care duties when their parents succumb to AIDS.

The net effect of AIDS, therefore, will be to set back the chances of achieving the MDG education target for seriously affected countries, particularly in sub-Saharan Africa.

2.7. Scope for reform and expenditure reallocation

Much has already been said about the kinds of action required to improve educational performance and to bring countries closer to achieving the MDG target. Section 2.6 has shown that main the focus of international attention must be on sub-Saharan Africa – for reasons of demography, achievement backlog and AIDS. The large unmet needs of South Asia also call for priority attention, but should be easier to cover with domestic resources. This section looks more systematically at the nature of the reforms that make expenditure on education more efficient and more effective in achieving its aims.

Summary

 The actions, which are needed in differing degrees in different countries, consist of:

- committing more effective resources to primary education, by increasing public expenditure where it is low as a share of GDP, and/or by redirecting it to the primary sector;
- taking performance management measures to reduce waste and excess costs, and to increase the internal efficiency of school systems;

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[68] World Bank (2002c, Chapter 2)
[69] The US Bureau of Census estimates that only 6 (including Zimbabwe and Ghana) out of the 26 countries worst affected by AIDS will experience an actual fall in in the school-age population (World Bank 2002c)
[70] Ibid.
[71] Ibid.

- improving educational quality, through proper attention to the deployment and motivation of trained teachers and the provision of learning materials;
- reducing the private costs of sending children to school for poor people.

Wide expenditure and cost differences between countries make it different to establish norms of cost-effectiveness or standard prescriptions for reform. Expenditure and efficiency levels achievable in some parts of the world may simply not be attainable elsewhere. Asian countries have been able to achieve highly commendable educational results (despite many over-age students in primary school) at relatively modest cost. Drop-out rates are lower, test scores are higher and education expenditure as a share of GNP is lower in East Asia than in other regions. In many African countries similar levels of expenditure relative to GNP are inadequate to raise achievements to within striking distance of international goals.

Resource mobilisation

Notwithstanding the warning about the applicability of across-the-board norms, there is a common belief in the education-for-all literature, following Colclough and Lewin, that even the poorest developing countries should be able to devote 2% of their GNP to primary education. As Fig. 6.3 shows, many significant countries fail to do so. To increase their commitment to achieving the MDG and improving the accessibility and quality of primary education these countries have the options of:

i) increasing overall public expenditure:

Developing countries' abilities to finance public expenditure vary enormously. Their domestic revenue/GDP ratios range from as low as 8% to over 25%, and their receipts of external assistance range from insignificant levels relative to GDP to over 15% of GDP. Many have some scope to raise their domestic revenue collection, but this will require policy change, capacity building and institutional reform which will take time. As a result of donor commitments made at the Monterrey Financing for Development conference in March 2002, however, there are now firm prospects for a substantial increase, by the second half of the 2000s, in the volume of external assistance.

Sub-Saharan Africa can expect to benefit substantially from this extra aid, in view of the pressing nature of its development problems – amounting perhaps to approaching 1% of GDP.[72] Public expenditure should, if all extra aid is passed through into outlays, rise *pro tanto*.[73] If the marginal share of education in public expenditure at least equals its historic average share,[74] education could benefit to the tune of 0.15-0.2% of GDP.

ii) increasing the share of education in their national budgets:

In most developing countries education receives a larger share of public expenditure than any other functional sector, amounting in some cases to 25% of the total. Raising the share further by compressing the shares allocated to other sectors requires an act of political will. Colclough and Al Samarrai conclude that, in sub-Saharan Africa, defence spending has not seriously crowded out education, nor, with the exception of Ghana, Gambia and Malawi, have debt service payments.[75]

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[72] At Monterrey the EU, the US and Canada made commitments to increase their aid by $12-13bn, i.e. an increase over total ODA in 2000 of 25%. Aid to sub-Saharan Africa in 2000 amounted to $13.6 bn. If flows to sub-Saharan Africa rise by 25% sub-Saharan Africa will receive an additional $3.4 bn, i.e. 1.06% of its GDP in 2000, and around 0.8-0.9% of its GDP in 2005.

[73] Public expenditure in sub-Saharan Africa is consistently 25-27% of GDP, so extra aid of 1% of GDP would allow public expenditure to rise by 4%.

[74] In sub-Saharan Africa the average share is 16% It ranges between 10% and 25% of expenditure, but most frequently falls in the range 15-20%.

[75] Countries with higher military expenditure coincidentally also spend more on education (Colclough and Al Samarrai 2000).

Table 11: Debt service and Education expenditure in countries where interest payments exceed 15% of government expenditure

Country (year)	Debt interest/total expenditure %	Education/total expenditure %
Cameroon (1999)	19.3	12.0
Côte d'Ivoire (1998)	23.4	..
Ethiopia (1996)	18.8	16.0
Ghana (1993)	16.4	22.0
Guinea (1999)	20.6	..
Kenya (1998)	22.0	25.6
Sierra Leone (1999)	27.7	..
Zimbabwe (1997)	20.1	24.2
India (2000)	25.0	2.6
Indonesia (1999)	20.3	6.4
Pakistan (2001)	31.8	1.0
PNG (1999)	15.6	22.1
Philippines (2000)	21.7	18.7
Sri Lanka (2000)	21.2	9.6
Argentina (2000)	20.5	6.3
Colombia (1999)	17.1	20.3
Costa Rica (2000)	16.1	20.6
Ecuador (1994)	21.8	..
Jamaica (2000)	40.7	14.3
Peru (2000)	22.3	..

Source: Government Finance Statistics Yearbook 2001, IMF

The reduction of debt service payments by restructuring (or for HIPC countries cancelling) external debt and reducing domestic debt service charges through a fiscal policy of reducing outstanding Treasury Bills is however a significant source of additional financing for education in some countries. Table 11 identifies countries where interest payments have been high and where debt service reduction could release substantial budget resources for education.

In all countries there is some scope for reallocating budget expenditure towards education away from other sectors, without doing harm to the poverty reduction potential of these other sectors. However, in many countries this scope is not great.

iii) reallocating expenditure within their education budgets to give higher priority to primary education:

An attractive and frequently advocated means of increasing resources for primary education is reducing the subsidy given to higher levels of education and transferring the proceeds to primary schools. Reallocation is propounded on grounds of economic efficiency, equity and budgetary expediency.

The *allocative efficiency* argument is based on microeconomic empirical evidence that rates of return on education expenditure are generally higher at the margin at the primary level than at the secondary and tertiary levels.[76] Where this is the case total welfare be will increased by transferring resources from higher to lower levels of education, unless there are very strong complementarities between different levels of education. There clearly is some complementarity, for example in the training of teachers which occurs at the tertiary level but which is required to deliver primary and

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[76] cf Section 2.3

secondary schooling. There are also complementarities in the labour force between workers with professional, technical and managerial skills who have higher education qualifications, and skilled and unskilled workers. However, labour economists do not believe that these effects are strong enough to invalidate the case for some reallocation.

An additional efficiency argument in favour of reallocation is found in evidence that the distribution of education matters because of the positive external benefits that education brings to total labour productivity.[77]

The *equity* argument is based on the observation that the beneficiaries of public expenditure on tertiary education in particular, but also of secondary education, are non-poor, and are often rich by the standards of their countries. Public current expenditure per pupil in tertiary education is a large and variable multiple of expenditure per pupil in primary education (though it is only 1.5 – 3 times as high in secondary education).[78] Beneficiary households for the most part, therefore, have an ability to pay for higher levels of education. Those deemed too poor to pay cost-covering fees in tertiary and secondary education could be provided with means-tested scholarships.

The *budgetary expediency* argument says that there are considerable resources currently devoted to subsidising the higher education of the (generally) rich and that these resources could be made available, without breaching overall public expenditure limits, for MDG related purposes. In many countries 15-25% of public recurrent expenditure on education is devoted to higher education,[79] a fair proportion of which could be reallocated to support reforms in and wider access to primary education. Primary schools typically receive 40-55% of public recurrent expenditure.

If one makes the assumptions that:

- government expenditure on primary is initially 50 % of the education budget and 2% of GNP
- government expenditure on higher education is initially 20% of the education budget and 0,8% of GNP
- private expenditure on primary education is 1% of GNP

it follows from the GER formula given in Section 2.6 that, if the higher education subsidy is halved to 0.4% of GNP and public expenditure on primary education raised by 20% to 2.4% of GNP, taking into account private expenditure, the primary GER should rise *cet. par.* by 13.3 points.

Reallocations of this order of magnitude would be well worthwhile in low commitment countries and those whose completion rates are structurally imperilled by persistently high drop-out rates.

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[77] cf. Impact of education and its distribution on economic growth, pg. 15.
[78] Country examples (1996 data) are:

	current expenditure per pupil ratios			percentage distribution of current education expenditure		
	Primary	**Secondary**	**Tertiary**	**Primary**	**Secondary**	**Tertiary**
Côte d'Ivoire	1	2.4	7.8	45.2	36.2	18.6
Ethiopia	1	2.4	33.9	46.2	23.7	15.9
Malawi	1	3.0	175.6	58.8	8.9	20.5
Mexico	1	1.5	3.9	50.3	32.5	17.2
Brazil	1	1.4	5.7	53.5	20.3	26.2
Bangladesh	1	3.2	3.4	44.8	43.8	7.9
India	1	1.6	9.1	39.5	26.5	13.7
Philippines	1	1	1.6	54.7	23.5	17.8

Source: UNESCO
[79] cf previous footnote

Mingat and Tan[80] have measured the resources that could be released by reducing or eliminating subsidies at the secondary and tertiary levels in sub-Saharan Africa. They show that in 10 Francophone countries a modest 10% reduction in higher education subsidies would finance a 2% increase in primary enrolment. If subsidies were eliminated GERs could rise by up to 18 points (though on average by less).

The strength of stakeholder vested interests – both consumers and producers – in secondary and tertiary education usually makes it politically difficult to reduce expenditure allocations to these sectors in order to increase the endowment of the primary sector. However, with political will and donor assistance some countries have been able significantly to raise the relative share of priority programmes for poverty-reduction, including primary education. This has been achieved, *inter alia,* in Cambodia, Tanzania and Uganda.[81]

i) reducing wasteful uses of public expenditure allocated to education, so increasing the amount of effective resources available:

There are no general estimates of waste in education systems. More information will become available as efficiency audits and quantitative service delivery and expenditure tracking surveys become more general. As shown in section 2.5, before proper controls are introduced above waste can amount to over 85% of non-wage budget allocations, or 25-30% of total education budgets.

This implies that, in some countries at least, and very likely in those most in need of more spending on primary education, there is a large and ready-made source of additional funding to be found by applying the precepts of accountability and efficiency in public expenditure management.

ii) Performance management

Reforms to improve financial accountability in the education sector should be followed by parallel reforms to strengthen administrators' and school heads' accountability for educational results. Enrolment rates, transition and repetition rates, and drop-out rates should be the subject of performance targets. Performance should be reported monitored more frequently than now, and active use should be made of data gathered, for example though benchmark comparisons, to identify areas of weak performance, diagnose causes and to bring appropriate remedies.

Performance management is a major area of weakness in education systems, as in other spheres of public expenditure.[82] Data on expenditures and performance are routinely collected, but too little attention is paid by management and service providers to their implications for policy and resource allocation.

Raising educational efficiency and effectiveness

Reform measures to raise the impact of expenditure are grouped under the two headings of *cost-effectiveness*, i.e. measures to reduce unit costs and increase the purchasing power of education budgets in terms of educational outputs, and *quality*, i.e. measures to improve the relevance of school curricula and children's learning and cognitive skills, and thus their impact on educational outcomes. However, quality and cost-effectiveness have feedback effects on each other and are not separable. Higher quality schooling has been found to accelerate pupils' progression through the

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[80] Mingat & Tan (1985)
[81] cf. Dom (2003), Rønsholt (2003) and Williamson (2003)
[82] Roberts (2003)

cycle and reduces repetition and dropping-out, thereby raising schools' cost-effectiveness.[83] There is thus often no real trade-off between quantity and quality.

Cost-effectiveness reforms

Colclough and Lewin suggest a hierarchy of efficiency and quality-enhancing measures to be contemplated by countries striving to reach educational goals. They advise against frontal assaults to reduce unit costs because of the collateral (and self-defeating) harm that this may do to quality, and thus to performance improvement. There are a few cost-reducing measures, however, which ought to be contemplated in some countries, notably in Africa, including:

- educating children in two shifts, so increasing the effective pupil/teacher ratio,
- reducing excessively long primary school cycles (over 6 years),
- reducing the need for boarding,
- deploying trained teachers more efficiently, lowering the number of hours of unproductive contact with pupils, eg by more use of teaching assistants for invigilation.

Although there is no long-run trade-off between higher access and better quality in primary education, in the short-medium run education policy makers face differing tactical choices about whether to increase per-pupil expenditure or to focus on cost-reduction reforms. In practice, a mixed strategy of pursuing both tacks simultaneously is usually required because of financial and institutional constraints on action.

In practice, education sector policy usually needs pragmatically to pursue both tacks simultaneously because of financial and institutional constraints on its action.

Quality

Hanushek has reviewed the extensive literature on factors that explain pupil performance (test scores or exam results) around the world.[84] He found that factors most frequently and significantly related to positive outcomes were school facilities – including buildings, textbooks and educational materials and equipment. The organisation and management of schools is another important determinant quality of output and of attainment outcomes.[85] Poor learning environments – physical and organisational – are the norm in much of sub-Saharan Africa and South Asia, calling often for community-based solutions to structure and infrastructure provision and maintenance.[86]

The literature survey reveals that other measures to improve students' attainment levels such as increasing per-pupil expenditure and reducing pupil/teacher ratios produce more ambivalent results. In sub-Saharan Africa increases in expenditure bring higher returns in terms of pupils' progress through schools and learning.[87] However, above a (locally determined) threshold there are diminishing and indeed vanishing returns to higher outlays per pupil. Educational quality is generally thought insensitive to higher pupil/teacher ratios so long as the ratio is below 40.[88] In the range below 40 there are potential cost-effectiveness gains from higher PTRs. Above 40 educational quality often starts to decline. In the range above 40, therefore, further efficiency gains may be a false economy because offset by the cost of higher rates of repetition. However, in parts of Asia large class sizes seem to be compatible with quality education.

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[83] Hanushek (1995)
[84] Ibid.
[85] cf Section 2.5
[86] DFID (2001) Chapter 4
[87] Bennell (2002)
[88] This figure, valid in urban areas, may be too high for rural areas where population density is lower and there are logistical problems of access to schools.

Box 3: Education in Karnataka: achieving success, but still in need of reform

Karnataka is the cradle of India's successful information technology and software industry. It has
   made great strides in primary education too.

There are 4.8 million primary school age (6-10) children in Karnataka. Sample surveys show that their
school attendance (net enrolment) rate rose from 76 in 1992/93 to 86 in 1998/99 and to approximately
92 in 2001.

However, access problems remain: there are educationally backward districts in the North of the state,
and exam results show that the quality of education is low, and completion rates vary from less than
half
for the poorest children to nearly 95% for the richest..

Analysis of public expenditure on education shows that it is inefficient, inequitable and ill-managed.
Over 90% is devoted to salaries, leaving too little for quality-enhancing expenditure on teaching
materials, educationally backward districts receive less than their population share of expenditure,
and unit costs have risen for lack of due attention to cost control.

Plans for reform under consideration by the state government include:

– improving the utilisation of teachers and the quality of teaching, by increasing the number of
– teaching hours per day and improving the availability of text books through procurement reforms,
– decentralisation of day-to-day management oversight to lower tiers of government,
   rectifying inequities in school funding

Reducing private costs for poor people

In the early days of international commitment to UPE it was considered desirable that parents
should contribute – according to their means – to the cost of their children's education. This
principle underlay the expansion of the network of *harambee* schools in Kenya in the 1970s.
Parental contributions helped to accelerate the spread of primary (and secondary) education at an
early stage, when access to education was very limited and geographically circumscribed.

Governments in countries with problems of macroeconomic and fiscal balance were encouraged in
the 1980s by the international financial institutions to make general the practice of levying user
charges for public services. This was intended to help ensure the continuing provision of services
during times of fiscal austerity.

However, by the time of Jomtien there was mounting evidence that school fees were a significant
factor reducing the demand for education by the poorest households, particularly in Africa, thus
making it impossible to attain UPE. The reintroduction of fees in Tanzania in the mid1980s was
followed by a decline in gross and net enrolment rates below earlier levels. In the course of the
1990s a new consensus emerged that primary school fees should be abolished as soon as practically
feasible in financial terms. Some countries, like Malawi and Uganda, were able to announce with
panache the abolition of primary school tuition fees. Tanzania and now Kenya have followed suit.
Abolition has been followed by spectacular increases in primary school attendance in these
countries. This was initially accommodated – pending the training of more teachers and the
construction of new school buildings – by sharply increasing class sizes. This increase in attendance
confirmed the new consensus that the elasticity of demand for education by poor households is
high.

School fees, however, are not the only private cost of education borne by parents. Schools often continue, after the abolition of fees, to charge for textbooks and educational materials. Parents may also have to meet transport and uniform costs and, in poor households, there is often a high opportunity cost – in terms of domestic or farm labour – to children's school attendance.

There is no easy way of inducing parents in the poorest households who experience these problems to send their children to school – unless it is financially affordable and administratively practicable to provide means-tested bursaries for them. Brazil has introduced a *bolsa escola* scheme of bursaries for the children of poor households, and has thereby raised school efficiency by reducing repetition. UNESCO is arguing for a similar incentive scheme which offers subsidies to poor parents on the strict condition that their children attend school.[89] Free school meals are another inducement which has had local success. Children whose labour is essential to household income have in some cases been offered half-day schooling during hours that have allowed them also to earn an income.

Imaginative solutions such as these have been effective in increasing the demand for education for poor children, especially in urban areas. As non-enrolment and non-attendance are primarily problems for the children of poor households, pro-poor education policy which aims to achieve the MDG will in most cases comprise measures such as these to stimulate the demand for primary education among the poor by diminishing the cost to them of sending their children to school. The design of demand-side policies requires care, and their implementation requires discipline, so as to avoid rent-seeking, corruption and nugatory expense. There are no good estimates of, or methods for calculating, the optimum level of expenditure on demand-side measures relative to conventional supply-side ones.[90]

Political economy of reform

Implementing access, efficiency and quality-enhancing reforms, just as reallocating budgetary expenditure, involves political choices and political will. There are vested interests which oppose the reallocation of resources towards MDG-related programmes away from other programmes. The abolition of fees and other user charges is not popular with the teachers and education officials who received these payments.

Whether it is practicable to reallocate resources on any significant scale – and to implement other quality and efficiency enhancing reforms – depends on the political of governments will to confront those interest groups which benefit from the present distribution of educational subsidy and current work practices. In developing countries, as elsewhere, education policy is subject to a degree of capture by producer and privileged consumer interests.

One solution of proven effectiveness is to make parents aware of their rights and entitlements in terms of the provision of, and quality of, schooling for their children and to encouragement parental involvement in school activities. The Ugandan government found that there was a marked improvement in the availability and quality of local authority-provided schooling after it had launched a campaign to inform the public about the schools and school programmes for which it had transferred resources to the local authorities. Pritchett and Filmer find evidence that educational achievements (test scores) and cost-effectiveness are higher in schools where there is greater parental involvement in school management to counteract teacher power (eg through local financing) than where there is less.[91]

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[89] UNESCO (2002b), Ch. 4
[90] UNESCO (2002b), Ch. 4, refers to African evidence suggesting that current costs-per-pupil might have to rise by 50% to cover the direct and indirect costs now borne by poor households.
[91] Pritchett & Filmer (1997)

2.8   Conclusion on public expenditure in Education.

Previous sections in this chapter have shown that levels of funding of primary education vary greatly between countries, but that these variations are not the principal determinant of countries' proximity to the target of full primary completion. Cross-country comparisons reveal widespread inefficiency in translating expenditure into educational outputs.

Public expenditure on primary education *per se* will not necessarily produce progress towards the MDG education target of primary completion for all children. Other factors – poverty, adult literacy, health on the demand side, and efficient, effective resource management and quality on the supply side – exert a more powerful influence. Increasing expenditure without tackling these may be as effective as pushing on a piece of string; higher outlays may be absorbed by higher unit input costs and falling levels of efficiency. Without reforms education expansion programmes may increase enrolments temporarily but this progress may be unsustainable, and may not print through into higher completion rates.

Only with careful diagnosis of local factors inhibiting progress, and with careful planning, targeting and monitoring of public interventions, will consistent and purposeful progress towards the target be made. The inhibiting factors may be technical, administrative, socio-economic and political, and they occur on the demand side as well as on the supply side. Even with these precautions the impact of higher expenditure on outcomes may be slow to materialise.

Except in Sub-Saharan Africa the MDG target seems at first sight tantalisingly within reach with the application of affordable, feasible, additional funding. Seen at closer quarters, however, the problems appear less tractable and more deeply ingrained, particularly on the demand side, where poverty and the low educational status of parents heavily depress school attendance. Reforms to raise enrolment bring their own problems, notably an enrolment 'bulge'. On the side of the supply of primary education the problems and their remedies are well known in theory, but are often not acted upon in the absence of political stimulus from on top – or from outside.

The countries most at risk of failing to meet the MDG target of primary school completion for all children by 2015 are those whose performance is weighed down by, and whose progress is most likely to be retarded by, adverse demand side factors, notably household poverty and the perceived absence of opportunity from education. When demand side restraints are relaxed, e.g. by lowering user costs, primary schools in 'at risk' countries are likely to face an acute enrolment 'bulge' of over-age children. This compounds the underlying problems of making public expenditure on primary education efficient and effective, overcoming geographical and social inequities, and improving school quality.

The challenges of UPE, like the target itself, are not new, and they have not been aggravated by adverse shocks, except in countries seriously affected by HIV. In many countries they are being alleviated by demographic transition and stabilising or falling cohorts. Nevertheless, the pace of advance, over the last three decades, towards the MDG has been modest, and expert opinion doubts if it can be accelerated sufficiently to meet the target. There is institutional, and even political, resistance to the requisite reforms in resource allocation and technical efficiency. The nascent practice of performance budgeting and management needs stronger political support.

Chapter 3: Public Expediturue and Health Sector Development Outcomes

3.1   Introduction

The Millennium Development Goals (MDGs) give prominence to the improvements in health in poor countries. Their prescription is that, between 1990 and 2015, under-5 mortality should fall by two-thirds, maternal mortality should fall by three-quarters, and that the incidence of HIV/AIDS should have begun to fall. This chapter concentrates on the effect of public expenditure on under-5 mortality. Maternal mortality rates are perhaps a better indicator of the effectiveness of a health system, but they are not measured so accurately, and are slow to change.

The UN Secretary-General Kofi Annan intervened strongly to have the MDGs adopted in a special session of the UN General Assembly in 2000. The Secretary-General at the same time pressed hard for the establishment of a Global Fund to finance measures against AIDS, TB and malaria. The Global Fund was established in 2001 with initial commitments of finance of some $2 billion[92] with the explicit objective of providing financial backing for the health authorities in developing countries in their campaigns against these causes of mortality.

The Global Fund is but one source of external finance for the health sector in developing countries. Health has long been a focus of multilateral and bilateral donor attention. ODA commitments in 2000 explicitly earmarked for the health sector amounted to some $2.6 billion,[93] in addition to which developing countries devote to health some of the proceeds of the general budget support that they receive, and an approximately 5% share of their non-concessional borrowing from multilateral sources. These contributions for the most part augment public expenditure on health sector programmes.

The World Bank's World Development Report of 1993 noted the wide disparities between the health status of different countries and population groups. It explained the bulk of these differences by (a) human behaviour, (b) income, (c) education, (d) disease prevalence, and (e) health expenditures and their effectiveness. It also noted that, after controlling for factors (b) to (d), the data then available showed no clear relationship between higher health expenditure and better health.[94]

The following sections argue that the health status of developing countries has improved greatly, but that the role of public expenditure in achieving this is ambiguous. Some public sector programmes have been highly successful, but there is also much evidence of waste and misallocation. Aid support for the health sector needs to be discriminating, and to seek a concentration of total budgetary resources on high value services. However, this is easier said than done. Reform and the re-focusing of resources meet institutional resistance, both professional and administrative. This explains the relatively disappointing performance of sector-wide approaches to aid for the health sector.

To set the scene Section 3.2 presents some basic facts about trends in health outcomes and in expenditure on health Section 3.3 asks how important public expenditure has been in improving countries' health status. It summarises and discusses the conclusions of econometric studies of the determinants of health outcomes which throw considerable doubt on the past effectiveness of public

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[92] To which the US now proposes to add $1 billion starting next year
[93] Average for the years 1997-1999, c f WHO (2002)
[94] World Bank (1993), Chapter 3

expenditure in reducing mortality and in improving health status. Section 3.4 summarises the evolution of and recent thinking about public policy on health. Section 3.5 looks public expenditure allocation and public policy priorities, in theory and in practice, in health, showing from evidence that practice is quite remote from theory. Section 3.6 reviews the challenges of health sector reform.

3.2   Recent trends in health and health sector financing

Summary

Over the last 40 years child mortality has been halved in low income countries, and has fallen by three-quarters in middle income countries. The prominent exception is Sub-Saharan Africa where child mortality, after falling somewhat, has now begun to increase. The differences between the health status of the poor and the non-poor within countries is more stark than differences in country averages between countries of differing per capita incomes. Child mortality rate for lowest income quintile households in many low income countries is more than double that of highest income quintile households.

Developing countries' expenditure on health is typically 4-6% of GDP, of which on average some 40% is public expenditure. The private share rises with per capita income. Although per capita expenditure is low it may be sufficient to cover the cost of a minimum package of interventions, except in South Asia and Sub-.Saharan Africa.

Health Outcomes

Health status is conventionally measured by life expectancy at birth, and by child and infant mortality. Neither of these measures reflects the extent of morbidity. The WHO has therefore proposed that health status should be assessed in terms of disability-adjusted life expectancy (DALE), i.e. people's expectation of life new of the number of years for which they are incapacitated.

Life expectancy, particularly if adjusted for morbidity, is in principle the best overall indicator of the health of a population because it captures all causes of premature death. However, it is a lagging indicator, and data on morbidity is poor. It is calculated from the current mortality rate of each age group in the population, not from the state of health of the living, nor from a forecast of their probable longevity. In many poor countries information on age at the time of death is inaccurate, leading to inaccuracies in reported life expectancy. Rates of mortality of children under the age of 5, by contrast, are recorded more accurately. They also give an almost contemporaneous picture of the state of health of children. Child mortality is also shown to be closely correlated with indicators of the general state of health of the population. Child mortality rates are therefore commonly used as proxy indicators of general health status.

Using these two measures of longevity and child mortality it is clear from the data that the health status of the developing countries has been transformed in the last forty years. Tables 12 and 13 show that life expectancy has converged in almost all regions on the canonical age of 70, signifying a major reduction in premature death; and child mortality has dropped by 60% in the world as a whole, has been halved in low income countries, and has fallen by three-quarters in middle income countries. The prominent exception is Sub-Saharan Africa where life expectancy has changed little over the last three decades, and has now begun to fall, and where child mortality, after falling somewhat, has now begun to increase.

Table 12: Under-5 Mortality Rates (per 1000) 1960-1999

Country Groups or Region	1960	1970	1980	1990	1999
World	190	152	123	86	78
Low Income	242	208	177	126	116
Lower middle income	200	131	84	50	40
Upper Middle Income	135	102	67	46	34
East Asia & Pacific	198	126	82	55	44
Europe & Central Asia	..	..	..	34	26
Middle East and North Africa	248	200	136	71	56
South Asia	238	209	180	121	99
Sub-Saharan Africa	254	222	189	155	161

Source: World Development Indicators (World Bank)

Overall, the pace of progress has been slower in the 1990s than in earlier decades. The health of Sub-Saharan Africa has worsened in the course of the 1990s. Ironically, this has occurred at a time of heightened awareness of the need for health sector reform and concern to make services accessible to all. This loss of momentum is the source of serious doubt about whether Millennium Goal of reducing child mortality by two-thirds (from 91 per thousand in 1990 to 30 per thousand in 2015) is attainable.

Table 13: Life expectancy at birth 1960-1999 (years)

Country group or Region	1960	1970	1980	1990	1999
World	50	59	63	65	66
Low income	44	49	53	58	59
Lower-middle income	42	61	66	68	69
Upper-middle income	58	62	66	69	69
East Asia & Pacific	39	59	65	67	69
Latin America & Caribbean	56	61	65	68	70
Middle East & North Africa	47	53	59	65	68
South Asia	44	49	54	59	63
Sub-Saharan Africa	40	44	48	50	47

Source: World Development Indicators (World Bank)

The differences between the health status of the poor and the non-poor within countries is more stark than differences in country averages between countries of differing per capita incomes. Household survey results reveal that the child mortality rate for households in the lowest income quintile in many low income countries is more than double the rate for households in the same country in the highest income quintile, and in some cases may be quintuple the rate (Table 14).

Inter-quintile variations in under-5 mortality are particularly large in Brazil, Nicaragua and the Philippines, but are smaller in Ghana, Pakistan and Vietnam (Wagstaff 1999). Intra-country inequalities in both infant and child mortality in Sub-Saharan Africa are lower than in other regions, despite income inequalities in Africa that are as great as, for example, as in Latin America.[95]

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[95] Because of the higher relative incidence in Africa of non-poverty related communicable diseases.

Table 14: Intra-country Disparities in Child Mortality

Region	Number of countries	Mean ratio of lowest quintile to highest quintile	*Range of ratios*
Sub-Saharan Africa	21	1.79	1.27 to 2.46
Asia/Near East/North Africa	9	2.69	1.69 to 4.60
Latin America & Caribbean	11	2.99	1.55 to 4.67
Total	40	2.06	1.27 to 4.67

Source: Gwatkin et al 2000

Health financing

The following Sections will look into the causes of these developments and at the influence of public expenditure on them. To set the scene for this it is useful to present the evidence gathered from national accounts and survey sources on health sector expenditure, both public and private.

Table 15 shows that in developing countries households, public administrations and charitable institutions in general devote 4-6% of GDP to expenditure on health – defined as health care, and preventive and public health measures undertaken by the health authorities. The share of GDP devoted to health overall has been rather static, though it has risen in the course of the 1990s in Latin America and Sub-Saharan Africa.

A notable feature of health sector financing is that private expenditures exceed public expenditures in all regions except Europe and Central Asia – where many countries have had a tradition of state-provided medicine. Private expenditures include out-of-pocket payments by households for treatments, drugs and supplies and payments for these made on behalf of households by private insurance agencies and charities. In South Asia, where expenditures on health by the public sector fell sharply in the 1990s as a share of GDP, private outlays have risen equally sharply to compensate.

Table 15: Private and Public Expenditure on Health in 1990 and 1997 (as % of GDP)

Country Groups or Region	1990			1997		
	Private	Public	Total	Private	Public	Total
World	2.21	2.57	4.79	2.91	1.87	4.78
Low Income	2.66	2.85	5.51	2.88	3.14	6.03
Lower middle income	1.73	1.12	2.86	2.48	2.31	4.79
Upper Middle Income	2.55	1.74	4.29	3.29	1.16	4.45
East Asia & Pacific	1.47	3.00	4.47	2.49	1.74	4.23
Europe & Central Asia	..		..	1.57	4.04	5.61
Middle East and North Africa	3.31	1.79	5.10	3.21	2.95	6.16
South Asia	3.14	2.23	5.38	4.14	0.92	5.07
Sub-Saharan Africa	1.95	0.91	2.86	2.45	1.58	4.02

Source: World Development Indicators

In many developing countries, notably in Asia, people on higher incomes spend a higher share of their income on health than do the poor. As per capita incomes rise private expenditure rises relative to public expenditure.

These data suggest two hypotheses for further examination, viz. that there is substitution between public and private expenditure in respect of at least some health services, and that, unlike in many developed countries, public expenditures have (or should have) a role complementary to that of private expenditure.

Table 16 shows how much developing countries spend per capita on health in international (PPP) dollars. The sums devoted to health are meagre compared with developed countries, where per capita annual outlays are of the order of $2000. In the view of some health professionals, however, these levels of expenditure are, except in Sub-Saharan Africa and South Asia, sufficient to provide essential preventive and curative services to the whole population, *if equitably, efficiently and effectively deployed.*[96]

Table 16: Per capita annual expenditure on health and its financing 1997-99 (in current $)

Country group	Public expenditure (1997)	Public & private expenditure (1997)	Donor assistance (average 1997-1999)	Memo: average total donor assistance for health 1997-1999 ($mn)
Least developed	6	11	2,29	1473
Other low income	13	23	0.94	1666
Lower-middle income	51	93	0.61	1300
Upper-middle income	125	241	1.08	610
High income	1365	1907	0.00	2
All developing countries			0.85	5052

Source: WHO Commission on Macroeconomics and Health

3.3 Evidence on the effects of public expenditure on health

Summary

Health outcomes are a function of a wide variety of factors – economic, social, cultural, geographical and environmental, as well as on health sector interventions. Econometric evidence tends to show that most cross-country variance in outcomes is explained by per capita income (poverty level differences) and that public expenditure has limited explanatory power. This evidence suggests that public expenditure has often been mis-allocated (relative to the objective of child mortality reduction), *inter alia* by substituting for private expenditure. There has been no clear benefit to health from primary health care facilities. Some public health programmes have been demonstrably successful, for example Immunisation, but these have been low cost, and so have not influenced greatly the aggregate effectiveness of public expenditure.

Health determinants

Key questions for policy and health sector strategy are how far public expenditure has been instrumental in bringing about the progress in health status experienced in developing countries over the last forty years, and what programmes have been particularly effective.

To answer the first of these questions research has sought econometric estimates of strength and significance of the factors most likely to influence health status based on reduced form versions of a

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[96] WHO (2000)

generally agreed understanding of the determination of health outcomes. The proximate determinants of the health status of members of a household are usually taken to be:[97]

- Personal and socio-cultural:
— household income (purchasing power), asset holding and access to insurance,
— income and asset distribution,
— other personal characteristics of household members, including lifestyle, sexual practices, and knowledge of good nutrition, diet, hygiene and health maintenance practice,
— genetic pre-disposition to illness,

- Geographical and environmental:
— location (urban or rural)
— access to clean water and sanitation,
— prevalence of communicable diseases and of environmental health hazards,

- Health services:
— Relevance, quality, availability, price and accessibility of public and private preventive and curative health services.

An important point to note is that the effects of government interventions on health are *indirect* more often than direct, and that they affect health outcomes through a multiplicity of channels and programmes.[98] The most direct interventions include preventive action (e.g. immunisation campaigns) and curative care services provided in the public sector. But governments are also responsible for health status and epidemiological monitoring, information, guidance and education on health matters, coordinating and regulating private providers of health care and insurance, and health-improving environmental expenditure and regulation.

Another important observation is that some of the expected determinants of good health are endogenous to the process of development, notably household income and wealth, lifestyle, diet and knowledge about nutrition and sanitation. Just as health contributes powerfully to individual productivity and to household income in poor countries,[99] incomes and education levels – particularly the education of girls – are important in improving health. Health outcomes are thus co-determined with other facets of poverty reduction.

Econometric evidence

Empirical estimates of the effects of public expenditure on health are usually based on 'reduced form' estimating equations in which public expenditure features as an argument alongside the other hypothesised influences.[100] These typically take the following form:

Health Outcomes = f{Public Expenditure, per capita GDP, income distribution, water & sanitation, rural/urban, female education, vaccination rates, socio-cultural variables}

where Health Outcomes are generally child mortality at the national level or at the level of sections of the population, such as the poor, or the urban or rural populations. Public expenditure is undifferentiated by type or programme. The data used are panel data drawn from a large number of countries and a succession of time periods.[101]

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[97] Cf World Bank (2001) [Sourcebook]
[98] See Annex 4 for a formal presentation of this proposition
[99] WHO (2002) argues that better health in poor countries will make a powerful contribution to GDP growth.
[100] e.g. Filmer & Pritchett (1997), Filmer, Hammer & Pritchett (1998 & 2002), Wang (2002)
[101] Household budget surveys and Demographic and Health surveys are commonly used data sources. There are wide variation in child mortality estimates found in different surveys

The main conclusions reached in studies which regress child mortality rates and longevity on income, public expenditure on health, urbanisation, access to clean water, female education and other personal and environmental variables are that:

- Per capita GDP – a proxy for household income – alone explains 75-80% of the inter-country variation in health outcomes; a common estimate of the elasticity of mortality with respect to income is –0.6; the inclusion of socio-cultural variables raises the level of explanation of inter-country variation in health outcomes to over 90%; these variables include: the level of female education, income distribution, culture,[102] and ethnolinguistic diversity;[103]
- Public expenditure on health – its share in GDP or its share in total health expenditure – has a slight and statistically insignificant effect on child mortality, at least at the national level;
- Infrastructural and environmental variables – access to clean water, sanitation, electricity – are found to be insignificant by some authors.[104] but to have significant effects on child and infant mortality by others.[105] One surmise is that the collinearity between these *ex hypothesi* important variables and per capita GDP smothers their effect in some regression equations.
- Aid: studies showing that receipts of aid have been effective in increasing GDP growth also show that aid has reduced child mortality.[106] This result, however, reflects the close correlation between GDP and health outcomes, and the estimated positive effect of aid on GDP, rather than a specific contribution of aid to the health sector.

The weak showing of public expenditure on health in the econometric analysis of the determinants of health outcomes (in both rich and poor countries) has long been recognised. The starting point for WHO's recent report on policies and priorities for health system reform was the observation that 'health system expenditure often seems to make little difference, even in poor countries with high infant and child mortality, which it should be a priority to reduce'.[107] Papers by Musgrove, Filmer and Pritchett were cited in support of this.

Musgrove[108] regressed life expectancy and child mortality on income and total and public expenditure on health (as a share of GDP) and found that only per capita income was significant in explaining health outcomes. For a given per capita income countries that spend more on health do not necessarily buy greater longevity – except poorer countries where overall life expectancy is low. However, confirming earlier findings, he found no indication that, given per capita income, spending a larger share of GDP on health reduced child mortality, even in poor countries. Public expenditure on health was never significant in explaining child mortality, whatever the specification used in the estimating equation. Musgrove noted that noted that this was consistent with other evidence that the inexpensive clinical interventions crucial for reducing child mortality were inconspicuous in aggregate public expenditure figures.

Filmer and Pritchett[109] repeated the cross-country regression analysis, using UNICEF data on child mortality. Their explanatory variables were per capita income (a proxy for household income), income inequality (a proxy for poverty), female education, access to safe water and socio-cultural variables. They found that these factors alone explained well over 90% of the variance in child mortality.[110] Public expenditure on health added very little to the explanatory power of their estimating equations (0.15% of the variance in mortality). There was little difference in expenditure

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[102] Predominantly Muslim
[103] Symptomatic of discriminatory treatment of minorities
[104] Filmer & Pritchett (1997)
[105] Wang (2000)
[106] Mosley & Hudson(1995)
[107] WHO (2000), Chapter 1
[108] Musgrove (1996)
[109] Filmer & Pritchett (1997)
[110] Elasticities calculated by Filmer & Pritchett for female education, ethno-linguistic fractionalisation, predominantly Muslim countries and the Gini coefficient are respectively –0.1, 0.6, 0.4 and -0.01.

on health between countries with lower mortality rates than predicted in the basic regression equation and those with higher than predicted mortality.

Using the low coefficient on the public expenditure variable[111] Filmer and Pritchett calculate that the public expenditure cost of averting a child death has probably been in the range $50-100 000 – depending on the specification used in the estimating equation. This is at least ten times as much as the estimates given in the World Development Report of 1993 for the cost of saving a life applying 'minimum package' type clinical interventions whose elements were costed between $1000 and $10 000 per DALY saved. This is *prima facie* evidence that public expenditure on health has been used inefficiently in the pursuit of health outcomes. Later chapters in this paper develop this theme, showing that the inefficiency has been both allocative and technical.

Filmer, Hammer and Pritchett[112] explain the apparently low cost effectiveness of public health expenditures not only by the preponderance in budgets of outlays on expensive hospital-based care in urban areas but also in terms of the high cross-price elasticity of demand for much routine health care. Public provision at low cost to clients of treatments for which the elasticity of demand is high causes clients to migrate from private practitioners to public facilities. Public expenditure, in these cases, may add little to the amount of treatment dispensed; it just has the effect of diminishing the private sector's share of supply.

Other authors' empirical conclusions are more nuanced. Bidani and Ravallion (1997) find that public expenditure has significant benefits for the health status of the poor, though not of the non-poor. Jamieson and Wang (2001) also find that health and medical services play a significant role in raising female life expectancy, alongside household income, personal characteristics and environmental conditions.

Wang (2002) uses a Demographic and Health Survey data set which is less eclectic and more consistent between countries (though less broad in coverage) than the data used in previous empirical work.[113] He is thus able to differentiate the determinants of health outcomes in urban and rural areas. Wang finds that the following factors, ranked in descending order of importance, have a significant[114] effect on child mortality:

National	Urban	Rural
š GDP per capita š Share of health Expenditure in GDP* š Share of rural population š Access to electricity š 1st year vaccination coverage š Access to sanitation*	š Access to electricity š Ownership of durable goods*	š Share of health expenditure in GDP š 1st year vaccination coverage

Wang concludes from his evidence that there are, in addition to household asset, income and lifestyle variables, low cost health interventions that can also make a significant contribution to health outcomes.

These conclusions are consistent with the contention that much public expenditure is misallocated because it benefits the non-poor and because in so doing it rivals the private sector rather than

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[111] Significant at the 10% level
[112] Filmer, Hammer, Pritchett (1997)
[113] The same survey methods and instruments are used in all countries and information on a range of socio-economic indicators is gathered.
[114] Variables marked with an asterisk are significant at the 10% level only

complementing it. The poor, particularly in rural areas, not only have worse health but they are least able to afford insurance and also most deterred by cost from seeking preventive and curative care.

The empirical evidence, thus casts considerable doubt on the effectiveness of past policy and practice of public expenditure in the health sector in many poor countries, and on the priority given on health grounds to programmes of water supply, sanitation and environmental health. Much expenditure seems to have been unproductive and inefficient, both economically and technically, for reasons to be discussed in Section 3.5. Different authors have found comparable results at different times using different data sets and different dependent variables. Total health expenditure – private as well as public – and expenditure on conditions amenable to medical care also appear not to have a significant effect on health outcomes.[115]

It is however of considerable interest to see evidence in some studies that expenditures focused on the needs of particular population groups – women, the rural population and the poor – do improve beneficiary groups' health. This evidence lends support to the contention that public expenditure on health is valuable in specific programmes. As discussed further in Section 3.5, these are primarily programmes which provide public goods, which focus on the major causes of mortality, particularly among the poor, and which do not substitute for private expenditure on health.

To find convincing and graphic evidence of the effectiveness of public sector health interventions one has to turn to case studies of countries with particular characteristics and to campaigns against specific diseases.

Case study evidence

Regressions based on panel data do not by any means tell the whole story. They conceal the effectiveness of 'vertical' interventions which achieve success but only in respect of specific health problems. They also conceal the value of low cost interventions with systemic benefits – particularly if these are donor-financed and not properly recorded as public expenditure in the national accounts. There is also the case of 'outlier' countries where public expenditure has been particularly effective for reasons that it is important to understand for the purposes of policy formation.

The outliers show that it is by no means inevitable that countries with low per capita incomes will have low standards of health. There are some well known and extensively documented cases of low income countries or areas – for instance Vietnam, Sri Lanka and the state of Kerala in India – enjoying a health status typical of upper middle income countries as a result of a combination of cultural norms and high educational attainments and accessible, effective, public health services. The special features contributing to good health in Sri Lanka are outlined in Box 4.

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[115] WHO (2000), Chapter 1

Box 4: Why Health Outcomes have been good in Sri Lanka and Kerala

Non health sector factors which have not been influenced by health sector policies have had a major impact on health outcomes in Sri Lanka and Kerala:

- the relatively high status and autonomy of women encourages attention to maternal health
- relatively good access for poor people to subsidised food
- high levels of cash incomes from workers' remittances
- high level and quality of education, leading *inter alia* to high health awareness and demand for health services
- high population density, with dense transport infrastructure, making access to health facilities easy.

In the health sector there has been:

- high levels of expenditure on health relative to GDP
- high utilisation of public facilities, and sense of affinity in the population for public health services
- high levels of technical efficiency (patient throughput) in the management of public facilities
- fruitful complementarity between public and private health providers, with traditional providers channelling poor patients promptly to the modern, public, sector when necessary and the modern private sector treating better off patients, so that
- public subsidies go mainly to the poor.

However, in Sri Lanka allocative efficiency is poor: public expenditure is heavily concentrated on in-patient care in hospitals; out-patient care is generally delivered in the private sector, and paid for out-of-pocket.

Source: Mark Pearson personal communication

Vertical programmes. There are also cases where within-country health status inequality has been reduced by factors other than increases in the incomes of the poor. Targeted public health and health care interventions have made major inroads into important causes of mortality and ill-health among the poor. In Jamaica, for example, infant mortality rates among the poor were greatly reduced through the spread of oral re-hydration therapy. The World Health Organisation's Expanded Programme of Immunisation raised the percentage children in developing countries vaccinated against polio, measles, tuberculosis, pertussis and tetanus from 5% in 1977 to 75% in 1990. This was a major influence in the halving of child mortality – including among the poor in poor countries – in the period since 1970.

Major improvements in the welfare of groups of poor people affected by particular, location-specific, health threats have been brought about by vertically targeted public sector, donor-supported, programmes. For example, the long-running onchocerchiasis programme in West Africa has both increased the longevity and raised the farm incomes of river-valley populations in the Sahel, and the introduction of effective schistosomiasis treatment has brought similar benefits to many rural people working in irrigated agriculture.

These high impact interventions are relatively inexpensive, constituting a low share of health budgets, even in low income countries. This is why their effectiveness does not show up in the regressions reviewed above.

Horizontal programmes. Country-level statistical analysis of survey data and evaluations on horizontally (or area) focused primary health programmes and facilities, using as controls evidence of health status prior to provision or in comparable districts, however, are less encouraging. There

are numerous cases where poorly provided primary facilities are underutilised. The evidence, reviewed by Filmer, Hammer and Pritchett,[116] is that there is no clear pattern of benefit to health outcomes from proximity and accessibility to health facilities.

Evaluations from India, Bangladesh, South East Asia, Sub-Saharan Africa and Latin America show, for example, that:

- the presence in a locality of doctors, family planning and maternity clinics, and dispensaries may be effective in reducing infant and child mortality but is not always and consistently so,
- the introduction of mother and child health programmes (MCH) has been associated with a significant fall in infant and child mortality in Bangladesh, rural India, Côte d'Ivoire, rural Ghana and Indonesia; but elsewhere studies have found any improvements in outcomes to be statistically insignificant.

Filmer, Hammer and Pritchett conclude that the impact of these public programmes depends on their quality, and on whether they are in practice additional to what was previously available. Alderman and Lavy[117] show, on the basis of Living Standard Measurement Survey evidence from Ghana and Kenya, that, for clients, there are trade-offs between the costs they bear for using health facilities and service quality, and that clients are apt to switch from private to public provision, and vice versa, on the strength of their perceptions of the cost-quality mix of alternative providers. The poor are more likely to use high quality modern facilities that they pay for than subsidised but ineffective public care. However, the non-poor are more likely than the poor to become users of fee-charging facilities that offer quality care.

The existence of some striking success stories cannot, therefore, be taken as comforting evidence of the general value of public sector health programmes. It is necessary to examine public policies and expenditures on health in closer detail to establish the reasons the coexistence of local and targeted success with low overall general effectiveness. Section 3.4 sketches the evolution of health sector policies and proclaimed priorities over the last thirty years. It shows how these fit into a framework of received wisdom on strategy for and management of public interventions in the health sector in developing countries, but also how theory contrasts with practice still common in many countries.

3.4   Evolution of developing countries' public policy on health

Summary

The 1980s and 1990s saw heavy emphasis in health sector policy on the development of care in the primary health sector to counter balance previous bias towards hospital based care in urban areas. The results in terms of health indicators have been disappointing. Since the mid 1990s there has been pressure from multilateral institutions for a 'minimum package' approach focusing public expenditure on interventions known to have high impact.

Primary health care

Most developing countries inherited, in the 1970s, a public sector health infrastructure which was heavily urban biased and, in terms of expenditure, hospital based. Hospitals located in urban areas took, and in many cases still continue to take, well over 50% of health sector public expenditures.[118]

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[116] cf Filmer, Hammer, Pritchett (1997)

[117] Alderman & Lavy (1996)

[118] The range of public expenditures in health devoted to hospitals in the late 1980s reported in World Bank (1993) was still 40%-80%.

The overwhelming majority of doctors lived in conurbations. Primary care, in those days, was largely provided by private practitioners, hospital outpatient departments and clinics in urban areas, and elsewhere by a sparse network of rural health centres run by governments and NGOs and by traditional healers.

A major change of emphasis occurred in 1978 at the WHO-UNICEF Health-for-All conference in Alma-Ata which endorsed a policy of promoting primary health care (PHC). Access to modern health care was to be extended to the poor and the rural population through networks of local primary health centres and health posts to be staffed by nurses and paramedics. The approach was intended to be universal: it was unselective, both as to client group and to interventions and treatments provided. The over-ambitious strategy was to try to meet the needs of all people with all conditions. The result was inexpert service provision in which patients has low confidence. For instance, trained birth attendants were unable to reduce rates of infant and maternal mortality.

The main problem with primary health care in the public sector from the start was adequate and sustainable resourcing with staff and finance. Evidence from beneficiary surveys and participatory poverty assessments repeated in many countries and reflected in 'Voices of the Poor' shows that intended clients often by-pass public primary health facilities because they (i) are erratically staffed and thus often inaccessible when needed, (ii) lack essential medical supplies, and (iii) provided surly and inconsiderate service to patients.

The Bamako Initiative was launched by UNICEF and WHO in 1987 to try to overcome these problems, especially the inadequacy of recurrent financing. It sought to strengthen management through decentralisation to local community-based committees, and to secure more sustainable finance through cost recovery for outpatient care and drugs covering up to half the recurrent costs. Seed money for revolving funds for drug purchase has been provided by governments and donors. The initial impact of the Bamako Initiative was to increase the density, and thus accessibility, of PHC coverage, particularly in Francophone West Africa. The policy of cost recovery, however, has had the effect of discouraging usage of PHC facilities by the poor. Neither has local management prevented the misallocation and mismanagement of resources.

At the same time as the post Alma-Ata extension of primary health care UNICEF and WHO were promoting the Expanded Programme of Immunisation (EPI). The aim of EPI was to immunise all children against the main childhood diseases (measles, polio, diphtheria, whooping cough) and against TB and tetanus. The rate of vaccination coverage was increased from 5% in 1970s to 75% in 1990, but has barely increased in the last ten years, with coverage rates falling in Sub-Saharan Africa and South-East Asia.[119] EPI has been implemented by national health authorities, using PHC facilities where available, but as (initially) donor-financed project initiatives. Falling coverage in the 1990s is attributed to declining standards of performance and health monitoring in national health systems, to diminishing pecuniary incentives for health service staff[120] and to the disincentive effect of user charges.[121]

The PHC system has not solved the problem of significantly worse health outcomes among the poor than among the better off (cf. Table 14). Its potential impact on the health of the poor in low income countries is blunted by an overemphasis on curative care for non-catastrophic conditions and the very low purchasing power of public health sector budgets in these countries – PPP $20 per capita in 1997 for the least developed countries and $30 per capita for all low income countries – as well as by the reluctance or inability of poor people to pay user charges. The reaction to this among the multilateral donors (first the World Bank and later the WHO) has been to recommend approaches

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[119] WHO (2001)
[120] e.g. in Uganda
[121] idem, Chapter 2

that are targeted on the poor and on health problems such as communicable diseases that particularly affect the poor. The World Bank launched this line of thinking in its 1989 paper on the Agenda for Reform.

'Minimum package' approach

The most prominent documents to advocate targeted approaches have been the 'minimum package' recommended in the 1993 World Development Report and the schedule of key interventions recently proposed in the WHO's Commission on Macroeconomics and Health.[122] The recommended packages of clinical interventions have been chosen for their relevance to current needs of the poor and because of their cost-effectiveness in terms of disability-adjusted life years (DALYs) saved.[123] The World Bank recommended that public expenditure should be focused on four groups of interventions, viz.

- reduction of maternal mortality by deploying more extensive, professional, pre-natal, childbirth and postpartum care and better access to family planning services,
- provision of drug therapy for tuberculosis,
- control of STDs,
- prevention of and care for sufferers from common illnesses among children – measles, malaria, diarrhoea, respiratory infections and malnutrition.

The cost of these interventions was estimated to be less than $50 per DALY saved, and the annual cost per capita of delivering the package would be only $12 (in 1990 US$). Health budgets in low income countries should give priority to these programmes. The public sector should only additionally provide hospital care for accidents and emergencies if its resources permit.

The Commission on Macroeconomics and Health proposes a rather similar, costed though more expensive, agenda for delivering critical interventions. It recommends the scaling up of existing (still patchy) levels of preventive and treatment coverage to 70%-90% of the population of low and middle income countries by 2015 in respect of: TB, malaria, HIV (including opportunistic infections), measles, hepatitis B, Hib, maternity related illnesses, skilled birth attendance, DPT immunisation of children, childhood diarrhoea and respiratory infections, and action against smoking. If followed, its recommendations would enable the MDG for maternal health to be met in almost every region, but only with difficulty would the reduction of under-5 mortality MDG be attained.[124]

The Commission estimates that the incremental cost of 'scaling up' existing provision to 2015 target levels will be $18 pa per capita at 2002 prices in low income countries (and $26 pa per capita in the least developed countries where existing coverage is thinner). This, taking into account existing levels of expenditure on health (assuming it is redirected to these priority programmes), would bring total per capita expenditure in low income countries to an estimated $38 pa (in 2002 prices) in 2015. The Commission advises that the bulk of this expenditure would have to be public.

This level of expenditure is unaffordable by almost all least developed countries and by many other low income countries on present levels of budgetary allocation to health (cf Table 3.5). The Commission found that of the 44 countries in the sample of countries that it examined which have

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[122] WHOa 2002

[123] Cost-effective interventions are not necessarily the cheapest ones. WHO (2000) points out that the criterion of cost-effectiveness leads to different choices from country to country because of (a) variations in delivery costs, (b) the characteristics of target populations, and (c) resource availability. A country with more resources for health will try to reach more difficult targets using more expensive (but still cost-effective) techniques than one with more limited resources. The cost of raising the health status of the poor (who suffer multiple deprivations) is likely to be higher than achieving an equivalent in the health of the non-poor.

[124] WHOb 2002, Chapter 4

per capita incomes below $500 none spend as much as $30 per capita on health in total, and none spend as much as $20 per capita through public programmes.

Of equal importance, however, is the fact that, with some notable exceptions, poor countries are not concentrating their public expenditures on health on basic package type interventions. If anything, their expenditure is becoming less focused on these high impact services.

3.5   Public interventions in theory and practice

Summary

The essential role of the state in health is to provide public goods, to regulate health care and health insurance, and to offer a safety net for the poor. Good health itself, and many preventive and curative interventions have public goods characteristics and strong positive externalities, causing market failure and justifying state provision. Poor households are, without a safety net, prone to serious impoverishment if victims to catastrophic injury or illness.

Public expenditure should, therefore, be primarily devoted to interventions with public goods characteristics and strong positive externalities, and should be biased towards the poor. In practice beneficiary incidence surveys reveal an anti-poor bias in public expenditure in the health sector in most developing countries, and a concentration of resources on curative care of non-catastrophic conditions, which, in urban areas, may compete with established private providers.

Role of the State

There is wide agreement among health professionals and health economists that the state, in all countries, has three essential roles to fulfil in the health sector:[125]

- to ensure the supply of essential public goods and services with high positive externalities,
- to regulate the markets for health insurance and for the private supply of health services,
- to protect the poor and uninsured against the effects of catastrophic ill health that threatens their livelihood.

There is no presumption that governments should necessarily be the direct providers of health care to the general public. Health care is a private good, though it may, as in the treatment of communicable diseases, have beneficial spillover effects.

Governments have a responsibility of 'stewardship' of the health sector.[126] This means that they have a duty to prescribe and enforce practices and standards in the private sector as well as in the public sector, and to ensure necessary information flow and coordination between all practitioners and provides, particularly in respect of the control of infection and disease. There is a range of choices open to governments as to how they fulfil this duty and how they provide these services, whether directly or through non-governmental agents. Governments should however, see to it that their health strategies, programmes and interventions are cost-effective, and promote the supply of services that are low-cost, accessible, equitable and responsive to the health needs and wishes of the population.

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[125] cf World Bank (1993), Chapter 3; Musgrove (1996)
[126] WHO 2000, chapter 6

Public goods features and externalities in health

Good health has the characteristics of a public good: it is non-rival, in the sense that the good health of one person does not preclude other from also enjoying good health, and non-excludable, meaning that no-one can be prevented from benefiting through private appropriation.

Good health also has strong positive (national and global) externalities or spillover effects, particularly in respect of communicable diseases. If individuals are free of disease the threat of transmission to others is reduced, so improving the chances that others will avoid infection. Good health among parents improves the life chances for children. Good health in the population as a whole reduces the financial burden of care, increases productivity, raises incomes and favours savings and thus investment. A reduced incidence of infection in the population of one country reduces the risk of cross-border spillover effects on the populations of other countries. 'Global' public goods whose benefits extend worldwide may need to be financed multilaterally because of low national returns on expenditure – cf. Box 5.

Box 5: Polio eradication a global public good

The WHO is concluding a campaign to eliminate polio in the world. At present polio is rare – being most prevalent among the poor in parts of India and Nigeria – and imposes a very low burden of disease worldwide. Other infectious diseases are a more pressing priority, even among the poor in countries where polio remains endemic. However, so long as polio exists there is a risk of transmission and of epidemic outbreaks in unprotected populations throughout the world. For this reason the international community and national governments support WHO's immunisation campaign, even though resources devoted to it come at the expense of other interventions of more immediately higher impact.

Source: advice from Mark Pearson

Some public health interventions, such as the control of disease vectors (such as mosquitoes) are pure public goods. They are not only non-rival but also non-excludable. The same applies to promotion of public knowledge about good health preservation practices and the practice of hygiene and other preventive measures. A third important public good is collection, analysis and diffusion of information about the incidence of disease and other causes of ill-health, and about good, cost-effective, practice in dealing with them. This includes the diffusion of information to health practitioners of information about new treatments, and of warnings about dangers and side effects. Related to this is the promulgation (in association with the medical profession) and enforcement of norms, standards and regulations governing professional conduct and clinical practice, including the distribution and use of drugs.

Immunisation against, and treatment and control of, communicable diseases are not public goods (as they are rival and excludable) but they may bring high external benefits, and may well be under-provided and under-used without pecuniary incentive, or official exhortation or compulsion.

There are very good reasons for governments to intervene in the provision of these services – and even to make immunisation and treatment of diseases compulsory. Markets typically fail to supply these services in adequate quantity because private providers are unlikely to be able to charge fees commensurate with the social benefit they create, and because, through ignorance, many clients would not ask for these services.

Markets fail also in the provision of health insurance. Developing countries, particularly middle income countries, are increasingly following an approach to health care financing pioneered by

Chile in the 1980s of requiring formal sector employees to subscribe to health insurance funds. The supply of insurance is always prone to a degree of market failure in the form of moral hazard (insured people taking more risks than they would without insurance) and of asymmetric information (people knowing that they are at risk seeking insurance from insurers that do not know about the risk). In health, as in other fields of insurance, insurers try to respond by excluding (or charging higher premiums to) classes of potential customer that they consider particularly risky, and thus unprofitable. Governments therefore regulate the provision of health insurance by (i) encouraging wide membership, so diversifying risks, (ii) in exchange for this, preventing insurers from excluding broad classes of customer on the grounds of presumed risk, and (iii) regulating or controlling premiums.

Health services for the poor

The poor have a special claim on public expenditure on health because (a) they are particularly the victims of communicable diseases – which account for the greater part of their worse-than-average health status – and (b) they have only very limited access to (generally informal) health insurance, and no access to insurance against catastrophic ill-health. In the absence of insurance the poor either forego treatment or contrive to pay for it out-of-pocket, either by selling assets or by incurring debt.

Out-of-pocket expenditure on health care is generally recognised as being regressive in the sense that payments represent a higher burden relative to household income for the poor than for the non-poor. Nevertheless, in all developing countries the poor pay for routine care, both by traditional healers and by trained medical personnel in the modern sector without seriously impoverishing themselves. Catastrophic ill-health or injury, on the other hand threatens poor households with impoverishment, either because of the high cost of treatment, or because of the loss of earnings potential, or combinations of both.

For these two reasons there need to be official programmes to make preventive and curative services available, accessible and affordable to the poor. Box 4 illustrates the approach adopted in Sri Lanka and Kerala to providing a public safety net to poor people faced with catastrophic ill-health. Public hospitals in Sri Lanka provide free and expeditious care for the seriously ill, while the poor with minor ailments pay for routine care.

Public expenditure in practice

In a resource constrained poor country, therefore, one would expect to see public expenditure largely devoted to supplying pure public goods, to disease prevention, and to the provision though targeted programmes of priority curative services to the poor. The non-poor would be encouraged to use private health services (or to pay fees to use government services) for routine curative purposes, and to make provision for this through regulated health insurance.

Prevailing practice, however, is otherwise. In low income countries the urban hospital sector takes the lion's share of public expenditure. This share has diminished as the PHC sector has grown, but, despite repeated advocacy over the last decade, resources have not been marshalled wholesale in support of focused, minimum package type, health sector strategies. The poor have not received the focused attention that they require. In fact they receive less public expenditure per capita than the non-poor.

Evidence for this is to be found in beneficiary incidence surveys showing the distribution of public expenditure by income group. These consistently indicate in both low and middle income countries that the middle and highest income quintiles receive more public subsidy for health than the bottom

quintile (Table 17). The top quintile typically receives 2-3 times the per capita public expenditure received by the bottom quintile.

Table 17: Incidence of public spending on health by quintile relative to the poorest

Country	Year	Poorest	2nd	3rd	4th	Highest
Ghana	1994	1	1.25	1.58	1.75	2.75
Indonesia	1987	1	1.17	1.58	2,25	2.42
Kenya	1992	1	1.21	1.57	1.57	1.71
Vietnam	1993	1	1.33	1.75	1.83	2.42
Brazil	1990	1	2.25	3.75	3.13	2.50
Bulgaria	1995	1	1.23	1.62	2.00	1.92
Uruguay	1989	1	0.57	0.46	0.38	0.30

Source: Filmer, Hammer, Pritchett (1998)

This highly regressive distribution of subsidy is most marked in the case of expenditure on the hospital sector, but it occurs in many countries also in primary care. Table 18 compares the distribution of public expenditure per capita in Ghana and Vietnam in the early 1990s by type of facility and by income group. In Ghana expenditure per capita is equally regressive in primary and hospital facilities – with a top quintile/bottom quintile ratio of 3 at all levels. In Vietnam the primary level subsidy is roughly equally distributed between income groups, but the share of expenditure directed to primary facilities is tiny (2%). The 98% of health expenditure devoted to hospitals is distributed regressively, particularly in outpatient care where the top quintile benefits from four times as much expenditure per capita as the poorest one.

Benefit incidence studies have been undertaken in 23 countries.[127] The most reliable benefit incidence information comes from Sub-Saharan Africa where the World Bank has used Living Standard Measurement Survey returns to conduct a comparative study of seven countries. All seven countries show the rich benefiting more than the poor from government health services. In Asia the same applies overall, but there are some exceptions to this rule, such as Malaysia and Indonesia where the poor receive more subsidy than the rich. In Latin America there is an altogether different pattern in which the poor receive more direct health expenditure per capita than the rich, except in Brazil. (However, this calculation leaves out of account public expenditure on social security which is equivalent in amount to direct spending on health).

Gwatkin[128] suggests several caveats about benefit incidence analysis. The analysis is in absolute amounts of finance, and is not relative to beneficiaries' income levels. The relative subsidy for the poor is often greater than for the rich, even if the absolute subsidy is smaller. Conversely, subsidy levels are not related to need. The figures relate only to curative services and omit expenditures on preventive services, health education and other public goods. However, these reservations cannot disguise the fact that actual patterns of public expenditure on health correlate poorly with the expert recommendations outlined at the beginning of this chapter for a concentration of outlays on the provision of public goods and preventive treatments and on critical, minimum package, services for the poor.

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[127] cf Gwatkin (2002)
[128] idem

Table 18: Public expenditure per capita on health and shares of total public expenditure on health by type of facility and by quintile in Ghana and Vietnam

Ghana (1992)								
Quintile		**Total**	**Primary facilities**		**Hospital outpatient**		**Hospital inpatient**	
	(cedis)	%	(cedis)	%	(cedis)	%	(cedis)	%
1	2296	11.6%	661	3.3%	1079	5.4%	555	2.8%
2	3065	15.5%	1082	5.5%	1242	6.3%	741	3.7%
3	3692	18.6%	1202	6.1%	1432	7.2%	1058	5.3%
4	4228	21.4%	1460	7.4%	1564	7.9%	1203	6.1%
5	6515	32.9%	1966	9.9%	2883	14.6%	1666	8.4%
All	3959	100.0%	1274	32.2%	1640	41.4%	1045	26.4%

Vietnam (1993)								
Quintile		**Total**	**Primary facilities**		**Hospital outpatient**		**Hospital inpatient**	
	(000 dong)	%	(000 dong)	%	(000 dong)	%	(000 dong)	%
1	11.2	11.8%	0.4	0.42%	3.3	3.5%	7.4	7.8%
2	15.0	15.8%	0.6	0.63%	4.9	5.2%	9.5	10.0%
3	19.9	21.0%	0.5	0.53%	5.5	5.8%	14.0	14.8%
4	20.9	22.1%	0.4	0.42%	8.0	8.5%	12.5	13.2%
5	27.6	29.2%	0.2	0.21%	13.8	14.6%	13.6	14.4%
All	18.9	100.0%	0.4	2.15%	7.1	37.5%	11.4	60.3%

Source: Demery 2000

Filmer, Hammer and Pritchett[129] make an additional criticism of current public health sector spending. They note that a high proportion of outlays is devoted to the curative care of non-catastrophic conditions suffered by the non-poor who could be expected to insure themselves against these contingencies, and thus to be able to afford private health care. Private medicine is already widely used, including by the poor.[130] Nevertheless, if governments provide accessible subsidised care facilities in the competition with the private sector in hospitals and primary health facilities non-poor households have an incentive to use these – which benefit incidence analysis shows they clearly do. Households' demand for non-urgent, curative, private care is price-elastic, particularly if a public sector alternative is available. If public care is cheaper for a given quality households will switch to it away from private care.

The allocation of public spending to facilities which compete with the private sector for the custom of the non-poor therefore limits the development of the private sector of health care and reduces the overall supply of health services. This occurs primarily in urban areas where households' disposable incomes are higher and where private sector health services congregate. It comes as no surprise, therefore to see from the econometric evidence[131] that public expenditure on health explains little of the variance in health outcomes overall (because it is concentrated in urban areas where it substitutes for private expenditure), but that it has been found to be significant in improving the health status of residents in rural areas (where there is little formal private sector competition).

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[129] Filmer, Hammer & Pritchett (1998, 2002)
[130] cf. Table 3.4 showing that more than half of expenditure on health is private
[131] cf. Section 3.2

3.6   The challenge of health sector reform

Summary

In Malawi there was a well intentioned National Health Plan that was not implemented because poorly planned and opposed by vested interests. Tackling the challenge of reform involves both courage in reallocating resources to serve poverty reduction objectives at the expense of existing low impact programmes, close attention to results-oriented planning and budgeting, and the institution of active performance management.

Case of Malawi

The case of Malawi exemplifies problems arising in bringing about health sector reform in poor countries.[132]

Malawi has, since 1996, had a National Health Plan that embodies the principles and priorities for efficient and effective public sector action discussed in the previous Section. Its intention was to provide all Malawians with a package of essential clinical services which would be affordable to the state budget and would be delivered through upgraded local health centres with the support of local community action. Public expenditures were to be appropriately earmarked for these services at central and district levels. Clients would pay for health services not specified in the Plan.

Unfortunately, the Plan has not been implemented as intended. It was inadequately costed. If the costs of necessary support services and training are included the requirements exceed available resources. Furthermore, Malawi's public expenditure strategy has been inconsistent with the Health Plan, ensuring funding for the operation of inherited public sector health assets (eg hospitals), which should according to the Plan have been financed by revenues from fees, at the expense of the priorities identified in the Plan.

The two main reasons for the failure to date of Malawi's imaginative strategy have therefore been inadequate detailed planning and costing, and the strength of vested interests in the health sector which have defended expenditure allocations to traditional urban-biased and hospital-based services.

These features are common to many countries, contributing to (a) erratic and often inadequate funding for priority services, which are funded only from increments in health budgets, and not from the re-allocation of resources from non-priority services, (b) poor staff morale and absenteeism – in front-line services and in management, (c) a continuing mismatch between health status improvement priorities and health service provision, and (d) a neglect of the provision of public goods.

Tackling reform

Reform of the health sector, therefore, is likely to involve some combination of:

- Defining and updating realistic and cost-effective, evidence-based, performance-oriented and costed health strategies that give priority to tackling the major causes of ill health. These strategies should avoid the mistakes of superficial planning and poor estimating, and they should make clear the distribution of administrative responsibilities for their execution.

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[132] cf Picazo (2002)

- Fundamental resource re-allocation ('zero-based budgeting'). The hold of some existing claimants on health budgets may need to be broken, requiring non-poor beneficiaries of subsidies to pay a higher share of their costs of treatment. Resources should be directed instead to disease prevention, to life-threatening childhood conditions and to livelihood threatening ill health of the poor. Public expenditure should not provide routine curative services that (a suitably regulated and encouraged) private sector can provide. Budget allocations should be realistically related to performance targets.
- Tackling causes of waste and inefficiency, including overstaffing in headquarters and unsound procurement and supply practices.
- Decentralising budgets and operational decisions to local managers and operational units. The remoteness of current decision taking, the erratic provision of finance, and imprecision about performance criteria are important causes of low morale and low service standards.
- Instituting active performance management through timely and accurate reporting, monitoring, performance assessment, and use of assessments in resource allocation decisions.
- Improving skills in outsourcing clinical and non-clinical services. Major efficiency improvements have be achieved by contracting for services with non-governmental providers, eg for the provision of family planning, birth attendance and immunisation services and for the supply and social marketing of drugs and consumables. But this is predicated on an ability to manage contracts and monitor their execution.
- Strengthening the supply of public goods and public sector stewardship of the health sector. Governments need to build (or contract for) capacity to gather and analyse epidemiological and health status information, to set and monitor standards, to define and update health strategy priorities, and to regulate the medical profession and the provision of health insurance. At the same time they need to build close and continuing links with institutions outside the health sector – for example in education, water supply, sanitation and environmental management – to press for complementary action by them to raise health standards.

Many poor countries have donor-supported health sector strategies reflecting many of these prescriptions. There is some, albeit incomplete, progress in the direction of effective performance management.[133] But few have the courage to undertake a 'zero-based', fundamentally pro-poor, approach to resource allocation.

3.7   Conclusion on public expenditure in Health

Though there has been remarkable progress in reducing child mortality in developing countries – from over 20% in 1960 to 5% in 1999 – progress slowed in the 1990s. Earlier success was due in good part to immunisation, but vaccination coverage has recently begun to decline, and many poor children are unserved. The World Bank calculates that only 36 mostly middle income developing countries are on or below the (linear) trend that will enable them to achieve the MDG of reducing child mortality by two-thirds between 1990 and 2015.[134] Low income countries' child mortality rates have declined minimally from 12.6% to 11.6% between 1990 and 1999, and in Sub-Saharan Africa they have increased from 15.5% to 16.1%.[135]

The extension of facilities for primary health care over the last three decades may have improved access to facilities for poor people but, even before the AIDS pandemic, its contribution to child mortality reduction has been disappointing, particularly in low income countries. Over the last decade a re-focusing of public expenditure on the priority provision of public goods and a 'minimum package' of high impact interventions has been repeatedly canvassed by multilateral organisations, but has not been

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[133] Roberts (2003)
[134] cf website www.developmentgoals.org/Child_Mortaliy
[135] cf. 3.1

implemented with courage and vigour, even in countries which have received sustained donor support for their health sector operations.

In recent years the international community, recognising these facts, has begun to implement new initiatives – some 'vertical', designed to reinforce national efforts to tackle particular causes of high child mortality, and others 'horizontal' intended to strengthen national health service administrations. These programmes are discussed in Section 4.4 below.

Chapter 4: Expenditure Reform and Strategy for Aid Effectiveness

4.1   Introduction

This final chapter of the paper offers some thoughts on the implications for external donors of the main conclusion of the two previous parts that there are grounds for serious concern about the efficiency of public expenditure and also about its effectiveness, in its present configuration, in accelerating progress towards the MDGs.

The main issue at stake, assuming that they intend their aid to contribute to poverty reduction and to attaining the MDG targets, is whether donors should be actively engaged in the affairs of the social sectors in order to hasten reforms, or whether they should rely on reform processes already underway or planned in the framework of countries' poverty reduction strategies. In practical terms this issue often resolves itself into the question of whether to provide assistance to sector or sub-sector programmes that are planned and monitored in close collaboration with donors, or whether it is best to assist mainly or only with budget support.

The solution to the dilemma in particular cases seems likely to depend on the strength of local commitment to resource management reform and pro-poor resource allocation, and on the credibility and effectiveness of local budgeting processes. The more dependable the local commitment to reform and the more reliable the prospective funding and management of pro-poor programmes the less justification there is for external interventions.

Whatever the case, the decision on the appropriate manner of external support should be based on a clear and comprehensive understanding of the strengths and weaknesses of local processes for delivering social services and for accounting for the results achieved.

Section 4.2, therefore, considers the implications of some recent innovations in budgeting and performance management practice, leading into a discussion in Section 4.3 and 4.4 on the achievements and drawbacks of sector-wide approaches and of budgetary support in education and health respectively. Section 4.5 proposes a mixed strategy for donors that faces up to the challenge of making aid effective while remaining consistent with the precepts of good donor practice.

4.2   Towards budget reform and poverty-focus: implications for the social sectors

Summary

Public expenditure management is undergoing reform in many low income countries, albeit at an uneven pace and with differing success. Budget reform will help to make expenditure programmes more efficient, policy-focused and effective. There are three related strands in these reforms:

- the planning of expenditures over the medium term on the basis of increasingly reliable forecasts of resource availability,
- a strengthening focus on commitments by spending ministries and agencies to achieving defined and monitorable results, and
- higher standards of financial accountability and transparency.

These reforms underpin and reinforce countries' commitments to pursue poverty reduction strategies for which they usually designate public expenditure as their principal policy instrument. However, budget reforms will not in themselves solve the problems of the education and health sectors. They are a technical tool that will only become truly effective if used in combination with a determination to implement sector strategy.

MTEFs

Medium term expenditure frameworks (MTEFs) have become commonplace in low income countries that have pursued structural adjustment policies over the last decade. The World Bank encouraged IDA borrowers to institutionalise the periodic public expenditure reviews that they had already begun to undertake, and to integrate the assessment of past expenditures with the planning of future expenditures within a common budgetary framework consistent with macroeconomic prospects. MTEFs became the forward-looking element in this process.

The essence of an MTEF is a medium-term (generally 3-year) fiscal framework in which revenue receipts are realistically projected on the basis of forecast growth and non-revenue receipts on the basis of aid agreements and prospects and prospects for domestic and external market borrowing, which are themselves based on the country's debt situation and macroeconomic stabilisation requirements. The great advantage of proceeding in this fashion, if soundly implemented, is that spending ministries and agencies have a reasonably firm, rolling, medium-term indication of the resource envelope within which to unfold their strategies and plan their expenditures. They should no longer be dependent on an annual budget allocation lottery. They thus have a better opportunity to implement their strategic choices.

A *quid pro quo* for this improved predictability about future resources is generally that spending agencies render account annually, along with their budget bids, for their expenditures in the previous year, and for the results they have achieved.

A well-functioning MTEF process can be of great assistance in operationalising the public expenditure-dependent aspects of countries' Poverty Reduction Strategies, especially in the social sectors. There is greater likelihood that pro-poor programmes will be effectively implemented if implementing agencies have the assurance of resources with which to carry them out. In its research programme in results-oriented budgeting CAPE-ODI finds that in four out of seven case study countries there is either the full integration of the PRS into the MTEF, or there is a close parallelism in the two planning processes.[136] In a fifth country the MTEF is still under preparation, but will fulfil the role of prop for the PRSP when it is operational.

Although MTEFs have potential for making public expenditure more effective and accountable for results achieved this potential is not yet fully realised, notably in Africa.[137] The main reasons for this are that:[138]

- budgets are not fully consolidated – project and sector aid inflows, in particular, are often still not included;
- expenditures are planned on over-optimistic assumptions about revenues;
- budget planning is often erratic and budget approval is delayed, especially where there is macroeconomic instability and unpredictability about resource availability and prices, with the result that sector ministries remain uncertain about their endowments;

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[136] Roberts (2003). The four countries are Burkina Faso, Mali, Tanzania and Uganda. The fifth is Cambodia
[137] cf. Le Houerou & Talercio (2002)
[138] Foster *et.al.* (2002), Ch. 3

- treasury cash releases are often uncertain as to amount and timing, especially in countries where governments are subject to cash-budgeting rules in order to maintain macroeconomic stability;
- fiscal discipline is weak: spending ministries with political influence can obtain supplementary budgets, and devote energies to this end rather than to managing for efficiency and for better results.

As a result, actual expenditures are at significant variance from those planned.

Another criticism is that, at the sector level, expenditure programmes are poorly costed, so that results cannot be reliably predicted on the basis of planned (and actual) outlays.[139] However, as this paper has argued, there is nothing immutable about input-output ratios in social sector public expenditure programmes; over-reliance on standard unit costs may have the effect of entrenching current inefficiencies. Managing expenditure programmes for better performance, moreover, is demonstrably not dependent, initially, on having fully costed and funded budgets because of scope, well known to programme managers for reducing waste and increasing productivity.[140]

Results-oriented budgeting

A recently concluded country case study-based programme of research by CAPE-ODI into the practice of results-oriented budgeting and performance management in low income countries with PRSPs found that processes and procedures for setting performance targets and monitoring results are already to be found, at least embryonically, in many countries.[141] They are particularly common and well developed in the social sectors, often as a result of previous and on-going donor support for programmes of sector reform and development. The introduction of results-oriented budgeting is in most cases recent, having occurred usually within the last 5-6 years. It has not yet had time to bed down.

The social sectors in all of the seven countries studied[142] have sector development strategies that are periodically updated linking expected resources with targeted outputs and outcomes, and setting out planned policy, administrative, financial, and technical reforms, and the activity levels needed to produce targeted outputs. These strategies take comprehensive account of the resources likely to be available – both domestic and external – which makes them technically superior to those MTEFs which budget only for domestically mobilised resources and budgetary aid.

The synthesis of this research programme concludes that the group of countries studied is relatively strong in setting targets for performance, particularly in the social sectors, and that there is a growing body of performance information available both from internal service delivery reporting and from independent sample surveys. However, countries' capacity to interpret and use performance information for performance management purposes is generally weak. Feedback on performance is more commonly used by junior management and service providers to correct shortcomings under their immediate control than by senior management and ministers to reflect on broader efficiency, effectiveness and strategic focus issues.

The concrete effects of performance budgeting in developing countries (as in developed ones) are not easy to pin down. However, it is already apparent that those countries which have adopted it most successfully (Tanzania and Uganda) a 'results culture' has already begun to permeate public administration. Performance budgeting has made it possible to decentralise the delivery of social services to local government without losing national objectives from view and without sacrifice of central governments' pro-poor strategic focus. In particular, it has underpinned major policy

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[139] Ibid.
[140] Roberts (2003)
[141] Ibid.
[142] Burkina Faso, Bolivia, Cambodia, Ghana. Mali, Tanzania and Uganda.

changes like the abolition of primary school fees by adjusting budgets in timely fashion to accommodate soaring enrolments.

Financial accountability

A third strand of budget reform relevant to the effectiveness of public expenditure in the social sectors relates to financial accountability. The two rounds of HIPC 'tracking studies' conducted by IMF and World Bank staff in 2001 and 2002[143] revealed generally low standards of financial accounting, reporting, procurement and audit. This finding intensified the coverage of diagnostic Country Financial Accountability Assessments (CFAAs) of some 28 have now been conducted, with a further 15 being underway and 11 in the planning stage. CFAAs' main focus is on public finance, though they extend also into the financial sector and non financial corporate sector.

Inasmuch as these diagnostic studies lead on to action to tighten controls and practices they will contribute to reducing some of the waste and misappropriation of funds highlighted in earlier chapters of this paper. The cause of financial accountability is being further advanced by the spread of integrated financial management systems which prompt all concerned with the planning, budgeting, management, disbursement and reporting of public expenditures to record the operations for which they are responsible using codes that indicate economic sector, function, type, programme, purpose and timing. Such systems are in operation or planned in the majority of the countries covered in the results-oriented budgeting research programme.

There is mounting pressure from donors to carry out CFAAs and to have reforms therein identified implemented. For some donors this is a condition for them to provide budget support.

4.3   Aid for education: objectives and organisation

Summary

International support for education is now focused on mobilising additional resources for those countries in need of more finance for primary education (and other services such as teacher training associated with it) and supporting the reforms needed to make the educational finance effective. There is little discernible dissent from the reigning paradigm.

Though there is wide consensus among donors about objectives and strategy, there remains diversity among donors about cooperation modalities and instruments of assistance.

SWAps have so far been only a qualified success, but they have shown themselves to be preferable to project instruments as an approach to achieving EFA in difficult circumstances. They have introduced performance-based planning budgeting and management. Their shortcomings are their excessive ambition and the extra-budgetary character of their external financing.

An approach to external financing with better long term prospects for sustainability is to provide budgetary support while maintaining sector-level involvement pending the introduction of thoroughgoing performance management.

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[143] Mounted too ascertain whether it was possible, given financial reporting, management and accounting arrangements in HIPC countries, to state that HIPC resources were financing additional expenditures of pro-poor character. The studies are posted on the websites of the World Bank and IMF.

Donor strategies

Donor approaches to primary education have evolved markedly over the years, particularly following the Jomtien conference in 1990 which reasserted the paramount importance of UPE.

Prior to this there was a common assumption that external support to education should focus on secondary and tertiary education and on professional and technical training. In these areas it was believed that developing countries could benefit most from experience and expertise available in donor countries and which could most benefit from the use of tied financial aid to supply specialist learning materials and equipment. It was still considered that professional and technical manpower was the key bottleneck in the process of development, and that the highest returns would flow from increasing their supply. As primary education depends essentially on locally supplied resources of staff, teaching materials and buildings donors believed that it could expand satisfactorily without their explicit intervention. The bilateral donors of tied were in any case restricted in their ability to finance local costs, and multilateral donors, too, had a preference for financing internationally procured inputs.

Since Jomtien doubts about the priority of primary education and about its need for donor support have been dispelled and, after some time lag, programmes of support for primary and basic education have multiplied. There is full consensus about the need if at all possible to achieve the MDG target on primary school completion, and the principle of redirecting resources to this end. However, the share of basic education in total identifiable donor commitments for education in 2000 was still only 19% for bilateral donors and 30% for multilateral ones.[144]

Donor strategies[145] now give high emphasis to:

- extending primary education provision to poor and disadvantaged groups – and in particular to ensuring girls' attendance,
- raising the demand for primary education, by reducing its cost to poor parents – by phasing out tuition fees and other charges and reducing other costs of school attendance,
- persuading developing country partners to reallocate budgetary resources in favour of primary (or basic) education,
- improving the learning environment for children (and thus the quality of their education and the efficiency of their schools) – including school building provision and improvement, the supply of teaching materials and textbooks, and improvements in school management, the organisation of classes and curriculum reform,
- better financial management in the administration of primary education – reduction in waste, financial controls to prevent misallocation, and more cost effective and accountable public procurement of buildings and supplies,
- decentralisation of control and management to local government authorities (or their deconcentration to regional or district offices) to make decisions more sensitive to local needs, circumstances and preferences,
- more timely and more reliable management information systems, leading to the timely collection of accurate performance data on education systems – as an essential input into performance management and to raising standards in poorly performing schools.

Donors are ostensibly committed to pursuing these strategic ends in ways consistent with Comprehensive Development Framework principles of country ownership and leadership, and of the greatest feasible use of partner procedures and processes – to strengthen which they provide capacity building assistance. The Framework of Action agreed at the Dakar World Education

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[144] OECD-DAC (2002) table 19
[145] cf World Bank (1999), DFID (2001)

Forum in 2000 included a call to all developing countries to devise strategies, by 2002, for implementing UPE and gender equality in education. However, as a recent evaluation of education aid in five Sub-Saharan African countries shows, donors frequently take the initiative in proposing, and indeed in imposing, the agenda, driven, as some are, by the need to justify their country-level performance[146] to headquarters by demonstrable results achieved.

Aid instruments and modalities

If donors are broadly of one mind on objectives and strategy there remains diversity among them on the practicalities of delivering and administering their aid and in the style of cooperation relationships with recipient governments. One important difference is between donor-promoted projects that stand in some degree apart from local education sector administration, and programmes of support for the expenditure programmes and reforms that local education sector administrators have decided to undertake.

i) Project-based approaches: input supply

A traditional approach to aid for primary education, still favoured by some, consists of support for the provision of material or human resource inputs into the education system. This can take the form of support for teacher training, curriculum development, textbook production and procurement, supply of distance learning equipment and the provision and refurbishment of school buildings and facilities. In well planned and organised, and sustainably financed, education systems input supply projects such as these can make a valuable contribution of lasting benefit. In many cases, however, the experience has been that recipients authorities make inadequate provision for the maintenance and replacement of donor-supplied inputs, and that techniques and methods transferred through technical assistance are not properly integrated into local practice.

ii) Projects for comprehensive sector development

To overcome the problem with input supply projects that there are often inherited managerial, administrative and pedagogical practices that militate against sustainability some major donors have embarked on ambitious multi-component, sector investment projects. These aim to help achieve systemic improvements in performance by simultaneously tackling various points of assessed weakness with the hope that the example of good practice and improvements achieved in areas of project activity will be emulated widely diffused throughout the system.

There are recent examples of the sector investment approach used by IDA in Nigeria and India. IDA and the UK-DFID plan to support Nigeria's universal basic education programme in selected local authority areas in up to 16 states chosen on grounds of the general soundness of their plans for universal basic education.[147] The project provides supplementary funding for teacher (re-training, the provision of learning materials, other support to enhance school quality, and assistance to raise standards of management in schools and education departments. In spirit it is fully consistent with the general line of EFA support strategies. However, it does not, for fiduciary reasons, integrate its provision into local budgetary processes – though it seeks greater rigour in financial management. It is managed, at the federal level, by project implementation and coordination units, and it subject to accounting, reporting and monitoring procedures separate from those in current use in Nigeria.

The sector investment approach, which seeks to spread better practice by demonstration effect, can be highly effective provided that the improvements introduced are convincing to host education administrations and educators, are easily adoptable on a wider scale, and are affordable within

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[146] Moulton *et al* (2001) find donor pro-activity notably in Malawi, Uganda and the regions of Ethiopia.
[147] World Bank (2002d)

continuing budgets. However, they do not offer host institutions full opportunity for local ownership and leadership, and, if insensitively implemented, may yield unsustained outcomes without spread effect. There may, though, be no realistic alternative to a selective, force-of-example, approach if the donor wants to stimulate better practice over several jurisdictions simultaneously in large countries like Nigeria and India.

iii) Sector-wide approaches

Where possible, it is preferable for donors to assist education development on a sector-wide, rather than selective or enclave, basis. Sector-wide assistance programmes (SWAps) allow partner governments the greatest freedom to design and implement sectoral strategies and programmes, and to allocate resources so as best to achieve intended results. Though initially often provided in project form, donor contributions increasingly now flow through pooled accounts and via existing intra-sectoral resources allocation and management processes and are managed according to government procedures and systems. In doing so they reinforce resource planning, expenditure control and performance management systems and they precipitate management reforms.

Donors have veered away from applying their own procedures, and have learned to become involved, through dialogue and monitoring, in key issues of policy, strategy, access for poor people, programme design and implementation, while leaving leadership in these matters as far as possible to governments and sectoral authorities. Technical assistance for management training is commonly provided, but on a systemic, not selective basis, with a view to bringing improvements in the efficiency, effectiveness and accountability of expenditure programmes.

Al Samarrai *et al*[148] note that higher levels of institutional capacity are needed to make education SWAps successful than are usually available, hence the emphasis in many of them on technical assistance for capacity building. Capacity building, in turn, depends for its success on strong and perseverant leadership in partner country institutions, and on commitment to the effective implementation of reforms in structures, staffing levels, budget shares and practices.

Moulton *et al*[149] comment pertinently on the political character of the partnership relationships which SWAps establish and on which they depend for their success. Personality and policy changes in the host government can easily upset the strategic objectives and implementation plan of the partnership. Implementation can also be frustrated by the passive resistance of vested interests in the bureaucracy and the teaching profession whose roles, objectives, work burdens and procedures are altered by sector-wide assistance programmes on which they were either not consulted or ignored.

Thus, crucial to SWAp success is frequent, and explicit communication between donors and partner authorities, among donors and within and between partner authorities at different levels. This is especially important when responsibility for implementation if different components lies in different hands, e.g. where technical assistance and procurement is managed by donor agencies and schools are the direct responsibility of local, not central, government. In the absence of full transparency about intentions, timings and actions on the part of all actors misunderstandings and erroneous assumptions can easily arise in activity planning, often followed by chain reactions of delayed implementation, missed targets and delayed disbursements.

Box 6 outlines the features of one of the earliest educational SWAps – the one for basic education in Ghana. Its weakness lay in the expectation that so many components, separately financed by different donors, could be simultaneously and synchronously implemented partner education

[148] Al Samarrai, Bennell, Colclough (1998)
[149] Moulton *et al* (2001)

authorities which suffered capacity and coordination problems. It was in effect still-born, and was soon abandoned by most donors.

Education SWAps in Mozambique and Zambia whose implications for donor agencies have been reviewed by Riddell[150] exhibit many of the same objectives and features. In Zambia, however, the SWAp was financed by donors through a pooled fund whose proceeds passed through the Ministry of Finance (though it was treated as a supplement to the regular budget). In Mozambique the donors set up an off-budget, but pooled, sector support fund (see Box 7 for examples of modes of financing). As elsewhere, IDA's contribution was provided outside the pool because of IDA's accounting and audit rules.

In both countries the complexity of the arrangements, the inexperience of their roles of both donor and partner country actors and communication failures contributed to serious delays in disbursement and implementation, even though machinery was established to coordinate activity and harmonise procedures. In Mozambique Riddell nevertheless finds evidence of partial success, even though dialogue, planning and implementation processes remain imperfect, and implementation is behind schedule. A learning process has been initiated which should, in due course, prompt the institutional and behavioural changes needed to make the model work satisfactorily, specifically in the areas of: restructuring ministries, effecting decentralisation, building capacity for sound financial management, and donor coordination.

The World Bank has recently reviewed its experience of sector-wide approaches in education and health in eight cases in sub-Saharan Africa.[151] It finds that SWAPs have made it easier for governments to formulate comprehensive plans and strategies and to decentralise budgeting and operations, with reinforced stakeholder consultation. SWAps have also enabled governments to reduce the transaction costs they bear in dealing with donors by instituting appraisal, reporting and monitoring systems with which all contributing are satisfied. Total budgets for sectors receiving assistance in the form of SWAps have also tended to rise.

However, practical experience with SWAps in Africa has been mixed because of design faults for which donors bear much of the responsibility: excessive ambition about results, imprecision about indicators of achievement, and insufficient appreciation of institutional resistance and implementation difficulties. Transaction costs, though reduced through coordinated appraisal, reporting and monitoring, remain higher than they need be because of complex and time consuming, *sui generis* procurement, disbursement and financial reporting arrangements different from those in general use by ministries and agencies. They are mostly financed outside the national budget, and thus have the potential for distorting national strategies for public expenditure resource allocation.

The success of SWAps has also been impaired by inimical features of the domestic policy environment, such as macroeconomic instability and uncertainty about the size of sectoral budgets, changes in sectoral policy subsequent to agreement with donors, and changes in key personnel lowering the commitment of administrators to programme success and causing delay.

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[150] Riddell (2001)
[151] World Bank (2000e)

Box 6: Ghana Basic Education Sector Improvement Project (1996)

In 1996 the World Bank, the UK, the US, Germany and other donors agreed five years' of support for the Ghana Government's programme for achieving Free Compulsory and Universal Basic Education (FCUBE) by 2005.

The objectives of the collaboration was to increase access to basic (primary and junior secondary) education, especially for girls, and to improve its quality and thereby to raise the level of pupils' educational attainment.

The programme consisted of:

Learning environment

- more and better teacher training
- improving standards of leadership and management in schools
- provision of teaching materials
- school construction, upgrading and maintenance
- curricula revision
- more systematic pupil performance assessment

Management

strengthening of management information, performance assessment and performance management in the Ministry of Education
strengthening budgeting and financial management in the Ministry of Education and in the Districts

Rolling operational plans for implementing the programme were to be drawn up by the Government.

FCUBE was explicit about its some of intended outcomes. Gross enrolments were to rise by 2000 (the mid-term) from 78% to 83%, and there were targets (and indicators) for reducing repetition and drop-outs, for pupil/teacher ratios and textbook provision – though not for female participation and primary completion. The targets were modest, but their achievement could not be timed precisely in relation to the provision of programme inputs. Educational quality does not respond immediately to management improvement and material supplies.

The programme and donors' sector-wide support arrangements were conceived jointly by the Government and the donors. However, they were innovative and complicated by parallel donor contributions earmarked to particular components. BESIP implementation stalled.

The UK, Germany and the EC then provided separate budget and project support for a new sector plan which is now evolving towards a possible new SWAp.

Box 7: Education SWAps with multiple donors, by mode of donor financing

Country	Operation	Mode of donor financing
Bolivia	Education Reform Project (1994); Education Quality and Equity Strengthening Project (1998)	via budget, but earmarked for education
Burkina Faso	Appui au plan décennal de l'éducation de base (PDDEB)	off-budget pooled trust fund
Ethiopia	Education Sector Development Programme (1998)	
India	Uttar Pradesh Basic Education Project (1993, 1998)	
Mali	Programme décennal pour le développement de l'éducation (PRODEC)	off-budget pooled trust funds for sub-projects
Mozambique	Education Sector Support Fund	some donors via budget; others via off-budget pooled fund; some parallel donor financing for sub-projects
Uganda	Education Sector Investment Programme (1998)	via budget, but earmarked for education
Vietnam	Basic Education Trust Fund	off-budget pooled fund
Zambia	Basic Education sub-Sector Investment Programme (BESSIP)	parallel donor financing (but *de facto* pooled)

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iv) General budget support

The most flexible form of donor support for education is general budget support – which is not earmarked for the education sector, but which, given the normally high (25-30%) share of education in recurrent public expenditure, makes a significant contribution to the education sector's operational budget.

The strengths and weaknesses of budget support are apparent from the foregoing. Its strength lies in its greater administrative simplicity. No special arrangements suited to the needs of individual donors are required at the sector level to govern disbursements, financial reporting and accountability. Countries are able to implement public expenditure strategies consistent with their poverty reduction strategies without suffering distortions caused by donor preferences and off-budget financing.

However, reliance on budget support to pursue structural reform and implement high impact programmes in the education sector pre-supposes that there are consistent and targeted sector strategies, well conceive and effectively implemented programmes for their execution and effective procedures for progress monitoring and performance budgeting and management. Central ministries, ministries of education and local education authorities should be working in harness, each fulfilling their respective roles. The experience of SWAp-supported education sector development programmes is that such strategies and programmes do not exist where they are most

needed and that, even when they are established, they take many years to bed down and become effective, requiring perseverant leadership and capacity-building assistance.

If there are significant structural, technical, managerial and political problems to overcome it may be desirable for donors to remain closely engaged – as catalysts of change and spurs to action – with the design and implementation of sector strategy. Their contribution can be positive if closely harmonised, well informed and offered with due regard to country ownership of strategy and the details of programme design. Their support should focus *inter alia* on capacity building in techniques of resource management and performance improvement.

An example of donor budget support for a country at risk of not achieving education for all, with adverse demand-side obstacles to overcome, is the Education Sector Investment Programme (ESIP) in Uganda (Box 8). Aid is passed through the state budget, but the education budget is correspondingly increased, and donors play an active role in quarterly progress monitoring. ESIP combines the low transaction costs, flexibility and low distortion potential of budgetary aid with close (but harmonised) advisory donor engagement with the planning, implementation and monitoring of sector strategies.

In Bolivia, also, donors' aid for education is passed through the central budget on the understanding that the Ministry of Education and local government providers of primary education will benefit at least as long as substantial external support persists. Aid is provided in this reduces transaction costs and help to institutionalise the claims of pro-poor programmes on aggregate budget resources.

Box 8: Donor support for UPE in Uganda

In 1995 the Ugandan government started to plan for UPE. With technical assistance from the World Bank it elaborated its Education Sector Investment Programme (ESIP). The programme was launched in 1997, with implementation starting in 1998. It was supported financially by the UK, the EU and other bilateral donors using the instrument of a SWAp. Their resources were augmented by HIPC debt relief which, in Uganda, were earmarked for poverty reducing expenditure programmes.

The SWAp's financial arrangements provided for most donors' funds to be passed through the national budget, but with the assurance that the Education sector would receive *pro tanto* additional financing. ESIP funding was thus not extra-budgetary: aid for ESIP was not separately identifiable in Uganda's MTEF. However, the government shared its medium term budget projections with the donors to convince them of the additionality. Additional expenditures were identified corresponding with the incremental resources available.

Accounting arrangements were those applied to other public expenditure, and were not *sui generis*. The main donors adopted the same disbursement arrangements, and agreed to be content with the same (quarterly) reports on the utilisation of their funds. This reduced transaction costs for the government.

The donors did not, however, lose sight of the momentous developments in the education sector. Their quarterly meetings with the government began as a review of financial progress. The meetings soon extended to monitoring school construction, enrolments, the recruitment of teachers and the provision of teaching materials. The Ministry of Education entered this dialogue in a fully constructive frame of mind, bearing no resentment at donors' interest in process and performance matters. It was assisted by the establishment of a reporting and monitoring system covering the activities of the local government authorities whose function it was to manage primary schools. The prime focus of donor attention was financial accountability; in the view of some the donors did not press hard enough on the important question of the quality of teaching.

Disbursements of ESIP support assistance were made conditional on the fulfilment of actions agreed at the quarterly progress review meeting.

In such cases an additional assurance for donors that their budgetary support is an effective contribution to achieving education-for-all is the existence in partner countries of effective national results- or performance- management systems. In these, sector authorities and programme managers not only commit themselves to strategies, targets and programmes of action designed to achieve strategic outcomes but they also adopt systems of active performance assessment and management, identifying areas of weak implementation and performance shortfalls and bringing to bear timely remedial action, so raising standards through benchmarking and levelling-up.

4.4   Aid in the health sector

Summary

Sector-wide approaches have become the preferred form of broad-focus donor support to the health sector, bringing advantages in strategic coherence, integration of vertical programmes into health sector systems, poverty-focus and reforms in financial and personnel administration, and in local 'ownership' of these processes. Budget support is an alternative route to health sector financing, with advantages in terms of local ownership of budgetary processes and reduced transaction costs. Where health is a priority concern in poverty reduction, however, there is often earmarking of budget support to health. Global initiatives for HIV, malaria, TB and vaccination risk turning the clock back to free-standing vertical campaigns. In countries with weak health delivery systems facing health crises caused by HIV/AIDS, however, it can be best practice for donors to support, for a time, separate programmes dedicated to crisis management.

Traditional instruments

The health sector has been favoured by official and non-governmental aid donors since the beginning of development assistance. Donors have been motivated in this by humanitarian considerations – and by a specific concern to improve the lot of the poor who suffer the greatest burden of disease, by conviction that good health confers greater human capacity which in turn enhances productivity and increases incomes, and now also by a desire to produce a 'global public good' by reducing the negative spillover effects of communicable diseases in poor countries.

On average identifiable ODA finances 7% of public sector health budgets in low income countries; in Sub-Saharan Africa it finances 12% of public sector outlays. In other regions it has made a proportionately more limited contribution on average, though in some countries aid financing has been a large element in total public sector resources. But not all aid for health is identifiable. Some aid is in budget or balance of payments support. It is not earmarked for projects or sectors, but increased the pool of budgetary resources available for allocation to priority expenditure programmes, including health. Conversely, not all aid earmarked for health necessarily increases health budgets because it is fungible, and public expenditure planners may compensate for them by reducing allocations for health from domestic revenue sources.

Aid for health, multilateral and bilateral, has been for physical infrastructure, consumable supplies, capacity building and research, and targeted vertically, horizontally and sector-wide. Among the multilateral donors the multilateral development banks have financed infrastructure, consumable supplies and both horizontal (area-based) and vertical (intervention-based) programmes. WHO and UNICEF have been prominent in their support for capacity-building and for vertical programmes, notable the long-running Expanded Programme of Immunisation. UNFPA has also supported capacity-building and vertically specialised programmes for family planning and reproductive health. Bilateral donors and non-governmental donors have assisted in all respects, though NGOs have specialised in horizontal programmes targeted at low income and deprived populations. Table

19 shows one possible characterisation of the common purposes for which donor support has been provided.

Recent initiatives have given a fillip to vertically targeted programmes to reduce the incidence of disease, particularly among the poor, and to restore the flagging momentum of childhood immunisation. These are the Global Alliance for Vaccines and Immunisation (GAVI) launched in 1998 to make a wide range of vaccines available to the health authorities of poor countries which demonstrate the capacity to deploy them, and the Global Fund for HIV, malaria and TB, launched in 2001 with the intention of providing supplies, technical support and logistical aid for countries' campaigns against these contagious diseases.

One important characteristic of much development assistance for health at least until the mid-1990s has been its fragmentation and (at least partial) incoherence. Because the health sector has been popular with donors several donors have been present simultaneously pursuing projects at best only loosely coordinated by the national health authorities and often not entirely consistent with national health plans and priorities.[152] Another persistent characteristic of aid for health is that much is unaccounted-for in state budgets, and thus not subject to overall and sector public expenditure prioritisation and allocation decisions.

Table 19: Typology of aid projects and programmes in the health sector

	Horizontally targeted	**Vertically targeted**	**Sector-wide**
Pro-poor	Close-to-client services for childhood infections in poor communities	Nutrition and Health education campaigns; Training birth attendants;	
Unspecific	Disease vector control; Capacity-building for district health authorities; District hospitals and health centres	National immunisation campaigns; Research; Drug supply; National networks for family planning and reproductive health;	Health sector SWAPs; Administrative capacity building for central health authorities; Information, coordination, statistics and regulatory capacity strengthening

The growing awareness towards the end of the 1980s that the policy of promoting primary health care was often not bringing better health to poor people led to a demand on the part of donors for health sector reform and for more accountable and effective management of the resources under the control of health authorities.[153] The call for reform was made more poignant by evidence that actual costs of achieving given health outcomes seemed to be greatly in excess of the unit costs (of reducing child mortality or excess DALYs) calculated by the proponents of the minimum package approach.

Health SWAps

The sector-wide approach (SWAp) to aid to the health sector which became popular in the donor community in the mid 1990s was a response to the three concerns – of the fragmentation, incoherence and limited effectiveness of aid. Sector strategies were prepared in dialogue with the donors which were intended to be comprehensive (covering clinical and non-clinical interventions), performance-oriented, cost-effective, focused on tackling priority causes of ill-health, paying

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[152] cf DFID (1999) p14
[153] cf DFID (1999) and Cassels & Watson (2001)

particular attention to the health needs of the poor and specific about institutional responsibilities and capacity-building requirements. A particular purpose has been to help integrate donor-supported 'vertical' initiatives and programmes into national delivery systems.[154] Donors have supported national health strategies by budget support, off-budget pooled funds managed by the health authorities, or by projects for inputs such as research, training and managerial capacity building.

Box 9 gives examples of health sector SWAps and of the manner of their financing by donors. Pooled funding started as early as 1994 in Zambia, and has become increasingly (with earmarked budget support) the preferred option.

Box 9: Health SWAps with multiple donors, by mode of donor financing

Country	Operation	Mode of donor financing
Bolivia	Health Sector Reform Project (1999, 2001)	via budget, but earmarked for programme and administered by social sector fund
Burkina Faso	Health and Nutrition Project 1994	off-budget, separate donor accounts
Cambodia	Health Sector Support Project 2002	pooled, via Public Investment Programme budget
Ethiopia	Health Sector Development Programme 1998	pooled, local procurement rules applied s.t. prior agreement
Ghana	Health Sector Programme Support	parallel donor financing with option of pooling at sector level
Mali	Health Sector Development Programme	off-budget pooled programme account administered by MoH
Mozambique	Health Sector Recovery Project 1995 (for 5-year time slice of health sector strategy)	parallel financing by donors
Tanzania	Health Sector Development Programme 2000	pooled funding at sector level, and central support
Uganda	Health Sector Strategic Plan 2000	via budget, but earmarked for health
Zambia	Health Sector Support Project 1994	budgeting, disbursement and accounting systems revamped to enable all donors to channel aid through one system

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Foster et. al.[155] recently reviewed experience with SWAps in Cambodia, Ethiopia, Mozambique, Tanzania, Uganda and Vietnam. They find benefits in respect of governments' capacity to plan and implement programmes and of donor coordination. They conclude that the sector-wide approach has helped countries to improve their understanding of problems of service delivery and access by the poor, to translate stated sector priorities into resource allocations, and implement effective capacity building in resource management. SWAPs have increased health sector funding in some (but not all) countries. To a greater extent than previously aid has started to flow through government health service channels, rather than through channels created by donors to finance 'their' projects. WHO and UNICEF, initially sceptical of an approach which cuts across their traditional vertically targeted programmes, have begun to join sector-wide support initiatives.

These improvements only occur at the margin, and generally only in respect of increments in resources. Donors, keen to enhance local 'ownership', have avoided trying to force the closure of (or cost recovery from) low impact, inherited, programmes closed.

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[154] Brown (2001)
[155] Foster, Brown, Conway (2000)

Another problem, touched on by Foster *et al,* is that SWAps may blunt the focus of high-impact vertical programmes targeted at major threats to health, and thus may even for a time lessen the effectiveness of public expenditure in improving the state of health. This is confirmed by Brown on the strength of case study evidence from Bangladesh, Ghana, Tanzania and Zambia.[156] She notes that disease control programmes have not performed as well after their integration into SWAps and that there was concern that the health benefits of vertical interventions was being lost. This happened because funds and administrative attention were diverted from these programmes to attend to reorganisation and general capacity building, or to expand non-priority curative facilities, and in particular because standards of drug procurement and distribution fell. Integration would only succeed if carefully planned and accompanied by targeted capacity building and prioritised funding.

Global initiatives against disease

The advent of the Global Fund for AIDS, TB and Malaria (GFATM) and of the smaller Global Alliance for Vaccination and immunisation (GAVI) is reviving attention to supply-driven, vertical, programmes. The Global Fund invites developing country governments to make reasoned applications demonstrating how they intend to apply funds allocated to them, using governmental and non-governmental channels of distribution of supplies and of administration of prophylactics and treatment. GAVI, which is administered by WHO, makes grants to applicant countries for vaccines against nine other preventable diseases and for the strengthening of their national delivery systems.

Grants from GFATM must be used for purposes additional to existing programmes, so, even if partially fungible, they are likely to alter – or distort – health sector resource allocation priorities. Overall resources in the sector are likely to be increased by these initiatives – unless grants are fully offset by diminutions of national budget funding. The effect on health indicators will depend on (i) the coincidence of Global Fund priorities with those of beneficiary countries, (ii) whether Fund supported programmes drain scare professional and administrative manpower from other high impact activities, and (iii) the sensitivity of Global Fund administrators to the local determinants of cost-effectiveness.[157]

The distribution of Global Fund resources between countries will be driven by evidence of need and by the quality of the applications that countries submit. This is likely to favour better organised and less poor countries.

Budget support

The same donors that are financing SWAps and vertically targeted programmes are also providing budget support to developing countries, often in the framework of their Poverty Reduction Strategies as set out in their Poverty Reduction Strategy Papers. There is a clear rationale for this. The donors wish to encourage recipient countries to 'own' their strategies – in terms of priority-setting and delivery – and to avoid using aid instruments which give recipients a free hand in, and full responsibility for, determining their own strategic choices. The preparation of the state budget is, or should be, the process in which national priorities for public expenditure are set, subject to the overall availability of resources. If donors make their aid available as a general fiscal resource, rather than, as often happens by-passing the budgetary process, they lend authority to the national process of public expenditure allocation and, eventually, help to reinforce its rationality and responsibility.

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[156] Brown (2001)

[157] As explained in Chapter 12 above local circumstances (costs, capacities and existing coverage) can make a radical difference in the choice of intervention on grounds of cost-effectiveness.

Coping with new threats to health

The channelling of the bulk of external finance for health through the national budget does not preclude special purpose direct donor financing of research, pilot projects and other innovative temporary programmes which it would be difficult cover from normal central government allocations. These however should not be on a scale likely to undermine budget discipline and to subvert the priorities established in the national poverty reduction strategy.

Poor countries badly affected by the HIV/AIDS epidemic are in a special situation. The epidemic overwhelms their health services, depriving most victims and sufferers from opportunistic infections of treatment. Hospital inpatient facilities are substantially devoted to the care of victims, who are uninsured and whose families have limited capacity to pay for their care and subsistence. The epidemic makes the reallocation of public expenditure on health to previously defined high impact programmes, and the vigorous development of these programmes, considerably more difficult.

At the same time the opportunity has been created by the Global Fund and by a growing number of privately financed programmes for the supply of anti-retroviral drugs and treatments for opportunistic infections for expanding in-country care and treatment facilities.

Box 10: Mini-SWAp for HIV/AIDS in Malawi

An estimated 16% of the 15-49 age group in Malawi are HIV positive. Life expectancy is dropping to 39 years, reducing the country's productive potential.

In early 2000 the National AIDS Secretariat (NAS), part of the Ministry of Health and Population, completed a National Strategic Framework on HIV/AIDS – a 5-year plan, costed at US$121 million towards which donors soon pledged $109 million.

The NAS was charged with coordinating the implementation of the plan. However, with the support of some ten donor countries, it became the focal point of a mini-SWAp. Some donors offered pooled financing; other financed discrete sub-programmes defined in consolidated Work Programme from which annual budgets and work programmes were derived.

After the inception stage the Government of Malawi was little involved in the day-to-day running of the Secretariat. Its financial contribution was limited to $36 000 p.a. (0.15% of the programme budget).

In its original configuration the MAS lacked the capacity to fulfil its task. The Cabinet accordingly adopted the recommendations of an Organisational Study by a local consultant that it should become an autonomous National AIDS Commission outside the Ministry, employing more professional staff. An expatriate technical adviser on finance and administration was appointed with CIDA financing who inaugurated a 'grants management system' for channelling and accounting for receipts of aid.

Relationships between the NAC and donors have not been plain sailing, with misunderstandings about the mutual obligations of SWAp partnerships. The NAC was not initially aware of the extent of its capacity limitations. It is likely that the outputs and outcomes of elements of the work programme financed under pooled or programme funding will not be as efficient, timely and effective as those benefiting from discrete funding.

The NAC submitted Malawi's application for support from the Global Fund for AIDS, TB and malaria. If successful this would give rise to a flow of funds under its administration well in excess of the donors' initial endowment of $109 million.

Source: Bellows & Dowswell (2002)

There is a case, therefore, for establishing a specialised service or command, largely externally financed, targeted at the prevention, care and treatment of HIV/AIDS and charged with both service delivery and campaign coordination. This may best, for a time until the epidemic is under control, be located outside the regular public health services, so that the latter are not overwhelmed, and are not distracted from reform and the development of the outreach of other high impact services. The burden of dealing with the AIDS epidemic, in other words, is such that it deserves to be considered by the government and by donors as a sector (or sub-sector) on its own, with its own funding, strategy and implementation plans. This approach has been adopted in Malawi with promising results, after a hesitant start (see Box 10). The epidemic and unpredictable character of HIV/AIDS justifies, for a time, extra-budgetary campaign financing by donors.

In due course the prevention, care and treatment of HIV/AIDS should be mainstreamed within the health sector budget of the state and within the national health strategy. At this point the donor response should be to resume financing through normal budgetary channels.

Conclusion

Good practice in aid for health has to integrate (i) support for bold public goods and poverty-focused sector strategies through general or sector budget financing, (ii) efficiency- and effectiveness-enhancing institutional and managerial reform, and (iii) the vigorous pursuit of critical intervention programmes, using dedicated sources of funding in addition to general budgetary resources.

Donors should encourage the budgetisation of support for the health sector, and not seek to pre-empt the recipient's resource allocation processes. However, it is usually not sufficient to contribute aid resources at arms' length though the budget because of persistent institutional problems in the health sector and problems of allocative and technical efficiency in horizontal programmes of public expenditure on health. Neither is it sufficient to focus exclusively on vertically targeted high impact programmes, because these will be unsustainable if not mainstreamed into national health delivery systems.

Donors should also give their (if need be critical) support to the production, scrutiny and revision of strategies that identify attainable targets and propose bold but feasible plans for allocating prospective resources that maximise the likelihood of reaching health outcome goals. But, for the purposes of research, innovation and building capacities to deal with health emergencies, it may be necessary and desirable to support programmes outside the mainstream of health sector planning and resource allocation.

4.5   Marrying aid effectiveness and good practice

Summary

Reforms in public expenditure management and in donor practice, combined in the pursuit of poverty reduction strategies, offer some grounds for hope of increased effectiveness in pro-poor social sector expenditure programmes. However, the implementation of reforms will be a slow process and resource re-allocation to favour high impact programmes is likely to meet institutional and stakeholder resistance.

External assistance to help countries reach the social sector MDGs should be thought of as generally requiring combinations of three instruments: resource transfer (preferably by budget

support), national and sectoral dialogue and follow-up on strategies, implementation and performance, and support for capacity building and lesson-learning, particularly at the sector level.

Public expenditure and aid effectiveness: positive signs

The central argument of this paper is that, on the basis of the evidence, there are grounds for serious concern about the efficiency and effectiveness of public expenditure programmes in poor countries, and thus their ability to achieve the MDGs in education and health. The problems identified relate to demand side factors, resource allocation, governance and the influence of vested interests, financial management, performance management, motivation and technical efficiency, as well as to low levels of external financing. The evidence implies that close attention should be paid to all these factors to make public expenditure effective.

The effectiveness of aid in pursuing pro-poor development objectives in the social sectors depends on the effectiveness of public expenditure programmes. The MDGs are not attainable through donor-financed enclave programmes. Therefore, donors committed to the MDGs have the strongest of motives in making public expenditure effective.

The seeds of hope that the quality of public expenditure can and will improve have, however, been sown – thanks in part to donor activity and aid-supported reforms. From Section 4.2, 4.3 and 4.4 it is apparent that there is a positive confluence of recent initiatives which hold out the possibility of mitigating many of the causes of the past poor performance of public programmes. The most significant of these are:

- *The wide adoption of comprehensive, multi-year, sector strategies in the social sectors, supported by SWAps.* These strategies do not in themselves necessarily solve allocative and technical efficiency problems, but they provide a planning framework for doing so. The best of them are results-focused and provide for systematic and regular performance monitoring, and give emphasis to achieving pro-poor objectives. To this end they articulate the deployment of all resources available to sectors' authorities, both domestic and external. Sector strategies in education and health have provided valued inputs into medium term expenditure planning and results-oriented budgeting at the centre, and into national poverty reduction strategies. MTEFs and PRSPs, in turn, are helping to sustain the momentum of rolling forward sector strategies, and of reinforcing their pro-poor focus.
- *Public expenditure management reform, comprising performance budgeting, management and accountability, and higher standards of financial management and accountability.* With the growing number of CFAA diagnoses and a chorus of concern among donors about the need for higher standards of accountability for them to provide budget support poor countries are under more pressure than heretofore to eliminate egregious sources of waste and misappropriation and to ensure that appropriations for pro-poor programmes are used for intended purposes.

  On a separate but complementary track poor countries are starting to implement performance budgeting and management systems which will throw into sharper relief than hitherto, at the policy level, the actual achievements of public programmes and progress against targets. In the best cases there is a 'performance culture' in which agents in different institutions and at different levels are aware of broader sectoral and national objectives and of the contributions they are expected to make to them. In the best cases, also, indicators of past performance are used as bases of reflection on how to perform better in future. Most cases of best practice are to be found in the social sectors.

  The reforms needed to give wide effect to these initiatives, however, may occur only slowly and unevenly. Assistance in capacity building and lesson learning is required. Stronger domestic pressures for financial and performance accountability are needed to sustain the

momentum of reform.

- *The PRSP process has become entrenched in many low income countries.* The PRSP process comprises poverty monitoring, with data collection and the timely production of achievement indicators – generally including indicators of progress towards the MDGs. These indicators have a higher political profile now than previously, with beneficial effect on the priority accorded to pro-poor programmes. PRSPs, however, are too broad in their focus to be instruments in driving public expenditure management reforms in the social sectors. For this they depend on complementary initiatives at the sector level.

- *Donor practice is improving, and recent social sector SWAps are overcoming shortcomings observed in earlier ones.* Donors are now more aware that, to be more effective, their aid should be provided more flexibly, predictably and transparently, should as far as possible respect partner 'ownership' and initiative in activity planning, and should minimise 'transaction costs' borne by partners through untying and the harmonisation of procedures for disbursement and monitoring (cf. Box 11). SWAp financing by donors is now usually though pooled funding or budget support. There is growing use of partner country procurement arrangements and disbursement and reporting requirements are increasingly harmonised. The focus in joint monitoring is now less on accounting for funds spent, and more on the implementation of sector strategies and results achieved. Donors are contributing beneficially to the demand for performance accountability at the sector level.

Box 11: Catechism of good practice by donors

The Task Force on Donor Practices of the Development Assistance Committee (DAC) of the OECD drew up, in late 2002, a reference document on Harmonising Donor Practices for Effective Aid Delivery.[158]

The document elaborated the principles advanced in the DAC's Guidelines on Poverty Reduction of 2001. Donors should:

- support national development policies
- base their programmes and conditionality on national poverty reduction strategies
- build local institutional capacity for policy, implementation and accountability
- be coordinated, preferably under partner government leadership
- adopt flexible aid management practices consistent with sound budget and expenditure management by partner governments and which reduce transaction costs for partners
- use partner government systems – for budgeting, accounting, reporting, monitoring and procurement – where these are conducive to agreed purposes
- in the meanwhile, use simplified and harmonised procedures
- make their assistance predictable – using multi-year framework agreements
- be transparent about their actions – keeping partner governments fully informed of their actions

The recommendations on flexibility and use of partner systems imply preference for budget support and untied aid, though these could not be mentioned specifically because some DAC member countries do not agree.

Effectiveness: continuing concerns

Although the confluence of positive influences just mentioned gives grounds for hope that public expenditure in the social sectors, and the aid that supports it, will henceforth be more effective, this

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[158] One of the six good practice papers for the series 'A Framework of Donor Cooperaton' , OECD-DAC (2003), Chapter III.

outcome cannot be taken for granted. The encouraging trends should not necessarily lull donors into believing that all problems of public expenditure effectiveness in poor countries are in the process of resolution, and that the provision of fungible budget support on its own will suffice to help these countries achieve the MDG targets. The reforms involved are institutional and political as well as technical and procedural. They attack vested interests and established claimants on public budgets and will encounter resistance. They call for technical capacities and working relationships and practices that are at best uncommon and often alien. Many of the policy and management problems identified in the first two parts of this paper persist, and are likely for some time to resist the beneficial influences of reforms in formal procedures.

One symptomatic example of the ways in which vested interests can 'capture' current reforms and turn them to their own advantage is to be found in the identification of performance indicators in the context of the introduction of results-oriented budgeting and management practice. In Ghana sector-level work preparatory for the 1999 MTEF proceeded on a 'bottom-up' basis in which professional groups and divisions within spending ministries proposed the performance indicators that they considered important. The consequence, notably in the Ministry of Health, was an unmanageable profusion of indicators whose raison d'être was often to enable professional stakeholders to maintain or increase the shares of their respective departments or specialties in budget allocations.[159] Far from clarifying a previously well-regarded health sector strategy in Ghana the advent of results-oriented medium term budgeting and the national poverty reduction strategy seem to have plunged strategic planning into some confusion.[160]

The case of the failure of *prima facie* well conceived health sector reform in Malawi in the face of institutional resistance is illustrated in Section 3.6 above.

Furthermore, in poor countries domestic pressure for accountability in financial stewardship and in public service delivery is often weak, inarticulate, unstructured and liable to political capture.[161] Financial and performance audit and parliamentary scrutiny functions are under-resourced and unable in most countries to bring effective external pressure for performance improvement on governments. Donors remain the most focused and articulate source of external scrutiny of governments' progress in implementing poverty reduction strategies and raising the cost-effectiveness of expenditure programmes.[162]

These experiences point to the need for donors to maintain continuing vigilance at the sector level about:

- allocative efficiency: the poverty priority and relevance of ostensible strategies and expenditure plans,
- technical efficiency: the cost effectiveness of the production of pro-poor services in public sector facilities, and
- institutional, professional and cultural resistance to reform,

as well giving every encouragement at the national level to performance budgeting, financial accountability and other reforms in public expenditure management.

Reaching the MDGs calls for a mixed strategy

These considerations lead to the conclusion that donors should pursue a mixed strategy in countries at risk of not meeting the MDG target. The objectives of this strategy would be threefold:

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[159] Foster & Zormelo (2002)
[160] Oduro (2003)
[161] Montes (2003) shows how Bolivia's public service structures for informing and consulting civil society have come to be dominated by political parties at all but the local level.
[162] Roberts (2003)

- to transfer resources to poor countries for use in support of the aims of their poverty reduction strategies,
- to help, primarily at the sector level, to build (and even for a time to provide) analytical and problem solving capacity, and to fortify it with cross-fertilisation, and
- to exert pressure continuing for reform, accountability and measures of performance improvement.

These objectives could be pursued henceforth, as hitherto, through the single instrument of the SWAp. However, SWAps have negative side-effects as extra-budgetary financing frustrates fiscal consolidation (cf. Box 11) It is therefore often better to pursue the three objectives using several instruments, viz.

- budget support for resource transfer to the national budget, on the basis of long-term, trusting, partnerships,
- policy dialogue in poverty reduction strategy and assistance strategy fora about the priority due to pro-poor social sector programmes in public expenditure allocations, with due recognition of the needs of evolving programmes of action,
- sector-level dialogue on sector strategies and their implementation, and on the coherence of allocations and actions with strategic options and agreed objectives, and
- capacity building support at both national and sector levels for performance assessment and performance management.

The mixed strategy requires that donors should be able to maintain a close relationship with country authorities at the sector level, while using support for the national budget as the main vehicle for financial transfers. This need not create presentational problems, as seen from experience with education in Uganda where the sector authorities welcome the presence of budget support donors in the monitoring of sector performance (cf. Box 8).

Bibliography

Abadzi H. (2002) 'India: education sector development in the 1990s: a country assistance evaluation', World Bank (OED)

Al Samarrai S., Bennell P. and Colclough C. (1998) 'An Evaluation of British Aid to Primary Schooling 1988-1998', DFID Evaluation Department

Alderman H, Lavy V (1996) 'household Responses to Public Health Services: cost and quality trade-offs', World Bank Research Observer, February 1996

Appleton S. (2001) 'Education, incomes and poverty in Uganda in the 1990s', University of Nottingham working paper, December 2001

Bedi A.S. & Marshall J.H. (2002) 'Primary School attendance in Honduras', Journal of Development Economics vol.69

Bellows E, Dowswell S (2002) 'Malawi's HIV/AIDS Mini-SWAp – a case study of risk management and capacity-building under the programme approach', (unpublished) CIDA 2002

Bennell P. (1996) 'Rates of return to education: does the conventional pattern prevail in sub-Saharan Africa?' World Development, vol.24

Bennell P. (2002) ''Hitting the target: doubling primary school enrolments in sub-Saharan Africa by 2015', World Development vol. 30(7)

Bidani B, Ravallion M (1997) 'Decomposing Social Indicators using Distributional Data', Journal of Econometrics (77)

Bigsten A, Collier P, Dercon S, Fafchamps M, Gunning JW, Isaksson A, Oduro A, Oostendorp R, Patillo C, Soderbom M, Teal F, Zaufack A (1998): 'Rates of return on physical and human capital in Africa's manufacturing sector', CSAE working paper WPS/98/12

Birdsall N., Ross D. and Sabot R. (1995) Inequality and growth reconsidered: lessons from East Asia', World Bank Economic Review Vol. 19(3)

Bhat PNM (2002) 'Returning a favour: reciprocity between female education and fertility in India', World Development, Vol. 30, No. 10

Brown A (2001) 'Integrating Vertical Health Programmes into Sector-wide Approaches: experiences and lessons', Swiss Agency for Development Cooperation, July 2001

Canagarajah S, Ye X (2001) 'Public Health and Education Spending in Ghana in 1992-98: Issues of Equity and Efficiency', World Bank Policy Research Working Paper No. 2579

Cassels A & Watson J (2001) 'ODA/DFID Support to Health Sector Management: a Synthesis Study', DFID Evaluation Report EV594, January 2001

Castro-Leal F, Dayton J, Demery L, Mehra K (2000) 'Public spending on health in Africa: do the poor benefit?', Bulletin of the World Health Organisation, 2000 (78) 1

Colclough C. and Lewin K. (1993) 'Educating all the children: strategies for primary schooling in the South'

Colclough C. and Al-Samarrai S. (2000) 'Achieving schooling for all: expenditure on education in sub-Saharan Africa and South Asia', World Development vol. 28(11)

Delmonica E, Santosh M, Vandemoortele J (2001)'Is EFA Affordable? Estimating the global minimum cost of 'Education for All'', Innocenti Working Paper No. 87, UNICEF-Innocenti Research Centre

Demery L (2000) 'Benefit incidence: a practitioner's guide', World Bank (Africa Region, Poverty and Social Development Group)

Dessus S. (2001) 'Human capital and growth: the recovered role of educational systems', World Bank

DFID (1999) 'Better Health for Poor People – International Development Target Strategy Paper', DFID November 1999

DFID (2001) 'The challenge of universal primary education:', in the booklet series 'Strategies for achieving the international development targets'

Dom C, Ensor T, Suy, LB (2002) 'Results-oriented Public Expenditure Management in Cambodia', Working Paper 201, Marchy.

Easterly, W (2001) 'The Elusive Quest for Growth', MIT

Filmer D, Hammer J, Pritchett L (1998) 'Health Policy in Poor Countries: weak links in the chain?' World Bank Policy Research Working Paper No. 1874

Filmer D, Hammer J, Pritchett L (2002) 'Weak Links in the Chain II: a prescription for health policy in poor countries', World Bank Research Observer, Spring 2002

Filmer D, Pritchett L (1997) 'Child Mortality and Public Spending on Health: how much does money matter?' World Bank Policy Research Working Paper No. 1864

Filmer D., & Pritchett L. (1999a) Educational enrolment and attainment in India: household wealth, gender, village and state effects', Journal of Educational Planning and Administration Vol. 13(2)

Filmer D., & Pritchett L. (1999b) 'The effect of household wealth on educational attainment: evidence from 35 countries', Population and Development Review vol. 25(1)

Foster M, Brown A, Conway T (2000) 'Sector-wide Approaches for Health Development – a Review of Experience', WHO 2000

Gerler P, Molyneaux J (1997) 'Experimental Evidence on the Effects of Raising User Fees for Publicly Delivered Health Care Services: Utilisation, Health Outcomes, and Private Provider Response', RAND

Greaney V. and Kellaghan T (1996) 'Monitoring the Learning Outcomes of Education Systems', World Bank series 'Direction in Development'

Gupta S., Verhoeven M., Tiongson E. (1999) 'Does Higher Government Spending buy Better Results in Education and Health Care?', IMF Working Paper WP/99/21

Hanushek E.A. (1995) 'Interpreting recent research on schooling in developing countries', World Bank Research Observer, vol 10(2)

Lopez R., Thomas V., Wang Y. (1998) 'Addressing the education puzzle: the distribution of education and economic reform', World Bank Policy Research Working Paper No. 2031

Michaelowa K (2000) 'Dépenses d'éducation, qualité de l'éducation et pauvreté: l'exemple de cinq pays de l'Afrique francophone', Document technique n° 157, OECD Development Centre

Mingat A. and Tan J-P. (1985) 'Subsidisation of higher education versus expansion of primary enrolments: what can a shift of resources achieve in sub-Saharan Africa?, International Journal of Educational Development, vol.5(4)

Mingat A. and Tan J-P. (1998) 'The Mechanics of Progress in Education: evidence from cross country data', World Bank Policy Research Working Paper No. 2015

Mosley P, Hudson J (1995) 'Effectiveness of Aid in the main recipient countries of UK bilateral aid', Report for the Overseas Development Administration

Moulton J, Mundy K, Welmond M, Williams J (2001) 'Paradigm Lost? the implementation of basic education reforms in sub-Saharan Africa', evaluation study for USAID

Montes, C (2003) 'Results-based Public Management in Bolivia', ODI-CAPE Working Paper 202,

Musgrove P (1996) 'Public and Private Roles in Health – Theory and Financing Patterns', World Bank Discussion Paper N° 339, World Bank 1996

Oduro K (2003) 'Results-oriented Public Expenditure Management: Case Study of Ghana', ODI-CAPE Working Paper 208

OECD/DAC (2002) 'Development Cooperation – 2001 Report'

OECD/DAC (2003) 'Development Cooperation – 2002 Report'

OECD Development Centre (2002) 'Education and Health Expenditure and Poverty Reduction in East Africa: Madagascar and Tanzania' (ed. C Morrisson)

Pritchett L. (1996) 'Where has all the education gone?', World Bank Policy Research Working Paper No. 1581

Psacharopoulos G. (1993) 'Returns to investment in education', World Bank Policy Research Working Paper No 1067

Psacharopoulos G. (1994) 'Returns to Investment in Education: a global update', World Development, vol. 22(9)

Psacharopoulos G. and Patrinos H.A. (2002) 'Returns on Investment in Education: a further update', World Bank Policy Research Working Paper No. 2881, September 2002

Raffinot M, Muguet J, Touré Alhousseynou (2003) 'Results-oriented Public Expenditure Management: Case Study of Mali', ODI-CAPE Working Paper 206,

Reinikka R. and Svensson J. (2001) ' Explaining Leakage of Public Funds', World Bank Policy Research Paper No. 2709

Riddell A. (2001) 'Sector wide approaches to education: implications for donor agencies and issues arising from case studies of Zambia and Mozambique' (personal communication)

Riddell A. (2002) 'World Bank and Like-Minded Bilateral Agencies' Cooperation in the Education Sector', (personal communication)

Roberts J. (2003) 'Managing Public Expenditure for Development Results and Poverty Reduction', ODI-CAPE Working Paper 203

Rønsholt F, Mushi R, Shallanda B, Assey P (2003) 'Results-oriented Expenditure Management: Country Study – Tanzania', ODI-CAPE Working Paper 204

Schultz T.P. (1999) 'Health an Schooling Investments in Africa', Journal of Economic Perspectives, vol 13(3)

Tan J-P., Soucat A. and Mingat A. (2001) 'Enhancing Human Development in the HIPC/PRSP context', Africa Region departmental working paper in the series Progress in the Africa Region in 2000

Thomas V. *et al* (2000) 'The Quality of Growth', World Bank

Thomas V., Wang Y., Fan X. (2000) Measuring educational inequality: Gini coefficients of education', World Bank Policy Research Working Paper No. 2525

UNESCO (2001) 'Monitoring Report on Education for All'

UNESCO (2002a) ' Education for All: an international strategy to operationlsie the Dakar Framework for Action on EFA'

UNESCO (2002b) 'EFA Global Monitoring Report, 2002'

Wang L (2002)'Health Outcomes in Low Income Countries and Policy Implications: empirical findings from Demographic and Health Surveys', World Bank Policy Research Working Paper No. 2831

Williamson T (2003) 'Targets and Results in Public Sector Management: Uganda Case Study', ODI-CAPE Working Paper 205, March.

WHO (2000) 'The World Health Report 2000 – Health Systems: Improving Performance', WHO 2000.

WHO (2002) Report of the Commission on Macroeconomics and Health

World Bank (1999) 'Education Sector Strategy'

World Bank (2002a) 'Achieving EFA by 2015: simulation results for 47 countries', Africa RegionEducation Department working paper

World Bank (2002b) 'EFA : the lessons of experience: the impact of policy in 20 case studies'

World Bank (2002c) 'Modelling the inpact of HIV/AIDS on education systems: a training manual'

World Bank (2002d) 'Project Appraisal Document – Nigeria Universal Basic Education Project', Report No. 23934 – UNI, August 2002

World Bank (2002e) 'Education and Health in sub-Saharan Africa: a review of sector-wide approaches', World Bank Africa Region (Human Development)

World Bank (2002f) 'Education for Dynamic Economies: Action Plan to Accelerate Progress towards Education for All', Development Committee document DC2002-0005/Rev1

World Bank/IMF (2002) 'Education for Dynamic Economies: action plan to accelerate progress towards Education for All', Development Committee document 2002-0005 Rev 1

Annex 1: Primary Schooling Indicators 1998-2000

	Population in 2000 (millions)	Primy age cohort 2000 (millions)	Primy cohort/ population	GER 1998/9/0	NER 1998/9/0	Enrol't rate in Grade 1	Primary completion rate	Percentage of primary repeaters	Pupil/ teacher ratios	Pri. Educ. Expre/GNI 1998/9/0	Total Educ. Expre/GNI 1998/9/0	Pri. Educ. unit cost % of PCY
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
South Asia												
India	1008.9	135.46	13.4%	101	..	130	76%	3.9%	43	1.1%	2.9%	9.4%
Bangladesh	137.4	17.22	12.5%	106	78	135	70%	6.5%	59	1.2%	2.4%	8.2%
Pakistan	1412.6	25.46	1.8%	96	..	..	..	..	55	1.3%	..	8.2%
Sri Lanka	18.9	1.94	10.2%	72	..	105	100%	5.1%	..	0.5%	3.1%	4.6%
Nepal	23.0	3.63	15.7%	122	70	130	57%	..	38	1.4%	2.9%	8.8%
South-East Asia												
Indonesia	212.1	25.74	12.1%	108	91	110	91%	5.9%	22	1.5%	2.6%	17.9%
Malaysia	22.2	3.07	13.8%	94	94	96	90%	..	18	1.5%	6.0%	11.6%
Myanmar	47.7	4.93	10.3%	91	82	112	..	0.5%	33	0.4%	0.5%	3.6%
Philippines	75.7	10.91	14.4%	113	101	134	92%	1.9%	35	1.9%	4.0%	11.3%
Thailand	62.8	6.52	10.4%	91	80	104	84%	3.5%	21	1.7%	5.2%	22.4%
Vietnam	78.1	11.14	14.3%	108	96	108	..	3.3%	30	1.0%	..	7.3%
West Africa												
Nigeria	113.9	18.29	16.1%	70	..	..	..	..	..	..	0.7%	..
Ghana	19.3	3.36	17.4%	78	50	90	67%	4.2%	30 ..		4.2%	..
Senegal	9.4	1.62	17.2%	73	62	90	42%	14.0%	51	1.3%	3.5%	..
Mali	11.4	1.95	17.2%	55	43	55	23%	18.2%	62	1.9%	3.0%	20.8%
Côte d'Ivoire	16.0	2.46	15.4%	77	58	71	41%	23.7%	43	4.9%	6.4%	..
East Africa												
Ethiopia	62.9	10.89	17.3%	71	31	99	24%	9.6%	..	..	4.3%	..
Kenya	30.7	5.09	16.6%	91		113	63%	..	29	3.6%	6.8%	17.9%
Sudan	31.1	4.45	14.3%	55	45	54	46%	11.3%	27	1.8%	..	17.7%
Tanzania	35.1	5.80	16.5%	63	47	70	60%	3.2%	40	1.5%	2.1%	..
Uganda	23.3	3.99	17.1%	141	109	216	81%	9.7%	59	2.0%	2.3%	6.6%
Central Africa												
DRC	50.9	9.41	18.5%	47	32	48	..	15.5%	26	..	..	..
North Africa												
Algeria	30.3	4.47	14.7%	114	97	103	91%	11.9%	28	3.4%	..	13.8%
Egypt	67.9	9.59	14.1%	100	92	96	99%	5.5%	23	..	4.1%	..
Morocco	29.9	3.51	11.8%	85	80	107	55%	12.4%	29	2.4%	5.2%	20.3%
Tunisia	9.5	1.17	12.4%	116	96	99	91%	16.5%	24	2.4%	7.8%	15.4%
Southern Africa												
South Africa	43.3	5.61	13.0%	119	95	127	98%	9.8%	35	3.3%	5.9%	17.9%
Mozambique	18.3	3.33	18.2%	76	41	102	36%	23.7%	47	..	3.1%	..
Zambia	10.4	1.64	15.8%	101	73	81	73%	6.1%	41	1.4%	2.5%	6.9%
Zimbabwe	12.6	1.94	15.4%	97	80	103	113%	..	37	..	11.1%	..
Latin America												
Brazil	170.4	19.63	11.5%	166	97	129	..	23.0%	27	1.3%	5.2%	11.0%
Bolivia	8.3	1.29	15.5%	114	97	127	97%	6.6%	25	2.3%	5.8%	12.0%
Chile	15.2	1.75	11.5%	103	88	103	92%	2.39	29	1.3%	4.3%	11.8%
Colombia	42.1	5.53	13.1%	113	88	134	85%	5.2%	24	1.1%	3.8%	12.2%
Guatemala	11.4	1.92	16.8%	94	78	126	..	14.7%	36	0.8%	1.6%	5.0%
Peru	25.7	3.42	13.3%	126	103	128	90%	10.2%	25	1.2%	3.5%	6.9%
Totals	3631.6	330.89	9.1%									

Sources: Cols 1-3 UN Population Division: World Population Prospects; Cols 4-12 UNESCO Institute for Statistics, EdStats Country Profiles and Summary Education Profiles

Annex 2: The Challenge of UPE in 2015

	Population 2015 (000)	Primary cohort 2015 (000)	Prim'y age popn share	Prospective GER a/	Prospective GER b/
	(1)	(2)	(3)	(4)	(5)
South Asia					
India	1224936	134743	11.0%	145	124
Bangladesh	183824	24081	13.1%	122	101
Pakistan	204799	30515	14.9%	107	116
Sri Lanka	21527	1959	9.1%	176	81
South-East Asia					
Indonesia	250959	24343	9.7%	165	135
Philippines	96157	11635	12.1%	132	135
Vietnam	94794	9195	9.7%	165	
Myanmar	55327	5588	10.1%	158	93
All Asia	4356060	435606	10.0%	160	
West Africa					
Nigeria	164950	26557	16.1%	99	
Ghana	26458	3757	14.2%	113	96
Senegal	13494	2105	15.6%	103	81
Mali	17695	3079	17.4%	92	54
Côte d'Ivoire	21563	3256	15.1%	106	78
East Africa					
Ethiopia	89876	15279	17.0%	94	72
Tanzania	49465	7766	15.7%	102	66
Sudan	42450	5943	14.0%	114	
Kenya	39961	6114	15.3%	105	98
Uganda	38763	7210	18.6%	86	130
Central Africa					
DRC	84077	15302	18.2%	88	
North Africa					
Egypt	83657	9035	10.8%	148	131
Morocco	37687	4334	11.5%	139	
Algeria	38009	4105	10.8%	148	
Southern Africa					
South Africa	44702	5543	12.4%	129	124
Mozambique	23538	3766	16.0%	100	
Zambia	14763	2495	16.9%	95	
Zimbabwe	16323	2579	15.8%	101	
All Africa	1112578	171337	15.4%	104	
Latin America					
Brazil	200948	19492	9.7%	165	71
Bolivia	11194	1500	13.4%	119	160
Peru	31738	3396	10.7%	150	98
Colombia	52398	5659	10.8%	148	
All Latin America & Caribbean	629181	66064	10.5%	152	

Source: UN Population Division World Population Prospects

Notes: a/ Calculated assuming that education expenditure will be 4% of GNI, of which 40% will be devoted to primary education, and that costs per pupil will uniformly be 10% of per capita GNI.

b/ Calculated assuming no change in the expenditure share of primary education and in costs per pupil from current levels (Annex 1)

Annex 3: Factors determining Gross Enrolment and Primary Completion Rates: statistical analysis

This annex is an analysis of the recently created EdStats country data base of educational indicators now posted on the World Bank's website. The EdStats data base has been compiled as a tool for monitoring progress towards the MDG targets for education.

The data has been exploited to throw light on the relative importance of supply-side and demand-side factors in explaining the level of developing and transition countries' GERs and PCRs, and in particular to establish the importance of public expenditure on primary education compared with other factors.

The factors considered on the demand side are:

a. Per capita income in 1998 (in current PPP $) – a proxy indicator of household poverty,
b. Real per capita GDP growth 1990-95 – a possible indicator of households' expectations of their children's income earning potential,
c. Adult literacy – an indicator of the existing educational status of the population, and of parents' appreciation of the value of education.

On the supply side the factors considered are:

a. Expenditure on primary education as a percentage of GNI – an indicator of the volume of resources flowing into primary education,
b. unit costs – expenditure per primary school pupil as a percentage of per capita income,
c. The primary school pupil/teacher ratio – an indicator of efficiency in the supply of educational services.

The regression equations used are linear of the form:

DEPENDENT VARIABLE = Intercept + a1 ADULT LITERACY + a2 PERCAPITA GNI + a3 PERCAPITA GDP GROWTH + a4 PTR + a5 PRISCHOOL EXPENDITURE/GNP + a4 UNIT COST

GER

Cross country regression equations of the GER on these variables (Table A3.1), using the most recent available data, mostly from the later 1990s, shows that the most consistent and statistically significant factor explaining enrolment rates is *adult literacy*. In all equations in which this variable is present its coefficient is significant at the 1% level. On its own it accounts for 31% of the inter-country variance in GERs in the sample. An increase in the literacy rate of 10 percentage points raises the GER by about 6 points.

Per capita income in international $ also has a generally significant and positive effect, but a weak one. Taken alone it explains only 22% of inter-country variation in enrolment rates. This represents a lesser influence than revealed in other research. It takes an increase of $1000 in PPP terms to increase the GER by 2-3 points. *Per capita GDP growth* has no explanatory power: its coefficients are non-significant and highly variable from one specification to another.

Public expenditure on primary education as a share of GNI has also no explanatory power. The coefficients on this variable are not statistically different from zero, and they vary greatly from one equation to another.

In contrast the *primary school unit costs* variable is highly significant, both on its own and in combination with other independent variables. Equations 8 and 9 show that a 10 point reduction in the ratio of unit costs to per capita income is associated with a 9-10 point rise in the GER

Table A3. 1: Factors affecting Gross Enrolment Rates

Dependent variable: Gross Enrolment Rates									
Equations									
Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Intercept	96.1	81.08	57.82	55.24	83.37	35.25	32.35	105.42	74.9
Adult Literacy				0.563 (5.737)[a]	0.446 (3.94)[a]	0.636 (4.22)[a]	0.614 (3.555)[a]		0.488 (3.489)[a]
Per capita income (1998 PPP $)		0.00428 (23.6)[b]	0.00182 (1.997)[c]		0.00372 (4.2)[b]	0.0015 (1.50)	0.00163 (1.831)[c]		
Per capita GDP growth 1990-95			0.029 (0.098)		0.00561 (0.0177)	0.465 (1.537)			
Pupil/teacher ratio						0.261 (1.344)	0.293 (1.346)		-0.099 (-0.475)
Primary education expenditure/ GNI	0.186 (0.084)		-0.289 (-0.143)				1.732 (0.909)		
Expenditure per primary pupil/ per capita income								-0.98 (-2.82)[a]	-0.896 (-3.125)[a]
R^2	0.0001	0.22	0.205	0.31	0.346	0.384	0.377	0.107	0.448
Number of Observations	64	88	64	75	75	75	64	68	68

Notes:
a.   Significant at the 1% level
b.   Significant at the 5% level
c.   Significant at the 10% level
d.   't' statistics are indicated in parentheses

The pupil/teacher ratio has a generally positive coefficient indicating that an increase in the PTR of 10 should raise the GER by 2-3 points. The coefficients on the PTR in equations 6 and 7, however, are not significant at the 10% level. (The negative coefficient in equation 9 is not representative because of collinearity between the PTR and unit costs). The great majority of countries in the data set have PTRs well below the generally recommended level of 40.

These equations show that 38% the inter-country variance in GERs is explainable without reference to public expenditure on primary education (equation 6). This rises to 45% when the main demand side variable (adult literacy) and the main supply side variable (unit costs) are both used (equation

9). They also show that demand side factors (literacy, income) exert a stronger and more consistent influence on enrolment rates that (measurable) factors on the supply side.

PCR

Information on primary completion rates is not available for every year in the EdStats data base, and thus in many cases is not shown for the years to which other data used in this analysis pertains. Estimates have been constructed from information on enrolments in the final years of primary education reported by countries to UNESCO.

Cross country regressions using data from the same sources to explain the (latest available reported estimates of) primary completion rates yield a better fit than for GERs. The results are summarised in Table A3.2. The independent variables used explain, in combination, around 70% of the inter-country variance in PCRs (equations 6 and 8). The equations demonstrate the preponderance of demand side influences – adult literacy and per capita income – in explaining completion, and the inconsistent and insignificant effect of those on the supply side such as expenditure, unit costs and the PTR. This conclusion has major implications for perspectives for attaining the MDG target.

Adult literacy again exerts a powerful, statistically highly significant, influence on PCRs. Taken alone it explains 61% of the inter-country variance in PCRs – nearly double the 31% of GER variance explained by this variable. A 10 point increase in literacy is associated with a rise in primary completion of 6-9 points.

Per capita income exerts a more consistently significant influence on PCRs than on GERs, though taken alone, it only explains half as much in the overall variance as adult literacy.

On the supply side, and in contrast to the GER case, it is evident that *unit costs* exercise no significant effect effect. *Expenditure on primary education* as a share of GNI, also has no significant or consistent influence on PCRs.

The* pupil teacher ratio *variable exerts a negative influence on PCRs – the reverse of the sign on this variable in the GER equations. The size of the coefficient and its statistical significance varies between specifications, meaning that it is unsafe to draw conclusions about its magnitude of its effect. The indication is, however, that class sizes lower than currently found might be helpful in raising completion rates and thus in bringing countries closer to the MDG target.

Table A3. 2: Factors affecting Primary Completion Rates

Dependent variable: Primary Completion Rates								
Equations								
Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Intercept	6.312	71.126	53.513	10.263	43.69	23.44	81.76	3.73
Adult Literacy	0.939 (10.767)[a]			0.766 (7.753)[a]	0.546 (4.448)[a]	0.678 (4.732)[a]		0.954 (11.802)[a]
Per capita income (1998 PPP $)			0.00614 (6.674)[a]	0.00261 (3.176)[a]	0.00218 (2.718)[a]	0.00186 (2.418)[b]		
Pupil/teacher ratio					-0.468 (-2.802)[a]	-0.282 (-1.525)		
Primary education expenditure/ GNI	0.186 (0.084)	1.82 (0.632)				2.473 (1.512)		
Expenditure per primary pupil/ per capita income							-0.45 (0.97)	-0.208 (-0.793)
R^2	0.61	0.0063	0.376	0.658	0.691	0.724	0.015	0.696
Number of Observations	76	65	76	76	76	65	65	65

Notes:
a.   Significant at the 1% level
b.   Significant at the 5% level
c.   Significant at the 10% level
d.   't' statistics are indicated in parentheses

Annex 4: A model of health outcome determination

Production of health outcomes

Health outcomes (HO) – such as infant and child mortality, longevity and the prevalence of disease – for individuals are a function of personal and environmental circumstances (PC and EC) and of individuals' use of health care (HC).

(1) $\qquad HO_i = f \{ PC_i, EC_I, HC_I \}$

Personal (and household) circumstances include income (y), asset holdings and other forms of insurance (A), knowledge of good nutrition and health maintenance practice (k), and genetic pre-disposition to illness. Girls' education (e) contributed powerfully to the application of relevant knowledge in the household. Genetic factors are mostly unobservable, leaving income, assets/insurance and knowledge as the main measurable factors.

(2) $\qquad PC_i = f \{ y_i, A_i, k_I(e), \}$

Environmental circumstances include climate (CLIM), access to clean water and sanitation (WAT) and the prevalence of and exposure to communicable diseases (DIS), many of which are susceptible to public and community policy interventions (PE_{env}) (eg pollution control, provision of water, drainage and solid waste removal, and control of communicable diseases and their vectors).

(3) $\qquad EC_i = f \{ CLIM, WAT(PE_{env}), DIS(..)\}$

The prevalence of communicable disease is controlled by public expenditure to eliminate the vectors of disease (PE_{vec}) and to vaccinate the population (PE_{vac}). Vector control and immunisation both have strong public goods characteristics. They are neither 'rival' (consumption by one person does not prevent consumption by another) nor can potential beneficiaries be excluded from their benefits. Action to prevent or cure communicable disease also has significant positive external benefits in reducing the prevalence of disease, and thus in improving health outcomes.

(4) $\qquad DIS = f \{ PE_{vec}, PE_{vac}, PE_{env}, HO\}$

Supply and demand for health care

The use made of health care facilities and supplies depends on supply and demand. The quantity and quality of supply of health care by the private sector depends on average local household income (Y) (given that private practitioners offer services tailored to the purchasing power of their potential patients), on prices paid for medical attention (p_{pvt}) and on providers' qualifications (q_{pvt}).

(5) $\qquad HC^s_{pvt} = f \{ Y, p, q_{pvt} \}$

Supply by the public sector depends on the amount of public expenditure devoted to providing health care, its geographical distribution and distribution between different income groups and different kinds of medical intervention, and on the cost-effectiveness and quality of provision.

$$HC^s_{pub} = f \{PE_{hc}, d, e, q_{pub} \}$$

Where *d* is a geographic distribution vector, *e* an index of cost-effectiveness, and q_{pub} an index of quality.

In many circumstances private and public supplies of health care services are close substitutes for each other. Traditional healers and local pharmacists are used by poor people in places where public primary health care centres are under-supplied or under-staffed, just as private hospitals offer sophisticated treatments which are not available in public hospitals.

Individual or household demand for health care is a function of personal/household incomes and assets/insurance, of the prices of and other costs associated with receiving medical attention and supplies from the private and public sectors, of knowledge about health maintenance, and of household characteristics (eg age structure) (z).

(8) $$HC_i^d = f \{ y_i, A_i, p_{pvt}, p_{pub}, k_i, z_i \}$$

If public and private health care are close substitutes movements in the relative price of the two sources of supply (or more accurately, their cost to users, including the opportunity cost of time, transport costs etc) will cause customers to shift significantly between the two. Increases in public supply will not necessarily give rise to higher consumption of health care. If on the other hand there are no close private sector substitutes for publicly provided health care facilities, increases in provision by the public sector are likely to give rise to additional use, provided that the services are accessible and appropriate to patients' felt needs. For non-urgent, routine, low-cost, interventions the private sector is more likely to offer a service, giving rise to high elasticity of substitution with public supply. The public-private elasticity of substitution is likely to be low in the case of emergency, unusual and higher-cost forms of care and treatment.

Public expenditure budget

Public expenditure on health and other relevant services is subject to a budget limit or constraint:

(9) $$PE = PE_{hc} + PE_{vec} + PE_{vac} + PE_{env}$$

Public policy objective

The public sector's policy objective in the health sector can be schematically represented as maximising positive health outcomes subject to this budget constraint, and to behavioural and uncontrollable variables:

(10) $$max : HO \{ PC_i, EC_i, HC_i \}$$

subject to :

$$PE = \overline{PE} \qquad \text{(budget constraint)}$$

$$\overline{Y}, \overline{y}, \overline{CLIM}, \overline{A}, \overline{k} \qquad \text{(predetermined and uncontrollable)}$$

$$HC_i^d = f \{ y_i, A_i, p_{pvt}, p_{pub}, k_i, z_i\} \qquad \text{(behavioural)} \qquad HC_{pvt}^s = f \{ Y, p, q_{pvt} \}$$

$$HC_{pub}^s = f \{PE_{hc}, d, e, q_{pub} \}$$

The first order conditions for welfare maximisation are:

(11) $$\frac{dHO}{dPE} = \frac{\partial HO}{\partial PC} \cdot \frac{\partial PC}{\partial PE} + \frac{\partial HO}{\partial EC} \cdot \frac{\partial EC}{\partial PE} + \frac{\partial HO}{\partial HC_{pub}^s} \cdot \frac{\partial HC_{pub}^s}{\partial PE} +$$

$$\frac{\partial HO}{\partial HC_{pvt}^s} \cdot \frac{\partial HC_{pvt}^s}{\partial HC_{pub}^s} \cdot \frac{\partial HC_{pub}^s}{\partial PE}$$

In other words, the effect of public expenditure on health outcomes is always indirect. It may act positively through its effect on:

- households' personal characteristics, eg education, knowledge about health and hygiene,
- households' environmental circumstances – water, drainage, infestation …
- the supply of health services by the public sector.

It may also act negatively if the provision of health services in the public sector causes a contraction in the supply of health services by the private sector.